From:	McKane, Patricia (DCH)
To:	Wells, Eden (DCH)
Subject:	Blank subject
Date:	Wednesday, September 30, 2015 4:21:26 PM

There ae 6 pages, use what you need.
Let me know if you need anything additional.
On my way up.

From:	Mona Hanna-Attisha
To:	Wells, Eden (DCH)
Subject:	FW: Discrepencies
Date:	Tuesday, September 29, 2015 1:07:54 PM
Attachments:	image001.jpg Flint Testing and EBLLs_updated 092315_with notes (2).pdf Flint Testing and EBLLs (4).pdf STATELEADDATA with original and updated numbers.xlsx

---

Dr Wells, in regards to the discrepancy noted in state data. Attached are two PDF files that were sent regarding the state lead numbers.

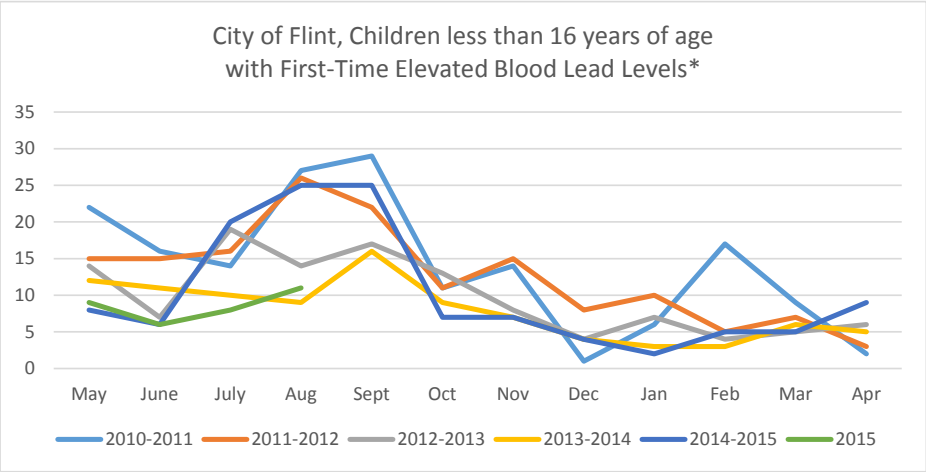
The original PDF was sent on 9/15/15 to Dr Reynolds from Bob Scott from MDHHS's Childhood Lead Poisoning Prevention Program and the updated PDF was sent to me from Bob Scott last Friday.

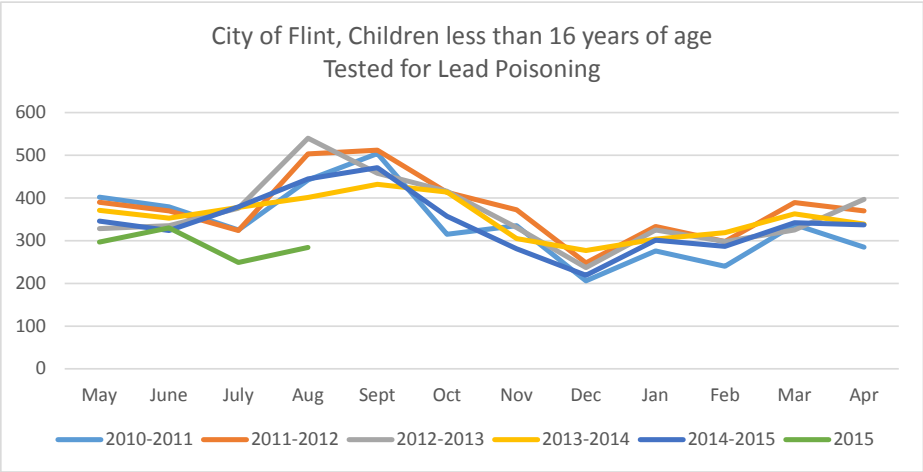
The attached excel database (that I created) has two tabs that include the original and updated numbers. Yellow highlights are all the numbers that changed. It is very strange how many of the numbers have changed. I'm not sure if the updated numbers tried to refine the location to Flint proper???

The analyses of the data does not change very much (when you look at total annual EBL%) - there has been a statistically significant increase in EBL% since water change (2014-2015) where every year prior there has been a decrease (as has happened nationally). And this does not even include the fact that the data is not scientific – wrong age range and missing lots of EBLS by using first time lead analysis rather than highest lead.

Just thought the discrepancy was odd.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com



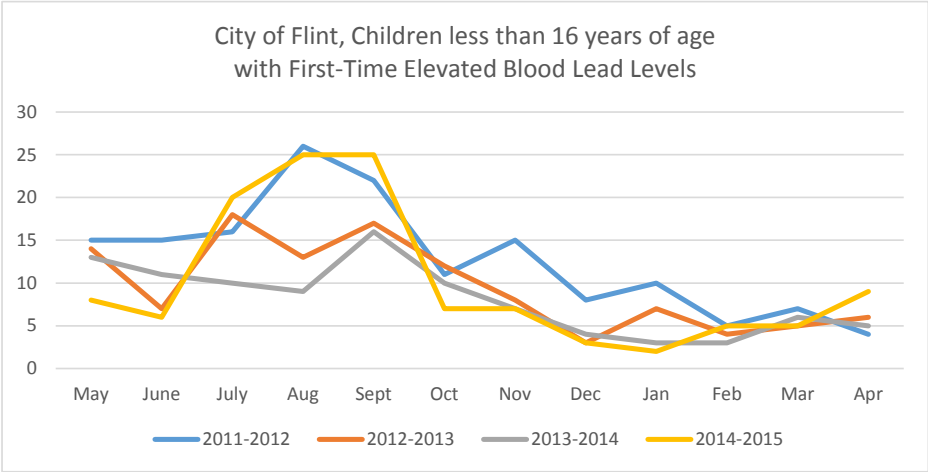


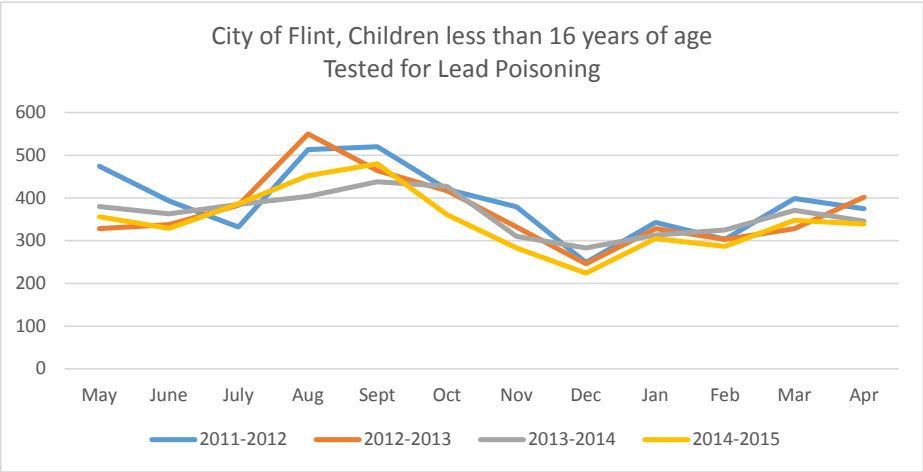
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3
2012-2013	14	7	19	14	17	13	8	4	7	4	5	6
2013-2014	12	11	10	9	16	9	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	4	2	5	5	9
2015	9	6	8	11								

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	402	379	325	442	504	315	335	206	276	240	338	285
2011-2012	390	370	324	503	512	413	372	248	333	298	389	370
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337
2015	297	330	249	284								

*Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Less than 16 years of age at time of test
Includes only first-time blood lead levels >= 5 ug/dL
Includes sample type of venous, capillary or unknown

September 23, 2015
Source: MDHHS Data Warehouse, Lead Specimen table





	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2011-2012	15	15	16	26	22	11	15	8	10	5	7	4
2012-2013	14	7	18	13	17	12	8	3	7	4	5	6
2013-2014	13	11	10	9	16	10	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	3	2	5	5	9

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2011-2012	474	393	332	513	520	420	379	249	343	303	399	375
2012-2013	328	338	383	550	464	417	332	246	328	303	328	402
2013-2014	380	363	385	404	438	427	310	283	313	325	371	346
2014-2015	356	329	386	452	480	361	283	224	305	287	348	339

NUMBER OF EBL

	May	June	July	August	September	October	November	December	January	February	March	April	Total
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2	**168**
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3	**153**
2012-2013	14	7	19	14	17	13	8	4	7	4	5	6	**118**
2013-2014	12	11	10	9	16	9	7	4	3	3	6	5	**95**
2014-2015	8	6	20	25	25	7	7	4	2	5	5	9	**123**
2015	9	6	8	11									

TOTAL KIDS TESTED

	May	June	July	August	September	October	November	December	January	February	March	April	
2010-2011	402	379	325	442	504	315	335	206	276	240	338	285	**4047**
2011-2012	390	370	324	503	512	413	372	248	333	298	389	370	**4522**
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397	**4366**
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339	**4256**
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337	**4089**
2015	297	330	249	284									

EBL % BY MONTH

	May	June	July	August	September	October	November	December	January	February	March	April	**TOTAL EBL%**
2010-2011	5.47%	4.22%	4.31%	6.11%	5.75%	3.49%	4.18%	0.49%	2.17%	7.08%	2.66%	0.70%	**4.15%**
2011-2012	3.85%	4.05%	4.94%	5.17%	4.30%	2.66%	4.03%	3.23%	3.00%	1.68%	1.80%	0.81%	**3.38%**
2012-2013	4.27%	2.09%	5.05%	2.59%	3.71%	3.13%	2.42%	1.69%	2.15%	1.34%	1.54%	1.51%	**2.70%**
2013-2014	3.23%	3.12%	2.65%	2.24%	3.70%	2.17%	2.30%	1.44%	0.99%	0.94%	1.65%	1.47%	**2.23%**
2014-2015	2.31%	1.85%	5.28%	5.62%	5.31%	1.96%	2.49%	1.83%	0.66%	1.74%	1.46%	2.67%	**3.01%**
2015	3.03%	1.82%	3.21%	3.87%									

NUMBER OF EBL

	May	June	July	August	September	October	November	December	January	February	March	April	Total
2010-2011	**NO DATA**												
2011-2012	15	15	16	26	22	11	15	8	10	5	7	4	**154**
2012-2013	14	7	18	13	17	12	8	3	7	4	5	6	**114**
2013-2014	13	11	10	9	16	10	7	4	3	3	6	5	**97**
2014-2015	8	6	20	25	25	7	7	3	2	5	5	9	**122**

TOTAL KIDS TESTED

	May	June	July	August	September	October	November	December	January	February	March	April	
2010-2011	**NO DATA**												
2011-2012	474	393	332	513	520	420	379	249	343	303	399	375	**4700**
2012-2013	328	338	383	550	464	417	332	246	328	303	328	402	**4419**
2013-2014	380	363	385	404	438	427	310	283	313	325	371	346	**4345**
2014-2015	356	329	386	452	480	361	283	224	305	287	348	339	**4150**

EBL % BY MONTH

	May	June	July	August	September	October	November	December	January	February	March	April	**TOTAL EBL%**
2010-2011	**NO DATA**												
2011-2012	3.16%	3.82%	4.82%	5.07%	4.23%	2.62%	3.96%	3.21%	2.92%	1.65%	1.75%	1.07%	**3.28%**
2012-2013	4.27%	2.07%	4.70%	2.36%	3.66%	2.88%	2.41%	1.22%	2.13%	1.32%	1.52%	1.49%	**2.58%**
2013-2014	3.42%	3.03%	2.60%	2.23%	3.65%	2.34%	2.26%	1.41%	0.96%	0.92%	1.62%	1.45%	**2.23%**
2014-2015	2.25%	1.82%	5.18%	5.53%	5.21%	1.94%	2.47%	1.34%	0.66%	1.74%	1.44%	2.65%	**2.94%**

From:	Robinson, Mikelle (DCH)
To:	Moran, Susan (DCH); Wells, Eden (DCH)
Subject:	FW: Elevated lead found in more Flint kids after water switch, study finds
Date:	Thursday, September 24, 2015 4:09:37 PM

FYI.

From: Priem, Wesley F. (DCH)
Sent: Thursday, September 24, 2015 3:58 PM
To: Dykema, Linda D. (DCH); Groetsch, Kory J. (DCH); Robinson, Mikelle (DCH); Scott, Robert L. (DCH); Peeler, Nancy (DCH)
Subject: Elevated lead found in more Flint kids after water switch, study finds

http://www.mlive.com/news/flint/index.ssf/2015/09/study_shows_twice_as_many_flin.html#incart_email

I believe Bob Scott is reviewing these findings and can report back to us…

From:	Lasher, Geralyn (DHHS)
To:	Lyon, Nick (DHHS); Grijalva, Nancy (DHHS); Wells, Eden (DHHS); Moran, Susan (DHHS); Eisner, Jennifer (DHHS); Minicuci, Angela (DHHS); Ridley, Nancy (DHHS); Hertel, Elizabeth (DHHS)
Subject:	FW: Flint water - talking points (draft 151001) IMPORTANT UPDATES
Date:	Friday, October 2, 2015 10:03:07 AM

FYI

From: Pallone, Maggie (DEQ)
Sent: Friday, October 02, 2015 9:56 AM
To: Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Lasher, Geralyn (DHHS) <lasherg@michigan.gov>; Wyant, Dan (DEQ) <WyantD@michigan.gov>; Hertel, Elizabeth (DHHS) <HertelE@michigan.gov>
Cc: Tommasulo, Karen (DEQ) <TommasuloK@michigan.gov>
Subject: Flint water - talking points (draft 151001) IMPORTANT UPDATES

PLEASE read and note new bullets on a few of these. Thanks.
(Maggie and Brad)

From: Wells, Eden (DCH)
To: Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Subject: Fw: FW: FLINT WATER - MEETING TODAY
Date: Tuesday, September 29, 2015 10:58:45 AM

Should I call Hurley and do they mean Mona?

E

From: Eden Wells <ewells@umich.edu>
Sent: Tuesday, September 29, 2015 10:56 AM
To: Wells, Eden (DCH)
Subject: Fwd: FW: FLINT WATER - MEETING TODAY

Eden V. Wells, MD, MPH, FACPM
Clinical Associate Professor, Epidemiology
Director, Preventive Medicine Residency
University of Michigan School of Public Health
1415 Washington Heights,
Ann Arbor, MI 48109
Tel: 734-647-5306
Fax: 734-936-2084
ewells@umich.edu

---------- Forwarded message ----------
From: **Grijalva, Nancy (DCH)** <GrijalvaN@michigan.gov>
Date: Tue, Sep 29, 2015 at 10:55 AM
Subject: RE: FW: FLINT WATER - MEETING TODAY
To: Eden Wells <ewells@umich.edu>, "Lyon, Nick (DCH)" <LyonN2@michigan.gov>
Cc: "Lasher, Geralyn (DCH)" <lasherg@michigan.gov>, "Hertel, Elizabeth (DCH)" <HertelE@michigan.gov>, "Moran, Susan (DCH)" <MoranS@michigan.gov>

12:30 call 517-241-1193 – I'll put you into them.

From: Eden Wells [mailto:ewells@umich.edu]
Sent: Tuesday, September 29, 2015 10:53 AM
To: Lyon, Nick (DCH)
Cc: Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH); Moran, Susan (DCH); Grijalva, Nancy (DCH)
Subject: Re: FW: FLINT WATER - MEETING TODAY

I am at UMSPH today but can call in---particularly want input regarding item#2.
E

Eden V. Wells, MD, MPH, FACPM
Clinical Associate Professor, Epidemiology
Director, Preventive Medicine Residency
University of Michigan School of Public Health
1415 Washington Heights,
Ann Arbor, MI 48109
Tel: 734-647-5306
Fax: 734-936-2084
ewells@umich.edu

On Tue, Sep 29, 2015 at 10:49 AM, Lyon, Nick (DCH) <LyonN2@michigan.gov> wrote:
We are going to have a premeeting before I go over.

From: Scott, Allison (GOV)
Sent: Tuesday, September 29, 2015 10:45 AM
To: Muchmore, Dennis (GOV); Clement, Elizabeth (GOV); Agen, Jarrod (GOV); Wyant, Dan (DEQ); Lyon, Nick (DCH); Mcbride, Bill (GOV)
Cc: Thelen, Mary Beth (DEQ); Grijalva, Nancy (DCH); Wisniewski, Wendy (GOV)
Subject: FLINT WATER - MEETING TODAY
Importance: High

You will be receiving a meeting notice from Beth Emmitt for a meeting with the Governor this afternoon. Listed below are areas that we should provide him an update on engagement; if not yet engaged, then we need to engage asap.

1. Emergency management – similar to disasters, is there some form of action we can engage for this situation to help manage
2. Chief Medical officer – should be speaking with Hurley
3. WIC – re water and formula – status update
4. Drain commissioner – how do we expedite KWA

Looking at a 1 pm meeting – let me know if you have questions on the above.

Thanks
ALS

From: Peeler, Nancy (DCH)
To: Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH); Wells, Eden (DCH)
Subject: FW: Hurley -- follow up about the question on Hurley lab results
Date: Wednesday, September 30, 2015 5:22:19 PM

Hi all – I talked to Bob to confirm the information I had shared about the Hurley lab results. It is a little more nuanced than I had explained, forwarding Bob's explanation, FYI.

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 5:05 PM
To: Peeler, Nancy (DCH)
Subject: Hurley

Hurley Medical Center is listed as the "Provider" on approximately half of the blood lead results we received for Flint children in 2014—I assume that pattern holds in 2015 and in recent years. Warde Medical Lab is listed as the "Laboratory" on those results. Warde reported the results to CLPPP in accordance with State law.

I can't say whether the blood specimens were a) drawn at Hurley's lab, or b) simply passed through Hurley's lab—from physician office to Hurley to Warde for analysis. As I understand it, both scenarios are common at various hospital labs.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Eisner, Jennifer (DHHS)
To: Wells, Eden (DHHS)
Subject: Fw: MLive guest column with DHHS edits
Date: Friday, October 2, 2015 10:48:55 AM
Attachments: image001.jpg

FYI

From: Murray, David (GOV)
Sent: Friday, October 2, 2015 10:18 AM
To: Wurfel, Sara (GOV); Wurfel, Brad (DEQ); Agen, Jarrod (GOV); Lasher, Geralyn (DHHS); Minicuci, Angela (DHHS); Eisner, Jennifer (DHHS); Tommasulo, Karen (DEQ); Kennedy, Jordan (GOV)
Subject: MLive guest column with DHHS edits

This is the new version with DHHS edits. Thank you, everyone, for your help.

By Nick Lyon and Dan Wyant

People in Flint – and all of Michigan – need to know that that then they turn on the faucet, the water they drink and bathe their children with, is safe and clean.

Flint residents have been hearing concerning news about the municipal water supply for more than a year. We're working to help Flint leaders address and fix short- and long-term problems with the city's water infrastructure.

A recent announcement by local doctors that blood lead levels are rising in children residing in Flint's most at-risk ZIP codes added to the state's knowledge and sparked some additional precautionary measures.

The state takes lead seriously. Although continued analysis is being conducted, the MDHHS analysis is consistent with the local finding.

State agencies also are working in collaboration with the federal and Flint leaders to get residents accurate information to ease their fears.

Gov. Rick Snyder directed the Michigan Department of Environmental Quality and the Department of Health and Human Services to work with the U.S. Environmental Protection Agency to create a comprehensive action plan to build our knowledge about lead in Flint, better protect the community and restore public confidence in the regulatory framework.

We're testing the water in all of our schools so we know that our children are safe.

We're testing residences at no charge and expanding health exposure testing so families can be confident about the water coming into their homes.

We're providing faucet filters to Flint homes. The state is investing $1 million on this effort,

building on the generosity and support of community groups and donors.
We're accelerating corrosion controls in the Flint drinking water system.

We're increasing the pace of water system improvements to address replacing lead service lines.

We're expediting the completion of the Karegnondi Water Authority pipeline.

We're expanding the Safe Drinking Water Technical Advisory Committee to ensure the best technology, practices and science are being followed by adding an expert from the U.S. EPA's Office of Research and Development.

The DHHS's chief medical executive, Dr. Eden Wells, has been designated Flint's drinking water public health adviser.

We're also boosting a comprehensive lead education program to make sure residents have detailed information about how to protect themselves and their homes.

That's key, because the lead in question does not come from the Flint River. The water leaving the drinking water plant is clean and safe. The water traveling through the distribution system also is free of lead.

The lead issues happen when the water reaches homes that have lead service lines or lead plumbing. This is important to know for two reasons: Contamination happens at the homeowner level, it is very difficult to track precisely.

And, the longer water sits in lead pipes, the more lead it takes on, so homes on the same block might have very different results from lead testing, based on what kind of plumbing they have and how homeowners use their water.

All of the measures in the action plan build on efforts that have been underway for the last year. State agencies have been working with the city on a variety of issues and approaches to correct Flint's water infrastructure challenges.

That's because the health and safety of Flint residents – and people across our state – is our first priority.

More information about the action plan and lead is available at Michigan.gov/FlintDrinkingWater. People interested in getting their homes tested for free should call (810) 787-653, then press 1.

Nick Lyon is the director of the Michigan Department of Health and Human Services and Dan Wyant is the director of the Michigan Department of Environmental Quality.

Dave Murray
Deputy Press Secretary ¦ Executive Office of Governor Rick Snyder
MurrayD1@michigan.gov
517-335-6397, office

517-449-8343, mobile
Twitter:@michigandmurray

Emblem

From: Peeler, Nancy (DHHS)
To: Frost, Erik (DHHS)
Subject: FW: State data confirms higher blood-lead levels in Flint kids
Date: Friday, December 18, 2015 9:16:06 AM

From: LyonCallo, Sarah (DCH)
Sent: Monday, September 28, 2015 10:05 AM
To: Peeler, Nancy (DCH) <PeelerN@michigan.gov>
Cc: McKane, Patricia (DCH) <McKaneP@michigan.gov>; Fink, Brenda (DCH) <FinkB@michigan.gov>
Subject: Re: State data confirms higher blood-lead levels in Flint kids

nancy - i will be in touch with you and bob via email shortly. please work with me until patti gets back, ccing patti.

Sent from my iPad

On Sep 28, 2015, at 9:59 AM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:

> Can you give us your cell number? Bob and I have a number of questions about the data you need pulled.
>
> Sent from my iPhone
>
> On Sep 28, 2015, at 9:45 AM, McKane, Patricia (DCH) <McKaneP@michigan.gov> wrote:
>
> > I believe Sarah's point was that we should have been brought in before count data was provided to Angela and others and released to the press, not after.
> > Cristin is well aware of the need to analyze data, now.
> > Also if you are having difficulty reaching Cristin, I would recommend contacting me, Sarah or Virginia. Email or cell phone works best for me as I'm rarely at my desk.
> >
> > Sent from my iPhone
> >
> > On Sep 28, 2015, at 7:35 AM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:
> >
> > > We've also been trying to reach Cristin – it wasn't clear to us whether she knew about this assignment, which this email indicates she does. We appreciate that confirmation. I will pass this info on to Bob Scott. We appreciate if you can please keep Bob, as the CLPPP Surveillance Manager who has extended knowledge about this data, in the loop. He can then update me as needed.
> > >
> > > Nancy
> > >
> > > ---
> > > **From:** LyonCallo, Sarah (DCH)
> > > **Sent:** Monday, September 28, 2015 9:19 AM
> > > **To:** Fink, Brenda (DCH)
> > > **Cc:** Peeler, Nancy (DCH); McKane, Patricia (DCH)
> > > **Subject:** Re: State data confirms higher blood-lead levels in Flint kids
> > >
> > > Dear Brenda,
> > >
> > > After seeing Gongwer on Friday AM, I contacted Corinne to understand what was going on, Linda Dykema and Angela later pulled in Epidemiology. I come out of environmental health (cut my teeth on superfund site in a politically complex area) and can appreciate sensitivity on multiple fronts, as well as appreciating the analyses of data at the local level (well done).
> > >
> > > It would benefit all of us for epidemiology staff to be pulled in as quickly as possible in the future, so that Patti and I can assist Cristin, that we can weigh in on design issues, and we can make sure that we are not at cross purposes when Angela requests a response. Cristin's response will take some time.
> > >
> > > Cristin and I discussed an approach on Friday before we received the report from Angela with the updated counts. We will take a look this AM and revise our approach.

Sarah

Sent from my iPad

On Sep 28, 2015, at 8:45 AM, Fink, Brenda (DCH) <FinkB@michigan.gov> wrote:

> Obviously this is uber high profile---so we just need to be sure we're about the data, which as you and Sarah likely know, is under a lot of scrutiny because some of the local folks have different data (done differently, lots of issues----just this involves people who care deeply about the community, Larry Reynolds who is now on our iM Exec Team, etc) I'm just saying sensitivity to the local people who are so concerned about the babies there based on what they have for data is a context that is important, beyond the high profile and other issues . My comment has nothing to do with the data itself. Just the context of very concerned people. Doesn't impact our data . . . obviously. It's just there's a people side to this issue that sometimes gets lost when something becomes so politicized. Just for us, I guess.

Brenda Fink, A.C.S.W.
Director, Division of Family and Community Health
Michigan Department of Health and Human Services
109 W. Michigan Ave.
Lansing, MI 48933
517-335-8863
Fax: 517-335-8697
finkb@michigan.gov

From: Peeler, Nancy (DCH)
Sent: Monday, September 28, 2015 7:54 AM
To: McKane, Patricia (DCH)
Cc: Fink, Brenda (DCH); LyonCallo, Sarah (DCH)
Subject: Fwd: State data confirms higher blood-lead levels in Flint kids

Good morning Patti, looping you in FYI. Wanted you to be aware of this as Cristins supervisor.

Sent from my iPhone

Begin forwarded message:

> **From:** "Minicuci, Angela (DCH)" <MinicuciA@michigan.gov>
> **Date:** September 27, 2015 at 9:29:49 PM EDT
> **To:** "Wells, Eden (DCH)" <WellsE3@michigan.gov>
> **Cc:** "Lasher, Geralyn (DCH)" <lasherg@michigan.gov>, "Moran, Susan (DCH)" <MoranS@michigan.gov>, "Peeler, Nancy (DCH)" <PeelerN@michigan.gov>, "Robinson, Mikelle (DCH)" <RobinsonM18@michigan.gov>, "Hertel, Elizabeth (DCH)" <HertelE@michigan.gov>, "Eisner, Jennifer (DCH)" <EisnerJ@michigan.gov>
> **Subject: Re: State data confirms higher blood-lead levels in Flint kids**
>
> I've asked our lead epidemiologist to look at the data closer than what was in the charts to get a handle on this. The epi is Cristin Larder.
>
> Sent from my iPhone
>
> On Sep 27, 2015, at 5:39 PM, Wells, Eden (DCH)

<WellsE3@michigan.gov> wrote:

Given not sure what % children tested, etc.

Sent from my iPhone

On Sep 27, 2015, at 5:34 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

Thanks--DFP is looking at tests positive/number of tests done--not sure that this is a reliable measure used by our program. Await input from Nancy or Linda.

Sent from my iPhone

On Sep 27, 2015, at 5:26 PM, Lasher, Geralyn (DCH) <lasherg@michigan.gov> wrote:

Yes. We provided the graphs with the narrative bullet points.

Sent from my iPad

On Sep 27, 2015, at 5:20 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

Geralyn-were the graphs shown outside of MDHHS?

Sent from my iPhone

On Sep 27, 2015,

at 5:06 PM, Moran, Susan (DCH) <MoranS@michigan.gov> wrote:

Sorry - hit send too soon.

Copying Lynda and Corrine- not sure who in Epi or CLPPP has been point person on state's data.

Sent from my iPhone

On Sep 27, 2015, at 2:11 PM, Lasher, Geralyn (DCH) <lasherg@michigan.gov> wrote:

We will need help responding to what the

Free Press is claiming in this article.

Sue-let us know who can get us this as early Monday as possible.

State data confirms higher blood-lead levels in Flint kids

http://www.freep.com/story/opinion/columnists/nancy-kaffer/2015/09/26/state-data-flint-lead/72820798/

Sent from my iPad

From:	Miller, Mark (DHHS)
To:	Valacak, Mark
Cc:	Dykema, Linda D. (DHHS); LyonCallo, Sarah (DHHS); Travis, Rashmi (DHHS)
Subject:	FW: State lead testing results???
Date:	Tuesday, September 29, 2015 9:43:00 AM
Attachments:	image001.jpg

Mark, I have a call with Epi staff today at 4 PM. So I'll get an update at that time. I've also cc:ed Linda Dykema and Sara Lyon-Callo, who might be able to respond sooner with a timeline.
Mark

From: Valacak, Mark [mailto:MVALACAK@gchd.us]
Sent: Tuesday, September 29, 2015 9:23 AM
To: Miller, Mark (DCH) ; Travis, Rashmi (DCH)
Subject: RE: State lead testing results???

Any results yet? If not can you give me a timeline when you will have results?

Mark Valacak, MPH, Health Officer
Genesee County Health Department,

630 S. Saginaw St. Suite 4 Flint, MI 48502-1540

Phone 810-257-3588 Fax 810 257-3147
E-mail mvalacak@gchd.us

Please consider the environment before printing this e-mail.

"There are two lasting bequests we can hope to give our children: one is roots; the other is wings." Hodding Carter

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For a copy of the Health Department's Notice of Information Practices, contact the Health Department or visit the Health Department's website at http://www.gchd.us/

From: Valacak, Mark
Sent: Monday, September 28, 2015 1:57 PM
To: 'Miller, Mark (DCH)'; 'TravisR@michigan.gov'
Subject: RE: State lead testing results???

Mark & Rashmi,

I want to know whether you have confirmed with the lead program staff at MDHHS that the state results that purport that lead levels have not shown a significant increase since the changeover of the water supply for the city of Flint indeed represent Flint city zip codes only and not Flint mailing addresses. As I mentioned to you both this morning, Flint mailing addresses would include outlying areas like Flint and Mundy Townships which obtain their water from the Detroit Water Authority.

Mark Valacak, MPH, Health Officer
Genesee County Health Department,

630 S. Saginaw St. Suite 4 Flint, MI 48502-1540

Phone 810-257-3588 Fax 810 257-3147
E-mail mvalacak@gchd.us

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For a copy of the Health Department's Notice of Information Practices, contact the Health Department or visit the Health Department's website at http://www.gchd.us/

From:	Peeler, Nancy (DHHS)
To:	Wells, Eden (DHHS)
Cc:	Travis, Rashmi (DHHS); Fink, Brenda (DHHS)
Subject:	FW: table and map
Date:	Thursday, October 1, 2015 7:02:49 PM
Attachments:	FlintGenesee map.pdf FlintGenesee table.pdf
Importance:	High

Good evening –

Here is the surveillance data you requested about lead testing for the past year, and for the 5-year period.

We have included a table that includes highest level for each child, broken out by Confirmed Venous tests and Not Confirmed Capillary samples. The capillary samples represent an opportunity for improvement by the primary care providers, in that there was never a confirmatory test completed for any of these children.

We have also included a map (5 year data only included for the map) in case it would be of use, that gives a visual representation of the distribution, by zip code. We typically use the 'dots' to mask lower number and exact locations. Use as is helpful, or not.

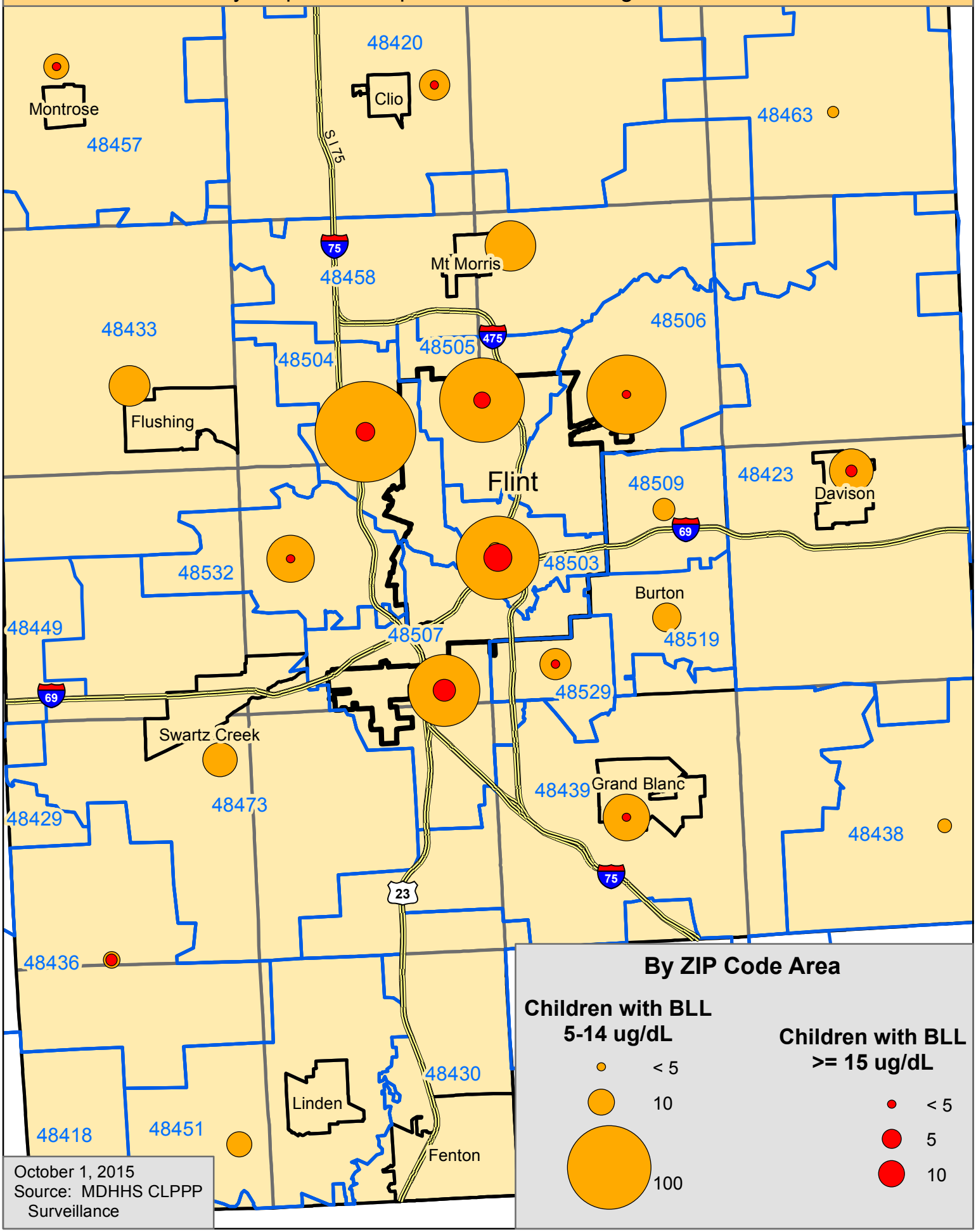
Please let us know if you have questions, or need edits made. I will monitor email tonight, and connect with Bob to make any necessary changes. He is scheduled to be off tomorrow, but offered to come in if needed to make changes by your 9am deadline, and to put the data file together for Hurley.

Nancy

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 6:52 PM
To: Peeler, Nancy (DHHS)
Subject: table and map

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Children with Elevated Blood Lead Levels in Genesee County, by ZIP Code Area
5-year period: September 1, 2010 - August 31, 2015



Children in Genesee County, Tested for Lead Poisoning, by Blood Lead Level

Most Recent 12-Month Period: September 1, 2014 - August 31, 2015

	0 - 4 ug/dL	5 - 14 ug/dL Confirmed*	5 - 14 ug/dL Not Confirmed*	15 - 44 ug/dL Confirmed*	15 - 44 ug/dL Not Confirmed*	>= 45 ug/dL
Flint ZIPS (48501-48507)	2,721	49	53	5	**	0
Genesee County (all ZIPs)	6,086	58	94	6	**	0

Most Recent Five-Year Period: September 1, 2010 - August 31, 2015

	0 - 4 ug/dL	5 - 14 ug/dL Confirmed*	5 - 14 ug/dL Not Confirmed*	15 - 44 ug/dL Confirmed*	15 - 44 ug/dL Not Confirmed*	>= 45 ug/dL
Flint ZIPS (48501-48507)	11,596	287	219	24	**	0
Genesee County (all ZIPs)	26,362	359	415	29	9	0

*One test per child is included in each table: the highest venous result, or if no venous, then the highest capillary result.
Only venous tests are considered to be "confirmed."
**Supressed (N<5)

October 1, 2015

Source: MDHHS CLPPP Surveillance

From:	Robinson, Mikelle (DHHS)
To:	Travis, Rashmi (DHHS)
Cc:	Miller, Mark (DHHS)
Subject:	FW: Talking Points
Date:	Thursday, October 1, 2015 11:57:16 AM
Importance:	High

Rashmi,

Does Nancy P have bullet points explaining the data or is that something from Corinne's shop?

From: Eisner, Jennifer (DHHS)
Sent: Thursday, October 01, 2015 11:52 AM
To: Miller, Corinne (DHHS); Robinson, Mikelle (DHHS)
Cc: Wells, Eden (DHHS)
Subject: Talking Points

Corinne and Mikelle:

Attached please find the most recent Flint talking points which include edits from Dr. Wells. A 12:30 meeting with the gov's comms team was just called, so we need to have them finalized and ready to share asap.

Can you please send me the bullet points explaining the data – or what is ready of them – by noon?

Thank you,

Jennifer (Smith) Eisner
Public Information Officer
Michigan Department of Health and Human Services
517-241-2112

From: Mona Hanna-Attisha
To: Wells, Eden (DHHS)
Subject: FW: The requested file has been sent
Date: Friday, October 2, 2015 3:43:11 PM
Importance: High

FYi we cannot access the file – it just came as a .htm. Is there anyone else that can send it to us? We were hoping to GIS analyze this weekend. Thanks.

From: Peeler, Nancy (DHHS) [mailto:PeelerN@michigan.gov]
Sent: Friday, October 02, 2015 3:07 PM
To: Mona Hanna-Attisha; Scott, Robert L. (DHHS); Jenny LaChance
Cc: Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent
Importance: High

Good afternoon, Mona -

Today is Bob's scheduled day off. He came in to prepare and send the file, but has left for the rest of the day. I will see if I can reach him to find out what step to take to get you access to the data.

Can you give me any more detail that I can share with him, if I can reach him? It sounds like you did receive the email with the file attached, and the password (I assume via fax). If those two pieces are in place, is the issue that it won't 'unzip'?

Nancy Peeler, Manager
Early Childhood Health Section

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 2:59 PM
To: Scott, Robert L. (DHHS); Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent

We are unable to open the file that you sent. Can you try to send again or let us know how to open it another way. Thanks! We were really hoping to review today. thanks!

From: Scott, Robert L. (DHHS) [mailto:ScottR9@michigan.gov]
Sent: Friday, October 02, 2015 1:32 PM
To: Mona Hanna-Attisha; Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services

(517) 335-8178
fax (517) 335-8509

From:	Miller, Corinne (DCH)
To:	Wells, Eden (DCH)
Subject:	FW: TIME SENSITIVE: Fw: Discrepencies
Date:	Tuesday, September 29, 2015 5:44:33 PM

From: Miller, Corinne (DCH)
Sent: Tuesday, September 29, 2015 5:44 PM
To: Peeler, Nancy (DCH)
Subject: RE: TIME SENSITIVE: Fw: Discrepencies

Nancy,

We are attempting to replicate to the degree possible Hurley data, stratifying into high risk Flint, other Flint and non-Flint, ages < 16 months, < 6 years, and < 16 years. The data includes more than just Hurley-related testing of course.

Corinne

From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 3:54 PM
To: Wells, Eden (DCH)
Cc: Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH); Scott, Robert L. (DCH)
Subject: RE: TIME SENSITIVE: Fw: Discrepencies
Importance: High

Bob went back and looked at his numbers.

For the first chart, with the elevated blood lead levels, he found one number in the 2014-2015 row that changed, and he confirmed that the data in the later version was correct (the version dated September 23).

In the second chart, showing testing numbers, use the one dated September 23rd. That chart shows unduplicated tests (e.g. one test per child, per month), whereas the previous version did count some 'duplicate' tests.

I have copied Bob on this email, in case you have further questions.

I'd also like to ask for clarification on one of Geralyn's earlier emails today; Bob (CLPPP) had produced these descriptive charts – but it looked like Dr. Wells is asking Corinne to do that instead of CLPPP (it was a request to re-do the chart with only younger children included). Trying not to duplicate efforts, so please clarify if you would like us to do that, or someone else. Thanks!

Nancy

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 3:11 PM

To: Peeler, Nancy (DCH)
Cc: Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Subject: Re: TIME SENSITIVE: Fw: Discrepencies

fantastic, thanks!!

From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 3:04 PM
To: Wells, Eden (DCH)
Cc: Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Subject: Re: TIME SENSITIVE: Fw: Discrepencies

I'll connect with him shortly, and we'll get back to you.

Sent from my iPad

On Sep 29, 2015, at 2:41 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

> HI Nancy,
>
> I do not have Bob's email, so if you cam talk to him; however, I got a request from Dr. Hanna-Attisha at Hurley today as to why the 2014-2015 may differ in the 2 pdf's she attached (received 9/15 and 9/25). FYI, she stated that Bob is great to work with.
>
> However, due to different numbers and analyses and such flying around in the last 24 hours, please respond back to me ASAP regarding the discrepancies, and I can relay to her.
>
> Thank you!
>
> Eden
>
> Eden V. Wells, MD, MPH, FACPM
> Chief Medical Executive
> Michigan Department of Health and Human Services
> 201 Townsend Street, 5th Floor CVB
> Lansing, MI 48913
> Phone: 517-335-8011
> wellse3@michigan.gov

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 1:07 PM
To: Wells, Eden (DCH)
Subject: FW: Discrepencies

Dr Wells, in regards to the discrepancy noted in state data. Attached are two PDF files that were sent regarding the state lead numbers.

The original PDF was sent on 9/15/15 to Dr Reynolds from Bob Scott from MDHHS's Childhood Lead Poisoning Prevention Program and the updated PDF was sent to me from Bob Scott last Friday.

The attached excel database (that I created) has two tabs that include the original and updated numbers. Yellow highlights are all the numbers that changed. It is very strange how many of the numbers have changed. I'm not sure if the updated numbers tried to refine the location to Flint proper???

The analyses of the data does not change very much (when you look at total annual EBL%) - there has been a statistically significant increase in EBL% since water change (2014-2015) where every year prior there has been a decrease (as has happened nationally). And this does not even include the fact that the data is not scientific – wrong age range and missing lots of EBLS by using first time lead analysis rather than highest lead.

Just thought the discrepancy was odd.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

<Flint Testing and EBLLs_updated 092315_with notes (2).pdf>

<Flint Testing and EBLLs (4).pdf>

<STATELEADDATA with original and updated numbers.xlsx>

From:	Eden Wells
To:	Wells, Eden (DCH)
Subject:	Fwd: Flint
Date:	Tuesday, September 22, 2015 9:24:57 AM

Eden V. Wells, MD, MPH, FACPM
Clinical Associate Professor, Epidemiology
Director, Preventive Medicine Residency
University of Michigan School of Public Health
1415 Washington Heights,
Ann Arbor, MI 48109
Tel: 734-647-5306
Fax: 734-936-2084
ewells@umich.edu

---------- Forwarded message ----------
From: **Dykema, Linda D. (DCH)** <DykemaL@michigan.gov>
Date: Mon, Sep 21, 2015 at 3:49 PM
Subject: RE: Flint
To: Eden- Umich <ewells@umich.edu>, "Minicuci, Angela (DCH)" <MinicuciA@michigan.gov>

It appears that VA Tech has analyzed far more samples than I had thought. The results can be found here http://flintwaterstudy.org/ . My guess is the difference in the analytical results can be attributed to sample collection protocols, but the city and the DEQ are following the EPA requirements.

-----Original Message-----
From: Eden- Umich [mailto:ewells@umich.edu]
Sent: Monday, September 21, 2015 12:58 PM
To: Minicuci, Angela (DCH)
Cc: Dykema, Linda D. (DCH)
Subject: Re: Flint

I have my unofficial opinions- Lynda can you assist???

Sent from my iPhone

> On Sep 21, 2015, at 10:02 AM, Minicuci, Angela (DCH) <MinicuciA@michigan.gov> wrote:
>
> Hi Eden, could you explain the difference were seeing between our numbers and the DEQ? Or direct me to someone at DHHS who can. Thanks!!
>
> Sent from my iPhone

From:	Mona Hanna-Attisha
To:	Wells, Eden (DHHS)
Subject:	Fwd: MDHHS IRB Approval - 201509-11-EA
Date:	Thursday, October 1, 2015 6:25:39 PM
Attachments:	201509-11-EA.pdf ATT00001.htm

Thanks for helping expedite the IRB approval. I just got the below email. Now I look forward to receiving the data. I have contacted Bob on how to go about doing that. Greatly appreciated.

Any news on your analysis yet?

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

Begin forwarded message:

From: MDHHS-IRB <MDHHS-IRB@michigan.gov>
Date: October 1, 2015 at 5:48:37 PM EDT
To: "Scott, Robert L. (DHHS)" <ScottR9@michigan.gov>
Cc: "Travis, Rashmi (DHHS)" <TravisR@michigan.gov>, "mhanna1@hurleymc.com" <mhanna1@hurleymc.com>
Subject: MDHHS IRB Approval - 201509-11-EA

Please see the attached determination notice indicating MDHHS IRB approval of your research project for a period of 1 year. A hard copy of this notice will be provided to the Responsible MDHHS Employee. This IRB approval is for the study protocol, IRB application, and the most recent version of study documents in the form submitted to the IRB. Please see the comment section of the determination notice for specific requirements or additional details (if any) related to this approval. Any changes to the protocol or approved study documents must be reviewed and approved by the MDHHS IRB prior to implementation unless those changes are necessary to eliminate apparent immediate hazards to study subjects.

Any severe adverse events or unexpected problems involving risks to research subjects must be reported to the MDHHS IRB as soon as possible (usually within 48 hours of discovery).

Prior to the time this IRB approval expires, a report on the status of this research should be submitted to the MDHHS IRB to facilitate continued MDHHS IRB approval, or study closure.

Don’t hesitate to contact the MDHHS IRB with any questions or concerns.

Ian A. Horste, MPH
Institutional Review Board Administrator/Chair
Michigan Department of Health and Human Services
517-241-0806
www.michigan.gov/irb

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Michigan Department of Health and Human Services
Institutional Review Board for the Protection of Human Research Subjects
Capitol View Building, 7th Floor, 201 Townsend Street, Lansing, MI 48913
E-mail: MDHHS-IRB@michigan.gov Phone: (517) 241-1928 Fax: (517) 241-1200

DETERMINATION NOTICE

To:	**Robert L. Scott**	Responsible Department Employee
From:	**Ian A. Horste**	Institutional Review Board Chair
CC:	**Rashmi Travis**	Authorizing Bureau/Office Director

MDHHS IRB Log #: 201509-11-EA **Date Received: 09/29/2015**

Study Title: Analysis of Pediatric Blood Lead Levels in Flint, MI

Primary Investigator(s): Mona Hanna-Attisha (Hurley Medical Center)

Funding Source(s): Unspecified, Non-Federal

Committee Action/Determination Type:

- ☐ Tabled
- ☐ Not human subjects research
- ☐ Exempt human subjects research
- ☒ Approved by expedited review
- ☐ Approved by expedited review with modifications required
- ☐ Approved by full committee review
- ☐ Approved by full committee review with modifications required
- ☐ Disapproved

Comments: This minimal risk research is eligible for expedited review under category 5. Included in this approval is a waiver of the Common Rule requirements for informed consent as permitted under 45 CFR 46.116(d). Additionally, the MDHHS IRB, acting under the Common Rule, has determined that all criteria for approval of a waiver of authorization under the Privacy Rule at 45 CFR 164.512(i)(2)(ii) have been satisfied.

Chair Signature: **Determination Date: 10/01/2015**

Expiration Date*: 10/01/2016
**Human subjects research must not continue after this date without MDHHS IRB approval documented on a separate determination notice.*

The MDHHS IRB must approve any change to this study protocol or to approved study documents. Approval of changes must precede implementation, unless a change is necessary to eliminate an apparent immediate hazard to research subjects. The Primary Investigator and Responsible Department Employee must see that any unexpected problem or adverse event in the research is reported as soon as possible (usually within 48 hours of discovery) to the MDHHS IRB administrative office at (517) 241-1928 or MDHHS-IRB@michigan.gov.

From: Eisner, Jennifer (DHHS)
To: Wells, Eden (DHHS)
Subject: Fwd: Media conference call re: Flint water action plan
Date: Friday, October 2, 2015 8:57:33 AM

Media call

Sent from my iPhone

Begin forwarded message:

> **From:** "Wurfel, Sara (GOV)" <Wurfels@michigan.gov>
> **To:** "Wyant, Dan (DEQ)" <WyantD@michigan.gov>, "Wurfel, Brad (DEQ)" <WurfelB@michigan.gov>, "Tommasulo, Karen (DEQ)" <TommasuloK@michigan.gov>, "Pallone, Maggie (DEQ)" <PalloneM@michigan.gov>, "Lyon, Nick (DHHS)" <LyonN2@michigan.gov>, "Lasher, Geralyn (DHHS)" <lasherg@michigan.gov>, "Minicuci, Angela (DHHS)" <MinicuciA@michigan.gov>, "Eisner, Jennifer (DHHS)" <EisnerJ@michigan.gov>, "Hertel, Elizabeth (DHHS)" <HertelE@michigan.gov>
> **Cc:** "Murray, David (GOV)" <MurrayD1@michigan.gov>, "Kennedy, Jordan (GOV)" <KennedyJ4@michigan.gov>, "Brown, Jessica (GOV)" <BrownJ53@michigan.gov>, "Thelen, Mary Beth (DEQ)" <THELENM2@michigan.gov>
> **Subject: Media conference call re: Flint water action plan**
>
> Hi all –
> Per conversations today, here are the details for Friday's embargoed media conference call.
> Given some of the changing information, we added in a quick pre-brief with the Governor from 11 to 11:10 a.m. to give us a chance to go over any last details and finalize flow. This will be followed by the actual media conf. call from 11:15 to 11:40 a.m. Know that folks will be needing to head to Flint immediately afterward.
> Sounds like we'll have Dan, Nick and Dr. Wells in person. That's great and will work best when most everyone is in the same room. The location is Romney Building, 1st floor communications conference room. The governor will be joining us from phone.
> We'll need to be fairly quick in overview and framing comments so we can get to as many Qs as possible.
> Please let me know if anyone has any Qs, concerns or needs anything else at all. Or if you'd like a listen only line for anyone back in the depts. to catch the call.
> Otherwise, see you in the Romney by 11 a.m. tomorrow.
> Thanks so much!
> SW
> p.s. Also attached key documents as stand right now – release, 2 infographics and the high level points.
> Agenda:

11:15-11:16 AM SW intro; sets parameters; introduces other participants; turns over to Governor for opening remarks
11:16-11:20 AM Governor gives opening remarks; highlights reason for state action; introduces Director Wyant
11:20-11:24 AM Director Wyant remarks; highlights key steps in the action plan; introduces Director Lyon
11:24-11:27 AM Director Lyon remarks; highlights key health components of the plan and mentions Dr. Wells; turns back to Governor
11:27-11:37 AM Governor opens it up for Q&A
11:37-11:39 AM Governor closing remarks
11:39-11:40 AM SW wraps up call; reminds reporters of embargo, 1:30 p.m. press conference, and how to get a hold of everyone

Possible Topics:
Flint water action plan
Lead in Flint water
Handling of Flint water issue
Genesee Co. health emergency action
ACLU action
Hurley data
Reconnecting Flint to Detroit water

Media invited:
Flint area media (print, TV and radio) – Flint Journal/Ron Fonger; WJRT TV 12, WNEM TV 5, WEYI TV 25, WFNT Radio
Associated Press – Ed White
Detroit News – Jim Lynch
Detroit Free Press – Nancy Kaffer, Kristi Tanner & Kathy Gray
Michigan Radio – Steve Carmody

From: McKane, Patricia (DCH)
To: Wells, Eden (DCH)
Cc: LyonCallo, Sarah (DCH)
Date: Wednesday, September 30, 2015 5:24:47 PM

Ok I split this out. It should be only zip
I had to split the numbers into two tables, because of the amount of data.
The % is all one page 2

From:	Pallone, Maggie (DEQ)
To:	Hertel, Elizabeth (DCH); Lasher, Geralyn (DCH); Wells, Eden (DCH)
Cc:	Wurfel, Brad (DEQ); Busch, Stephen (DEQ)
Subject:	Meeting today
Date:	Monday, September 28, 2015 9:11:20 AM

Geralyn, Elizabeth and Dr. Wells,
What time can you meet today? We are free outside of 1230-130.
We need to discuss the 9 points emailed by Director Wyant and the press conference. I understand the Director's discussed Friday afternoon.
Thanks
Maggie

From: Eisner, Jennifer (DHHS)
To: Grijalva, Nancy (DHHS)
Cc: Lyon, Nick (DHHS); Lasher, Geralyn (DHHS); Wells, Eden (DHHS)
Subject: Nick"s Talking Points
Date: Friday, October 2, 2015 10:19:41 AM

Nancy -- Please have Nick use these!

With the evolving filter situation, the talking points have been updated. Please note that in Nick's talking points, State Disability Assistance (SDA) has been added to the list of programs that will be eligible for filters.

The general talking points have been updated as well.

Thank you,
Jennifer

From: Mona Hanna-Attisha
To: Wells, Eden (DCH)
Subject: Prelim GIS results6
Date: Tuesday, September 29, 2015 12:26:10 PM
Attachments: image001.jpg

Dr Wells, thanks for the phone call. I appreciate your reaching out. Below is our most recent analysis looking more specifically at the City of Flint and focusing on wards/neighborhoods via GIS analysis. This is very preliminary, but even more frightening. Our next steps include overlaying this with the locations of lead service lines.

I would appreciate your efforts to expedite our data request for the raw data so that we can run similar analysis with your larger sample size. Thanks again, and let me know if I can be of any assistance. Mona

Updated Findings:

Using GIS (Geographic Information System) map technology, we have further analyzed our blood lead level data. Our initial analysis examined children living in Flint zip codes, 48501-48507; however, this included households receiving non-Flint water. Our refined GIS-based analysis now includes only those households who receive water from the City of Flint.

The results reveal an even greater increase in the percentage of children with elevated blood lead levels (EBL). Pre-switch, the proportion of children with EBL was 2.4%, and post-switch the proportion was 4.9% (p=0.019). This is compared with our initial zip code-based analysis that showed pre-switch 2.1% and post-switch 4.0% (p=0.025). Once again, the change in non-Flint EBL% was not statistically significant.

Preliminary GIS analysis has identified certain areas within the city limits that experienced the greatest rate of EBL% increase. Specifically, we found the greatest increases in wards 5 and 6 (particularly in neighborhoods near Dupont St between University Ave and Pasadena Ave); the EBL% more than **tripled** in these wards. In ward 5, the EBL % increased from 4.9% to 15.7% (p=0.038). The area of intersection between wards 3, 4, and 5 (in the east side of the city) also appeared high. Lastly, ward 7 had high pre and post-levels EBL% above 5% (specifically in the western portion of the ward).

Of note, our results continue to correlate with the high water lead levels from the Virginia Tech samples. Most notably, the high percentage of EBL% in wards 5, 6, and 7 also correspond with the high water lead levels in wards 5, 6, and 7.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development

Mhanna1@hurleymc.com

From: LyonCallo, Sarah (DHHS)
To: Wells, Eden (DHHS)
Cc: Travis, Rashmi (DHHS); Miller, Corinne (DHHS)
Subject: RE: anyone have nancy P or Bob S cell phone numbers?
Date: Friday, October 2, 2015 7:18:00 PM

My understanding is this is CDC protocol for handling the clinical data to get it into surveillance format. What Bob sends is the same data that goes to local health and to CDC (used to be STELLAR) – it is the raw surveillance data. I don't know the protocols for how the clinical tests come in through the warehouse –this is really a Bob question.

From: Wells, Eden (DHHS)
Sent: Friday, October 02, 2015 7:11 PM
To: LyonCallo, Sarah (DHHS)
Cc: Travis, Rashmi (DHHS); Miller, Corinne (DHHS)
Subject: Re: anyone have nancy P or Bob S cell phone numbers?

I sent an email that is portraying a real concern--- Sarah would having tenths have helped the sensitivity of our data??????

Sent from my iPhone

On Oct 2, 2015, at 7:06 PM, LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov> wrote:

> Bob has already responded and Mona has come back with more questions. Someone needs to be responsive over the weekend or to say when we would be able to answer, I think – as Mona's group works with the data, there will be more questions.
>
> ---
>
> **From:** Travis, Rashmi (DHHS)
> **Sent:** Friday, October 02, 2015 7:05 PM
> **To:** Wells, Eden (DHHS)
> **Cc:** LyonCallo, Sarah (DHHS); Miller, Corinne (DHHS)
> **Subject:** Re: anyone have nancy P or Bob S cell phone numbers?
>
> I emailed Bob and Nancy. Nancy may check her email over weekend. Is there an urgent need to contact on the weekend?
>
> Sent from my iPhone
>
> On Oct 2, 2015, at 6:56 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:
>
>> Ugh
>>
>> Sent from my iPhone

On Oct 2, 2015, at 6:38 PM, LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov> wrote:

> It would be great if Bob or Nancy could be contacted because I cannot find the answer to Mona's question about rounding in any materials on CDC or MDHHS CLPP materials…. Specifically Mona wants to know how a lab test with decimal values is rounded in the data base.
> Do we round up?
> Do we round down?
> Do we use the rounding rule?
>
> I am assuming we are following a cdc protocol on rounding rules, but can't find any mention of rounding in the data specs I have been able to find thus far…..

From: Mona Hanna-Attisha
To: Wells, Eden (DHHS)
Subject: RE: Call you around noon-12:30?
Date: Friday, October 2, 2015 10:18:06 AM

Sounds great. My cell is ___, and I'll be available at that time.

From: Wells, Eden (DHHS) [mailto:WellsE3@michigan.gov]
Sent: Friday, October 02, 2015 10:13 AM
To: Mona Hanna-Attisha
Subject: Call you around noon-12:30?

If I miss you, call my cell in this time period at ____.

Eden
Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services
201 Townsend St., 5th Floor CVB
Lansing, MI 48913

From: LyonCallo, Sarah (DHHS)
To: Dykema, Linda D. (DHHS)
Cc: Miller, Mark (DHHS); Priem, Wesley F. (DHHS)
Subject: Re: Childhood Lead Poisoning Prevention program documents
Date: Friday, September 25, 2015 2:42:11 PM

Yes. We can look at younger as well.

Sent from my iPad

On Sep 25, 2015, at 2:01 PM, Dykema, Linda D. (DCH) <DykemaL@michigan.gov> wrote:

It would appear that the Hurley physicians are looking at just younger children, rather than 0-16 years as did CLPPP.

From: Miller, Mark (DCH)
Sent: Friday, September 25, 2015 1:55 PM
To: Dykema, Linda D. (DCH); Priem, Wesley F. (DCH)
Subject: FW: Childhood Lead Poisoning Prevention program documents
Importance: High

FYI. Don't distribute too broadly!

From: Travis, Rashmi (DCH)
Sent: Friday, September 25, 2015 11:15 AM
To: Miller, Mark (DCH) <millerm1@michigan.gov>
Subject: FW: Childhood Lead Poisoning Prevention program documents
Importance: High

FYI the PPT from Hurley.

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 23, 2015 5:33 PM
To: Travis, Rashmi (DCH); Robinson, Mikelle (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Cc: Fink, Brenda (DCH)
Subject: Childhood Lead Poisoning Prevention program documents
Importance: High

Hello – I'm going to send a series of emails with materials you have asked for, as a way to organize them.

The first document attached to this email is our CLPPP updated analysis of the blood lead testing data we have for children aged 0-16 in Flint. This is an update from what we sent to the Director's office earlier in the year, in that we added an additional year (2010-2011), and added data for May-August 2015 (per Geralyn's request in an email late last week).

Regarding this data:

- We are using the timeframe of May –April for this chart, because the water source change in Flint happened in April 2014. So, we started by looking at the 12 month time period from May 2014 – April 2015. Then we went back and compared that same time frame to the 4 previous years, to see if the pattern was similar, significantly different, etc.
- We included all children with a Flint address, which may not exactly conform

to the city boundaries.

- We only included first time blood lead levels of ≥ 5 mcg/dL, not all subsequent tests a child may have received.
- We included all types of blood samples – venous blood draws, capillary samples, or unknown (e.g. not labeled as venous or capillary). Typically we would point to venous samples as the best, most reliable, but we had many non-venous samples, so to be inclusive added those in.

Looking at the charts, you can definitely see the seasonal impact associated with lead poisoning.

We do NOT see a different pattern of results for the 2014-2015 year, right after the change in water source. That year looks more like the data from 10-11, and 11-12.

For the full 5 years worth of data, testing rates were pretty consistent, so we don't think that is driving the data. However, note that testing levels for May-August 2015 appear to be lower than in the previous 5 years.

The second document I have attached is a presentation sent to us this morning by Dr. Mona Hanna-Attisha, from Hurley Medical Center. She shared this related to her data request that she sent to our program. In scanning it, we noted that she is using different data than we did (by age, by zip code, time frames, which years she included, etc.), so comparing our data chart to her results is like comparing apples and oranges. We have not run any analyses using her parameters. We did note some slides in her document that we might disagree with, for example her statement that water is the primary source of lead (in Michigan, it remains lead paint that is our primary source of lead exposure).

Please let us know if you have questions you have about the data charts we produced. Next email will be some of our program materials, that may be of use in the upcoming outreach effort. Also, Rashmi indicated who I should include on this email, and I trust you will share with others as appropriate.

Nancy

From:	LyonCallo, Sarah (DHHS)
To:	Miller, Corinne (DHHS)
Cc:	Dykema, Linda D. (DHHS); Priem, Wesley F. (DHHS); Groetsch, Kory J. (DHHS); Peeler, Nancy (DHHS); Miller, Mark (DHHS); McFadden, Jevon (DHHS)
Subject:	RE: embedded powerpoint
Date:	Friday, September 25, 2015 6:02:06 PM

Whoops! Sorry Corinne!!

From: Miller, Corinne (DCH)
Sent: Friday, September 25, 2015 2:49 PM
To: LyonCallo, Sarah (DCH)
Cc: Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Groetsch, Kory J. (DCH); Peeler, Nancy (DCH); Miller, Mark (DCH); McFadden, Jevon (DCH)
Subject: Re: embedded powerpoint
State epi makes the request for an epi-aid.

Sent from my iPhone

On Sep 25, 2015, at 1:43 PM, LyonCallo, Sarah (DCH) <lyoncallos@michigan.gov> wrote:

> Is that process like an epi-aid? where the state health officer makes the request?
>
> Sent from my iPad
>
> On Sep 25, 2015, at 2:21 PM, Dykema, Linda D. (DCH) <DykemaL@michigan.gov> wrote:
>
> > I just spoke with Mark Johnson with the ATSDR R5 office in Chicago. As you're probably aware, Sen. Kildee has contacted EPA, CDC, DEQ about lead in Flint drinking water, which is how ATSDR has become involved. Mark suggested MDHHS request an independent CDC review of the EBL data to address the issues raised by the Hurley study.
> >
> > **From:** Miller, Corinne (DCH)
> > **Sent:** Thursday, September 24, 2015 4:57 PM
> > **To:** Priem, Wesley F. (DCH); Dykema, Linda D. (DCH); Groetsch, Kory J. (DCH)
> > **Subject:** embedded powerpoint
> > This link should take you to an embedded PowerPoint of a Hurley physician study on lead in the Flint drinking water.
> > http://www.mlive.com/opinion/flint/index.ssf/2015/09/abandon_flint_river_for_drinki.html
> > Corinne

From: Moran, Susan (DCH)
To: Wells, Eden (DCH)
Subject: Re: Env. Health Perspectives on Washington DC. lead in Drinking Water
Date: Friday, September 25, 2015 7:51:54 AM

Thanks for reviewing and qualifying. And I apologize if unnecessarily asked you to look into this, sounds like all the bases had been covered, that's a good thing.

Sent from my iPhone

On Sep 24, 2015, at 7:01 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

> Sue,
> I need to qualify my thoughts in that this issue (comparing state CLPP to Flint pediatrician data) may have already been discussed with MDHHS epidemiologists, MDEQ and Gov office today--
>
> E
>
> Sent from my iPhone
>
> On Sep 24, 2015, at 8:16 PM, Moran, Susan (DCH) <MoranS@michigan.gov> wrote:
>
>> I think this is the state data....
>>
>> Sent from my iPhone
>>
>> Begin forwarded message:
>>
>>> **From:** "Robinson, Mikelle (DCH)" <RobinsonM18@michigan.gov>
>>> **Date:** September 24, 2015 at 12:14:09 PM MDT
>>> **To:** "Lasher, Geralyn (DCH)" <lasherg@michigan.gov>, "Hertel, Elizabeth (DCH)" <HertelE@michigan.gov>
>>> **Cc:** "Moran, Susan (DCH)" <MoranS@michigan.gov>, "Miller, Mark (DCH)" <millerm1@michigan.gov>
>>> **Subject: FW: Env. Health Perspectives on Washington DC. lead in Drinking Water**
>>>
>>> FYI – on the call with EPA that Wes participated in today.
>>>
>>> ---
>>>
>>> **From:** Priem, Wesley F. (DCH)
>>> **Sent:** Thursday, September 24, 2015 1:31 PM
>>> **To:** Klevs, Mardi (klevs.mardi@epa.gov); Martig, Anton (Tony)

(martig.anton@epa.gov)
Cc: Miller, Corinne (DCH); Robinson, Mikelle (DCH); Dykema, Linda D. (DCH); Groetsch, Kory J. (DCH); Peeler, Nancy (DCH); Scott, Robert L. (DCH)
Subject: FW: Env. Health Perspectives on Washington DC. lead in Drinking Water

Mardi and Tony;

I will be sending you at three emails regarding the Flint lead in water concern. This being the article on the D.C. study an a summary of our meeting. I will also send you a response DEQ has prepared and also the M Live article.

Summary from our meeting this morning:

<!--[if !supportLists]-->1. <!--[endif]--> Dialog regarding the DEG Frequently asked questions and there was no objections to the information presented.

<!--[if !supportLists]-->2. <!--[endif]-->Discussion on who was taking the lead from the municipalities whether it was the city of Genesee County Health Department. It appears the city and mayor is taking the lead.

<!--[if !supportLists]-->3. <!--[endif]-->Local Health Department is working on preparing information for the public

<!--[if !supportLists]-->4. <!--[endif]-->Information being prepared from our, State, CLPPP and this information can still be revised to include more information on drinking water.

<!--[if !supportLists]-->5. <!--[endif]-->Our Environmental Toxicological Section can provide assistance if needed for the public outreach materials, although the staff person who would do this work is on vacation till next week.

<!--[if !supportLists]-->6. <!--[endif]-->CLPPP is working to review the epi study and will prepare a power point to explain what the results imply. They will work closely with the Department's epidemiologist who prepared the first results to ensure validity and the proper discussion of the study.

<!--[if !supportLists]-->7. <!--[endif]-->The idea of providing filters to the public was discussed. A call to the National Sanitation Foundation was made to discuss this issue further and determine proper filters.

<!--[if !supportLists]-->8. <!--[endif]-->CLPPP can

provide EPA with 2013- 2014. See attached. 2015 data-to-date is not yet available but can be later if needed.

<!--[if !supportLists]-->9. <!--[endif]-->Our department was informed while we were meeting the Flint advocates along with others are to be holding a press conference at 3:00 today. The advocates are demanding that the water supply revert back to the city of Detroit's drinking water.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1868000/

Excerpt below with the plan they implemented.

Following the LCR (U.S. EPA 1991), guidance from the U.S. EPA, consultation with the DC Department of Health, and its own contingency plans, in 2003 the DCWASA implemented plans for families living in homes with lead lines or testing above the LAL:

- Advisories were disseminated recommending that water lines should be flushed for 10 min before consuming drinking water.
- Specific advice for limiting exposure to children < 6 years of age and pregnant and nursing women was sent to all households with suspected lead service lines, in the form of flyers prepared in English, Spanish, Korean, Chinese, Vietnamese, and Amharic.
- Filters were distributed to homes with suspected lead service lines and later to all homes with a test result > 15 ppb (the LAL). Replacement filter cartridges were then sent to the same homes at 6-month intervals for the duration of the period of the exceedance, ending in June 2006.
- The board of directors of the DCWASA decided to adopt a voluntarily accelerated program to replace the public segment of all lead service lines in the District of Columbia, exceeding requirements of the LCR (U.S. EPA 1991).
- Homeowners were offered replacement of the private segment of lead service lines on their property, at cost, at the same time that the public segments of the lead service lines were replaced. When the public line is replaced but the private line is not, lead levels are reduced proportionally to the length of pipe replaced but not eliminated.

- Low-cost financing was arranged with a local bank for qualifying property owners who wished to replace the private part of the lead service line on their property. The DC government later made grants available to low-income eligible residents for this purpose.
- The DCWASA offered free water testing to any customer in the distribution area who requested it.

<Pages from CLPPP 2013 Data Report.pdf>

<2014 Lead Testing and EBLL 0-5 072015.pdf>

From:	Robinson, Mikelle (DHHS)
To:	Minicuci, Angela (DHHS)
Cc:	Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Lasher, Geralyn (DHHS); Eisner, Jennifer (DHHS); Hertel, Elizabeth (DHHS); Moran, Susan (DHHS); Miller, Mark (DHHS)
Subject:	RE: Flint lead data
Date:	Thursday, September 24, 2015 2:26:47 PM

Mark Valacak (health officer) informed me that he sent some recommended revisions to the city water department for the advisory and will forward it to me when it is available. So, I assume an advisory is still being planned.

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 2:07 PM
To: Peeler, Nancy (DCH); Scott, Robert L. (DCH); Lasher, Geralyn (DCH); Eisner, Jennifer (DCH); Robinson, Mikelle (DCH); Moran, Susan (DCH); Hertel, Elizabeth (DCH)
Subject: FW: Flint lead data

The Next Steps slide no longer recommends that the city declare a health advisory. It now says 'support city's health advisory'. If Flint will be issuing a health advisory, will Genesee County support this?

Angela

From: Murray, David (GOV)
Sent: Thursday, September 24, 2015 1:56 PM
To: Hollins, Harvey (GOV) <hollinsh@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>; Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Clement, Elizabeth (GOV) <clemente@michigan.gov>; Muchmore, Dennis (GOV) <muchmored@michigan.gov>; Agen, Jarrod (GOV) <AgenJ@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Tommasulo, Karen (DEQ) <TommasuloK@michigan.gov>
Cc: Biehl, Laura (GOV) <BiehlL@michigan.gov>; Brown, Jessica (GOV) <BrownJ53@michigan.gov>; Heaton, Anna (GOV) <HeatonA@michigan.gov>
Subject: Flint lead data

Team,

Here's the data that will be presented at the Hurley Hospital press conference at 3 p.m. As you'll see, they are pointing to individual children, a very emotional approach. Our challenge will be to show how our state data is different from what the hospital and the coalition members are presenting today.

Dave

---------- Forwarded message ----------
From: **Andy Leavitt** <aleavitt@senatedems.org>
Date: Thu, Sep 24, 2015 at 1:41 PM
Subject: Data
To: Angela Wittrock <awittrock@senatedems.org>

Hey Angela,
Sorry for the delay. Dr. Mona Hanna-Attisha wanted to make a few changes to one of her slides.
Andy

From: Peeler, Nancy (DCH)
To: Wells, Eden (DHHS); Miller, Corinne (DHHS); Miller, Mark (DHHS); LyonCallo, Sarah (DHHS); Dykema, Linda D. (DHHS); Priem, Wesley F. (DHHS); Travis, Rashmi (DHHS)
Cc: Fink, Brenda (DHHS); Scott, Robert L. (DHHS)
Subject: RE: Hurley -- follow up about the question on Hurley lab results
Date: Wednesday, September 30, 2015 6:50:07 PM

I can partially answer your question now, will get additional info from Bob and send more later.

The data flows in daily, year-round. We process several thousand test results every week. We monitor the results daily, and have an algorithm for our follow-up response, based on the blood lead level.

Because we are processing results every day, we do see some patterns if they begin to emerge, especially with the higher lead levels. We normally track and report data at health department level, county level/Detroit. We are still building our capacity and putting new procedures in place via our CDC Surveillance grant to crank out more reports/report cards, and more frequent data reports, especially with the switch in focus to levels of 5 and above (which means we are focusing on a larger number of results than just 10 and above). We develop and share out many maps, charts, graphs, and yes, do publish an annual legislative report.

We have .2 FTE Epi support (Cristin Larder), mostly for special projects and/or reports, for example, Cristin is working with us and Dr. Stan Kaplowitz from MSU to use his research to help pinpoint smaller geographic areas with higher risk, so we can better direct resources toward those areas.

Bob, can you please add more information about frequency of your analysis, and how we detect issues?

From: Wells, Eden (DCH)
Sent: Wednesday, September 30, 2015 6:24 PM
To: Peeler, Nancy (DCH); Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH)
Subject: RE: Hurley -- follow up about the question on Hurley lab results

That sounds about right.

May I ask,, is it CLPP's usual process to collect the lead data on an ongoing basis…if so, at what level is the data usually analyzed (by Epi?) IS it daily,nmonthly? Quarterly? Annually? How would we normally detect/know if there is an issue in a particular locality---do you look at it at county level or smaller when you peruse your data? This question may arise…

E

From: Peeler, Nancy (DCH)

Sent: Wednesday, September 30, 2015 5:22 PM
To: Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH); Wells, Eden (DCH)
Subject: FW: Hurley -- follow up about the question on Hurley lab results

Hi all – I talked to Bob to confirm the information I had shared about the Hurley lab results. It is a little more nuanced than I had explained, forwarding Bob's explanation, FYI.

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 5:05 PM
To: Peeler, Nancy (DCH)
Subject: Hurley

Hurley Medical Center is listed as the "Provider" on approximately half of the blood lead results we received for Flint children in 2014—I assume that pattern holds in 2015 and in recent years. Warde Medical Lab is listed as the "Laboratory" on those results. Warde reported the results to CLPPP in accordance with State law.

I can't say whether the blood specimens were a) drawn at Hurley's lab, or b) simply passed through Hurley's lab—from physician office to Hurley to Warde for analysis. As I understand it, both scenarios are common at various hospital labs.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Miller, Corinne (DCH)
To: Wells, Eden (DCH)
Subject: Re: Hurley GIS results
Date: Tuesday, September 29, 2015 12:59:56 PM

Good!

Sent from my iPhone

On Sep 29, 2015, at 12:58 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

> Dr. Hanna-Attashi sent me some prelim GIS findings they have---says they look "even more scary". Want so see them---I am hesitant to send to other as they need to work on current issues.
>
> I talked to Dr. Hanna-Attashi as well as Dr. Reynolds, lettingthem know I appreciate thir work on behalf of their patients and that we can work together to address this ph issue
>
> E

From:	Robinson, Mikelle (DCH)
To:	Moran, Susan (DCH)
Cc:	Wells, Eden (DCH)
Subject:	RE: Hurley Hospital"s bulletin regarding Flint water
Date:	Thursday, September 24, 2015 2:47:47 PM
Attachments:	image001.jpg image002.png image003.jpg

CLPPP is working to review the epi study and will prepare a power point to explain what the results imply. They will work closely with the Corinne/Patty who prepared the first results to ensure validity and the proper discussion of the study. We'll work together on any of the health questions if they haven't already been answered in the fact sheets.

From: Moran, Susan (DCH)
Sent: Thursday, September 24, 2015 1:26 PM
To: Robinson, Mikelle (DCH); Wells, Eden (DCH)
Subject: Fwd: Hurley Hospital's bulletin regarding Flint water

Who is answering the health questions? What did Nancy/ Bob report?

Sent from my iPhone

Begin forwarded message:

> **From:** "Lasher, Geralyn (DCH)" <lasherg@michigan.gov>
> **Date:** September 24, 2015 at 10:26:52 AM MDT
> **To:** "Lyon, Nick (DCH)" <LyonN2@michigan.gov>, "Grijalva, Nancy (DCH)" <GrijalvaN@michigan.gov>, "Becker, Timothy (DCH)" <beckert1@michigan.gov>, "Minicuci, Angela (DCH)" <MinicuciA@michigan.gov>, "Eisner, Jennifer (DCH)" <EisnerJ@michigan.gov>, "Hertel, Elizabeth (DCH)" <HertelE@michigan.gov>, "Robinson, Mikelle (DCH)" <RobinsonM18@michigan.gov>, "Moran, Susan (DCH)" <MoranS@michigan.gov>
> **Subject: FW: Hurley Hospital's bulletin regarding Flint water**
>
> Mikelle has been told the Genesee Health Department will also be at the press conference today in Flint with the below groups. They have put together a fact sheet on lead and water that they will be sending us this afternoon.
>
> Angela and I have just gotten off the phone with Nancy Peeler and Bob Scott and are putting together talking points about this "study" that the physicians will be discussing that claims an increase in EBL in children since the change to the water system source.
>
> DEQ will be answering the questions as to why the city cannot just switch back to the Detroit system and how that won't solve the problem. We will answer the health questions.
>
> The City of Flint is also issuing a water advisory today to educate residents and has also asked the Governor for $30 million.
> http://www.mlive.com/news/flint/index.ssf/2015/09/flint_will_issue_lead_advisory.html#incart_m-rpt-2

From: Murray, David (GOV)
Sent: Thursday, September 24, 2015 11:47 AM
To: Lasher, Geralyn (DCH) <lasherg@michigan.gov>; Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Agen, Jarrod (GOV) <AgenJ@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>
Subject: Hurley Hospital's bulletin regarding Flint water

Team,

Here's the media bulletin issued by Hurley Hospital in Flint about the lead blood levels press conference this afternoon. I've reached out to Hurley's communications team, which has promised to send me whatever it has shared with the media on an embargoed basis. I'll forward that as soon as I receive it.

Dave

Hurley Medical Center logo RGB 280

Media Alert

FOR IMMEDIATE RELEASE

WHO: **Genesee County Medical Community**, including Hurley Medical Center, Greater Flint Health Coalition, Mott Children's Health Center, Hamilton Community Health Network & Genesee County Medical Society

WHAT: Press conference to address medical community's concerns regarding lead levels in the city of Flint's water supply and appropriate precautionary measures.

WHEN: **3pm, Today, September 24th, 2015**

WHERE: Hurley Medical Center, Charles White Conference Center

Media Note: Please enter on the Sixth Avenue entrance and check in with front desk upon arrival to be escorted to the Charles White Conference Center.

Dave Murray
Deputy Press Secretary ¦ Executive Office of Governor Rick Snyder
MurrayD1@michigan.gov
517-335-6397, office
517-449-8343, mobile
Twitter:@michigandmurray

Emblem

From: Eisner, Jennifer (DHHS)
To: Wells, Eden (DHHS); Lasher, Geralyn (DHHS); Grijalva, Nancy (DHHS); Lyon, Nick (DHHS)
Subject: Re: PLEASE review: Draft MLive guest column
Date: Friday, October 2, 2015 10:01:34 AM
Attachments: image001.jpg

I'll let them know. Thanks!

From: Wells, Eden (DHHS)
Sent: Friday, October 2, 2015 9:57 AM
To: Lasher, Geralyn (DHHS); Grijalva, Nancy (DHHS); Lyon, Nick (DHHS)
Cc: Eisner, Jennifer (DHHS)
Subject: RE: PLEASE review: Draft MLive guest column

"Experts are still working the data to determine exactly what it means, but the state takes lead seriously." Should be revised. Although continued analysis is being conducted, the MDHHS analysis is consistent with the local finding. (???)

From: Lasher, Geralyn (DHHS)
Sent: Friday, October 02, 2015 9:42 AM
To: Grijalva, Nancy (DHHS); Lyon, Nick (DHHS); Wells, Eden (DHHS)
Cc: Eisner, Jennifer (DHHS)
Subject: FW: PLEASE review: Draft MLive guest column

Please review

From: Murray, David (GOV)
Sent: Friday, October 02, 2015 9:33 AM
To: Lasher, Geralyn (DHHS) <lasherg@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Tommasulo, Karen (DEQ) <TommasuloK@michigan.gov>; Minicuci, Angela (DHHS) <MinicuciA@michigan.gov>; Eisner, Jennifer (DHHS) <EisnerJ@michigan.gov>; Agen, Jarrod (GOV) <AgenJ@michigan.gov>; Heaton, Anna (GOV) <HeatonA@michigan.gov>; Paciorek, Josh (GOV) <Paciorekj@michigan.gov>; Biehl, Laura (GOV) <BiehlL@michigan.gov>
Cc: Hollins, Harvey (GOV) <hollinsh@michigan.gov>
Subject: RE: PLEASE review: Draft MLive guest column

This version includes the additional information about the filters.

By Nick Lyon and Dan Wyant

People in Flint – and all of Michigan – need to know that that then they turn on the

faucet, the water they drink and bathe their children with, is safe and clean.

Flint residents have been hearing concerning news about the municipal water supply for more than a year. We're working to help Flint leaders address and fix short- and long-term problems with the city's water infrastructure.

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Experts are still working the data to determine exactly what it means, but the state takes lead seriously.

State agencies also are working in collaboration with the federal and Flint leaders to get residents accurate information to ease their fears.

Gov. Rick Snyder directed the Michigan Department of Environmental Quality and the Department of Health and Human Services to work with the U.S. Environmental Protection Agency to create a comprehensive action plan to build our knowledge about lead in Flint, better protect the community and restore public confidence in the regulatory framework.

We're testing the water in all of our schools so we know that our children are safe.

We're testing residences at no charge and expanding health exposure testing so families can be confident about the water coming into their homes.

We're providing faucet filters to Flint homes. The state is investing $1 million on this effort, building on the generosity and support of community groups and donors.

We're accelerating corrosion controls in the Flint drinking water system.

We're increasing the pace of water system improvements to address replacing lead service lines.

We're expediting the completion of the Karegnondi Water Authority pipeline.

We're expanding the Safe Drinking Water Technical Advisory Committee to ensure the best technology, practices and science are being followed by adding an expert from the U.S. EPA's Office of Research and Development.

The DHHS's chief medical executive, Dr. Eden Wells, has been designated Flint's drinking water public health adviser.

We're also boosting a comprehensive lead education program to make sure residents have detailed information about how to protect themselves and their homes.

That's key, because the lead in question does not come from the Flint River. The water leaving the drinking water plant is clean and safe. The water traveling through

the distribution system also is free of lead.

The lead issues happen when the water reaches homes that have lead service lines or lead plumbing. This is important to know for two reasons: Contamination happens at the homeowner level, it is very difficult to track precisely.

And, the longer water sits in lead pipes, the more lead it takes on, so homes on the same block might have very different results from lead testing, based on what kind of plumbing they have and how homeowners use their water.

All of the measures in the action plan build on efforts that have been underway for the last year. State agencies have been working with the city on a variety of issues and approaches to correct Flint's water infrastructure challenges.

That's because the health and safety of Flint residents – and people across our state – is our first priority.

More information about the action plan and lead is available at Michigan.gov/FlintDrinkingWater. People interested in getting their homes tested for free should call (810) 787-653, then press 1.
Nick Lyon is the director of the Michigan Department of Health and Human Services and Dan Wyant is the director of the Michigan Department of Environmental Quality.

From: Lasher, Geralyn (DHHS)
Sent: Friday, October 02, 2015 9:22 AM
To: Murray, David (GOV) <MurrayD1@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Tommasulo, Karen (DEQ) <TommasuloK@michigan.gov>; Minicuci, Angela (DHHS) <MinicuciA@michigan.gov>; Eisner, Jennifer (DHHS) <EisnerJ@michigan.gov>; Agen, Jarrod (GOV) <AgenJ@michigan.gov>; Heaton, Anna (GOV) <HeatonA@michigan.gov>; Paciorek, Josh (GOV) <Paciorekj@michigan.gov>; Biehl, Laura (GOV) <BiehlL@michigan.gov>
Subject: RE: PLEASE review: Draft MLive guest column

I think you will want to modify the filter language to now reflect the fact that filters will be provided to all Flint residents and not just assistance program folks with the $1 million Dan and Nick will be announcing.

From: Murray, David (GOV)
Sent: Friday, October 02, 2015 9:19 AM
To: Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Tommasulo, Karen (DEQ) <TommasuloK@michigan.gov>; Lasher, Geralyn (DHHS) <lasherg@michigan.gov>; Minicuci, Angela (DHHS) <MinicuciA@michigan.gov>; Eisner, Jennifer (DHHS) <EisnerJ@michigan.gov>; Agen, Jarrod (GOV) <AgenJ@michigan.gov>; Heaton, Anna (GOV) <HeatonA@michigan.gov>; Paciorek, Josh (GOV) <Paciorekj@michigan.gov>; Biehl, Laura (GOV) <BiehlL@michigan.gov>

Subject: PLEASE review: Draft MLive guest column

Team, this is a draft guest column for MLive, building on the draft that Brad wrote – but with changes to focus on the action plan. I tried a more people-centered approach, thinking that the audience here is the residents. It's less defensive. It's also shorter. Please let me know if we need to make any changes, or if we are missing information you think should be in there.

Dave

By Nick Lyon and Dan Wyant

People in Flint – and all of Michigan – need to know that that then they turn on the faucet, the water they drink and bathe their children with, is safe and clean.

Flint residents have been hearing concerning news about the municipal water supply for more than a year. We're working to help Flint leaders address and fix short- and long-term problems with the city's water infrastructure.

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Nick Lyon is the director of the Michigan Department of Health and Human Services and Dan Wyant is the director of the Michigan Department of Environmental Quality.

Dave Murray
Deputy Press Secretary ¦ Executive Office of Governor Rick Snyder
MurrayD1@michigan.gov
517-335-6397, office
517-449-8343, mobile
Twitter:@michigandmurray

Emblem

From: Mona Hanna-Attisha
To: Wells, Eden (DCH)
Subject: Re: Prelim GIS results
Date: Tuesday, September 29, 2015 9:10:27 PM

That's right. I had my MSU white coat at the immun event, and I think I offended a few. Go blue and go green. ;)

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Sep 29, 2015, at 9:05 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

> Eat my hat- you are a UMSPH grad--- I owe you as I did NOT know that!!!
> Go blue--
> Eden
>
> Sent from my iPhone
>
> On Sep 29, 2015, at 7:51 PM, Mona Hanna-Attisha <MHanna1@hurleymc.com> wrote:
>
>> My undergrad was in env health (research in reproductive toxicology) and my mph was in health management and policy. My research team is awesome and we just enlisted a superstar public health geographer who is doing the GIS analysis.
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natural seasonal variations.

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On Sep 29, 2015, at 7:41 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

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Mona Hanna-Attisha
MD MPH

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Medical Center

Assistant Professor,
Department of
Pediatrics and Human
Development

Michigan State
University College of
Human Medicine

Office: 810-262-7257

mhanna1@hurleymc.com

From: Wells, Eden (DCH) [WellsE3@michigan.gov]

Sent: Tuesday, September 29, 2015 5:58 PM
To: Mona Hanna-Attisha
Subject: Re: Prelim GIS results

Good evening, Mona,

I am looking forward to our results as well.

I certainly understand your

role and the need to address the problem you identified; as physicians, our ethical and professional vows to care for and prevent harm to our patients is paramount. No need for data wars- I think we are all just trying to be sure, as you and I said earlier, that we are are comparing the same data the same way- "apples to apples".

Your point about water versus household sources is important, because that is certainly one of the issues here-- how to identify what potential sources of lead are responsible for EBLs in children, particularly in the CLPP database. Household (paint) is the most common culprit--- (this one

contributes most to the seasonality), and need to get the best analysis of the data that can look at the association to potential water sources. More to follow!

I will follow-up in AM with our IRB folks and be sure they know that we have a wish to expedite--not sure how long the process is but will get an estimate.

Eden

Eden V. Wells, MD, MPH, FACPM

Chief Medical Executive

Michigan Department of Health and Human Services

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Lansing, MI 48913

Phone: 517-335-8011

wellse3@michigan.gov

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>

Sent: Tuesday, September 29, 2015 5:35 PM
To: Wells, Eden (DCH)
Subject: Re: Prelim GIS results

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ethically could not stay silent. In addition, your annual EBL% supports our findings - annual decrease (as seen nationally) and then an increase post-water switch. We also knew that releasing our data would only incite a data war; however, the more we dig, the more alarming the results. (Do you know GM stopped using flint river water because it was too corrosive on their parts??? That should have alerted us to its effect on lead pipes.)

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lead screening programs underestimate risk from lead in water. Infants on formula are most at risk yet we screen when they are developmentally likely to be exposed from lead from house hold sources (paint, dust, soil, etc). Lead levels could have peaked at 4 months and dropped by 12 months.

Finally, we do hope we can receive our data request soon so we can do the exact same analysis.

Thanks and sorry for the long email.
Mona

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
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Michigan State University

On Sep 29, 2015, at 2:59 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

Hi Mona,

Quick question--

We hope to get prelim data analysis results starting this afternoon-confirmed likely in next day or so----not sure when you may be going public with the GIS but do you

think will be before then? Or are you doing the overlay now? Hoping for coordination of "apples"--I have followed-up on your data request.

Eden

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>

Sent: Tuesday, September 29, 2015 12:25 PM

To: Wells, Eden

(DCH)
Subject:
Prelim
GIS
results

Dr
Wells,
thanks
for the
phone
call. I
appreciate
your
reaching
out.
Below
is our
most
recent
analysis
looking
more
specifically
at the
City of
Flint
and
focusing
on
wards/neighborhoods
via GIS
analysis.
This is
very
preliminary,
but
even
more
frightening.
Our
next
steps
include
overlaying

this with the locations of lead service lines.

I would appreciate your efforts to expedite our data request for the raw data so that we can run similar analysis with your larger sample size.

Thanks again, and let me know if I can be of any assistance.

Mona

Updated Findings:

Using GIS (Geographic Information System) map technology, we have further analyzed our blood lead level data. Our initial analysis examined children living in Flint zip codes, 48501-48507; however, this included households receiving non-Flint water. Our refined GIS-based analysis now includes only those households who receive water from the City

of
Flint.

The
results
reveal
an
even
greater
increase
in the
percentage
of
children
with
elevated
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lead levels
(EBL).
Pre-
switch,
the
proportion
of
children
with
EBL
was
2.4%,
and
post-
switch
the proportion
was
4.9%
(p=0.019).
This is
compared
with
our
initial
zip
code-
based
analysis
that showed
pre-
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and

post-switch 4.0% (p=0.025). Once again, the change in non-Flint EBL% was not statistically significant.

Preliminary GIS analysis has identified certain areas within the city limits that experienced the greatest rate of EBL% increase. Specifically, we found the greatest increases in wards 5 and 6 (particularly in neighborhoods near Dupont St between

University Ave and Pasadena Ave); the EBL% more than **tripled** in these wards. In ward 5, the EBL % increased from 4.9% to 15.7% (p=0.038). The area of intersection between wards 3, 4, and 5 (in the east side of the city) also appeared high. Lastly, ward 7 had high pre and post-levels EBL% above 5% (specifically

in the western portion of the ward).

Of note, our results continue to correlate with the high water lead levels from the Virginia Tech samples. Most notably, the high percentage of EBL% in wards 5, 6, and 7 also correspond with the high water lead levels in wards 5, 6, and 7.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

<season water lead article.pdf>

From: Mona Hanna-Attisha
To: Wells, Eden (DCH)
Subject: Re: Prelim GIS results2
Date: Tuesday, September 29, 2015 7:51:52 PM

My undergrad was in env health (research in reproductive toxicology) and my mph was in health management and policy. My research team is awesome and we just enlisted a superstar public health geographer who is doing the GIS analysis.

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Sep 29, 2015, at 7:48 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

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On Sep 29, 2015, at 6:50 PM, Mona Hanna-Attisha <MHanna1@hurleymc.com> wrote:

FYI in regards to seasonality, summer is also the peak for lead in water. Lots of literature regarding this, see attached article - most notably fig 3 which predicts the percentage of EBL in summer due to lead in water.

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Office: 810-262-7257

mhanna1@hurleymc.com

From: Wells, Eden (DCH) [WellsE3@michigan.gov]
Sent: Tuesday, September 29, 2015 5:58 PM
To: Mona Hanna-Attisha
Subject: Re: Prelim GIS results

Good evening, Mona,

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I will follow-up in AM with our IRB folks and be sure they know that we have a wish to expedite--not sure how long the process is but will get an estimate.

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From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 12:25 PM
To: Wells, Eden (DCH)
Subject: Prelim GIS results

Dr Wells, thanks for the phone call. I appreciate your reaching out. Below is our most recent analysis looking more specifically at the City of Flint and focusing on wards/neighborhoods via GIS analysis. This is very preliminary, but even more frightening. Our next steps include overlaying this with the locations of lead service lines.

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Updated Findings:

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The results reveal an even

greater increase in the percentage of children with elevated blood lead levels (EBL). Pre-switch, the proportion of children with EBL was 2.4%, and post-switch the proportion was 4.9% (p=0.019). This is compared with our initial zip code-based analysis that showed pre-switch 2.1% and post-switch 4.0% (p=0.025). Once again, the change in non-Flint EBL% was not statistically significant.

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Human Development
Mhanna1@hurleymc.com

<season water lead article.pdf>

From: Mona Hanna-Attisha
To: Wells, Eden (DCH)
Subject: RE: Prelim GIS results3
Date: Tuesday, September 29, 2015 6:50:28 PM

FYI in regards to seasonality, summer is also the peak for lead in water. Lots of literature regarding this, see attached article - most notably fig 3 which predicts the percentage of EBL in summer due to lead in water.

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I would appreciate your efforts to expedite our data request for the raw data so that we can run similar analysis with your larger sample size. Thanks again, and let me know if I can be of any assistance. Mona

Updated Findings:

Using GIS (Geographic Information System) map technology, we have further analyzed our blood lead level data. Our initial analysis examined children living in Flint zip codes, 48501-48507; however, this included households receiving non-Flint water. Our refined GIS-based analysis now includes only those households who receive water from the City of Flint.

The results reveal an even greater increase in the percentage of children with elevated blood lead levels (EBL). Pre-switch, the proportion of children with EBL was 2.4%, and post-switch the proportion was 4.9% (p=0.019). This is compared with our initial zip code-based analysis that showed pre-switch 2.1% and post-switch 4.0% (p=0.025). Once again, the change in non-Flint EBL% was

not statistically significant.

Preliminary GIS analysis has identified certain areas within the city limits that experienced the greatest rate of EBL% increase. Specifically, we found the greatest increases in wards 5 and 6 (particularly in neighborhoods near Dupont St between University Ave and Pasadena Ave); the EBL% more than **tripled** in these wards. In ward 5, the EBL % increased from 4.9% to 15.7% (p=0.038). The area of intersection between wards 3, 4, and 5 (in the east side of the city) also appeared high. Lastly, ward 7 had high pre and post-levels EBL% above 5% (specifically in the western portion of the ward).

Of note, our results continue to correlate with the high water lead levels from the Virginia Tech samples. Most notably, the high percentage of EBL% in wards 5, 6, and 7 also correspond with the high water lead levels in wards 5, 6, and 7.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From: Mona Hanna-Attisha
To: Wells, Eden (DCH)
Subject: Re: Prelim GIS results4
Date: Tuesday, September 29, 2015 5:36:05 PM

Thanks Eden.

Looking forward to seeing your analysis.

Our intent has never been to go public with anything. However, when we noticed our findings and the glaring correlation to elevated water lead levels in the same locations and learned that corrosion control was never added to the water treatment, we ethically could not stay silent. In addition, your annual EBL% supports our findings - annual decrease (as seen nationally) and then an increase post-water switch. We also knew that releasing our data would only incite a data war; however, the more we dig, the more alarming the results. (Do you know GM stopped using flint river water because it was too corrosive on their parts??? That should have alerted us to its effect on lead pipes.)

So as of now, no plans to release anything to public, although we did share some of the high risk location info to identify priority response areas (bottled water, filters, etc).

Lastly, the state lead screening programs underestimate risk from lead in water. Infants on formula are most at risk yet we screen when they are developmentally likely to be exposed from lead from house hold sources (paint, dust, soil, etc). Lead levels could have peaked at 4 months and dropped by 12 months.

Finally, we do hope we can receive our data request soon so we can do the exact same analysis.

Thanks and sorry for the long email. Mona

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Sep 29, 2015, at 2:59 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

> Hi Mona,
>
> Quick question--
>
> We hope to get prelim data analysis results starting this afternoon-confirmed likely in next day or so----not sure when you may be going public with the GIS but do you think will be before then? Or are you doing the overlay now? Hoping for coordination of "apples"--I have followed-up on your data request.

Eden

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 12:25 PM
To: Wells, Eden (DCH)
Subject: Prelim GIS results

Dr Wells, thanks for the phone call. I appreciate your reaching out. Below is our most recent analysis looking more specifically at the City of Flint and focusing on wards/neighborhoods via GIS analysis. This is very preliminary, but even more frightening. Our next steps include overlaying this with the locations of lead service lines.

I would appreciate your efforts to expedite our data request for the raw data so that we can run similar analysis with your larger sample size. Thanks again, and let me know if I can be of any assistance. Mona

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Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From: Miller, Corinne (DCH)
To: Wells, Eden (DCH)
Subject: Re: Prelim GIS results5
Date: Tuesday, September 29, 2015 2:47:45 PM

Shared with Dykema, LC and Priem for situational awareness only.

I should have trend data stratified by risk to review sometime this afternoon.

Thanks.

Sent from my iPhone

On Sep 29, 2015, at 2:45 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

> So far, have only shared with you. Forward as you see appropriate, but we should not try to address this until our MDHHS analysis complete, perhaps? The other email I sent ad to do with the data Bob Scott sent to Dr. H-A so CC'd you on that.
>
> Eden
>
> ---
>
> **From:** Mona Hanna-Attisha <MHanna1@hurleymc.com>
> **Sent:** Tuesday, September 29, 2015 12:25 PM
> **To:** Wells, Eden (DCH)
> **Subject:** Prelim GIS results
>
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Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From: Eisner, Jennifer (DHHS)
To: Wells, Eden (DHHS)
Cc: Minicuci, Angela (DHHS)
Subject: Re: Press event
Date: Friday, October 2, 2015 8:12:07 AM

For you to point to or for distributing at the event?

Sent from my iPhone

On Oct 2, 2015, at 7:34 AM, "Wells, Eden (DHHS)" <WellsE3@michigan.gov> wrote:

> Can we print out the tool kit materials
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** "Peeler, Nancy (DHHS)" <PeelerN@michigan.gov>
> > **Date:** October 2, 2015 at 7:32:10 AM EDT
> > **To:** "Moran, Susan (DHHS)" <MoranS@michigan.gov>
> > **Cc:** "Priem, Wesley F. (DHHS)" <priemw@michigan.gov>, "Travis, Rashmi (DHHS)" <TravisR@michigan.gov>, "Miller, Corinne (DHHS)" <MillerC39@michigan.gov>, "LyonCallo, Sarah (DHHS)" <lyoncallos@michigan.gov>, "Wells, Eden (DHHS)" <WellsE3@michigan.gov>
> > **Subject: Re: Press event**
> >
> > Good morning, the communications office approved several pieces of our new tool kit yesterday, and they are posted on our website: www.Michigan.gov/lead
> >
> > The program fact sheet and the parent handout are probably the closest we have to what you are talking about. Let us know if that doesn't work and we can see what else we have in the toolkit or from CDC or APA.
> >
> > Sent from my iPhone
> >
> > On Oct 2, 2015, at 7:28 AM, Moran, Susan (DHHS) <MoranS@michigan.gov> wrote:
> >
> > > Hi all- Director is asking:
> > >
> > > "Do you have a document that describes the

lead program I can use if asked that contains general info like:"

Health effects of lead, including the lead thresholds and what they mean.

NOTE: This should be a consumer friendly document, I don't think he is looking for a technical document.

Sent from my iPhone

From: Grijalva, Nancy (DHHS)
To: Miller, Mark (DHHS)
Subject: RE: Proposed Press Conference and situation report from Mark Valacak, health officer
Date: Monday, September 28, 2015 11:11:45 AM

What exactly do you mean Gearing up to do more water testing? How much more? When will they start?

From: Miller, Mark (DCH)
Sent: Monday, September 28, 2015 10:52 AM
To: Anderson, Paula (DCH); Moran, Susan (DCH); Hertel, Elizabeth (DCH); Dykema, Linda D. (DCH); Miller, Corinne (DCH); Wells, Eden (DCH); Becker, Timothy (DCH); Lasher, Geralyn (DCH); Grijalva, Nancy (DCH)
Cc: Robinson, Mikelle (DCH)
Subject: RE: Proposed Press Conference and situation report from Mark Valacak, health officer

ALL:

Rashmi and I had a conference call this morning with Mark Valacak, the health officer at the Genesee County Health Department. He should be invited to the proposed press conference (below) and consulted with in advance. He's at 810 257-3588 or mvalacak@gchd.us.

From Mark Valacak:

On Formula and WIC

If a client calls and has concerns about their water, the GCHD will advise them to get their water tested by the City of Flint. If the results come back with elevated lead levels, they can be eligible to switch from powdered formula to "ready to feed". Meanwhile, they will advise the resident to run the cold water tap for at least 5 minutes, and if they want to be absolutely sure, they should use bottled water for all drinking, cooking and making formula until the tests come back. Bottled water is available from the "Diaper Bank" in Flint. (**WIC staff are checking to see how much premade formula is available statewide.)**

Testing

City of Flint is gearing up to do more water testing for residents.

Data

Mark Valacak said there's some question about our lead testing database, as there are FLINT mailing addresses in both Mundy and Flint Townships, and those Townships are still on *City of Detroit Water*. **(Data questions are being followed up on with Epi Staff.)**

Other PR

The Flint School Systems advised all students to bring bottled water to school.

There is a Flint City Council meeting on Monday, Sept. 28th, at 9 PM. They expect the water situation to be discussed.

Mark Miller
Director, Local Health Services
Michigan Department of Health & Human Services
201 Townsend, 6th Floor
Lansing MI 48913
(517) 335-8032
millerm1@michigan.gov

From: Anderson, Paula (DCH)

Sent: Monday, September 28, 2015 10:19 AM
To: Miller, Mark (DCH) <millerm1@michigan.gov>; Travis, Rashmi (DCH) <TravisR@michigan.gov>
Subject: FW: Proposed Press Conference on Flint Drinking Water

fyi

From: Grijalva, Nancy (DCH)
Sent: Monday, September 28, 2015 10:16 AM
To: Moran, Susan (DCH); Lyon, Nick (DCH)
Cc: Robinson, Mikelle (DCH); Wells, Eden (ewells@umich.edu); Hertel, Elizabeth (DCH); Lasher, Geralyn (DCH); Becker, Timothy (DCH); Dykema, Linda D. (DCH); Miller, Corinne (DCH); Anderson, Paula (DCH)
Subject: RE: Proposed Press Conference on Flint Drinking Water

Nick now has a phone conference at 11:30 with the Governor- Congressman Kildee at 11:30 am

---

From: Moran, Susan (DCH)
Sent: Monday, September 28, 2015 10:09 AM
To: Lyon, Nick (DCH)
Cc: Robinson, Mikelle (DCH); Wells, Eden (ewells@umich.edu); Hertel, Elizabeth (DCH); Lasher, Geralyn (DCH); Grijalva, Nancy (DCH); Becker, Timothy (DCH); Dykema, Linda D. (DCH); Miller, Corinne (DCH); Anderson, Paula (DCH)
Subject: Re: Proposed Press Conference on Flint Drinking Water

Lynda Dykema is the contact for questions on Virginia Tech/Hurley data.

Sent from my iPhone

On Sep 28, 2015, at 7:52 AM, Lyon, Nick (DCH) <LyonN2@michigan.gov> wrote:

> Director Wyant and I agreed this morning to establish a team to look at the recommendations below in preparation for a joint press conference later this week. I did modify one and remove one from his original email. He was suggesting an outside public health advisor. I think it's appropriate that this be our CME so I changed that piece. I volunteered Geralyn, Elizabeth, and Dr. Wells to serve on the team.
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> The areas where we need more attention are as follows:
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> 1) I need an analysis of the Virginia Tech/Hurley data and their conclusions. I would like to make a strong statement with a demonstration of proof that the lead blood levels seen are not out of the ordinary and are attributable to seasonal fluctuations. Geralyn is working on this for me but she needs someone in public health who can work directly with her on immediate concerns/questions. Sue – Please get her a name immediately.
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> 4) I think we did a good job getting the local public health department involved and I ask that we work in concert with him. The recommendation is that they be included in the press event this week.
>
> We need immediate action on these. I have a follow up phone call early this afternoon. I also ask that any requests coming from the team be treated with great urgency. The

expectation is that we will get on top of this and provide leadership on the issue.
Nick

From: Wyant, Dan (DEQ)
Sent: Monday, September 28, 2015 7:18 AM
To: Muchmore, Dennis (GOV); Lyon, Nick (DCH); Hollins, Harvey (GOV)
Cc: Wurfel, Sara (GOV); Wurfel, Sara (GOV); Lasher, Geralyn (DCH); Thelen, Mary Beth (DEQ)
Subject: Proposed Press Conference on Flint Drinking Water

Per the ongoing issues in Flint concerning their drinking water, I would offer the following recommendations. Let's discuss.

Recommendation

Press Conference in Flint – Wednesday, Thursday or Friday.

Participants

Mayor of Flint
Dan Wyant – Michigan Department of Environmental Quality
Nick Lyon – Department of Community Health
Susan Hedman – Region 5 Administrator or EPA
Harvey Hollins – Governor's office
Local Public Health Department

Announcement

Federal – State – Local action plan to address Flint Drinking Water

1. Governor Snyder names Dr. Eden Wells (DHHS Chief Medical Executive) as Flint drinking water Public Health Advisor.
2. All Flint schools water will immediately be tested to ensure that drinking water is safe.
3. Advisories will be disseminated recommending citizens flush your cold water pipes, use only water from the cold water tap for drinking, cooking and especially for making baby formula.
4. Implementation of fully optimized corrosion controls in the Flint drinking water system.
5. Expanded water testing of at risk properties.
6. Offer water testing at no cost to Flint residents to assure water is safe.
7. Convene a safe drinking water " Technical Review Advisory" to ensure best technology, practices and science is being utilized, including EPA's expertise and assistance from their Office of Research and Development.
8. Offer bottled water and premixed formula if test results indicate high levels of lead.

Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

From: Grijalva, Nancy (DCH)
To: Dykema, Linda D. (DCH); Wells, Eden (DCH); Miller, Corinne (DCH)
Cc: Moran, Susan (DCH)
Subject: RE: Proposed Press Conference on Flint Drinking Water
Date: Monday, September 28, 2015 3:32:14 PM

I've sent to our liaison to ask they move on this immediately, as it is a Director's priority… s/b done soon.

From: Dykema, Linda D. (DCH)
Sent: Monday, September 28, 2015 3:29 PM
To: Wells, Eden (DCH); Miller, Corinne (DCH); Grijalva, Nancy (DCH)
Cc: Moran, Susan (DCH)
Subject: RE: Proposed Press Conference on Flint Drinking Water
Importance: High

I contacted the DTMB help desk re my inability to access the VA Tech study web site. The problem is on our end. Trying to remotely remedy the situation did not work, so a ticket has been submitted and I was asked to also submit the attached form, which requires the signature of a deputy director or higher. Since Sue Moran is not in the office, I'll need this kicked up the chain as appropriate for a signature. Thanks

---

From: Dykema, Linda D. (DCH)
Sent: Monday, September 28, 2015 1:53 PM
To: Wells, Eden (DCH); Miller, Corinne (DCH); Grijalva, Nancy (DCH)
Cc: Moran, Susan (DCH)
Subject: RE: Proposed Press Conference on Flint Drinking Water

The problem is not with their website, it's with our internet connection. I can bring the web site up on my IPhone and I've been able to briefly open the website from my computer, but cannot navigate the site. I may have to go elsewhere (Big B or home) to get a good connection.

From: Wells, Eden (DCH)
Sent: Monday, September 28, 2015 1:45 PM
To: Miller, Corinne (DCH); Grijalva, Nancy (DCH)
Cc: Moran, Susan (DCH); Dykema, Linda D. (DCH)
Subject: RE: Proposed Press Conference on Flint Drinking Water

Thanks, Corinne-

From: Miller, Corinne (DCH)
Sent: Monday, September 28, 2015 1:42 PM
To: Grijalva, Nancy (DCH)
Cc: Moran, Susan (DCH); Wells, Eden (DCH); Dykema, Linda D. (DCH)
Subject: RE: Proposed Press Conference on Flint Drinking Water

Fyi only

The Virginia Tech website has been down and Linda is working with the principal investigator of the Virginia Tech study to obtain further information.

From: Grijalva, Nancy (DCH)
Sent: Monday, September 28, 2015 10:16 AM
To: Moran, Susan (DCH); Lyon, Nick (DCH)
Cc: Robinson, Mikelle (DCH); Wells, Eden (ewells@umich.edu); Hertel, Elizabeth (DCH); Lasher, Geralyn (DCH); Becker, Timothy (DCH); Dykema, Linda D. (DCH); Miller, Corinne (DCH); Anderson, Paula (DCH)
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Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

From:	Peeler, Nancy (DHHS)
To:	Lasher, Geralyn (DHHS); Wells, Eden (DHHS); Miller, Corinne (DHHS); Moran, Susan (DHHS); Robinson, Mikelle (DHHS); Dykema, Linda D. (DHHS); LyonCallo, Sarah (DHHS); Hertel, Elizabeth (DHHS); Travis, Rashmi (DHHS); Miller, Mark (DHHS)
Cc:	Minicuci, Angela (DHHS); Eisner, Jennifer (DHHS); Grijalva, Nancy (DHHS)
Subject:	RE: Public Health Advisory
Date:	Tuesday, September 29, 2015 4:38:53 PM
Attachments:	image001.jpg

Curious whether they issued the same thing to Hurley, as their analysis sample (based on zip codes 48501-48507) also appears to extend beyond the city geographic boundaries, into Townships that are on Detroit water?

From: Lasher, Geralyn (DCH)
Sent: Tuesday, September 29, 2015 12:06 PM
To: Wells, Eden (DCH); Miller, Corinne (DCH); Moran, Susan (DCH); Robinson, Mikelle (DCH); Dykema, Linda D. (DCH); LyonCallo, Sarah (DCH); Hertel, Elizabeth (DCH); Peeler, Nancy (DCH); Travis, Rashmi (DCH); Miller, Mark (DCH)
Cc: Minicuci, Angela (DCH); Eisner, Jennifer (DCH); Grijalva, Nancy (DCH)
Subject: FW: Public Health Advisory
Importance: High

And Genesee County and the Genesee County Health Department, have just issued the attached public health advisory and on the final paragraph it says:

> Recent data provided by Hurley Hospital researchers has indicated that a significant increase in blood lead levels has occurred in children since the switch to Flint River water. The county Health Officer has requested that the Michigan Department of Health and Human Services (MDHHS) provide to the County specific data to support its claim that state data is more comprehensive and does not show a significant increase. To date, the MDHHS has failed to confirm the geographic area included in their findings. We want to assure the state data is specific to the boundaries of the City of Flint, and not Flint addresses which would include addresses in areas outside of the City of Flint. These areas,such as Flint Township,that obtain their water from the Detroit Water Authority and would,therefore,not be representative of Flint River water as the water source. The County is prepared to take further action if the State fails to provide the requested data by September 30, 2015. Further action could include a request for outside independent evaluation of the data and to declare a Public Health Emergency in Flint.

I understand that we are still reviewing the data—but the county has basically issued a ransom date that they want this information by tomorrow.

Eden—please coordinate an answer so Nick can walk into the 1:00 p.m. meeting prepared on this.

From: Minicuci, Angela (DCH)
Sent: Tuesday, September 29, 2015 11:59 AM
To: Lasher, Geralyn (DCH) <lasherg@michigan.gov>
Subject: FW: Public Health Advisory
Importance: High

Last paragraph, last page.

Angela

From: Sandlin, Mary [mailto:MSANDLIN@gchd.us]
Sent: Tuesday, September 29, 2015 11:55 AM
Subject: Public Health Advisory
Importance: High

Mary E. Sandlin
Clerical Coordinator
Genesee County Health Department
630 S. Saginaw Street, Suite 4
Flint, MI 48502-1540
(810) 257-3812 FAX: (810) 257-3147

msandlin@gchd.us

gchdlogosig

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For a copy of the Health Department's Notice of Information Practices, contact the Health Department or visit the Health Department's website at http://www.gchd.us

From:	Mona Hanna-Attisha
To:	Wells, Eden (DCH)
Subject:	Re: Request for data
Date:	Wednesday, September 30, 2015 11:45:17 AM

We'll take anything. Does it have street addresses for GIS mapping and unique identifiers to eliminate duplicates.

I would prefer raw so we can clean on our own.

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

> On Sep 30, 2015, at 11:35 AM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>
> Hi Mona,
>
> Would you want the cleaned data set that out epid are using- they had to do quite a bit to clean and adjust zip codes etc???
>
> Sent from my iPhone

From:	Hertel, Elizabeth (DCH)
To:	Peeler, Nancy (DCH)
Cc:	Minicuci, Angela (DCH); Wells, Eden (DCH); Lasher, Geralyn (DCH); Moran, Susan (DCH); Robinson, Mikelle (DCH); Eisner, Jennifer (DCH)
Subject:	Re: State data confirms higher blood-lead levels in Flint kids
Date:	Monday, September 28, 2015 8:36:50 AM

How soon can we get something?

Sent from my iPad

> On Sep 28, 2015, at 8:00 AM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:
>
> Good morning, the data is from the CLPPP surveillance system. I sent an email to Cristin's supervisors, so that they know about and can support this Epi request.
>
> Sent from my iPhone
>
>> On Sep 27, 2015, at 9:29 PM, Minicuci, Angela (DCH) <MinicuciA@michigan.gov> wrote:
>>
>> I've asked our lead epidemiologist to look at the data closer than what was in the charts to get a handle on this. The epi is Cristin Larder.
>>
>> Sent from my iPhone
>>
>>> On Sep 27, 2015, at 5:39 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>>>
>>> Given not sure what % children tested, etc.
>>>
>>> Sent from my iPhone
>>>
>>>> On Sep 27, 2015, at 5:34 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>>>>
>>>> Thanks--DFP is looking at tests positive/number of tests done-- not sure that this is a reliable measure used by our program. Await input from Nancy or Linda.
>>>>
>>>> Sent from my iPhone
>>>>
>>>>> On Sep 27, 2015, at 5:26 PM, Lasher, Geralyn (DCH) <lasherg@michigan.gov> wrote:
>>>>>
>>>>> Yes. We provided the graphs with the narrative bullet points.
>>>>>
>>>>> Sent from my iPad
>>>>>
>>>>>> On Sep 27, 2015, at 5:20 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>>>>>>
>>>>>> Geralyn- were the graphs shown outside of MDHHS?
>>>>>>
>>>>>> Sent from my iPhone
>>>>>>
>>>>>>> On Sep 27, 2015, at 5:06 PM, Moran, Susan (DCH) <MoranS@michigan.gov> wrote:
>>>>>>>
>>>>>>> Sorry - hit send too soon.
>>>>>>> Copying Lynda and Corrine- not sure who in Epi or CLPPP has been point person on state's data.
>>>>>>>
>>>>>>> Sent from my iPhone

>>>>>>>>
>>>>>>>>> On Sep 27, 2015, at 2:11 PM, Lasher, Geralyn (DCH) <lasherg@michigan.gov> wrote:
>>>>>>>>>
>>>>>>>>> We will need help responding to what the Free Press is claiming in this article.
>>>>>>>>>
>>>>>>>>> Sue--let us know who can get us this as early Monday as possible.
>>>>>>>>>
>>>>>>>>> State data confirms higher blood-lead levels in Flint kids
>>>>>>>>>
>>>>>>>>> http://www.freep.com/story/opinion/columnists/nancy-kaffer/2015/09/26/state-data-flint-lead/72820798/
>>>>>>>>>
>>>>>>>>>
>>>>>>>>> Sent from my iPad

From: Miller, Mark (DHHS)
To: "Valacak, Mark"
Subject: RE: State lead testing results???
Date: Monday, September 28, 2015 5:05:00 PM
Attachments: image001.jpg

Not yet. Just had a conf. call with the Epis. They're crunching data and trying to duplicate Hurley's process. I told them about the zip code issue. I'll get back with your when they complete their analysis.

Thanks.

From: Valacak, Mark [mailto:MVALACAK@gchd.us]
Sent: Monday, September 28, 2015 1:57 PM
To: Miller, Mark (DCH) ; Travis, Rashmi (DCH)
Subject: RE: State lead testing results???

Mark & Rashmi,

I want to know whether you have confirmed with the lead program staff at MDHHS that the state results that purport that lead levels have not shown a significant increase since the changeover of the water supply for the city of Flint indeed represent Flint city zip codes only and not Flint mailing addresses. As I mentioned to you both this morning, Flint mailing addresses would include outlying areas like Flint and Mundy Townships which obtain their water from the Detroit Water Authority.

Mark Valacak, MPH, Health Officer
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From: Miller, Mark (DCH) [mailto:millerm1@michigan.gov]
Sent: Monday, September 28, 2015 11:28 AM
To: Valacak, Mark
Subject: testing

So they're wondering about testing capacity up here.

If the City of Flint gets a big deluge of requests, will they be able to handle them? Would they need additional assistance? Have they projected any expected demand? They are currently testing right?

Thanks!

Mark Miller

Director, Local Health Services
Michigan Department of Health & Human Services
201 Townsend, 6th Floor
Lansing MI 48913
(517) 335-8032
millerm1@michigan.gov

From: Travis, Rashmi (DHHS)
To: Valacak, Mark; Miller, Mark (DHHS)
Subject: RE: State lead testing results???
Date: Monday, September 28, 2015 2:33:04 PM
Attachments: image001.jpg

Mark,

We spoke with Nancy Peeler this morning, who was going to get some info from our Epi staff on breaking out the data on the outlying areas. I have not heard back yet.

Rashmi

From: Valacak, Mark [mailto:MVALACAK@gchd.us]
Sent: Monday, September 28, 2015 1:57 PM
To: Miller, Mark (DCH); Travis, Rashmi (DCH)
Subject: RE: State lead testing results???

Mark & Rashmi,

I want to know whether you have confirmed with the lead program staff at MDHHS that the state results that purport that lead levels have not shown a significant increase since the changeover of the water supply for the city of Flint indeed represent Flint city zip codes only and not Flint mailing addresses. As I mentioned to you both this morning, Flint mailing addresses would include outlying areas like Flint and Mundy Townships which obtain their water from the Detroit Water Authority.

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From: Miller, Mark (DCH) [mailto:millerm1@michigan.gov]
Sent: Monday, September 28, 2015 11:28 AM
To: Valacak, Mark
Subject: testing

So they're wondering about testing capacity up here.

If the City of Flint gets a big deluge of requests, will they be able to handle them? Would they need additional assistance? Have they projected any expected demand? They are currently testing right?

Thanks!

Mark Miller
Director, Local Health Services

Michigan Department of Health & Human Services
201 Townsend, 6th Floor
Lansing MI 48913
(517) 335-8032
millerm1@michigan.gov

From: Valacak, Mark
To: Miller, Mark (DHHS); Travis, Rashmi (DHHS)
Subject: RE: State lead testing results???
Date: Monday, September 28, 2015 1:57:04 PM
Attachments: image001.jpg

Mark & Rashmi,

I want to know whether you have confirmed with the lead program staff at MDHHS that the state results that purport that lead levels have not shown a significant increase since the changeover of the water supply for the city of Flint indeed represent Flint city zip codes only and not Flint mailing addresses. As I mentioned to you both this morning, Flint mailing addresses would include outlying areas like Flint and Mundy Townships which obtain their water from the Detroit Water Authority.

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From: Miller, Mark (DCH) [mailto:millerm1@michigan.gov]
Sent: Monday, September 28, 2015 11:28 AM
To: Valacak, Mark
Subject: testing

So they're wondering about testing capacity up here.

If the City of Flint gets a big deluge of requests, will they be able to handle them? Would they need additional assistance? Have they projected any expected demand? They are currently testing right?

Thanks!

Mark Miller
Director, Local Health Services
Michigan Department of Health & Human Services
201 Townsend, 6th Floor
Lansing MI 48913
(517) 335-8032
millerm1@michigan.gov

From:	Hertel, Elizabeth (DHHS)
To:	Miller, Mark (DHHS); Minicuci, Angela (DHHS)
Cc:	Robinson, Mikelle (DHHS); Travis, Rashmi (DHHS); Moran, Susan (DHHS); Thompson, Sheryl D. (DHHS)
Subject:	RE: State lead testing results???
Date:	Thursday, October 1, 2015 12:03:39 PM
Attachments:	image001.jpg

Just FYI, Mark contacted Sheryl Thompson in field services about the United Way donation. Can we get the info regarding how many WIC recipients receive other services expedited, please?

From: Miller, Mark (DHHS)
Sent: Thursday, October 01, 2015 12:02 PM
To: Minicuci, Angela (DHHS); Hertel, Elizabeth (DHHS)
Cc: Robinson, Mikelle (DHHS); Travis, Rashmi (DHHS); Moran, Susan (DHHS)
Subject: FW: State lead testing results???

Angela and Elizabeth, below is what I sent to Mark Valacak, the health officer at the GCHD, yesterday.

Given our delayed timeline, I'll resend the message and tell him the analysis won't be available until 10 on Friday the 2nd.

Either Rashmi or I will inquire about the requested WIC data, as well as what he knows about distribution of filters in the City.

From: Miller, Mark (DCH)
Sent: Wednesday, September 30, 2015 2:22 PM
To: 'Valacak, Mark' <MVALACAK@gchd.us>
Subject: RE: State lead testing results???

Mark

They should have their analysis complete by mid-morning on Thursday (1st) and will contact you by phone regarding same.

Thanks

Mark

From: Valacak, Mark [mailto:MVALACAK@gchd.us]
Sent: Wednesday, September 30, 2015 9:22 AM
To: Miller, Mark (DCH) <millerm1@michigan.gov>
Subject: RE: State lead testing results???

So, any update?

Mark Valacak, MPH, Health Officer
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From: Miller, Mark (DCH) [mailto:millerm1@michigan.gov]
Sent: Tuesday, September 29, 2015 9:44 AM
To: Valacak, Mark
Cc: Dykema, Linda D. (DCH); LyonCallo, Sarah (DCH); Travis, Rashmi (DCH)
Subject: FW: State lead testing results???

Mark, I have a call with Epi staff today at 4 PM. So I'll get an update at that time. I've also cc:ed Linda Dykema and Sara Lyon-Callo, who might be able to respond sooner with a timeline.

Mark

From: Valacak, Mark [mailto:MVALACAK@gchd.us]
Sent: Tuesday, September 29, 2015 9:23 AM
To: Miller, Mark (DCH) <millerm1@michigan.gov>; Travis, Rashmi (DCH) <TravisR@michigan.gov>
Subject: RE: State lead testing results???

Any results yet? If not can you give me a timeline when you will have results?

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From: Valacak, Mark
Sent: Monday, September 28, 2015 1:57 PM
To: 'Miller, Mark (DCH)'; 'TravisR@michigan.gov'
Subject: RE: State lead testing results???

Mark & Rashmi,

I want to know whether you have confirmed with the lead program staff at MDHHS that the state results that purport that lead levels have not shown a significant increase since the changeover of the water supply for the city of Flint indeed represent Flint city zip codes only and not Flint mailing addresses. As I mentioned to you both this morning, Flint mailing addresses would include outlying areas like Flint and Mundy Townships which obtain their water from the Detroit Water Authority.

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From: Valacak, Mark
To: Miller, Mark (DHHS); Travis, Rashmi (DHHS)
Subject: RE: State lead testing results???
Date: Tuesday, September 29, 2015 9:23:45 AM
Attachments: image001.jpg

Any results yet? If not can you give me a timeline when you will have results?

Mark Valacak, MPH, Health Officer
Genesee County Health Department,

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Phone 810-257-3588 Fax 810 257-3147
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From: Valacak, Mark
Sent: Monday, September 28, 2015 1:57 PM
To: 'Miller, Mark (DCH)'; 'TravisR@michigan.gov'
Subject: RE: State lead testing results???

Mark & Rashmi,

I want to know whether you have confirmed with the lead program staff at MDHHS that the state results that purport that lead levels have not shown a significant increase since the changeover of the water supply for the city of Flint indeed represent Flint city zip codes only and not Flint mailing addresses. As I mentioned to you both this morning, Flint mailing addresses would include outlying areas like Flint and Mundy Townships which obtain their water from the Detroit Water Authority.

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From: Miller, Mark (DCH) [mailto:millerm1@michigan.gov]
Sent: Monday, September 28, 2015 11:28 AM
To: Valacak, Mark
Subject: testing

So they're wondering about testing capacity up here.

If the City of Flint gets a big deluge of requests, will they be able to handle them? Would they need additional assistance? Have they projected any expected demand? They are currently testing right?

Thanks!

Mark Miller
Director, Local Health Services
Michigan Department of Health & Human Services
201 Townsend, 6th Floor
Lansing MI 48913
(517) 335-8032
millerm1@michigan.gov

From: Lyon, Nick (DHHS)
To: Wells, Eden (DHHS)
Cc: Lasher, Geralyn (DHHS); Hertel, Elizabeth (DHHS); Becker, Timothy (DHHS); Grijalva, Nancy (DHHS); Moran, Susan (DHHS); Eisner, Jennifer (DHHS); Minicuci, Angela (DHHS)
Subject: Re: talking points
Date: Thursday, October 1, 2015 8:48:23 PM

Thank you Sue and Eden!

On Oct 1, 2015, at 7:41 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:

My input below:

From: Lyon, Nick (DHHS)
Sent: Thursday, October 1, 2015 6:56 PM
To: Wells, Eden (DHHS)
Cc: Lasher, Geralyn (DHHS); Hertel, Elizabeth (DHHS); Becker, Timothy (DHHS); Grijalva, Nancy (DHHS); Moran, Susan (DHHS); Eisner, Jennifer (DHHS); Minicuci, Angela (DHHS)
Subject: Re: talking points

I like it. Does Eden have what she needs? YES

I do have a couple of questions.

Can we say publicly that there is no lead when the water leaves the treatment site? THAT SEEMS TO BE A DEQ QUESTION FOR ME

Is our lead program going to modify our lead home investigations or abatement strategy WE CAN AND AKREADY HAVE DISCUSSED DOING SO; E.G>: IF WE CONDUCT AN EBL INVESTIGATION NOW< THE HOME ABATEMENT GROUP WILL ALSO TEST THE WATER 990% OF IMTE LEAD PAINTIS MANOR ISSUE--RIGHT NOW IN FLINT WATER NOW MAY HAVE A ROLE)

Can I give summary info for the zip codes or city as a whole? FOR OTHERS TO INOUT AS WELL, BUT CORINNE SAID IT WAS OK IF I REPORTED DATA (HIGH LEVELS OVER 5, 15 AND $%) BY IO AS WELL.

There is a big bump in 14 and then it drops again in the fall? Are we sharing the chart and if so does that give us some rationale to say it looked seasonal, even in

the high impacted zip codes? YES- SEASONALITY RATIONALE HAS TO DO WITH CHIDREN BEING OUTIDE< OLD HOMES WITH LEAD PAINT WINDOWS BEING OPENED, INCREASED DUST WITH LEAD IN IT BLOWING AROUND< ETC> THERE IS SEASONAL VARIATION IN WATER LEAD AS WELL DUE TO pH AND TEMPERATURE FLUCTUATIONS, AMONG OTHER FACTORS.

I'd like to express my appreciation to the Hurley doctors for bringing this issue to our attention. Is that ok? I PLAN ON IT TOO!!! YES YES YES IS MY VOTE!!!!

Can I confidently say that we were not aware before last week. I WAS AWARE ONLY OF VT AND DEQ MEDIA; UNTIL THURSDAY LAST WEEK.

Somewhere in my talking points I want to say that the department goal or my goal is to prevent or minimize lead exposure in children regardless of source. I think that fits in nicely before the lead part in my points. I AGREE AND THAT IS MY MAJOR COMMUNICATION OBJECTIVE AS WELL.

I was told we really don't do surveillance per se, but instead treat children as we become aware. Should we modify our point that? WE DO DO BLOOD LEAD TESTING IN HIGH RISK CHILDREN---THIS IS A FORM OF PH SURVEILLANCE----WE GET ALLL RESULTS (ALL NUMBERS TESTED, and ALL POSITIVES OVER 5 micgrograms/dL) AND LEVELS OVER 5 ARE IN THE DATA SYSTEM FOR MONITORING/FOLLOW_UP/SURVEILLANCE PURPOSES

Do you have a document that describes the lead program I can use if asked that contains general info like:

How long does a child need to have a blood level of .05 before it compromises a child's health or future? How about above .14? LEVELS OF 5 **FOR ANY TIME** ARE NOT CONSIDERED SAFE DUE TO AFFECTS OF LEAD ON NERVOUS SYSTEM---IF THEY TEST OVER 5, THE FAMILY MUST BE COUNSELED AND/OR OTHER REMEDIATION MUST BE DONE DEPENDING UPON LEVEL> WE WOULD NOT WANT TO SEE LELVES PERSIST OR INCREASE....IN FACT, FOR THOS CHILDREN IN THE RANGE OF 5-14 THE LEAD PROGRAM/DOCTOR ENSURE CHILD TESTED 1-3 MONTHS LATER TO ENSURE DRIOPPING BELOW 5...

What does blood test measure? (Parts per million).
MICROGRAM/DECILITER; µg/dL

Anything else that I might be asked that I should know if Eden isn't standing next to me. ????? FUNDS FOR INCREASED TESTING OR ABATEMENT?

Tim - Did you see the exact filter? Is it easy to install? Are we audit meets federal standards?

That's all for the moment.

Thanks,
Nick

On Oct 1, 2015, at 6:09 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:

> Oh good!
> .
> Sent from my iPhone
>
> On Oct 1, 2015, at 5:57 PM, Lasher, Geralyn (DHHS) <lasherg@michigan.gov> wrote:
>
>> And these are the updated MDHHS talking points and the DEQ talking points for this issue.
>>
>> ---
>>
>> **From:** Minicuci, Angela (DHHS)
>> **Sent:** Thursday, October 01, 2015 5:29 PM
>> **To:** Eisner, Jennifer (DHHS) <EisnerJ@michigan.gov>; Lasher, Geralyn (DHHS) <lasherg@michigan.gov>
>> **Subject:** RE: talking points
>>
>> Attached is the updated current draft of our MDHHS talking points.
>>
>> Angela
>>
>> <Flint Water Talking Points 100115.docx>
>>
>> <151001. Talking points.docx>

From: Mona Hanna-Attisha
To: Miller, Corinne (DHHS); Wells, Eden (DHHS)
Cc: LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
Subject: RE: The requested file has been sent
Date: Friday, October 2, 2015 4:09:48 PM

We got it! thanks!

From: Miller, Corinne (DHHS) [mailto:MillerC39@michigan.gov]
Sent: Friday, October 02, 2015 3:52 PM
To: Wells, Eden (DHHS); Mona Hanna-Attisha
Cc: LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
Subject: RE: The requested file has been sent

I'll check with Sarah to see if someone is around who has a copy of the raw data.

From: Wells, Eden (DHHS)
Sent: Friday, October 02, 2015 3:47 PM
To: Mona Hanna-Attisha
Cc: Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
Subject: Re: The requested file has been sent

Huh! Yes- am Cc'ing our epidemiologists- can we assist Mona, folks?? Raw data that was provided to you all from program?

Sent from my iPhone

On Oct 2, 2015, at 3:43 PM, Mona Hanna-Attisha <MHanna1@hurleymc.com> wrote:

> FYi we cannot access the file – it just came as a .htm. Is there anyone else that can send it to us? We were hoping to GIS analyze this weekend. Thanks.
>
> ---
>
> **From:** Peeler, Nancy (DHHS) [mailto:PeelerN@michigan.gov]
> **Sent:** Friday, October 02, 2015 3:07 PM
> **To:** Mona Hanna-Attisha; Scott, Robert L. (DHHS); Jenny LaChance
> **Cc:** Travis, Rashmi (DHHS)
> **Subject:** RE: The requested file has been sent
> **Importance:** High
>
> Good afternoon, Mona -
>
> Today is Bob's scheduled day off. He came in to prepare and send the file, but has left for the rest of the day. I will see if I can reach him to find out what step to take to get you access to the data.
>
> Can you give me any more detail that I can share with him, if I can reach him? It sounds like you did receive the email with the file attached, and the password (I assume via fax). If those two pieces are in place, is the issue that it won't 'unzip'?
>
> Nancy Peeler, Manager

Early Childhood Health Section

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 2:59 PM
To: Scott, Robert L. (DHHS); Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent

We are unable to open the file that you sent. Can you try to send again or let us know how to open it another way. Thanks! We were really hoping to review today. thanks!

From: Scott, Robert L. (DHHS) [mailto:ScottR9@michigan.gov]
Sent: Friday, October 02, 2015 1:32 PM
To: Mona Hanna-Attisha; Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From:	Mona Hanna-Attisha
To:	Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
Cc:	Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject:	RE: The requested file has been sent2
Date:	Friday, October 2, 2015 5:25:17 PM
Attachments:	image001.jpg

Quick question:
We have the data and are starting to geocode it!
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Does your lead data just not have decimals? Do numbers get round up or round down?

Thanks! Mona

(I do understand that it's Friday. Sorry.)

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From: Peeler, Nancy (DHHS) [mailto:PeelerN@michigan.gov]
Sent: Friday, October 02, 2015 3:07 PM
To: Mona Hanna-Attisha; Scott, Robert L. (DHHS); Jenny LaChance
Cc: Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent
Importance: High

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Nancy Peeler, Manager
Early Childhood Health Section

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 2:59 PM
To: Scott, Robert L. (DHHS); Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent

We are unable to open the file that you sent. Can you try to send again or let us know how to open it another way. Thanks! We were really hoping to review today. thanks!

From: Scott, Robert L. (DHHS) [mailto:ScottR9@michigan.gov]
Sent: Friday, October 02, 2015 1:32 PM
To: Mona Hanna-Attisha; Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From:	Mona Hanna-Attisha
To:	Scott, Robert L. (DHHS)
Cc:	LyonCallo, Sarah (DHHS); Peeler, Nancy (DHHS); Jenny LaChance; Miller, Corinne (DHHS); McKane, Patricia (DHHS); Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject:	Re: The requested file has been sent3
Date:	Friday, October 2, 2015 6:45:59 PM
Attachments:	image001.jpg image001.jpg

Is there a way to get the original non-rounded numbers?

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Oct 2, 2015, at 6:43 PM, Scott, Robert L. (DHHS) <ScottR9@michigan.gov> wrote:

> We round up from .5 and round down from .4
>
> ---
>
> **From:** LyonCallo, Sarah (DHHS)
> **Sent:** Friday, October 2, 2015 6:33:14 PM
> **To:** Mona Hanna-Attisha; Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); McKane, Patricia (DHHS)
> **Cc:** Travis, Rashmi (DHHS); Wells, Eden (DHHS)
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>
> You are correct that lead level results in the file you received are rounded (i.e., no decimal places). The data set we are using in epidemiology (which is the same type of file Mr. Scott would have pulled from the data warehouse for you) contains values from 1 to 49. Are you seeing the 10 and above levels?
>
> I do not know the rounding rules for the lead result data and am still working on getting you that information.
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> **Sent:** Friday, October 02, 2015 5:25 PM
> **To:** Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
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Early Childhood Health Section

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Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Mona Hanna-Attisha
To: Wells, Eden (DHHS)
Subject: Re: The requested file has been sent4
Date: Friday, October 2, 2015 7:23:26 PM

It's ok, Eden. We can wait until Monday to get more info/clarification. Thanks so much for everything.

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Oct 2, 2015, at 7:16 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:

> Hi Mona! Glad Bob got back to you- question: are you planning to work on this all weekend- if so I will advise Bob and Nancy's supervisor...(I am trying to clear up "raw data" issue also)
>
> Not sure if Bob has access to original data over weekend if it is in Warehouse
>
> Sent from my iPhone
>
> On Oct 2, 2015, at 6:45 PM, Mona Hanna-Attisha <MHanna1@hurleymc.com> wrote:
>
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Early Childhood Health Section

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Childhood Lead Poisoning Prevention Program

Michigan Department of Health & Human Services
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Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject: Re: The requested file has been sent5
Date: Friday, October 2, 2015 7:36:23 PM

Mona,

The integers in your file are the values we have stored in our blood lead surveillance system; that's our current protocol.

To my knowledge, the CDC's Lead program has not taken a stance on whether to store decimals or not.

Bob

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Friday, October 2, 2015 5:24 PM
To: Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
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Early Childhood Health Section

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Robert L. Scott

Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From:	Peeler, Nancy (DCH)
To:	Wells, Eden (DCH)
Cc:	Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH); Scott, Robert L. (DCH)
Subject:	RE: TIME SENSITIVE: Fw: Discrepencies
Date:	Tuesday, September 29, 2015 3:53:51 PM
Importance:	High

Bob went back and looked at his numbers.

For the first chart, with the elevated blood lead levels, he found one number in the 2014-2015 row that changed, and he confirmed that the data in the later version was correct (the version dated September 23).

In the second chart, showing testing numbers, use the one dated September 23rd. That chart shows unduplicated tests (e.g. one test per child, per month), whereas the previous version did count some 'duplicate' tests.

I have copied Bob on this email, in case you have further questions.

I'd also like to ask for clarification on one of Geralyn's earlier emails today; Bob (CLPPP) had produced these descriptive charts – but it looked like Dr. Wells is asking Corinne to do that instead of CLPPP (it was a request to re-do the chart with only younger children included). Trying not to duplicate efforts, so please clarify if you would like us to do that, or someone else. Thanks!

Nancy

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 3:11 PM
To: Peeler, Nancy (DCH)
Cc: Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Subject: Re: TIME SENSITIVE: Fw: Discrepencies

fantastic, thanks!!

From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 3:04 PM
To: Wells, Eden (DCH)
Cc: Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Subject: Re: TIME SENSITIVE: Fw: Discrepencies

I'll connect with him shortly, and we'll get back to you.

Sent from my iPad

On Sep 29, 2015, at 2:41 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

HI Nancy,

I do not have Bob's email, so if you cam talk to him; however, I got a request from Dr. Hanna-Attisha at Hurley today as to why the 2014-2015 may differ in the 2 pdf's she attached (received 9/15 and 9/25). FYI, she stated that Bob is great to work with.

However, due to different numbers and analyses and such flying around in the last 24 hours, please respond back to me ASAP regarding the discrepancies, and I can relay to her.

Thank you!

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services
201 Townsend Street, 5th Floor CVB
Lansing, MI 48913
Phone: 517-335-8011
wellse3@michigan.gov

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 1:07 PM
To: Wells, Eden (DCH)
Subject: FW: Discrepencies

Dr Wells, in regards to the discrepancy noted in state data. Attached are two PDF files that were sent regarding the state lead numbers.

The original PDF was sent on 9/15/15 to Dr Reynolds from Bob Scott from MDHHS's Childhood Lead Poisoning Prevention Program and the updated PDF was sent to me from Bob Scott last Friday.

The attached excel database (that I created) has two tabs that include the original and updated numbers. Yellow highlights are all the numbers that changed. It is very strange how many of the numbers have changed. I'm not sure if the updated numbers tried to refine the location to Flint proper???

The analyses of the data does not change very much (when you look at total annual

EBL%) - there has been a statistically significant increase in EBL% since water change (2014-2015) where every year prior there has been a decrease (as has happened nationally). And this does not even include the fact that the data is not scientific – wrong age range and missing lots of EBLS by using first time lead analysis rather than highest lead.

Just thought the discrepancy was odd.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

<Flint Testing and EBLLs_updated 092315_with notes (2).pdf>

<Flint Testing and EBLLs (4).pdf>

<STATELEADDATA with original and updated numbers.xlsx>

From: Lasher, Geralyn (DCH)
To: Wells, Eden (DCH); Hertel, Elizabeth (DCH)
Subject: RE: TIME SENSITIVE: Fw: Prelim GIS results
Date: Tuesday, September 29, 2015 2:57:29 PM

I think that is the only thing we can respond with at this point.

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 2:55 PM
To: Hertel, Elizabeth (DCH) <HertelE@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>
Subject: TIME SENSITIVE: Fw: Prelim GIS results
Importance: High

FYI only, and her findings below are prelim--I have sent to Corinne and Our EPi;s will review after they get their results from their analysis.

But here is how I wanted to follow-up---is it OK if I ask the following:
Hi Mona,
Quick question--
We hope to get prelim data analysis results starting this afternoon-confirmed likely in next day or so----not sure when you may be going public with the GIS but do you think will be before then? Or are you doing the overlay now? Hoping for coordination of "apples"--I have followed-up on your data request.

Eden

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 12:25 PM
To: Wells, Eden (DCH)
Subject: Prelim GIS results

Dr Wells, thanks for the phone call. I appreciate your reaching out. Below is our most recent analysis looking more specifically at the City of Flint and focusing on wards/neighborhoods via GIS analysis. This is very preliminary, but even more frightening. Our next steps include overlaying this with the locations of lead service lines.

I would appreciate your efforts to expedite our data request for the raw data so that we can run similar analysis with your larger sample size. Thanks again, and let me know if I can be of any assistance. Mona

Updated Findings:

Using GIS (Geographic Information System) map technology, we have further analyzed our blood lead level data. Our initial analysis examined children living in Flint zip codes, 48501-48507; however, this included households receiving non-Flint water. Our refined GIS-based analysis now includes only those households who receive water from the City of Flint.

The results reveal an even greater increase in the percentage of children with elevated blood lead levels (EBL). Pre-switch, the proportion of children with EBL was 2.4%, and post-switch the proportion was 4.9% (p=0.019). This is compared with our initial zip code-based analysis that showed pre-switch 2.1% and post-switch 4.0% (p=0.025). Once again, the change in non-Flint EBL% was not statistically significant.

Preliminary GIS analysis has identified certain areas within the city limits that experienced the greatest rate of EBL% increase. Specifically, we found the greatest increases in wards 5 and 6 (particularly in neighborhoods near Dupont St between University Ave and Pasadena Ave); the EBL% more than **tripled** in these wards. In ward 5, the EBL % increased from 4.9% to 15.7% (p=0.038). The area of intersection between wards 3, 4, and 5 (in the east side of the city) also appeared high. Lastly, ward 7 had high pre and post-levels EBL% above 5% (specifically in the western portion of the ward).

Of note, our results continue to correlate with the high water lead levels from the Virginia Tech samples. Most notably, the high percentage of EBL% in wards 5, 6, and 7 also correspond with the high water lead levels in wards 5, 6, and 7.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From: Miller, Corinne (DCH)
To: Wells, Eden (DCH)
Subject: RE: Tomorrow stats
Date: Tuesday, September 29, 2015 8:46:12 AM

Per Sarah – needed to work longer than anticipated on dealing with multiple tests per child.

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 8:00 AM
To: Miller, Corinne (DCH)
Subject: Re: Tomorrow stats

Once you have a prelim thought about the trend data...

Sent from my iPhone

On Sep 29, 2015, at 7:09 AM, Miller, Corinne (DCH) <MillerC39@michigan.gov> wrote:

> No problem. It's good to have you up on 7 to calm them down.
>
> Sent from my iPhone
>
> On Sep 28, 2015, at 5:12 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>
> > FYI-I hope not getting on your toes- just punch me if needed- trying to keep the folks upstairs in equilibrium
> >
> > Sent from my iPhone
> >
> > Begin forwarded message:
> >
> > **From:** "Lasher, Geralyn (DCH)" <lasherg@michigan.gov>
> > **Date:** September 28, 2015 at 4:52:45 PM EDT
> > **To:** "Wells, Eden (DCH)" <WellsE3@michigan.gov>, "Hertel, Elizabeth (DCH)" <HertelE@michigan.gov>, "Minicuci, Angela (DCH)" <MinicuciA@michigan.gov>
> > **Cc:** "Moran, Susan (DCH)" <MoranS@michigan.gov>
> > **Subject: RE: Tomorrow stats**
> >
> > Thanks for shepherding this for us Eden.
> >
> > -----Original Message-----
> > From: Wells, Eden (DCH)
> > Sent: Monday, September 28, 2015 4:51 PM
> > To: Lasher, Geralyn (DCH) <lasherg@michigan.gov>; Hertel, Elizabeth (DCH) <HertelE@michigan.gov>; Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
> > Cc: Moran, Susan (DCH) <MoranS@michigan.gov>

Subject: Tomorrow stats

Should have trend curves by am, which will then be reviewed by Corinne and Linda by late morning before sending upwards. More advanced analysis would still need to be done

Sent from my iPhone

From: Moran, Susan (DCH)
To: Wells, Eden (DCH)
Subject: Re: Update on Flint Lead activities
Date: Monday, September 28, 2015 4:04:07 PM

Thanks Eden, it certainly sounds as if team is mobilized and pushing forward, very glad data issues are at forefront.

Sent from my iPhone

On Sep 28, 2015, at 1:55 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

Hi Sue,

OK, well, it looks like a number of things are moving forward. First is that there will likely be a large press conference with Nick, Wyant, Gov's rep, Mayor and LHD reps on Thursday or Friday. The assignments per Nick have been meted out to MDEQ or MDHHS as appropriate.

- <!--[if !supportLists]-->• <!--[endif]-->Corinne leads the EHS tox and Lead Epi teams who are looking at the Hurley and VT data, as well as re-analyzing all of the data we have on a zipcode basis. Major concern for Geralyn et al is that we can still state that there is a seasonal affect, which I have reassured them there is; the question is whether the increases in BLL are truly increases after the change in water source. We hope to get some answers within the next day---high urgency due to risk communication issues.
- <!--[if !supportLists]-->• <!--[endif]-->Rashmi is working to see if there is any way to get formula to the Flint area and who would cover (USDA still not being definitive).
- <!--[if !supportLists]-->• <!--[endif]-->I am working to get a UMSPH rep to sit on the Mayor's Technical Advisory group in Flint per Dan Wyant's request.

That is it for now- Nick very much wants to get any input if any action is identified that needs his response on behalf of MDHHS.

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services
201 Townsend St., 5th Floor CVB
Lansing, MI 48913

From: Peeler, Nancy (DHHS)
To: Wells, Eden (DHHS)
Cc: Travis, Rashmi (DHHS)
Subject: Re: ZIP Codes
Date: Wednesday, September 30, 2015 9:27:18 PM

Short term, yes, I agree with that approach. I asked about it because the issue of including data for children outside of the city limits was specifically raised by the Genesee County Health officer, and specifically cited in the public advisory released by the Genesee County Commissioners. They appeared to use that issue to discredit the state data (in essence, implied that our results were artificially low because we included children living in areas that are still on Detroit water, thus our results were not valid or true). My concern is whether they will do that again. I agree that full disclosure is best, and also indicating that this is the same/parallel analysis approach that Hurley took for their report.

Longer term, I think the improvement strategy is to see what it will take to geocode the data, so that we could work more easily with boundaries other than zip code, county, etc. I know Bob has looked into that and can do it, but he would need to refresh my memory for what resources it would take to make this a regular part of the data set.

Sent from my iPad

> On Sep 30, 2015, at 7:26 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>
> Nancy another question I think as we do our talking points how would you best like to address the issue of the 04 ZIP Code I think perhaps if we make a note that this ZIP Code is only partially said by the Flint River this does not negate the fact that children should be sure in this area to decrease their wrist for all sources of lead if questioned further then I would perhaps bring up that well I don't know what I would do, thoughts welcome. Sorry I am dictating
>
> Sent from my iPhone

From: Eisner, Jennifer (DHHS)
To: Miller, Corinne (DHHS); Robinson, Mikelle (DHHS)
Cc: Wells, Eden (DHHS)
Subject: Talking Points
Date: Thursday, October 1, 2015 11:51:54 AM

Corinne and Mikelle:

Attached please find the most recent Flint talking points which include edits from Dr. Wells. A 12:30 meeting with the gov's comms team was just called, so we need to have them finalized and ready to share asap.

Can you please send me the bullet points explaining the data – or what is ready of them – by noon?

Thank you,

Jennifer (Smith) Eisner
Public Information Officer
Michigan Department of Health and Human Services
517-241-2112

From: Eisner, Jennifer (DHHS)
To: Lyon, Nick (DHHS); Lasher, Geralyn (DHHS); Wells, Eden (DHHS)
Cc: Grijalva, Nancy (DHHS)
Subject: Updated Talking Points
Date: Friday, October 2, 2015 9:49:23 AM

All --

Attached are Nick's updated talking points, as well as updated general Flint talking points. These include the most current info about filters.

Thank you,
Jennifer

By Nick Lyon and Dan Wyant

People in Flint – and all of Michigan – need to know that that then they turn on the faucet, the water they drink and bathe their children with, is safe and clean.

Flint residents have been hearing concerning news about the municipal water supply for more than a year. We're working to help Flint leaders address and fix short- and long-term problems with the city's water infrastructure.

A recent announcement by local doctors that blood lead levels are rising in children residing in Flint's most at-risk ZIP codes added to the state's knowledge and sparked some additional precautionary measures.

The state takes lead seriously. Although continued analysis is being conducted, the MDHHS analysis is consistent with the local finding.

State agencies also are working in collaboration with the federal and Flint leaders to get residents accurate information to ease their fears.

Gov. Rick Snyder directed the Michigan Department of Environmental Quality and the Department of Health and Human Services to work with the U.S. Environmental Protection Agency to create a comprehensive action plan to build our knowledge about lead in Flint, better protect the community and restore public confidence in the regulatory framework.

We're testing the water in all of our schools so we know that our children are safe.

We're testing residences at no charge and expanding health exposure testing so families can be confident about the water coming into their homes.

We're providing faucet filters to Flint homes. The state is investing $1 million on this effort, building on the generosity and support of community groups and donors.

We're accelerating corrosion controls in the Flint drinking water system.

We're increasing the pace of water system improvements to address replacing lead service lines.

We're expediting the completion of the Karegnondi Water Authority pipeline.

We're expanding the Safe Drinking Water Technical Advisory Committee to ensure the best technology, practices and science are being followed by adding an expert from the U.S. EPA's Office of Research and Development.

The DHHS's chief medical executive, Dr. Eden Wells, has been designated Flint's drinking water public health adviser.

We're also boosting a comprehensive lead education program to make sure residents have detailed information about how to protect themselves and their homes.

That’s key, because the lead in question does not come from the Flint River. The water leaving the drinking water plant is clean and safe. The water traveling through the distribution system also is free of lead.

The lead issues happen when the water reaches homes that have lead service lines or lead plumbing. This is important to know for two reasons: Contamination happens at the homeowner level, it is very difficult to track precisely.

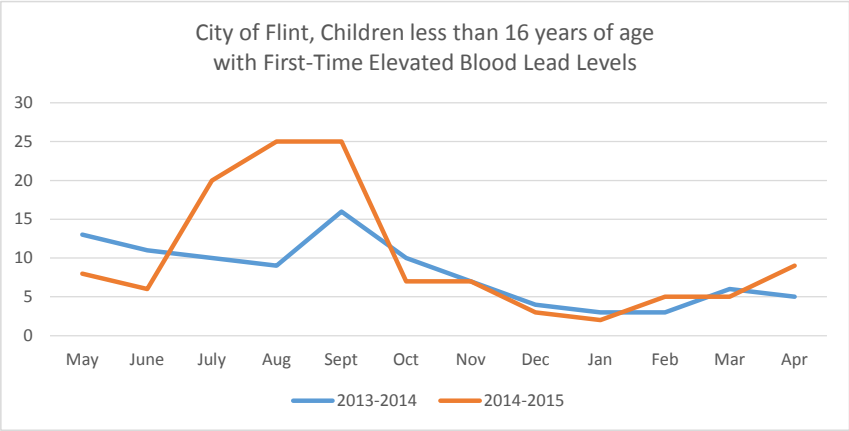
And, the longer water sits in lead pipes, the more lead it takes on, so homes on the same block might have very different results from lead testing, based on what kind of plumbing they have and how homeowners use their water.

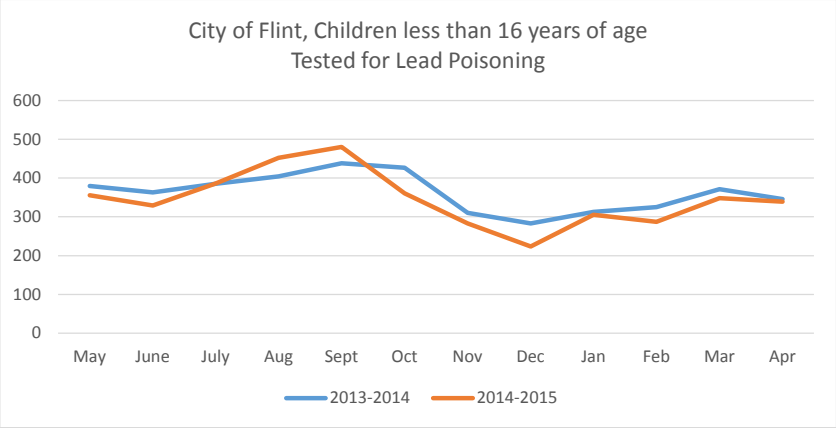
All of the measures in the action plan build on efforts that have been underway for the last year. State agencies have been working with the city on a variety of issues and approaches to correct Flint’s water infrastructure challenges.

That’s because the health and safety of Flint residents – and people across our state – is our first priority.

More information about the action plan and lead is available at Michigan.gov/FlintDrinkingWater. People interested in getting their homes tested for free should call (810) 787-653, then press 1.

Nick Lyon is the director of the Michigan Department of Health and Human Services and Dan Wyant is the director of the Michigan Department of Environmental Quality.

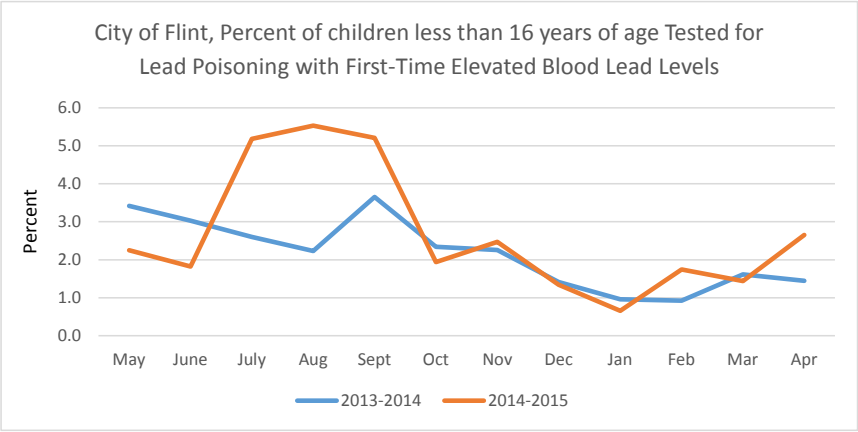




	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2013-2014	13	11	10	9	16	10	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	3	2	5	5	9

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2013-2014	380	363	385	404	438	427	310	283	313	325	371	346
2014-2015	356	329	386	452	480	361	283	224	305	287	348	339

May	13	380	3.42
June	11	363	3.03
July	10	385	2.6
Aug	9	404	2.23
Sept	16	438	3.65
Oct	10	427	2.34
Nov	7	310	2.26
Dec	4	283	1.41
Jan	3	313	0.96
Feb	3	325	0.92
Mar	6	371	1.62
Apr	5	346	1.45
May	8	356	2.25
June	6	329	1.82
July	20	386	5.18
Aug	25	452	5.53
Sept	25	480	5.21
Oct	7	361	1.94
Nov	7	283	2.47
Dec	3	224	1.34
Jan	2	305	0.66
Feb	5	287	1.74
Mar	5	348	1.44
Apr	9	339	2.65



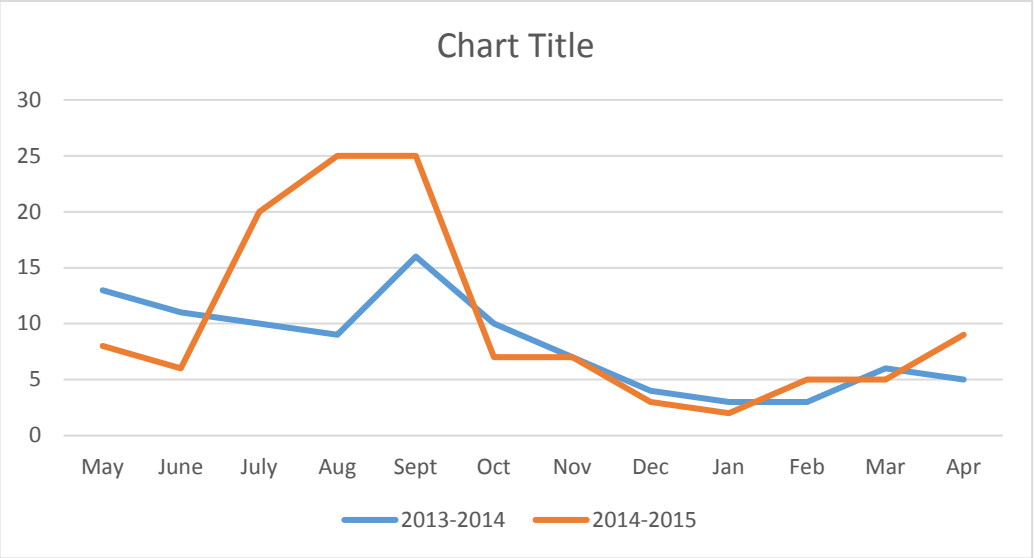


Chart Title
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Date	Elevated	Tested	Proportion	Mean P	P LCL	P UCL
May-13	13	380	0.034	0.022	0	0.04
Jun-13	11	363	0.030	0.022	0.00	0.04
Jul-13	10	385	0.026	0.022	0.00	0.04
Aug-13	9	404	0.022	0.022	0.00	0.04
Sep-13	16	438	0.037	0.022	0.00	0.04
Oct-13	10	427	0.023	0.022	0.00	0.04
Nov-13	7	310	0.023	0.022	0.00	0.04
Dec-13	4	283	0.014	0.022	0.00	0.04
Jan-14	3	313	0.010	0.022	0.00	0.04
Feb-14	3	325	0.009	0.022	0.00	0.04
Mar-14	6	371	0.016	0.022	0.00	0.04
Apr-14	5	346	0.014	0.022	0.00	0.04
May-14	8	356	0.022	0.022	0.00	0.04
Jun-14	6	329	0.018	0.022	0.00	0.04
Jul-14	20	386	0.052	0.022	0.00	0.04
Aug-14	25	452	0.055	0.022	0.00	0.04
Sep-14	25	480	0.052	0.022	0.00	0.04
Oct-14	7	361	0.019	0.022	0.00	0.04
Nov-14	7	283	0.025	0.022	0.00	0.04
Dec-14	3	224	0.013	0.022	0.00	0.04
Jan-15	2	305	0.007	0.022	0.00	0.04
Feb-15	5	287	0.017	0.022	0.00	0.04
Mar-15	5	348	0.014	0.022	0.00	0.04
Apr-15	9	339	0.027	0.022	0.00	0.04

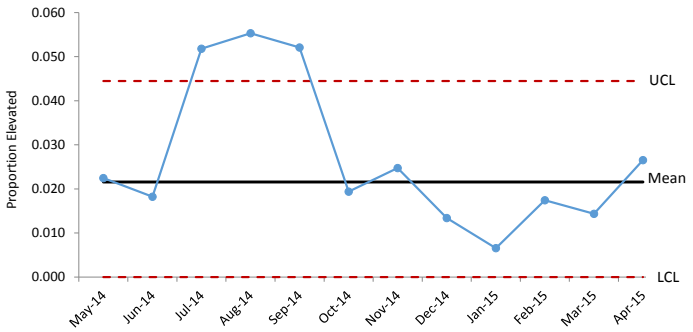
	2013/14
Mean P	0.022
Mean n	362.08

$$\widehat{p}\text{–chart}$$

$$\text{UCL} = \overline{p} + 3\sqrt{\frac{\overline{p}(1-\overline{p})}{n}}$$

$$\text{Center Line:} \quad \overline{p}$$

$$\text{LCL} = \overline{p} - 3\sqrt{\frac{\overline{p}(1-\overline{p})}{n}}$$



Flint Drinking Water Action Plan
Talking Points

Overall Messaging

- Repeated testing shows the water leaving Flint's drinking water system is safe to drink and meets all federal guidelines, including lead.
- After the switching to the Flint River, the compliance testing protocol yielded results of 6 ppb in December 2014 and 11 ppb in June 2015, which forces the city to complete its corrosion control optimization.
- However, we recognize some residents experience higher levels of lead in the water that comes out of their faucets because of lead plumbing in the home, and that's a concern.
- Out of an abundance of caution, we want to address the needs of all Flint families, and so we have developed an action plan that includes both short- and long-term solutions.
- The state plan focuses on increasing water testing, offering additional precautions for families, and providing long-term solutions to address the city's water infrastructure.

Messaging regarding the action plan

The city and the state are working together to gather more data to ensure the water that leaves the treatment plant as well as the water that arrives in Flint homes is safe for all residents.

- **Immediately test Flint public schools to ensure that drinking water is safe. Testing will also be available at no cost to any other school in Flint.**
    - Although Flint's drinking water meets all federal requirements, the state wants to take extra steps to ensure that drinking water is safe for the city's children.
    - The state will fund this testing (about $30,000) at no cost to the city or the local schools, and make the results publicly available.

- **Expand health exposure testing of individual residences.**
    - To double-check its data as well as provide residents with an additional layer of assurance, the DEQ will conduct more tests at Flint properties.
    - The Technical Advisory Committee will determine the scope of this expanded testing.

- **Offer water testing at no cost to Flint residents to assure water is safe.**
    - Although all testing indicates water in the city of Flint meets all federal standards, we understand some residents are concerned.
    - To ensure water in individual homes is safe, free water testing is available to all Flint residents.
    - We encourage anyone with a concern to get their water tested.
    - Contact the city water department to have your water tested.

- **Accelerate optimizing corrosion controls in the Flint drinking water system.**
    - A fully optimized corrosion control system means the insides of pipes are coated to minimize the amount of lead that enters the drinking water after it leaves the treatment plant.
    - This is a helpful step that can minimize lead exposure system-wide, and we're pleased the city is moving to take this step.
    - If asked: Phosphate was not initially required because the city was using a lime softener, one of many corrosion control options, while they performed federally required rounds of water tests to determine their optimization options and needs.

- **Expand the "Safe Drinking Water Technical Advisory Committee" to ensure the best technology, practices and science are being utilized, and add an expert from the EPA's Office of Research and Development to the group.**
    - The Safe Drinking Water Technical Advisory Committee will meet Oct. 7 to discuss fully optimizing the corrosion control system, expanding testing of at-risk properties, and other topics.
    - Tom Burke, the Deputy Assistant Administrator of EPA's Office of Research and Development as well as the EPA's Science Advisor, will participate on the committee. Prior to joining EPA, he held prominent positions at the Johns Hopkins Bloomberg School of Public Health and founded the Johns Hopkins Risk Sciences and Public Policy Institute. He brings substantial expertise, and we're pleased he is able join the committee.

- **Accelerate water system improvements to address replacement of lead service lines.**
    - Regardless of the drinking water source – whether it be DWSD, the Flint River or Lake Huron – the only permanent fix for lead is to replace the private lead service lines in the city. These are the lines on private property that lead from the curb to individual homes.
    - This is a problem in communities statewide, and one we want to address with a long-term solution.
    - The state and EPA are working with Congressman Kildee to find a way for the city to access Drinking Water Revolving Loan funds for this work.

- **Expedite completion of Karegnondi Water Authority.**
    - The move to the Flint River was always a temporary measure until the connection to the KWA and to Lake Huron was completed.
    - This is the ultimate goal of the venture, and the state and locals will work together to speed up completion of the connection.

- **Name Dr. Eden Wells as Flint Drinking Water Public Health Advisor.**
    - Dr. Wells is the Director for the Preventive Medicine Residency at the University of Michigan School of Public Health in Ann Arbor as well as the Chief Medical Executive for MDHHS.
    - She brings years of experience in epidemiology and preventative medicine to the issue, and we're thrilled to have her expertise.
    - Dr. Wells will coordinate with Hurley Medical Center to share data on blood lead levels in children, as well as address other emerging issues.

- **Provide water filters to residents of Flint.**
    - As an additional precaution, water filters will be available to Flint water customers.
    - This provides another safeguard to ensure everyone in the city of Flint has access to clean drinking water they feel confident drinking, cooking, or using for formula.

- **Expand a comprehensive lead education initiative.**
    - Lead plumbing is common in homes built prior to 1986, and anyone in the state with lead pipes in their home can take some extra precautions to minimize lead in their drinking water.
    - It takes time for lead to accumulate in drinking water from plumbing, and so flushing your pipes prior to using them can minimize your exposure.
        - To flush your pipes, run the water until it is as cold as it will go. This can take as little as 5 to 30 seconds if you have recently flushed the toilet or otherwise used water in your home, or as long as 2 to 5 minutes if you have not used any water in hours.
        - In the city of Flint, running the water for 5 minutes only costs about 3-16 cents, depending on your faucet.
    - Additionally, more lead gets into hot water than cold water. Use only cold water for drinking, cooking and making baby formula.

Blood Lead Levels in Flint Talking Points
October 5, 2015

- Initial analysis of MDHHS data found that blood lead levels (BLLs) of children in Flint have followed an expected seasonal trend; due to small numbers further analysis was initiated.
- While this analysis of blood lead levels in Flint as a whole remains true, after a comprehensive and detailed review down to the zip code level, we have found that the state analysis is consistent with that presented by Hurley.
- Director Lyon is working closely with DEQ and the administration to take active steps to reduce all potential lead exposures in Flint, and across the state.
- Our Chief Medical Executive has been in communication with the lead investigator at Hurley Children's Hospital, and we continue to work with Hurley, the city of Flint, local and state leaders to verify and analyze data trends.
- Zip code-level data does show that there has been an increase in elevated childhood blood lead levels in specific communities.
    - This does not conclusively mean that the water source change is the sole cause of the increase, but data does show an association.
    - There is an increased proportion of children with elevated Blood Levels (ELBs) in several zip codes, particularly 03 and 04. These appear to have increased over the last 1.5 years.
    - Lead exposure can occur from a number of different sources (such as paint, gasoline, solder, and consumer products) and through different pathways (such as air, food, water, dust, and soil).
    - Although there are several exposure sources, lead-based paint is still the most widespread and dangerous high-dose source of lead exposure for young children in the US and Michigan.
- We reviewed MDHHS statewide data using the same methodology used by Hurley, looking at our numbers by zip code and age ranges, and filtering out non-Flint children.
- Routine surveillance of blood lead levels does not analyze data down to the zip code level. Detailed analysis like this occurs when there is reason to focus in on precise locations or populations.
- MDHHS will be working closely with the Michigan Department of Environmental Quality, Hurley Children's Hospital, the Genesee County Health Department, and community organizations to initiate further action steps.
- We understand that cost may be a barrier to following the recommendations of the local health department. We are actively working with public and private partners to make resources available to those who may need assistance.

- MDHHS is recommending that residents follow the Public Health Advisory issued by the Genesee County Health Department, as well as take further steps to reduce exposures to all forms of lead in and around their homes.

MDHHS Stats and Facts

- 'High Risk' Zip codes (48503 and 48504)
    - Blood lead level rates among children under six years of age in the high risk zip codes (48503, 48504) were 2.7 times higher than the rest of Genesee County before the switch to Flint River Water.
    - After the switch to Flint River Water, rates in the high risk Zip codes were 3.2 times that of the rest of Genesee County.
- Other Zip codes in Flint
    - Rates of elevated blood lead levels among children under six years of age in other parts of the city of Flint were 2 times that of the rest of Genesee County before the switch to Flint River Water.
    - The magnitude of the elevated rate remained roughly the same during the period after the water source switch.
- Lead abatement through MDHHS was federally funded up until FY14 when Michigan began providing additional funds to abate homes.
- In FY14, $1.25M General Fund was added. In FY15, General Fund was bumped up to $1.75M and FY16, General Fund remains at $1.75M.

Water Filters

- Our first action item is to work closely with our public and private partners to provide water filters to Flint residents and MDHHS clients.
- To meet this priority, the governor identified one million dollars in state funding to purchase water filters for Flint residents.
- Free water filters are available to current Michigan Department of Health and Human Services clients and Flint residents at four locations:
    - Flint residents who are not current MDHHS clients should visit one of two Genesee County Community Action Resource Department offices to obtain a filter.
        - at 2727 Lippincott and 601 North Saginaw in Flint
    - Current MDHHS clients in the city of Flint should visit their local MDHHS office
        - At 125 E. Union St. or 4809 Clio Road
- Staff will be onsite at all four locations from 9 a.m. to 4 p.m., Monday through Friday, to distribute filters and assist residents who have questions about proper installation.

- Given the questions and concerns regarding the change in water source in Flint, MDHHS authorized the use of emergency services funding to provide water filters for MDHHS clients receiving assistance in the city of Flint.
- This funding will support active Family Independence Program (FIP), Food Assistance Program (FAP), Child Development and Care (CDC), State Disability Assistance (SDA), State Disability Assistance (SDA), or Social Security Insurance (SSI) recipients so that they can obtain filters that are National Sanitation Foundation (NSF) certified to remove lead and ANSI Standard 53.
- MDHHS currently serves approximately 25,000 households in Flint.

Reducing and Removing Lead Exposure

- In housing built before 1978, it can be assumed that the paint has lead unless tests show otherwise.
- Make sure your child does not have access to peeling paint or chewable surfaces painted with lead-based paint.
- Children and pregnant women should not be present in housing built before 1978 that is undergoing renovation. They should not participate in activities that disturb old paint or in cleaning up paint debris after work is completed.
- Create barriers between living/play areas and lead sources. Until environmental clean-up is completed, you should clean and isolate all sources of lead.
    - Close and lock doors to keep children away from chipping or peeling paint on walls. You can also apply temporary barriers such as contact paper or duct tape, to cover holes in walls or to block children's access to other sources of lead.
- Regularly wash children's hands and toys. Hands and toys can become contaminated from household dust or exterior soil. Both are known lead sources.
- Regularly wet-mop floors and wet-wipe window components. Because household dust is a major source of lead, you should wet-mop floors and wet-wipe horizontal surfaces every 2-3 weeks.
    - Windowsills and wells can contain high levels of leaded dust. They should be kept clean. If feasible, windows should be shut to prevent abrasion of painted surfaces or opened from the top sash.
- Take off shoes when entering the house to prevent bringing lead-contaminated soil in from outside.
- Prevent children from playing in bare soil; if possible, provide them with sandboxes. Plant grass on areas of bare soil or cover the soil with grass seed, mulch, or wood chips, if possible.
    - Until the bare soil is covered, move play areas away from bare soil and away from the sides of the house. If you have a sandbox, cover the box when not in

use to prevent cats from using it as a litter box. That will help protect children from exposure to animal waste.

- Avoid using makeup, containers, cookware, or tableware to store or cook foods or liquids that are not shown to be lead free.
- Remove recalled toys and toy jewelry immediately from children.
- Use only cold water from the tap for drinking, cooking, and making baby formula. Hot water is more likely to contain higher levels of lead. Most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.
- Shower and change clothes after finishing a task that involves working with lead-based products such as stained glass, making bullets, or using a firing range.

WIC Children

- There are 855 infants participating in WIC in Flint.
- We are working with partners at the United Way to ensure that WIC families have access to water filters and bottled water.
- In homes with infants on WIC, if the household has documentation from an official source of unsanitary water supply issues, that family may be eligible to receive ready-to-feed formula. Families should contact WIC to see if they are eligible.
- Each household would have to be looked at on an individual basis.
- WIC cannot cover bottled water.

Background

- The results of the Hurley Children's Hospital were reviewed by MDHHS after the study was released last week.
- The analysis that Hurley conducted was different from the initial MDHHS data regarding blood lead levels in Flint.
- MDHHS initial data looked at the entire blood lead levels for the Flint area for the past five years and showed the annual seasonal trends in the area.
- Seasonal exposure is higher in the summer for a variety of reasons including children playing outside in the soil, and when windows are open and lead paint is more likely to be in the air. Further, seasonal variations in water can occur due to changes in temperature, pH , and other factors

Blood Lead Levels in Flint Talking Points
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- While this analysis of blood lead levels in Flint as a whole remains true, after a comprehensive and detailed review down to the zip code level, we have found that the state analysis is consistent with that presented by Hurley;
- Director Lyon is working closely with DEQ and the administration to take active steps to reduce all potential lead exposures in Flint, and across the state.
- Our Chief Medical Executive has been in communication with the lead investigator at Hurley Children's Hospital, and we continue to work with Hurley, the city of Flint, local and state leaders to verify and analyze data trends.
- Zip code-level data does show that there has been an increase in elevated childhood blood lead levels in specific communities.
    - This does not conclusively mean that the water source change is the sole cause of the increase, but data does show an association.
    - there is an increased proportion of children with elevated Blood Levels (ELBs) in several zip codes, particularly 03 and -04. These appear to have increased over the last 1.5 years.
    - Lead exposure can occur from a number of different sources (such as paint, gasoline, solder, and consumer products) and through different pathways (such as air, food, water, dust, and soil).
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- MDHHS is recommending that residents follow the Public Health Advisory issued by the Genesee County Health Department, as well as take further steps to reduce exposures to all forms of lead in and around their homes.

MDHHS Stats and Facts

- Data charts/breakdowns and explanations--
- Lead abatement through MDHHS was federally funded up until FY14 when Michigan began providing additional funds to abate homes.
- In FY14, $1.25M General Fund was added. In FY15, General Fund was bumped up to $1.75M and FY16, General Fund remains at $1.75M.

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    - This does not conclusively mean that the water source change is the sole cause of the increase, but data does show an association.
    - there is an increased proportion of children with elevated Blood Levels (ELBs) in several zip codes, particularly 03 and -04. These appear to have increased over the last 1.5 years.
    - Lead exposure can occur from a number of different sources (such as paint, gasoline, solder, and consumer products) and through different pathways (such as air, food, water, dust, and soil).
    - Although there are several exposure sources, lead-based paint is still the most widespread and dangerous high-dose source of lead exposure for young children in the US and Michigan.

- We reviewed MDHHS statewide data using the same methodology used by Hurley, looking at our numbers by zip code and age ranges, and filtering out non-Flint children.
- Routine surveillance of blood lead levels does not analyze data down to the zip code level. Detailed analysis like this occurs when there is reason to focus in on precise locations or populations.
- MDHHS will be working closely with the Michigan Department of Environmental Quality, Hurley Children's Hospital, the Genesee County Health Department, and community organizations to initiate further action steps.

- We understand that cost may be a barrier to following the recommendations of the local health department. We are actively working with public and private partners to make resources available to those who may need assistance.
- MDHHS is recommending that residents follow the Public Health Advisory issued by the Genesee County Health Department, as well as take further steps to reduce exposures to all forms of lead in and around their homes.

MDHHS Stats and Facts

- Data charts/breakdowns and explanations--
- Lead abatement through MDHHS was federally funded up until FY14 when Michigan began providing additional funds to abate homes.
- In FY14, $1.25M General Fund was added. In FY15, General Fund was bumped up to $1.75M and FY16, General Fund remains at $1.75M.

Commented [EVW1]: Coming today

Reducing and Removing Lead Exposure

- In housing built before 1978, it can be assumed that the paint has lead unless tests show otherwise.
- Make sure your child does not have access to peeling paint or chewable surfaces painted with lead-based paint.
- Children and pregnant women should not be present in housing built before 1978 that is undergoing renovation. They should not participate in activities that disturb old paint or in cleaning up paint debris after work is completed.
- Create barriers between living/play areas and lead sources. Until environmental clean-up is completed, you should clean and isolate all sources of lead.
    - Close and lock doors to keep children away from chipping or peeling paint on walls. You can also apply temporary barriers such as contact paper or duct tape, to cover holes in walls or to block children's access to other sources of lead.
- Regularly wash children's hands and toys. Hands and toys can become contaminated from household dust or exterior soil. Both are known lead sources.
- Regularly wet-mop floors and wet-wipe window components. Because household dust is a major source of lead, you should wet-mop floors and wet-wipe horizontal surfaces every 2-3 weeks.
    - Windowsills and wells can contain high levels of leaded dust. They should be kept clean. If feasible, windows should be shut to prevent abrasion of painted surfaces or opened from the top sash.
- Take off shoes when entering the house to prevent bringing lead-contaminated soil in from outside.

- Prevent children from playing in bare soil; if possible, provide them with sandboxes. Plant grass on areas of bare soil or cover the soil with grass seed, mulch, or wood chips, if possible.
    - Until the bare soil is covered, move play areas away from bare soil and away from the sides of the house. If you have a sandbox, cover the box when not in use to prevent cats from using it as a litter box. That will help protect children from exposure to animal waste.
- Avoid using makeup, containers, cookware, or tableware to store or cook foods or liquids that are not shown to be lead free.
- Remove recalled toys and toy jewelry immediately from children.
- Use only cold water from the tap for drinking, cooking, and making baby formula. Hot water is more likely to contain higher levels of lead. Most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.
- Shower and change clothes after finishing a task that involves working with lead-based products such as stained glass, making bullets, or using a firing range.

WIC Children

- There are 855 infants participating in WIC in Flint
- In homes with infants on WIC, if the household has documentation from an official source of unsanitary water supply issues, that family may be eligible to receive ready-to-feed formula. Families should contact WIC to see if they are eligible.
- Each household would have to be looked at on an individual basis.
- WIC cannot cover bottled water.

Background

- The results of the Hurley Children's Hospital were reviewed by MDHHS after the study was released last week.
- The analysis that Hurley conducted was different from the initial MDHHS data regarding blood lead levels in Flint.
- MDHHS initial data looked at the entire blood lead levels for the Flint area for the past five years and showed the annual seasonal trends in the area.
- Seasonal exposure is higher in the summer for a variety of reasons including children playing outside in the soil, and when windows are open and lead paint is more likely to be in the air. Further, seasonal variations in water can occur due to changes in temperature, pH , and other factors

Director Nick Lyon Flint Water Press Conference Talking Points
October 2, 2015

- In addition to the points raised by DEQ in protecting the health of Flint residents, the Michigan Department of Health and Human services have also begun taking steps to reduce and prevent lead exposure for Flint families.
- Our first action item is to work closely with our public and private partners to provide water filters to Flint residents and our MDHHS clients in Flint.
- To meet this priority, the governor has identified one million dollars in state funding to purchase water filters for Flint residents.
- Additionally, through department emergency funds, we are working to provide National Sanitation Foundation (NSF) certified water filters to residents who are active Family Independence Program (FIP), Food Assistance Program (FAP), Child Development and Care (CDC), State Disability Assistance (SDA) or Social Security Insurance (SSI) recipients.
- We have already begun working with the local United Way to provide filters to residents receiving WIC benefits.
- We are in discussions with local retailers and will share additional information about where residents can go to purchase filters as soon as those details have been finalized.
- Our next step in the state action plan is to educate families about the steps they can take to reduce all lead exposures in their home.
- Lead exposure can occur from a number of different sources such as paint, gasoline, solder, and consumer products and through different pathways such as air, food, water, dust, and soil.
- Although there are several exposure sources, lead-based paint is still the most widespread and dangerous high-dose source of lead exposure for young children in the US and Michigan.
- We will be working to educate all Flint families on steps that they can take to reduce any and all lead exposures in and around their homes.
- And lastly, Gov. Rick Snyder has named Dr. Eden Wells as the Flint Drinking Water Public Health Advisor.
- In addition to the action plan, zip code-level data does show that there has been an increase in elevated childhood blood lead levels in specific communities.
- Initial analysis of MDHHS data found that blood lead levels of children in Flint have followed an expected seasonal trend.
- While this analysis for Flint as a whole remains true, after a comprehensive and detailed review down to the zip code level, MDHHS data state analysis is consistent with that presented by Hurley Children's Hospital.

- We cannot conclusively say that the water source change is the sole cause of the increase, but this analysis supports our efforts as we take active steps to reduce all potential lead exposures in Flint.
- I'd like to now ask Dr. Eden Wells, MDHHS Chief Medical Executive and the Flint Drinking Water Public Health Advisor to provide an overview of the data analysis.

RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
EXECUTIVE OFFICE
LANSING

BRIAN CALLEY
LT. GOVERNOR

CONTACTS:	FOR IMMEDIATE RELEASE
Sara Wurfel or Dave Murray Governor's Office: 517-335-6397 Brad Wurfel, 517-284-6713 or Karen Tommasulo, 517-284-6714 Department of Environmental Quality Jennifer Eisner, 517-230-9804 Department of Health and Human Services	Friday, Oct. 2, 2015

Gov. Rick Snyder: Comprehensive action plan will help Flint residents address water concerns

Collaborative effort with state, federal and city leaders focuses on testing, assistance

FLINT, Mich. – Flint residents need to have access to safe, clean, water now and long into the future, Gov. Rick Snyder said, announcing a comprehensive action plan created with state, federal and city leaders to address concerns about drinking water.

The water leaving Flint's drinking water system is safe to drink, but some families with lead plumbing in their homes or service connections could experience higher levels of lead in the water that comes out of their faucets.

The action plan focuses on increasing water testing, offering additional precautions for families with lead plumbing in their homes, and providing long-term solutions to address the city's water infrastructure challenges. The plan was created at Snyder's direction by the Michigan Departments of Environmental Quality (DEQ) and Health and Human Services (DHHS), the U.S. Environmental Protection Agency, and the city of Flint.

"We are focused on helping ensure safe, clean, accessible drinking water and addressing and mitigating concerns and protecting public health," Snyder said. "Today's action plan builds upon ongoing work with local, state and federal agencies and our partnership with city and community leaders. Together, we are working to ensure that all Flint residents have accurate information and know that help is available to address potential problems."

The city and the state also are working together to gather more data to ensure the water that leaves the treatment plant as well as the water that arrives in Flint homes is safe for all residents. The plan includes:

- Testing in Flint public schools immediately to ensure that drinking water is safe, with testing also available at no cost to any other school in Flint.

- Offering free water testing to Flint residents to assure their drinking water is safe.
- Providing free water filters to residents with concerns or who are included in state assistance programs.
- Expanding health exposure testing of individual homes.
- Accelerating corrosion controls in the Flint drinking water system.
- Accelerating water system improvements to address replacing lead service lines.
- Expediting the completion of the Karegnondi Water Authority pipeline.
- Expanding a Safe Drinking Water Technical Advisory Committee to ensure the best technology, practices and science are being followed by adding an expert from the Environmental Protection Agency's Office of Research and Development to the group.
- Naming Dr. Eden Wells, chief medical executive for the Michigan Department of Health and Human Services, as the Flint drinking water public health adviser.
- Boosting a comprehensive lead education program to make sure residents have detailed information about how to protect themselves and their homes.

Residents can have their water tested by calling 810-787-6537 and pressing 1, or emailing flintwater@cityofflint.com. The DEQ is covering the cost of this testing.

State leaders have been working closely with state and federal lawmakers to tap resources at all levels of government to address concerns.

State health experts said there has been an increase in elevated childhood blood lead levels in some specific communities. Initial analysis of MDHHS data found that blood lead levels of children in Flint have followed an expected seasonal trend. While this analysis for Flint as a whole remains true, a comprehensive and detailed review breaking down data by ZIP codes with the city revealed that MDHHS data is consistent with a study presented recently by Hurley Children's Hospital.

"While we cannot conclusively say that the water source change is the sole cause of the increase, this analysis supports our efforts as we take active steps to reduce all potential lead exposures in Flint," MDHHS Director Nick Lyon said. "As part of this, we are working closely with our public and private partners to provide Flint residents on MDHHS assistance programs with free water filters and inform families about the steps they can take to reduce all lead exposures in their home."

As a part of the action plan, MDHHS is making National Sanitation Foundation certified water filters available to clients who are active Family Independence Program, Food Assistance Program, Child Development and Care or Social Security Insurance recipients.

"This action plan offers concrete steps we will take in a local, state and federal partnership to ensure all Flint residents have safe water to drink," DEQ Director Dan Wyant said. "The DEQ will work closely with the city to gather further data to ensure the water that leaves Flint's system as well as the water that arrives in Flint homes is safe to drink."

Additional information is available at www.michigan.gov/flintwater.

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Robinson, Mikelle (DHHS)

From: Dykema, Linda D. (DCH)
Sent: Tuesday, September 22, 2015 9:54 AM
To: Lasher, Geralyn (DHHS); Peeler, Nancy (DHHS); Ruest, Karla (DHHS); Madden, Angela (DHHS); Minicuci, Angela (DHHS); Bien, Stan (DHHS)
Cc: Moran, Susan (DHHS); Robinson, Mikelle (DHHS); Fink, Brenda (DHHS); Groetsch, Kory J. (DHHS); Miller, Corinne (DHHS)
Subject: RE: Legislative call

Follow Up Flag: Follow up
Flag Status: Flagged

UPDATE:

Here is a link to the VA Tech study re city of Flint drinking water http://flintwaterstudy.org/. There are some presentation links in the lower right. It appears that the researchers have completed testing of a lot of water samples and the results are significantly different than the city and DEQ data. It also appears that they've held public meetings in Flint, resulting in the concerns about the safety of the Flint water that have arisen in the last few days.

I'm talking with Genesee County and the DEQ this afternoon about our outreach efforts and may know more after that call.

Linda D. Dykema, Ph.D.
Environmental Public Health Director
Division of Environmental Health
Michigan Department of Health & Human Services
517.335.8566
dykemal@michigan.gov

From: Lasher, Geralyn (DCH)
Sent: Monday, September 21, 2015 2:19 PM
To: Peeler, Nancy (DCH); Dykema, Linda D. (DCH); Ruest, Karla (DCH); Madden, Angela (DHS); Minicuci, Angela (DCH); Bien, Stan (DCH)
Cc: Moran, Susan (DCH); Robinson, Mikelle (DCH)
Subject: Legislative call
Importance: High

Nancy and Linda—we have gotten a call from legislative offices asking us to declare a "Health advisory" in Flint due to what they believe are high levels of lead in the water system so that the WIC program can then pay for bottled water and ready to feed formula for people in the Flint area.

We are fairly certain there is an actual process to handle these types of requests and the department wouldn't just decree a health advisory if the data didn't support it but can you help educate us on where we stand on this issue.

Thank you--g

Robinson, Mikelle (DHHS)

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 23, 2015 5:33 PM
To: Travis, Rashmi (DHHS); Robinson, Mikelle (DHHS); Lasher, Geralyn (DHHS); Hertel, Elizabeth (DHHS)
Cc: Fink, Brenda (DHHS)
Subject: Childhood Lead Poisoning Prevention program documents
Attachments: Flint Testing and EBLLs_updated 092315_with notes.pdf; Pediatric Lead Exposure Flint Water.from Hurley.pdf

Importance: High

Hello – I'm going to send a series of emails with materials you have asked for, as a way to organize them.

The first document attached to this email is our CLPPP updated analysis of the blood lead testing data we have for children aged 0-16 in Flint. This is an update from what we sent to the Director's office earlier in the year, in that we added an additional year (2010-2011), and added data for May-August 2015 (per Geralyn's request in an email late last week).

Regarding this data:

- We are using the timeframe of May –April for this chart, because the water source change in Flint happened in April 2014. So, we started by looking at the 12 month time period from May 2014 – April 2015. Then we went back and compared that same time frame to the 4 previous years, to see if the pattern was similar, significantly different, etc.
- We included all children with a Flint address, which may not exactly conform to the city boundaries.
- We only included first time blood lead levels of $\geq$ 5 mcg/dL, not all subsequent tests a child may have received.
- We included all types of blood samples – venous blood draws, capillary samples, or unknown (e.g. not labeled as venous or capillary). Typically we would point to venous samples as the best, most reliable, but we had many non-venous samples, so to be inclusive added those in.

Looking at the charts, you can definitely see the seasonal impact associated with lead poisoning.

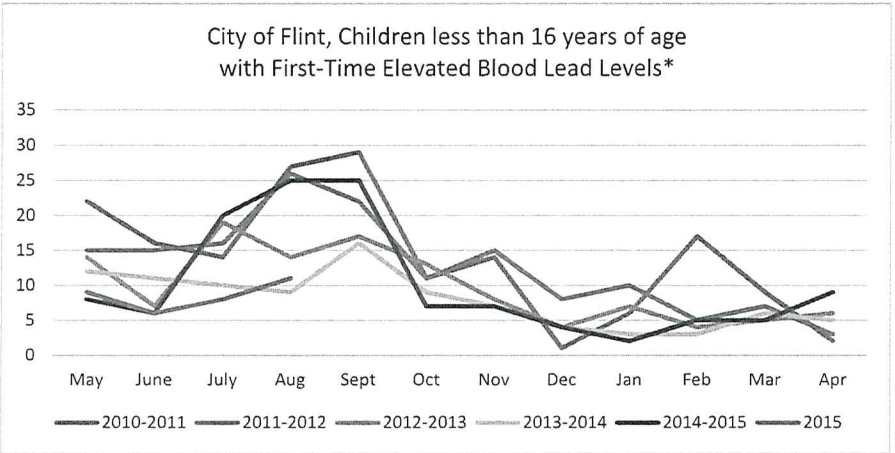
We do NOT see a different pattern of results for the 2014-2015 year, right after the change in water source. That year looks more like the data from 10-11, and 11-12.

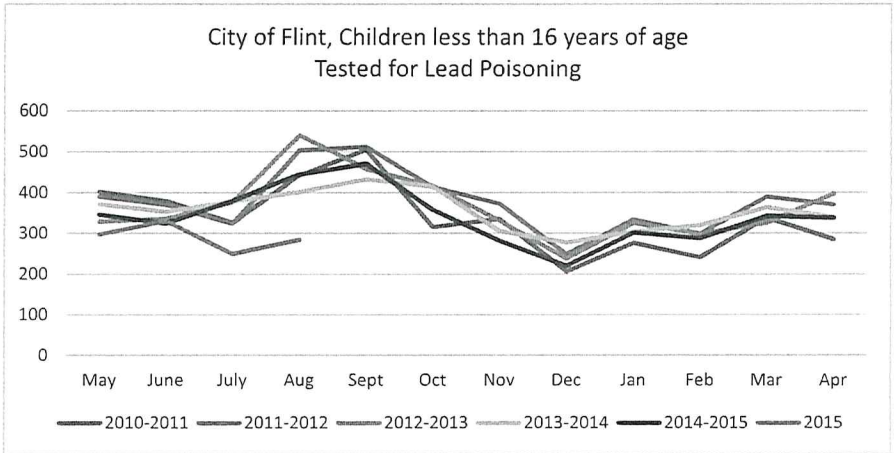
For the full 5 years worth of data, testing rates were pretty consistent, so we don't think that is driving the data. However, note that testing levels for May-August 2015 appear to be lower than in the previous 5 years.

The second document I have attached is a presentation sent to us this morning by Dr. Mona Hanna-Attisha, from Hurley Medical Center. She shared this related to her data request that she sent to our program. In scanning it, we noted that she is using different data than we did (by age, by zip code, time frames, which years she included, etc.), so comparing our data chart to her results is like comparing apples and oranges. We have not run any analyses using her parameters. We did note some slides in her document that we might disagree with, for example her statement that water is the primary source of lead (in Michigan, it remains lead paint that is our primary source of lead exposure).

Please let us know if you have questions you have about the data charts we produced. Next email will be some of our program materials, that may be of use in the upcoming outreach effort. Also, Rashmi indicated who I should include on this email, and I trust you will share with others as appropriate.

Nancy





	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3
2012-2013	14	7	19	14	17	13	8	4	7	4	5	6
2013-2014	12	11	10	9	16	9	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	4	2	5	5	9
2015	9	6	8	11								

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	402	379	325	442	504	315	335	206	276	240	338	285
2011-2012	390	370	324	503	512	413	372	248	333	298	389	370
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337
2015	297	330	249	284								

*Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Less than 16 years of age at time of test
Includes only first-time blood lead levels >= 5 ug/dL
Includes sample type of venous, capillary or unknown

September 23, 2015
Source: MDHHS Data Warehouse, Lead Specimen table

Priem, Wesley F. (DCH)

From: Dykema, Linda D. (DCH)
Sent: Wednesday, September 23, 2015 10:09 AM
To: Priem, Wesley F. (DCH); Miller, Corinne (DCH)
Subject: Fw: Health Education Call - Pb Outreach

Linda D. Dykema, Ph.D.
Toxicology and Response Section Manager

From: Groetsch, Kory J. (DCH)
Sent: Tuesday, September 22, 2015 5:22:32 PM
To: Dykema, Linda D. (DCH)
Cc: Bruneau, Michelle (DCH)
Subject: Health Education Call - Pb Outreach

Linda,

I moderated the conference call with the attendees listed below on 9/22/2015 discussing lead (Pb) outreach in the city of Flint. The purpose of the call was to facilitate introductions, and identify Pb health education materials, current PB outreach efforts in Flint and existing resources. DEQ provided a brief background of the drinking water compliance process in relation to efforts being conducted in Flint. Information sharing occurred between attendees about the Pb in drinking water sampling efforts in Flint.

Each agency/department listed their current health education efforts and available resources that could be made available relative to Pb outreach in Flint. The CLPPP provides some limited funding to prosperity region 6 to conduct Pb outreach. CLPPP is building a Pb Tool Kit for providers. Information about Pb in drinking water does not currently exist in these materials, but they are interested to build that information into the tool kit. DEQ has contacts with the Flint's drinking water program. GCHD has been getting many phone calls and they have had to create factsheets about water hardness and trihalomethanes.

Action Items from the Call:

1. Participants will e-mail their Pb outreach materials and presentations that are in current use to Michelle Bruneau (BruneauM@michigan.gov).
2. GCHD will send Michelle a list of concerns they have been getting from the Flint community.
3. Michelle will to look over the materials to assess what messages are covered, what messages are not covered, and provide suggestions on what work may need to be done to address gaps.
4. Follow-up is needed on the water sampling directions being provided by the city to homeowners that request a Pb in tap water analysis. (There are two sampling procedures depending on the purpose of the water sample.)
5. Karen Lishinski will provide a contact at WIC, so they can be invited to our follow-up conference call.
6. MDHHS-DEH will arrange a follow-up conference call in approximately two weeks.

Attendees:
Dawn Hallwood (Genesse Co HD)
James Henry (GCHD)
Mark Valacak (GCHD)
Brad Wurfel (DEQ)

Liane Shekter-Smith (DEQ)
Richard Benzie (DEQ)
Stephen Busch (DEQ)
Nancy Peeler (DHHS)
Karen Lishinski (DHHS)
Linda Dykema (DHHS)
Kory Groetsch (DHHS)
Michelle Bruneau (DHHS)

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Robinson, Mikelle (DHHS)

From: Robinson, Mikelle (DCH)
Sent: Thursday, September 24, 2015 2:14 PM
To: Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Cc: Moran, Susan (DCH); Miller, Mark (DCH)
Subject: FW: Env. Health Perspectives on Washington DC. lead in Drinking Water
Attachments: Pages from CLPPP 2013 Data Report.pdf; 2014 Lead Testing and EBLL 0-5 072015.pdf

FYI – on the call with EPA that Wes participated in today.

From: Priem, Wesley F. (DCH)
Sent: Thursday, September 24, 2015 1:31 PM
To: Klevs, Mardi (klevs.mardi@epa.gov); Martig, Anton (Tony) (martig.anton@epa.gov)
Cc: Miller, Corinne (DCH); Robinson, Mikelle (DCH); Dykema, Linda D. (DCH); Groetsch, Kory J. (DCH); Peeler, Nancy (DCH); Scott, Robert L. (DCH)
Subject: FW: Env. Health Perspectives on Washington DC. lead in Drinking Water

Mardi and Tony;

I will be sending you at three emails regarding the Flint lead in water concern. This being the article on the D.C. study an a summary of our meeting. I will also send you a response DEQ has prepared and also the M Live article.

Summary from our meeting this morning:

1. Dialog regarding the DEG Frequently asked questions and there was no objections to the information presented.
2. Discussion on who was taking the lead from the municipalities whether it was the city of Genesee County Health Department. It appears the city and mayor is taking the lead.
3. Local Health Department is working on preparing information for the public
4. Information being prepared from our, State, CLPPP and this information can still be revised to include more information on drinking water.
5. Our Environmental Toxicological Section can provide assistance if needed for the public outreach materials, although the staff person who would do this work is on vacation till next week.
6. CLPPP is working to review the epi study and will prepare a power point to explain what the results imply. They will work closely with the Department's epidemiologist who prepared the first results to ensure validity and the proper discussion of the study.
7. The idea of providing filters to the public was discussed. A call to the National Sanitation Foundation was made to discuss this issue further and determine proper filters.
8. CLPPP can provide EPA with 2013- 2014. See attached. 2015 data-to-date is not yet available but can be later if needed.
9. Our department was informed while we were meeting the Flint advocates along with others are to be holding a press conference at 3:00 today. The advocates are demanding that the water supply revert back to the city of Detroit's drinking water.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1868000/

Excerpt below with the plan they implemented.

Following the LCR (U.S. EPA 1991), guidance from the U.S. EPA, consultation with the DC Department of Health, and its own contingency plans, in 2003 the DCWASA implemented plans for families living in homes with lead lines or testing above the LAL:

- Advisories were disseminated recommending that water lines should be flushed for 10 min before consuming drinking water.
- Specific advice for limiting exposure to children < 6 years of age and pregnant and nursing women was sent to all households with suspected lead service lines, in the form of flyers prepared in English, Spanish, Korean, Chinese, Vietnamese, and Amharic.
- Filters were distributed to homes with suspected lead service lines and later to all homes with a test result > 15 ppb (the LAL). Replacement filter cartridges were then sent to the same homes at 6-month intervals for the duration of the period of the exceedance, ending in June 2006.
- The board of directors of the DCWASA decided to adopt a voluntarily accelerated program to replace the public segment of all lead service lines in the District of Columbia, exceeding requirements of the LCR (U.S. EPA 1991).
- Homeowners were offered replacement of the private segment of lead service lines on their property, at cost, at the same time that the public segments of the lead service lines were replaced. When the public line is replaced but the private line is not, lead levels are reduced proportionally to the length of pipe replaced but not eliminated.
- Low-cost financing was arranged with a local bank for qualifying property owners who wished to replace the private part of the lead service line on their property. The DC government later made grants available to low-income eligible residents for this purpose.
- The DCWASA offered free water testing to any customer in the distribution area who requested it.

Children Tested for Lead Poisoning -- Calendar Year 2013
All Counties in Michigan

Children less than Six Years of Age

				Children Tested		Children Tested, by Highest Blood Lead Level (BLL)									
County	%Pre-1950 Housing	%Pre-1978 Housing	Children less than Six Years of Age	Number of Children Tested	% Tested	<5 ug/dL (capillary or venous)	5 to 9 ug/dL (capillary or venous)	Capillary >= 10 ug/dL, not confirmed by venous	Confirmed 10-19 ug/dL (venous only)	Confirmed 20-44 ug/dL (venous only)	Confirmed ≥45 ug/dL (venous only)	Total ≥ 5 µg/dL	Total Confirmed >=10 ug/dL	% with BLL >= 5 ug/dL	% with Confirmed BLL >= 10 ug/dL
Alcona	12.4	61.5	415	51	12.3	50	1	0	0	0	0	1	0	2.0	0.0
Alger	29.5	64.1	461	76	16.5	75	1	0	0	0	0	1	0	1.3	0.0
Allegan	23.2	51.1	9,036	1,159	12.8	1,124	31	2	2	0	0	35	2	3.0	0.2
Alpena	25.3	71.6	1,766	302	17.1	295	6	1	0	0	0	7	0	2.3	0.0
Antrim	18.8	52.6	1,393	258	18.5	252	5	1	0	0	0	6	0	2.3	0.0
Arenac	19.8	58.2	894	163	18.2	161	2	0	0	0	0	2	0	1.2	0.0
Baraga	34.0	71.7	510	128	25.1	127	1	0	0	0	0	1	0	0.8	0.0
Barry	27.1	57.3	4,307	465	10.8	454	10	2	0	0	0	12	0	2.6	0.0
Bay	33.9	75.6	7,477	1,421	19.0	1,350	63	0	7	1	0	71	8	5.0	0.6
Benzie	18.6	46.3	1,119	231	20.6	225	6	0	0	0	0	6	0	2.6	0.0
Berrien	28.6	72.2	11,779	1,728	14.7	1,664	52	0	10	2	0	64	12	3.7	0.7
Branch	30.9	65.3	3,524	765	21.7	726	35	3	0	1	0	39	1	5.1	0.1
Calhoun	36.1	75.3	10,445	1,970	18.9	1,902	54	3	7	4	0	68	11	3.5	0.6
Cass	22.4	59.9	3,615	458	12.7	438	16	3	1	0	0	20	1	4.4	0.2
Charlevoix	25.3	54.4	1,655	297	17.9	295	2	0	0	0	0	2	0	0.7	0.0
Cheboygan	20.9	53.5	1,462	266	18.2	264	0	2	0	0	0	2	0	0.8	0.0
Chippewa	25.1	58.6	2,374	435	18.3	430	5	0	0	0	0	5	0	1.1	0.0
Clare	14.5	58.8	2,110	414	19.6	411	3	0	0	0	0	3	0	0.7	0.0
Clinton	22.5	52.8	5,279	565	10.7	553	12	0	0	0	0	12	0	2.1	0.0
Crawford	13.7	55.6	775	87	11.2	81	6	0	0	0	0	6	0	6.9	0.0
Delta	33.3	68.0	2,441	453	18.6	435	15	2	1	0	0	18	1	4.0	0.2
Dickinson	38.9	71.7	1,661	303	18.2	296	4	2	1	0	0	7	1	2.3	0.3
Eaton	20.4	56.4	7,375	1,132	15.3	1,117	13	2	0	0	0	15	0	1.3	0.0
Emmet	23.0	48.3	2,080	322	15.5	320	2	0	0	0	0	2	0	0.6	0.0
Genesee	19.9	68.0	32,974	7,067	21.4	6,909	134	13	5	6	0	158	11	2.2	0.2
Gladwin	12.4	49.5	1,527	245	16.0	240	5	0	0	0	0	5	0	2.0	0.0
Gogebic	50.0	76.7	869	193	22.2	188	5	0	0	0	0	5	0	2.6	0.0
Grand Traverse	14.7	43.5	6,080	1,032	17.0	995	30	7	0	0	0	37	0	3.6	0.0
Gratiot	34.7	69.8	2,814	475	16.9	468	7	0	0	0	0	7	0	1.5	0.0
Hillsdale	36.5	63.2	3,339	788	23.6	762	24	1	1	0	0	26	1	3.3	0.1
Houghton	53.4	75.5	2,528	538	21.3	514	23	0	0	1	0	24	1	4.5	0.2
Huron	31.8	68.9	1,901	394	20.7	371	22	0	1	0	0	23	1	5.8	0.3
Ingham	24.9	68.2	19,293	4,702	24.4	4,487	208	2	4	1	0	215	5	4.6	0.1
Ionia	35.8	63.0	4,937	825	16.7	811	12	1	1	0	0	14	1	1.7	0.1
Iosco	12.7	65.6	1,183	146	12.3	142	3	1	0	0	0	4	0	2.7	0.0
Iron	44.1	72.1	579	149	25.7	146	3	0	0	0	0	3	0	2.0	0.0
Isabella	16.3	48.2	4,294	731	17.0	723	6	1	0	1	0	8	1	1.1	0.1
Jackson	33.0	67.9	11,435	2,965	25.9	2,777	162	12	13	2	1	190	16	6.4	0.5
Kalamazoo	22.5	62.6	18,472	3,536	19.1	3,411	104	12	10	1	0	127	11	3.6	0.3
Kalkaska	13.2	49.3	1,218	223	18.3	219	4	0	0	0	0	4	0	1.8	0.0
Kent	24.8	59.2	52,878	10,376	19.6	9,825	483	15	43	9	1	551	53	5.3	0.5
Keweenaw	46.9	77.6	119	28	23.5	26	2	0	0	0	0	2	0	7.1	0.0
Lake	12.5	52.6	597	121	20.3	120	1	0	0	0	0	1	0	0.8	0.0
Lapeer	20.4	52.9	5,814	1,052	18.1	1,013	38	1	0	0	0	39	0	3.7	0.0
Leelanau	17.9	46.5	1,119	213	19.0	206	6	1	0	0	0	7	0	3.3	0.0

Children Tested for Lead Poisoning -- Calendar Year 2013
All Counties in Michigan

Children less than Six Years of Age

				Children Tested		Children Tested, by Highest Blood Lead Level (BLL)									
County	%Pre-1950 Housing	%Pre-1978 Housing	Children less than Six Years of Age	Number of Children Tested	% Tested	<5 ug/dL (capillary or venous)	5 to 9 ug/dL (capillary or venous)	Capillary >= 10 ug/dL, not confirmed by venous	Confirmed 10-19 ug/dL (venous only)	Confirmed 20-44 ug/dL (venous only)	Confirmed ≥45 ug/dL (venous only)	Total ≥ 5 µg/dL	Total Confirmed >=10 ug/dL	% with BLL >= 5 ug/dL	% with Confirmed BLL >= 10 ug/dL
Lenawee	33.6	67.2	6,995	1,512	21.6	1,425	72	11	3	1	0	87	4	5.8	0.3
Livingston	11.4	39.0	12,406	1,106	8.9	1,094	11	0	0	1	0	12	1	1.1	0.1
Luce	23.8	64.3	374	73	19.5	71	2	0	0	0	0	2	0	2.7	0.0
Mackinac	23.4	58.6	560	116	20.7	110	6	0	0	0	0	6	0	5.2	0.0
Macomb	9.3	59.1	58,786	10,093	17.2	9,937	130	8	12	6	2	158	20	1.6	0.2
Manistee	28.8	63.9	1,324	248	18.7	233	12	1	2	0	0	15	2	6.0	0.8
Marquette	27.9	69.4	4,050	514	12.7	494	17	1	2	0	0	20	2	3.9	0.4
Mason	32.1	64.6	1,886	362	19.2	323	33	5	2	0	0	40	2	11.0	0.6
Mecosta	18.2	53.4	2,644	367	13.9	361	6	0	0	0	0	6	0	1.6	0.0
Menominee	35.4	73.2	1,434	262	18.3	252	9	0	1	0	0	10	1	3.8	0.4
Midland	15.2	58.7	5,746	501	8.7	493	7	1	0	0	0	8	0	1.6	0.0
Missaukee	21.2	56.2	1,120	133	11.9	133	0	0	0	0	0	0	0	0.0	0.0
Monroe	23.0	59.0	10,597	1,705	16.1	1,663	39	3	0	0	0	42	0	2.5	0.0
Montcalm	27.3	57.7	4,666	615	13.2	607	8	0	0	0	0	8	0	1.3	0.0
Montmorency	18.1	58.6	424	80	18.9	80	0	0	0	0	0	0	0	0.0	0.0
Muskegon	25.8	66.2	13,543	3,022	22.3	2,877	124	7	12	2	0	145	14	4.8	0.5
Newaygo	19.3	53.6	3,686	426	11.6	422	4	0	0	0	0	4	0	0.9	0.0
Oakland	14.7	60.5	83,905	14,244	17.0	14,025	188	8	20	4	1	221	25	1.6	0.2
Oceana	25.8	57.8	2,130	515	24.2	498	14	1	2	0	0	17	2	3.3	0.4
Ogemaw	12.8	61.6	1,271	96	7.6	94	2	0	0	0	0	2	0	2.1	0.0
Ontonagon	39.1	73.2	280	48	17.1	48	0	0	0	0	0	0	0	0.0	0.0
Osceola	22.6	56.6	1,748	362	20.7	350	8	0	1	2	1	12	4	3.3	1.1
Oscoda	17.8	62.1	541	48	8.9	47	1	0	0	0	0	1	0	2.1	0.0
Otsego	12.2	50.3	1,654	316	19.1	315	1	0	0	0	0	1	0	0.3	0.0
Ottawa	15.7	45.3	21,541	2,928	13.6	2,836	82	7	3	0	0	92	3	3.1	0.1
Presque Isle	21.1	66.3	640	121	18.9	121	0	0	0	0	0	0	0	0.0	0.0
Roscommon	13.1	58.7	1,159	216	18.6	212	4	0	0	0	0	4	0	1.9	0.0
Saginaw	28.1	73.1	14,346	3,775	26.3	3,646	110	6	12	1	0	129	13	3.4	0.3
St Clair	25.8	59.4	11,371	2,597	22.8	2,477	109	9	3	0	0	121	3	4.7	0.1
St Joseph	27.5	65.1	5,155	981	19.0	943	32	4	1	1	0	38	2	3.9	0.2
Sanilac	30.7	64.6	3,012	544	18.1	527	16	0	1	0	0	17	1	3.1	0.2
Schoolcraft	25.5	63.3	465	88	18.9	88	0	0	0	0	0	0	0	0.0	0.0
Shiawassee	33.9	68.2	4,734	1,230	26.0	1,184	40	1	3	2	0	46	5	3.7	0.4
Tuscola	30.2	67.4	3,772	906	24.0	885	21	0	0	0	0	21	0	2.3	0.0
Van Buren	23.3	58.1	5,982	879	14.7	859	15	1	4	0	0	20	4	2.3	0.5
Washtenaw	17.2	56.5	22,904	2,743	12.0	2,696	43	1	2	1	0	47	3	1.7	0.1
Wayne ex Det	22.6	74.5	82,994	19,466	23.5	18,980	408	27	43	11	0	489	54	2.5	0.3
Wexford	23.0	53.7	2,588	329	12.7	319	9	1	0	0	0	10	0	3.0	0.0
Detroit, City of	62.2	93.2	60,638	25,026	41.3	23,030	1,583	63	281	62	7	1,996	350	8.0	1.4
MICHIGAN	24.7	64.8	720,994	147,841	20.5	142,153	4,793	256	517	123	13	5,702	653	3.9	0.4

Sources: US Census Bureau, Census 2010 (Pre-1950 Housing and Pre-1978 Housing) and American Community Survey 2012 5-year estimates (Detroit and county populations); MDCH Data Warehouse (children tested)

April 30, 2014

Children Tested for Lead Poisoning -- Calendar Year 2014
All Counties in Michigan

Children less than Six Years of Age

				Children Tested		Children Tested, by Highest Blood Lead Level (BLL)										
County	%Pre-1950 Housing	%Pre-1978 Housing	Children less than Six Years of Age	Number of Children Tested	% Tested	<5 ug/dL	5 to 9 ug/dL, not confirmed by venous	>= 10 ug/dL, not confirmed by venous	Confirmed 5-9 ug/dL (venous only)	Confirmed 10-14 ug/dL (venous only)	Confirmed 15-44 ug/dL (venous only)	Confirmed ≥45 ug/dL (venous only)	Total confirmed ≥ 5 µg/dL	% with confirmed BLL >= 5 ug/dL	Total ≥ 5 µg/dL, confirmed & unconfirmed*	% with BLL >= 5 ug/dL, confirmed & unconfirmed*
Alcona	12.4	61.5	398	53	13.3	51	2	0	0	0	0	0	0	0.0	2	3.8
Alger	29.5	64.1	427	92	21.5	90	1	0	0	1	0	0	1	1.1	2	2.2
Allegan	23.2	51.1	8,806	1,208	13.7	1,177	26	2	3	0	0	0	3	0.2	31	2.6
Alpena	25.3	71.6	1,758	257	14.6	248	7	1	1	0	0	0	1	0.4	9	3.5
Antrim	18.8	52.6	1,370	260	19.0	258	0	0	2	0	0	0	2	0.8	2	0.8
Arenac	19.8	58.2	870	186	21.4	185	1	0	0	0	0	0	0	0.0	1	0.5
Baraga	34.0	71.7	477	135	28.3	134	1	0	0	0	0	0	0	0.0	1	0.7
Barry	27.1	57.3	4,143	491	11.9	468	19	0	3	1	0	0	4	0.8	23	4.7
Bay	33.9	75.6	7,322	1,408	19.2	1,358	31	2	10	3	3	1	17	1.2	50	3.6
Benzie	18.6	46.3	1,041	268	25.7	266	2	0	0	0	0	0	0	0.0	2	0.7
Berrien	28.6	72.2	11,681	1,943	16.6	1,884	24	5	21	4	5	0	30	1.5	59	3.0
Branch	30.9	65.3	3,506	668	19.1	645	18	1	1	3	0	0	4	0.6	23	3.4
Calhoun	36.1	75.3	10,149	2,390	23.5	2,290	36	0	51	7	6	0	64	2.7	100	4.2
Cass	22.4	59.9	3,444	426	12.4	414	7	1	3	1	0	0	4	0.9	12	2.8
Charlevoix	25.3	54.4	1,624	295	18.2	294	1	0	0	0	0	0	0	0.0	1	0.3
Cheboygan	20.9	53.5	1,414	286	20.2	279	6	0	1	0	0	0	1	0.3	7	2.4
Chippewa	25.1	58.6	2,345	440	18.8	436	1	0	3	0	0	0	3	0.7	4	0.9
Clare	14.5	58.8	2,083	446	21.4	442	4	0	0	0	0	0	0	0.0	4	0.9
Clinton	22.5	52.8	5,140	585	11.4	579	1	0	5	0	0	0	5	0.9	6	1.0
Crawford	13.7	55.6	727	85	11.7	84	1	0	0	0	0	0	0	0.0	1	1.2
Delta	33.3	68.0	2,388	413	17.3	397	14	0	1	0	1	0	2	0.5	16	3.9
Dickinson	38.9	71.7	1,575	318	20.2	317	0	0	1	0	0	0	1	0.3	1	0.3
Eaton	20.4	56.4	7,356	1,140	15.5	1,113	20	3	4	0	0	0	4	0.4	27	2.4
Emmet	23.0	48.3	2,042	362	17.7	362	0	0	0	0	0	0	0	0.0	0	0.0
Genesee	19.9	68.0	31,997	6,824	21.3	6,646	97	11	56	9	5	0	70	1.0	178	2.6
Gladwin	12.4	49.5	1,495	291	19.5	291	0	0	0	0	0	0	0	0.0	0	0.0
Gogebic	50.0	76.7	855	154	18.0	152	2	0	0	0	0	0	0	0.0	2	1.3
Grand Traverse	14.7	43.5	6,000	1,371	22.9	1,359	6	3	3	0	0	0	3	0.2	12	0.9
Gratiot	34.7	69.8	2,754	496	18.0	491	4	0	1	0	0	0	1	0.2	5	1.0
Hillsdale	36.5	63.2	3,283	814	24.8	795	14	2	3	0	0	0	3	0.4	19	2.3
Houghton	53.4	75.5	2,477	599	24.2	585	6	0	4	2	2	0	8	1.3	14	2.3
Huron	31.8	68.9	1,873	393	21.0	381	9	0	2	1	0	0	3	0.8	12	3.1
Ingham	24.9	68.2	19,248	4,747	24.7	4,606	94	5	25	11	6	0	42	0.9	141	3.0
Ionia	35.8	63.0	4,878	843	17.3	816	20	2	4	0	1	0	5	0.6	27	3.2
Iosco	12.7	65.6	1,233	150	12.2	146	3	0	1	0	0	0	1	0.7	4	2.7
Iron	44.1	72.1	573	138	24.1	135	3	0	0	0	0	0	0	0.0	3	2.2
Isabella	16.3	48.2	4,208	640	15.2	632	7	0	1	0	0	0	1	0.2	8	1.3
Jackson	33.0	67.9	11,296	2,757	24.4	2,602	107	14	27	3	4	0	34	1.2	155	5.6
Kalamazoo	22.5	62.6	18,588	3,257	17.5	3,172	48	7	23	4	2	1	30	0.9	85	2.6
Kalkaska	13.2	49.3	1,180	217	18.4	216	1	0	0	0	0	0	0	0.0	1	0.5
Kent	24.8	59.2	52,655	10,115	19.2	9,645	325	8	89	22	26	0	137	1.4	470	4.6
Keweenaw	46.9	77.6	115	25	21.7	23	2	0	0	0	0	0	0	0.0	2	8.0
Lake	12.5	52.6	585	120	20.5	118	2	0	0	0	0	0	0	0.0	2	1.7
Lapeer	20.4	52.9	5,687	919	16.2	890	22	3	3	0	1	0	4	0.4	29	3.2
Leelanau	17.9	46.5	1,111	239	21.5	234	4	1	0	0	0	0	0	0.0	5	2.1
Lenawee	33.6	67.2	6,911	1,196	17.3	1,074	78	16	21	3	4	0	28	2.3	122	10.2

Children Tested for Lead Poisoning -- Calendar Year 2014
All Counties in Michigan

Children less than Six Years of Age

				Children Tested		Children Tested, by Highest Blood Lead Level (BLL)										
County	%Pre-1950 Housing	%Pre-1978 Housing	Children less than Six Years of Age	Number of Children Tested	% Tested	<5 ug/dL	5 to 9 ug/dL, not confirmed by venous	>= 10 ug/dL, not confirmed by venous	Confirmed 5-9 ug/dL (venous only)	Confirmed 10-14 ug/dL (venous only)	Confirmed 15-44 ug/dL (venous only)	Confirmed ≥45 ug/dL (venous only)	Total confirmed ≥ 5 µg/dL	% with confirmed BLL >= 5 ug/dL	Total ≥ 5 µg/dL, confirmed & unconfirmed*	% with BLL >= 5 ug/dL, confirmed & unconfirmed*
Livingston	11.4	39.0	12,104	1,026	8.5	1,017	4	0	4	1	0	0	5	0.5	9	0.9
Luce	23.8	64.3	370	88	23.8	88	0	0	0	0	0	0	0	0.0	0	0.0
Mackinac	23.4	58.6	587	130	22.1	129	1	0	0	0	0	0	0	0.0	1	0.8
Macomb	9.3	59.1	57,878	9,525	16.5	9,397	73	6	38	2	7	2	49	0.5	128	1.3
Manistee	28.8	63.9	1,307	284	21.7	271	10	0	1	0	2	0	3	1.1	13	4.6
Marquette	27.9	69.4	4,029	471	11.7	458	3	2	8	0	0	0	8	1.7	13	2.8
Mason	32.1	64.6	1,864	414	22.2	387	25	0	2	0	0	0	2	0.5	27	6.5
Mecosta	18.2	53.4	2,520	316	12.5	314	0	0	0	0	2	0	2	0.6	2	0.6
Menominee	35.4	73.2	1,375	261	19.0	245	11	1	3	0	1	0	4	1.5	16	6.1
Midland	15.2	58.7	5,685	477	8.4	472	2	0	2	1	0	0	3	0.6	5	1.0
Missaukee	21.2	56.2	1,111	133	12.0	132	0	0	0	1	0	0	1	0.8	1	0.8
Monroe	23.0	59.0	10,355	1,571	15.2	1,553	15	1	1	1	0	0	2	0.1	18	1.1
Montcalm	27.3	57.7	4,527	748	16.5	735	6	0	5	1	1	0	7	0.9	13	1.7
Montmorency	18.1	58.6	404	83	20.5	82	1	0	0	0	0	0	0	0.0	1	1.2
Muskegon	25.8	66.2	13,224	2,572	19.4	2,415	66	13	62	10	6	0	78	3.0	157	6.1
Newaygo	19.3	53.6	3,581	447	12.5	440	6	1	0	0	0	0	0	0.0	7	1.6
Oakland	14.7	60.5	83,501	14,308	17.1	14,102	94	8	71	20	13	0	104	0.7	206	1.4
Oceana	25.8	57.8	2,091	516	24.7	506	5	0	2	3	0	0	5	1.0	10	1.9
Ogemaw	12.8	61.6	1,289	102	7.9	101	0	0	1	0	0	0	1	1.0	1	1.0
Ontonagon	39.1	73.2	251	48	19.1	46	2	0	0	0	0	0	0	0.0	2	4.2
Osceola	22.6	56.6	1,723	334	19.4	324	4	0	2	2	2	0	6	1.8	10	3.0
Oscoda	17.8	62.1	521	35	6.7	32	2	1	0	0	0	0	0	0.0	3	8.6
Otsego	12.2	50.3	1,641	325	19.8	324	1	0	0	0	0	0	0	0.0	1	0.3
Ottawa	15.7	45.3	21,390	3,012	14.1	2,931	59	5	16	1	0	0	17	0.6	81	2.7
Presque Isle	21.1	66.3	597	111	18.6	109	2	0	0	0	0	0	0	0.0	2	1.8
Roscommon	13.1	58.7	1,156	218	18.9	218	0	0	0	0	0	0	0	0.0	0	0.0
Saginaw	28.1	73.1	14,029	3,670	26.2	3,548	76	8	25	7	6	0	38	1.0	122	3.3
Saint Clair	25.8	59.4	11,046	2,731	24.7	2,655	46	7	15	5	3	0	23	0.8	76	2.8
Saint Joseph	27.5	65.1	5,125	1,012	19.7	971	27	4	7	2	1	0	10	1.0	41	4.1
Sanilac	30.7	64.6	2,879	523	18.2	517	4	0	1	1	0	0	2	0.4	6	1.1
Schoolcraft	25.5	63.3	471	99	21.0	98	0	0	1	0	0	0	1	1.0	1	1.0
Shiawassee	33.9	68.2	4,622	1,169	25.3	1,131	19	2	15	2	0	0	17	1.5	38	3.3
Tuscola	30.2	67.4	3,579	886	24.8	874	10	0	0	2	0	0	2	0.2	12	1.4
Van Buren	23.3	58.1	5,884	862	14.6	832	9	1	17	1	2	0	20	2.3	30	3.5
Washtenaw	17.2	56.5	22,833	2,604	11.4	2,572	15	2	10	2	3	0	15	0.6	32	1.2
Wayne ex Det	22.6	74.5	82,002	18,348	22.4	16,021	164	12	185	33	15	0	233	1.3	409	2.2
Wexford	23.0	53.7	2,582	362	14.0	359	1	0	0	0	2	0	2	0.6	3	0.8
Detroit, City of	62.2	93.2	59,755	22,842	38.2	20,966	279	51	1,183	214	145	4	1,546	6.8	1,876	8.2
MICHIGAN	24.7	64.8	710,976	143,123	20.1	136,152	2,119	212	2,050	387	277	8	2,722	1.9	5,053	3.5

*These columns are included for comparison with previous years' data

July 20, 2015

Sources: US Census Bureau, Census 2010 (Pre-1950 Housing and Pre-1978 Housing) and American Community Survey 2013 5-year estimates (Detroit and county populations); MDCH Data Warehouse (children tested)

Robinson, Mikelle (DHHS)

From: Robinson, Mikelle (DCH)
Sent: Thursday, September 24, 2015 2:27 PM
To: Minicuci, Angela (DCH)
Cc: Peeler, Nancy (DCH); Scott, Robert L. (DCH); Lasher, Geralyn (DCH); Eisner, Jennifer (DCH); Hertel, Elizabeth (DCH); Moran, Susan (DCH); Miller, Mark (DCH)
Subject: RE: Flint lead data

Mark Valacak (health officer) informed me that he sent some recommended revisions to the city water department for the advisory and will forward it to me when it is available. So, I assume an advisory is still being planned.

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 2:07 PM
To: Peeler, Nancy (DCH); Scott, Robert L. (DCH); Lasher, Geralyn (DCH); Eisner, Jennifer (DCH); Robinson, Mikelle (DCH); Moran, Susan (DCH); Hertel, Elizabeth (DCH)
Subject: FW: Flint lead data

The Next Steps slide no longer recommends that the city declare a health advisory. It now says 'support city's health advisory'. If Flint will be issuing a health advisory, will Genesee County support this?

Angela

From: Murray, David (GOV)
Sent: Thursday, September 24, 2015 1:56 PM
To: Hollins, Harvey (GOV) <hollinsh@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>; Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Clement, Elizabeth (GOV) <clemente@michigan.gov>; Muchmore, Dennis (GOV) <muchmored@michigan.gov>; Agen, Jarrod (GOV) <AgenJ@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Tommasulo, Karen (DEQ) <TommasuloK@michigan.gov>
Cc: Biehl, Laura (GOV) <BiehlL@michigan.gov>; Brown, Jessica (GOV) <BrownJ53@michigan.gov>; Heaton, Anna (GOV) <HeatonA@michigan.gov>
Subject: Flint lead data

Team,

Here's the data that will be presented at the Hurley Hospital press conference at 3 p.m. As you'll see, they are pointing to individual children, a very emotional approach. Our challenge will be to show how our state data is different from what the hospital and the coalition members are presenting today.

Dave

---------- Forwarded message ----------
From: **Andy Leavitt** <aleavitt@senatedems.org>
Date: Thu, Sep 24, 2015 at 1:41 PM
Subject: Data
To: Angela Wittrock <awittrock@senatedems.org>

Hey Angela,

Sorry for the delay. Dr. Mona Hanna-Attisha wanted to make a few changes to one of her slides.

Andy

Robinson, Mikelle (DHHS)

From: Robinson, Mikelle (DCH)
Sent: Thursday, September 24, 2015 4:34 PM
To: Miller, Mark (DCH)
Subject: FW: Elevated lead found in more Flint kids after water switch, study finds

FYI.

From: Priem, Wesley F. (DCH)
Sent: Thursday, September 24, 2015 3:58 PM
To: Dykema, Linda D. (DCH); Groetsch, Kory J. (DCH); Robinson, Mikelle (DCH); Scott, Robert L. (DCH); Peeler, Nancy (DCH)
Subject: Elevated lead found in more Flint kids after water switch, study finds

http://www.mlive.com/news/flint/index.ssf/2015/09/study_shows_twice_as_many_flin.html#incart_email

I believe Bob Scott is reviewing these findings and can report back to us…

Robinson, Mikelle (DCH)

From: Priem, Wesley F. (DCH)
Sent: Thursday, September 24, 2015 9:45 AM
To: Robinson, Mikelle (DCH)
Subject: FW: Env. Health Perspectives on Washington DC. lead in Drinking Water

Mikelle: Env. Health Perspectives article on Washington D. C. Lead in water and the plan they followed. One thing we could consider is water filters for families as a stop gap measure.

From: Priem, Wesley F. (DCH)
Sent: Wednesday, September 23, 2015 2:34 PM
To: Groetsch, Kory J. (DCH); Dykema, Linda D. (DCH); Miller, Corinne (DCH)
Subject: Env. Health Perspectives on Washington DC. lead in Drinking Water

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1868000/

Excerpt below with the plan they implemented.

Following the LCR (U.S. EPA 1991), guidance from the U.S. EPA, consultation with the DC Department of Health, and its own contingency plans, in 2003 the DCWASA implemented plans for families living in homes with lead lines or testing above the LAL:

- Advisories were disseminated recommending that water lines should be flushed for 10 min before consuming drinking water.
- Specific advice for limiting exposure to children < 6 years of age and pregnant and nursing women was sent to all households with suspected lead service lines, in the form of flyers prepared in English, Spanish, Korean, Chinese, Vietnamese, and Amharic.
- Filters were distributed to homes with suspected lead service lines and later to all homes with a test result > 15 ppb (the LAL). Replacement filter cartridges were then sent to the same homes at 6-month intervals for the duration of the period of the exceedance, ending in June 2006.
- The board of directors of the DCWASA decided to adopt a voluntarily accelerated program to replace the public segment of all lead service lines in the District of Columbia, exceeding requirements of the LCR (U.S. EPA 1991).
- Homeowners were offered replacement of the private segment of lead service lines on their property, at cost, at the same time that the public segments of the lead service lines were replaced. When the public line is replaced but the private line is not, lead levels are reduced proportionally to the length of pipe replaced but not eliminated.
- Low-cost financing was arranged with a local bank for qualifying property owners who wished to replace the private part of the lead service line on their property. The DC government later made grants available to low-income eligible residents for this purpose.
- The DCWASA offered free water testing to any customer in the distribution area who requested it.

Robinson, Mikelle (DHHS)

From: Miller, Mark (DCH)
Sent: Friday, September 25, 2015 2:39 PM
To: Priem, Wesley F. (DHHS); Travis, Rashmi (DHHS); Hertel, Elizabeth (DHHS); Eisner, Jennifer (DHHS); Dykema, Linda D. (DHHS); Minicuci, Angela (DHHS)
Cc: Robinson, Mikelle (DHHS); Moran, Susan (DHHS)
Subject: FW: water issue
Attachments: Lead Advisory Release.pdf

FYI, issued today after the press conference today.

mark

From: Valacak, Mark [mailto:MVALACAK@gchd.us]
Sent: Friday, September 25, 2015 2:35 PM
To: Robinson, Mikelle (DCH)
Cc: Miller, Mark (DCH)
Subject: RE: water issue

Attached is the lead advisory issued by the city of Flint.

Mark Valacak, MPH, Health Officer
Genesee County Health Department,

630 S. Saginaw St. Suite 4 Flint, MI 48502-1540

Phone 810-257-3588 Fax 810 257-3147
E-mail mvalacak@gchd.us

Public Health

Please consider the environment before printing this e-mail.

"There are two lasting bequests we can hope to give our children: one is roots; the other is wings." Hodding Carter

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From: Robinson, Mikelle (DCH) [mailto:RobinsonM18@michigan.gov]
Sent: Thursday, September 24, 2015 2:27 PM
To: Valacak, Mark
Subject: RE: water issue

Great, thank you!

From: Valacak, Mark [mailto:MVALACAK@gchd.us]
Sent: Thursday, September 24, 2015 2:22 PM

To: Robinson, Mikelle (DCH)
Subject: RE: water issue

Mikelle,

Happy to work with you on this and appreciate any assistance the state can provide. The "lead in water" fact sheet is posted to our website http://www.gchd.us/ under the popular pages column. We sent our recommended revisions to the city water department for the advisory and will forward that when it is available.

Mark Valacak, MPH, Health Officer
Genesee County Health Department,

630 S. Saginaw St. Suite 4 Flint, MI 48502-1540

Phone 810-257-3588 Fax 810 257-3147
E-mail mvalacak@gchd.us

Public Health

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From: Robinson, Mikelle (DCH) [mailto:RobinsonM18@michigan.gov]
Sent: Thursday, September 24, 2015 2:12 PM
To: Valacak, Mark
Cc: Miller, Mark (DCH)
Subject: water issue

Hi Mark,

Thank you for taking time to talk with me earlier. Attached are MDHHS talking points. Were you able to finalize and post your county fact sheet? Please forward a copy to me if possible.

Also, I mentioned that we were looking into what D.C. did previously on this issue and this is an excerpt from their plan. FYI in case it is useful to you.

Following the LCR (U.S. EPA 1991), guidance from the U.S. EPA, consultation with the DC Department of Health, and its own contingency plans, in 2003 the DCWASA implemented plans for families living in homes with lead lines or testing above the LAL:

- Advisories were disseminated recommending that water lines should be flushed for 10 min before consuming drinking water.
- Specific advice for limiting exposure to children < 6 years of age and pregnant and nursing women was sent to all households with suspected lead service lines, in the form of flyers prepared in English, Spanish, Korean, Chinese, Vietnamese, and Amharic.

- Filters were distributed to homes with suspected lead service lines and later to all homes with a test result > 15 ppb (the LAL). Replacement filter cartridges were then sent to the same homes at 6-month intervals for the duration of the period of the exceedance, ending in June 2006.
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- Homeowners were offered replacement of the private segment of lead service lines on their property, at cost, at the same time that the public segments of the lead service lines were replaced. When the public line is replaced but the private line is not, lead levels are reduced proportionally to the length of pipe replaced but not eliminated.
- Low-cost financing was arranged with a local bank for qualifying property owners who wished to replace the private part of the lead service line on their property. The DC government later made grants available to low-income eligible residents for this purpose.
- The DCWASA offered free water testing to any customer in the distribution area who requested it.

Thank you.

Mikelle

Mikelle Robinson
Director, Local Health & Administrative Services
Population Health & Community Services
MDHHS
(517) 335-8701
Robinsonm18@michigan.gov

Robinson, Mikelle (DHHS)

From: Dykema, Linda D. (DCH)
Sent: Monday, September 28, 2015 10:52 AM
To: Moran, Susan (DHHS); Lyon, Nick (DHHS)
Cc: Robinson, Mikelle (DHHS); Wells, Eden (ewells@umich.edu); Hertel, Elizabeth (DHHS); Lasher, Geralyn (DHHS); Grijalva, Nancy (DHHS); Becker, Timothy (DHHS); Miller, Corinne (DHHS); Anderson, Paula (DHHS); LyonCallo, Sarah (DHHS)
Subject: RE: Proposed Press Conference on Flint Drinking Water

Sarah Lyon-Callo is pursuing the Flint blood lead data for comparison to the Hurley data results. I'll look into the VA Tech study.

Linda D. Dykema, Ph.D.
Environmental Public Health Director
Division of Environmental Health
Michigan Department of Health & Human Services
517.335.8566
dykemal@michigan.gov

From: Moran, Susan (DCH)
Sent: Monday, September 28, 2015 10:09 AM
To: Lyon, Nick (DCH)
Cc: Robinson, Mikelle (DCH); Wells, Eden (ewells@umich.edu); Hertel, Elizabeth (DCH); Lasher, Geralyn (DCH); Grijalva, Nancy (DCH); Becker, Timothy (DCH); Dykema, Linda D. (DCH); Miller, Corinne (DCH); Anderson, Paula (DCH)
Subject: Re: Proposed Press Conference on Flint Drinking Water

Lynda Dykema is the contact for questions on Virginia Tech/Hurley data.

Sent from my iPhone

On Sep 28, 2015, at 7:52 AM, Lyon, Nick (DCH) <LyonN2@michigan.gov> wrote:

> Director Wyant and I agreed this morning to establish a team to look at the recommendations below in preparation for a joint press conference later this week. I did modify one and remove one from his original email. He was suggesting an outside public health advisor. I think it's appropriate that this be our CME so I changed that piece. I volunteered Geralyn, Elizabeth, and Dr. Wells to serve on the team.
>
> The areas where we need more attention are as follows:
>
> 1) I need an analysis of the Virginia Tech/Hurley data and their conclusions. I would like to make a strong statement with a demonstration of proof that the lead blood levels seen are not out of the ordinary and are attributable to seasonal fluctuations. Geralyn is working on this for me but she needs someone in public health who can work directly with her on immediate concerns/questions. Sue – Please get her a name immediately.

2) I need an understanding of what WIC will pay for and when. We are hearing that the USDA is indicating that premade formula can be provided. Internal WIC staff don't seem to be saying the same things. And there may also be a supply issue. Elizabeth is following up for me on this.
3) Elizabeth will also follow up with Terry Beuer to see what FNS will pay for on the food assistance side, or if there are other programs that may cover water or premade formula.
4) I think we did a good job getting the local public health department involved and I ask that we work in concert with him. The recommendation is that they be included in the press event this week.

We need immediate action on these. I have a follow up phone call early this afternoon. I also ask that any requests coming from the team be treated with great urgency. The expectation is that we will get on top of this and provide leadership on the issue.

Nick

From: Wyant, Dan (DEQ)
Sent: Monday, September 28, 2015 7:18 AM
To: Muchmore, Dennis (GOV); Lyon, Nick (DCH); Hollins, Harvey (GOV)
Cc: Wurfel, Sara (GOV); Wurfel, Sara (GOV); Lasher, Geralyn (DCH); Thelen, Mary Beth (DEQ)
Subject: Proposed Press Conference on Flint Drinking Water

Per the ongoing issues in Flint concerning their drinking water, I would offer the following recommendations. Let's discuss.

Recommendation

Press Conference in Flint – Wednesday, Thursday or Friday.

Participants

Mayor of Flint
Dan Wyant – Michigan Department of Environmental Quality
Nick Lyon – Department of Community Health
Susan Hedman – Region 5 Administrator or EPA
Harvey Hollins – Governor's office
Local Public Health Department

Announcement

Federal – State – Local action plan to address Flint Drinking Water

1. Governor Snyder names Dr. Eden Wells (DHHS Chief Medical Executive) as Flint drinking water Public Health Advisor.

2. All Flint schools water will immediately be tested to ensure that drinking water is safe.

3. Advisories will be disseminated recommending citizens flush your cold water pipes, use only water from the cold water tap for drinking, cooking and especially for making baby formula.

4. Implementation of fully optimized corrosion controls in the Flint drinking water system.

5. Expanded water testing of at risk properties.

6. Offer water testing at no cost to Flint residents to assure water is safe.

7. Convene a safe drinking water " Technical Review Advisory" to ensure best technology, practices and science is being utilized, including EPA's expertise and assistance from their Office of Research and Development.

8. Offer bottled water and premixed formula if test results indicate high levels of lead.

Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

Robinson, Mikelle (DCH)

From: Wells, Eden (DHHS)
Sent: Thursday, October 01, 2015 3:39 PM
To: Moran, Susan (DHHS); Robinson, Mikelle (DHHS)
Subject: Fw: Talking Points

From: Miller, Corinne (DHHS)
Sent: Thursday, October 1, 2015 2:18 PM
To: Dykema, Linda D. (DHHS); LyonCallo, Sarah (DHHS); Priem, Wesley F. (DHHS); Wells, Eden (DHHS)
Subject: RE: Talking Points

Eden,

More analysis and review has been done by Sarah's staff. Here are the talking points:

The high risk Zip codes (48503 and 48504)

Blood lead level rates among children under six years of age in the high risk Zip codes (48503, 48504) were 2.7 times higher than the rest of Genesee County before the switch to Flint River Water ($p<0.0001$). After the switch to Flint River Water, rates in the high risk Zip codes were 3.2 times that of the rest of Genesee County ($p<0.0001$).

Thus, compared to rates during 2010-2013, the rates after the switch to Flint River water in the high risk Zip codes increased 18 percent, although this difference did not reach statistical significance.

Other Zip codes in Flint

Rates of elevated blood lead levels among children under six years of age in other parts of the city of Flint were 2 times that of the rest of Genesee County before the switch to Flint River Water ($p<0.0001$). The magnitude of the elevated rate remained roughly the same during the period after the water source switch.

From: Dykema, Linda D. (DHHS)
Sent: Thursday, October 01, 2015 1:06 PM
To: Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); Priem, Wesley F. (DHHS); Wells, Eden (DHHS)
Subject: RE: Talking Points
Importance: High

2 things:

- Leaded gasoline has been banned for use in road vehicles since 1996, so it's not likely that Flint kids would be exposed that way
- The sentence "Most of the lead in household water usually comes from the plumbing in your house, not from the local water supply" is not completely accurate and could be challenged. On the call with EPA today I heard that maybe 50% of the city's lead supply lines are lead...these are outside the house

and would include the portion of the run owned by the resident and the portion owned by the city water supply.

From: Miller, Corinne (DHHS)
Sent: Thursday, October 01, 2015 12:38 PM
To: LyonCallo, Sarah (DHHS); Dykema, Linda D. (DHHS); Priem, Wesley F. (DHHS)
Subject: Fwd: Talking Points

Sent from my iPhone

Begin forwarded message:

From: "Eisner, Jennifer (DHHS)" <EisnerJ@michigan.gov>
Date: October 1, 2015 at 11:51:51 AM EDT
To: "Miller, Corinne (DHHS)" <MillerC39@michigan.gov>, "Robinson, Mikelle (DHHS)" <RobinsonM18@michigan.gov>
Cc: "Wells, Eden (DHHS)" <WellsE3@michigan.gov>
Subject: Talking Points

Corinne and Mikelle:

Attached please find the most recent Flint talking points which include edits from Dr. Wells. A 12:30 meeting with the gov's comms team was just called, so we need to have them finalized and ready to share asap.

Can you please send me the bullet points explaining the data – or what is ready of them – by noon?

Thank you,

Jennifer (Smith) Eisner
Public Information Officer
Michigan Department of Health and Human Services
517-241-2112

Robinson, Mikelle (DHHS)

From: Dykema, Linda D. (DHHS)
Sent: Monday, October 19, 2015 2:53 PM
To: Wells, Eden (DHHS)
Cc: Moran, Susan (DHHS); Groetsch, Kory J. (DHHS); Gray, Jennifer (DHHS); Priem, Wesley F. (DHHS); Miller, Corinne (DHHS); Miller, Mark (DHHS); Robinson, Mikelle (DHHS)
Subject: RE: DRAFT DELIBERATIVE; NOT SUBJECT TO FOIA - drinking water lead level

Eden,

In the meeting with the city last Friday morning, we talked about forming a technical subgroup for the school drinking water sampling protocol. The subgroup would include DEQ, HHS, GCHD, and some outside entities including possibly Marc Edwards from VATech. The screening value(s) should be part of the approved protocol.

Re blood lead levels in adults, there is a 2004 BEI (Biological Exposure Indices) of 30 µg/dL based on recommendations of the American Conference of Governmental Industrial Hygienists (ACGIH). The 95th percentile from 2012 NHANES tables = 3.9 µg/L.

Linda

From: Wells, Eden (DHHS)
Sent: Monday, October 19, 2015 12:15 PM
To: Dykema, Linda D. (DHHS)
Cc: Moran, Susan (DHHS); Groetsch, Kory J. (DHHS); Gray, Jennifer (DHHS); Priem, Wesley F. (DHHS); Miller, Corinne (DHHS); Miller, Mark (DHHS); Robinson, Mikelle (DHHS)
Subject: Re: DRAFT DELIBERATIVE; NOT SUBJECT TO FOIA - drinking water lead level

Thanks, Linda, for these water limits. Who and when is the decision being made?
Also- for blood lead- adults, DHHS uses a limit of 10 mcg/dl for follow-up---let me know if you have heard something different

Eden V. Wells, MD, MPH, FACPM
MDHHS
Sent from my iPad

On Oct 19, 2015, at 11:48 AM, Dykema, Linda D. (DHHS) <DykemaL@michigan.gov> wrote:

> Eden and Sue,
>
> The attached provides the draft justification for screening values to be used to evaluate the results of drinking water sampling efforts at Flint schools.
>
> HHS Division of Environmental Health toxicologist Jennifer Gray conducted the modeling and drafted the justification along with Toxicology and Response Section manager Kory Groetsch. They met with a select group of DEQ toxicologists, incorporated their comments and

suggestions, the obtained concurrence on the appropriateness of the inputs and the conclusions. DEQ Dept. Dir. Jim Sygo has also been provided with the draft justification.

A risk management decision is now needed and there are 2 options: a single screening value of 2 ppb that would apply to all schools including daycares and elementary schools OR a 2-tier approach in which 2 ppb would apply only where children 0-12 months are present, but a higher concentration of 11 ppb would be used to protect children up to 7 years.

Linda

Robinson, Mikelle (DHHS)

From: Wells, Eden (DHHS)
Sent: Monday, October 19, 2015 3:52 PM
To: Dykema, Linda D. (DHHS)
Cc: Moran, Susan (DHHS); Groetsch, Kory J. (DHHS); Gray, Jennifer (DHHS); Priem, Wesley F. (DHHS); Miller, Corinne (DHHS); Miller, Mark (DHHS); Robinson, Mikelle (DHHS)
Subject: Re: DRAFT DELIBERATIVE; NOT SUBJECT TO FOIA - drinking water lead level

Great on the water testing-

As to blood- well the issue for industrial hygiene (and OSHA) is that they look more towards occupational exposures and levels, less strict measure than DHHS and CDC saying in general adults should be kept under 10.

Sent from my iPhone

On Oct 19, 2015, at 2:53 PM, Dykema, Linda D. (DHHS) <DykemaL@michigan.gov> wrote:

> Eden,
> In the meeting with the city last Friday morning, we talked about forming a technical subgroup for the school drinking water sampling protocol. The subgroup would include DEQ, HHS, GCHD, and some outside entities including possibly Marc Edwards from VATech. The screening value(s) should be part of the approved protocol.
> Re blood lead levels in adults, there is a 2004 BEI (Biological Exposure Indices) of 30 µg/dL based on recommendations of the American Conference of Governmental Industrial Hygienists (ACGIH). The 95th percentile from 2012 NHANES tables = 3.9 µg/L.
> Linda
>
> ---
>
> **From:** Wells, Eden (DHHS)
> **Sent:** Monday, October 19, 2015 12:15 PM
> **To:** Dykema, Linda D. (DHHS)
> **Cc:** Moran, Susan (DHHS); Groetsch, Kory J. (DHHS); Gray, Jennifer (DHHS); Priem, Wesley F. (DHHS); Miller, Corinne (DHHS); Miller, Mark (DHHS); Robinson, Mikelle (DHHS)
> **Subject:** Re: DRAFT DELIBERATIVE; NOT SUBJECT TO FOIA - drinking water lead level
> Thanks, Linda, for these water limits. Who and when is the decision being made?
> Also- for blood lead- adults, DHHS uses a limit of 10 mcg/dl for follow-up---let me know if you have heard something different
> Eden V. Wells, MD, MPH, FACPM
> MDHHS
> Sent from my iPad
>
> On Oct 19, 2015, at 11:48 AM, Dykema, Linda D. (DHHS) <DykemaL@michigan.gov> wrote:
>
>> Eden and Sue,
>> The attached provides the draft justification for screening values to be used to evaluate the results of drinking water sampling efforts at Flint schools.
>> HHS Division of Environmental Health toxicologist Jennifer Gray conducted the modeling and drafted the justification along with Toxicology and Response Section manager Kory Groetsch. They met with a select group of DEQ toxicologists, incorporated their comments and suggestions, the obtained

concurrence on the appropriateness of the inputs and the conclusions. DEQ Dept. Dir. Jim Sygo has also been provided with the draft justification.
A risk management decision is now needed and there are 2 options: a single screening value of 2 ppb that would apply to all schools including daycares and elementary schools OR a 2-tier approach in which 2 ppb would apply only where children 0-12 months are present, but a higher concentration of 11 ppb would be used to protect children up to 7 years.
Linda

Environment International 73 (2014) 57–65

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journal homepage: www.elsevier.com/locate/envint

Exposure of young children to household water lead in the Montreal area (Canada): The potential influence of winter-to-summer changes in water lead levels on children's blood lead concentration

G. Ngueta [a,b,*], M. Prévost [c], E. Deshommes [c], B. Abdous [a,b], D. Gauvin [d], P. Levallois [a,b,d]

[a] Centre de recherche du CHUQ, Québec, Canada
[b] Département de médecine sociale et préventive, Université Laval, Québec, Canada
[c] NSERC Industrial Chair on Drinking Water Treatment and Distribution, Department of Civil, Geological and Mining Engineering, École Polytechnique de Montréal, Montréal, Canada
[d] Institut national de santé publique du Québec, Québec, Canada

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Drinking water
Lead contamination
Blood lead concentrations
Children

ABSTRACT

Drinking water represents a potential source of lead exposure. The purpose of the present study was to estimate the magnitude of winter-to-summer changes in household water lead levels (WLLs), and to predict the impact of these variations on BLLs in young children. A study was conducted from September, 2009 to March, 2010 in 305 homes, with a follow-up survey carried out from June to September 2011 in a subsample of 100 homes randomly selected. The first 1-L sample was drawn after 5 min of flushing, followed by a further 4 consecutive 1-L samples after 30 min of stagnation. Non-linear regression and general linear mixed models were used for modelling seasonal effects on WLL. The batchrun mode of Integrated Exposure Uptake Biokinetic (IEUBK) model was used to predict the impact of changes in WLL on children's blood lead levels (BLLs). The magnitude of winter-to-summer changes in average concentrations of lead corresponded to 6.55 μg/L in homes served by lead service lines (LSL+ homes) and merely 0.30 μg/L in homes without lead service lines. For stagnant samples, the value reached 10.55 μg/L in 'LSL+ homes' and remained very low (0.36 μg/L) in 'LSL− homes'. The change in the probability of BLLs ≥5 μg/dL due to winter-to-summer changes in WLL was increased from <5% (in winter) to about 20% (in summer) in children aged 0.5–2 years. The likelihood of having BLLs ≥5 μg/dL in young children during warm months was reduced by at least 40% by flushing tap-water.

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1. Introduction

Exposure to lead is a public health concern, particularly as it can affect the neurodevelopment of young children. Previous studies suggested that intellectual deficits in children occurred even at relatively low blood lead levels (BLLs) (Lanphear et al., 2005; US NTP, 2011), leading to the revision of the 10 μg/dL threshold set previously by the CDC (U.S. CDC, 2012).

Drinking water represents a potential source of lead exposure for children. From 2000 to 2007, the proportion of elevated BLLs (≥10 μg/dL) among children aged ≤30 months in Washington, D.C. was strongly correlated to lead in water and the presence of lead service lines (LSLs) (Edwards et al., 2009). Young children living in homes with LSLs are especially at risk of elevated BLLs (Brown et al., 2011). LSLs are still numerous in North America. Furthermore, because of the shared ownership of the LSLs, they are often only partially replaced and continue to contribute to lead at the tap. Health Canada set a Maximum Acceptable Concentration (MAC) of 10 μg/L and requires for residential sites an annual sampling between May and October (Health Canada, 2009). The sampling protocol applied for the sample collection varies from one province to another: in Ontario, 2 consecutive litres are collected after 30 min of stagnation. In Quebec, the regulation applies to a sample collected after 5 min of flushing but since 2013, 30 min of stagnation samples were added to the protocol for subsequent detailed characterization of the LSL.

The contribution of LSLs to total lead in water is reported to be up to 50–75% (Sandvig et al., 2008). Lead released from LSLs may be produced by both chemical and physical factors. Previous studies showed that lead solubility increases with water temperature (Britton and Richards, 1981; Schock, 1990). However, little is known about the seasonal patterns of household water lead levels (WLLs). In the Montreal area (Canada), Deshommes et al. (2013) reported significant differences in WLL over the year. However, the seasonal results used were mostly not from the same households, and other characteristics unrelated to seasons could explain the variations of WLL observed in the study. There are few follow-up studies assessing seasonal changes in WLL.

Abbreviations: BLLs, blood lead levels; IEUBK, Integrated Exposure Uptake Biokinetic model; LSLs, lead service lines; WLL, water lead level.

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Karalekas et al. (1983) reported variations of WLL across seasons in homes with LSL in Boston. From January 1979 to August 1981, the water temperature varied from 5 °C to 20 °C, and the mean WLL increased from 15–20 μg/L during winter to 36–43 μg/L in summer. de Mora et al. (1987) observed similar results in Glasgow. Both studies reported higher lead in summer, and the higher temperature is a possible cause. The two prior studies suffer from small sample size and did not report longitudinal effects of seasonality on WLL. As a result, the extent of seasonal variations remains unknown.

Finally, seasonal variations of children's BLLs have been reported, BLLs being generally higher in summer as compared to winter (Baghurst et al., 1992; U.S. EPA, 1995; Yiin et al., 2000). In most of the studies, the observed BLL variations were attributed to the fact that children are higher exposed to soil and dust in summer through outdoor exposure. Also, in these studies, the lead concentrations were well characterized in soil and dust, but not or poorly characterized in tap water. Therefore, the contribution of drinking water on seasonal changes in BLLs remains unknown. This study aims to estimate the magnitude of winter-to-summer changes in WLL through separate analyses of homes with and without LSLs in Montreal, and to predict the impact of these variations on BLLs in young children.

2. Materials and methods

2.1. General methodology

A cross-sectional study followed by a follow-up was undertaken in Montreal (Canada) to characterize lead exposure in young children (water, dust, paint). The recruitment process and detailed criteria for selecting homes are fully described elsewhere (Levallois et al., 2014). In the framework of this study, a total of 305 private homes were analysed between September 10, 2009 and March 27, 2010, including 177 with a LSL (LSL+ homes), and 128 without a LSL (LSL− homes), and 7 for which no conclusion could be drawn (Deshommes et al., 2013). Over that period (first campaign), the water temperature varied between 1.4 °C and 21.7 °C (ambient temperature: −15.3 °C to 23.8 °C). Then, a stratified random sampling of 100 homes drawn from the initial sample was selected for a quantification of WLL in summer, including 80 homes with a LSL and 20 without a LSL. A second water sampling was performed from June 22, 2011 to September 06, 2011 (second campaign) in this subset of homes using the same protocol. The water temperature during that second campaign varied between 16.0 °C and 24.1 °C (ambient temperature: 20–28 °C). The whole sample of 305 households was useful to characterize the basic water chemistry of the system under study and to estimate the marginal distribution of WLL. The follow-up analyses were carried out using the subset sample of 100 households with repeated measures of WLL during both campaigns.

2.2. Water sampling and system information

The four neighbourhoods considered in this study were served by 2 water treatment plants drawing from the same water source, and water physicochemical parameters were relatively stable. Available data in the period of the study are reported in Table 1. pH and alkalinity data of distributed water were available from January 01, 2003 to December 31, 2010 (provided by the utility). It is assumed that these data are representative of tap level data. Indeed, relatively modest pH variations have been previously reported within the distribution system (Cartier et al., 2011), and were not a significant factor affecting lead concentrations, unlike the length of lead pipes and the presence of particles. In every participating household, the following sampling protocol was applied for tap water. First, a 1 L sample was collected after 5 min of flushing (fully flushed) at the kitchen tap. Then a stagnation of 30 min was carried out in the house and 4 consecutive 1 L samples were collected (namely first-, second-, third- and fourth-draw sample). All samples were collected at a 5 to 7 L/min flow rate in pre-acidified bottles, without removing the tap aerator. The water temperature was measured after approximately 3 min during the flushing of 5 min and flow rate was also measured. Finally, for every home visited, information was collected on the neighbourhood, type of residence, construction year, total number of people living in the home, and the floor level where the sampled tap was located.

2.3. Lead analyses

During the first campaign, the samples acidified at pH < 2 were kept at 4 °C until ICP-MS analysis. Total lead was analysed according to the US EPA method 200.8, but using a 24-hour digestion time for the sample instead of 16 h. This digestion method was tested and compared successfully to stronger digestion methods for the estimation of total and dissolved lead in water samples collected after short stagnation in homes with a LSL in Montreal (Cartier et al., 2011). The lead analyses and QA/QC procedures are summarized in the Supplemental material, Table S1.

For the second campaign, total lead analyses were carried out using a very similar method to the previously described modified US EPA method, including a digestion period of 24-h. The detection and quantification limits were also comparable.

2.4. Variables under study

The response variable was the water lead concentration. Fully flushed and first-draw 1 L samples were considered separately. In addition, a 30MS2-4 variable was created, which refers to the arithmetic mean of the second, third and fourth-draw samples. This stratified modelling was motivated by the fact that a fully flushed sample can provide the home's signature (LSL and plumbing system combined), and the first-draw one provides the specific household tap signature, while the change profiles of lead concentration from the second to the fourth-draw sample differ markedly according to the presence or absence of LSL (Supplemental material, Fig. S1).

For longitudinal analyses, the selected independent variables included flow rate (litre/s), interval time between two measurements, neighbourhood, type of residence, construction year, total number of people living in the home, and tap level (floor level where the tap was

Table 1
Median values (25th percentile–75th percentile) for water physicochemical parameters observed for different seasons.

	LSL− homes[a]			LSL+ homes[b]		
	Autumn	Winter	Summer	Autumn	Winter	Summer
n	38	70	20	32	65	80
WT[c]	12.3 (10.5–15.6)	3.4 (2.6–4.4)	21.0 (19.9–22.9)	12.7 (10.1–14.7)	3.1 (2.4–4.3)	22.4 (21.3–23.4)
pH	8.2 (8.1–8.3)	8.1 (8.1–8.2)	8.2 (8.1–8.3)	8.2 (8.2–8.3)	8.2 (8.1–8.2)	8.2 (8.1–8.2)
Alkalinity	89 (87–89)	89 (88–90)	89 (88–90)	89 (88–89)	89 (88–89)	89 (88–90)

Alkalinity is expressed in mg/L $CaCO_3$.
[a] LSL− homes refer to homes without lead service lines.
[b] LSL+ homes refer to homes with a high probability of lead service lines.
[c] WT refers to water temperature after 3 min of flushing (°C).

located). Tap level was used as an ordinal variable (0 = basement, 1 = first-floor, 2 = second-floor, 3 = third floor). The neighbourhood was used as a nominal variable. The construction year was coded 1 for homes built before 1950 and 0 otherwise. The choice of this cut-off was motivated by the fact that we had very little residence built after 1975 (n = 21). Dichotomization to 1950 was the only categorization ensuring a parsimonious regression model because it allowed having enough residences in each stratum to the regression. The 'type of residence' was stratified before analysis into two categories: 1 = single-houses (n = 24) and 2 = others (row-houses (n = 71) and multi-level houses (n = 5) were combined in this category). The total number of people living in the home was used as an ordinal variable. The period from September 10 to December 15 was defined as "fall", based on water temperature cut-off below 10 °C. 'Winter' was from December 16 to March 27 and 'summer' from June 22 to September 06. Before analyses, two additional dichotomous variables were created: the variable 'TIME' referred to the lead concentration observed in different campaigns (1 = WLL observed in the second campaign (summer), 0 = WLL observed in the first campaign (fall or winter)), and the variable 'REFERENCE PERIOD' referred to the period of first sampling (homes whose first sampling was from September 10 to December 15 were coded as 0 and those with a first sampling from December 16 to March 27 were coded as 1). In the absence of data on water usage, the 'type of residence' and the 'number of persons living at home' were included into the regression models in order to control the influence of water usage on seasonal changes in WLL.

2.5. Statistical analysis

The Kruskal–Wallis test was used to compare mean WLL across seasons, and the Shapiro–Wilk test to assess Gaussian distribution of outcome variables. When the assumption of normality was rejected, a log transformation was then undertaken. Analyses of covariance (ANCOVA) were used to obtain geometric means of WLL and to test the differences across dwelling types (or number of residents).

The influence of seasonality on household WLL was assessed using two approaches. The first approach was based on the cross-sectional sample (n = 305). In the case of the 100 homes for which a follow-up analysis was carried out, only summer data were considered in this analysis, leading to 70 fall data, 135 winter data, and 100 summer data. The variation of WLL throughout the year was modelled using a parametric sine function. This approach was very useful to estimate the daily changes in marginal mean of WLL throughout the year, as predicted by the model. It was assumed that temporal fluctuation in WLL could be well described by the following function: $WLL = A * \mathrm{Sin}[(2\pi / 365.2) * (\mathrm{Days} - B)] + C$. The variable 'Days' was numbered from 0 to 360 with the null value assigned to the first day of recruitment (September 10, 2009). The non-linear regression of the sine function was used to estimate the parameters (A, B and C). 'A' represents half of the difference between the highest and lowest WLL values. 'B' is the horizontal shift reflecting changes in the 'Days' variable. It is determined by calculating how many days the starting point of a standard sine curve has moved to the right (positive value) or left (negative value). Parameter 'C' gives the vertical shift, by showing how many units the modelled function is moved up (or down). Smoothing analyses (non-parametric) were also performed using GAM and TRANSREG procedures. For assessing the adequacy of fit of models, results from the parametric and non-parametric modelling were compared by using mean absolute percentage error (MAPE). The pseudo-R^2 was also reported.

The second approach was conducted as a longitudinal analysis on the subset sample with a follow-up measure of WLL during summer (n = 100). For this analysis, each home had two values of WLL: a first value (baseline) from the first campaign (fall or winter, depending on the date of the first visit) and a second value from the second campaign (summer). The magnitude of seasonal changes in WLL, as well as the temporal change profile of the 4-L samples collected after stagnation, was estimated by using the general linear mixed model with REPEATED statement. The mixed model was preferred over the ordinary least squares model since the latter fails to control for random effects and has limitations for assessing regression estimates from longitudinal data (Ugrinowitsch et al., 2004). For all the follow-up analyses, the restricted maximum likelihood method was used to choose the appropriate variance/covariance matrix. The beta coefficient obtained for the variable 'TIME' indicated the marginal difference in WLL between the first and the second campaign when REFERENCE PERIOD is equal to zero (i.e. in homes sampled during 'fall'). On the other hand, the beta coefficient obtained for the variable 'REFERENCE PERIOD' indicated the marginal difference in WLL between 'fall' and 'winter', when TIME is equal to zero (i.e. during the first campaign). All analyses were performed using SAS software (version 9.3 SAS Institute Inc., Cary, NC). For estimating the effect of seasonality on WLL, separate analyses for fully flushed, first-draw, and 30MS2-4 were carried out. As part of each analysis, a separate stratified analysis was conducted for LSL+ homes and LSL− homes.

2.6. IEUBK modelling

The modelled WLL was applied in the Integrated Exposure Uptake Biokinetic model (IEUBK win1_1 Build11) in order to predict the seasonal changes of BLL. The IEUBK model allows estimating the predicted mean of BLLs at each point, as well as the expected percentage of exposed children's population exceeding the BLL threshold of 5 μg/dL. Background values of exposure to lead from soil, dust, air, and diet were set according to Deshommes et al. (2013). These values were validated as reflecting well the background exposure in Montreal young children background exposure. The batchrun mode of IEUBK was used according to Deshommes et al. (2013). The WLL entered in the batchrun mode was changed every week of the children life from 0 to 84 months of age, according to the WLL model predictions. Finally, children drinking tap water were considered for the modelling, therefore 0.741–1.0 L/d water intakes were considered as detailed in Deshommes et al. (2013). Based on the previous study reporting the marked influence of the type of residence on the lead concentration in tap-water, and given the small number of single-houses in our dataset, we performed IEUBK on both the whole sample (n = 305) and the subset sample without single-houses (n = 240).

3. Results and discussion

3.1. Characteristics of homes sampled

Several factors have been shown to influence WLL, the type of residence being overwhelming. In the presence of a LSL, higher WLL is generally measured in single-family homes compared to other dwelling types (Deshommes et al., 2013). Such differences are explained by the fact that the LSL is shared between several families in the case of multiple dwelling types (duplex, triplex, etc.) as compared to single-family homes. In terms of exposure, the higher number of users lowers the probability to be exposed to high WLL after stagnation. In addition, the configuration, length, and volume of premise plumbing and LSL are more variable than in single-family homes.

The characteristics of the pools of households monitored in this study are shown in the supplemental material, Table S2. The homes under study were mostly row-homes (66.9%), including paired-duplexes, paired-triplexes, and townhouses. Also, single-family homes with a LSL were few represented as only 30 were sampled during the first campaign and 24 of them during the second campaign. Therefore, the type of residence sampled was quite uniform and consisted mostly of multiple family dwellings. In addition, the households not sampled in the second campaign did not differ from the 100 households sampled in the second campaign for the other parameters studied except temperature. Indeed, as shown in the Supplemental material, Table S3,

except for the neighbourhood, the distribution of other fixed variables (e.g., flow-rate, type of residence, floor where tap was located, total number of residents) did not markedly differ when homes sampled in the second campaign were compared with those with no repeated data.

3.2. Water lead concentrations

From September 10 (2009) to March 27 (2010), the geometric mean of WLL after 5 min of flushing was 0.22 μg/L (95% CI: 0.06–0.78) in LSL− homes versus 2.19 μg/L (95% CI: 0.55–8.81) in LSL+ homes. During the summer months (from June 22 (2011) to September 06 (2011)), flushed samples showed a geometric mean of 0.26 μg/L (95% CI: 0.11–0.63) in LSL− homes and 3.03 μg/L (95% CI: 1.06–8.69) in LSL+ homes. The distribution of lead concentration in stagnant samples is fully described in Table 2.

The unadjusted comparison of WLL in different samples showed a significant difference in median WLL across seasons, regardless of the presence/absence of LSLs (Supplemental material, Table S4). Summer data indicated that average lead concentration from the first and second-draw samples exceeded the Health Canada's MAC in 45.5% of LSL+ homes (versus 0.0% in LSL− homes) (data not shown). In addition, the lead concentration after 5 min of flushing remained ≥10 μg/L in 28.6% of LSL+ homes. Therefore, these differences highlight the importance of further study of BLLs in link with WLLs. The wide seasonal variations of lead concentrations highlight the need for predicting the seasonal exposure through tap water, especially during summer and early fall corresponding to higher water temperature and maximum lead dissolution. Moreover, the wider differences between lead concentrations measured by different sampling protocols in warm water suggest that the selection of sampling protocol may be critical to the evaluation of the exposure through tap water during peak exposure periods. Therefore a predictive seasonal model was developed and the impact of sampling protocol on the exposure and resulting BLL was investigated.

3.3. Influence of seasonality on household water lead levels

3.3.1. Results from cross-sectional data

The seasonal patterns of changes in fully flushed and composite stagnant samples (average concentration of the four samples collected after 30 min of stagnation) are shown in Fig. 1 for both LSL− homes (n = 128) and LSL+ homes (n = 177). The estimated coefficients corresponding to the sine non-linear regression (and describing the predicted values of WLL over the year) are presented in the Supplemental material, Table S5. Water lead concentrations vary substantially according to temperature in LSL+ houses and to a much lesser extent in LSL− houses. The nonlinear regression model shows average concentrations after 5 min of flushing ranging from 1.67 to 8.22 μg/L in LSL+ homes (Fig. 1b). The magnitude of winter-to-summer changes in average concentrations corresponded to 6.55 μg/L in LSL+ homes and merely 0.30 μg/L in LSL− homes. Predicted values from smoothed curves and non-linear regression are fairly similar with excellent MAPEs (0.09 for LSL+ homes, 0.18 for LSL− homes). The MAPE value of 0.09 indicates that the predicted water lead concentration from our model would be similar to the one obtained from the smoothed curve, in 91% of cases. Therefore, the average changes in water lead in LSL+ homes can be well-predicted from our model. For the composite sample, predicted largest average lead concentrations in summer reached 1.10 μg/L in LSL− homes (Supplemental material, Fig. S2a) and 14.32 μg/L in LSL+ (Supplemental material, Fig. S2b). The magnitude of average changes in water lead concentrations from winter to summer reached 10.55 μg/L in 'LSL+ homes' and remained very low (0.36 μg/L) in 'LSL− homes'. MAPEs comparing smooth and sine functions were 0.13 and 0.14 for 'LSL+ homes' and 'LSL− homes', respectively. It has previously been shown that single-houses impacted lead concentration in drinking water (Deshommes et al., 2013). In the presence of LSL, higher WLL is generally measured in single-family homes (compared with row- or multi-level homes). This is mainly due to (1) the configuration of the service lines and; (2) the consumption patterns of water usage since the service line only serves a single household. In single-homes, it is relatively simple to control water usage and apply reference stagnation. Because of the presence of multiple households on a single service line, sampling with controlled stagnation is only possible if all residents restrain from any water use, which is difficult to verify. Therefore stagnation in samples in multiple family dwelling may vary from 0 to 30 min. In terms of exposure, this translates for the residents as there is lower probability to be exposed to high WLL. We noted that our sample included a very small number of single-homes, which make it difficult to obtain a valid statistical analysis in this subset of homes. Because of these important features, we performed the same analyses after excluding the subset of single-homes from the dataset (sensitivity analyses). Fig. 1c and d and the related non-linear regression show that the regression coefficients remain largely unchanged but the model fit is improved significantly (Supplemental material, Table S6). Similar figures for stagnant samples are shown in Supplemental materials, Fig. S2c and S2d. It is likely that the true seasonal changes in WLL are more important in single-homes. The fact that these houses represent a low proportion of our sample (<21%) may explain the lack of change

Table 2
Percentiles and geometric mean (GM) for lead concentration in different water samples in μg/L during the first and the second campaigns.

	First campaign[a] (n = 305)						Second campaign[b] (n = 100)					
	p10	p25	p50	p75	p90	GM (95% CI)	p10	p25	p50	p75	p90	GM (95% CI)
LSL− homes[c]												
5MF[d]	0.10	0.16	0.22	0.32	0.51	0.22 (0.06–0.78)	0.14	0.18	0.28	0.34	0.42	0.26 (0.11–0.63)
30MS1[e]	0.28	0.44	0.70	1.22	1.51	0.71 (0.16–3.19)	0.27	0.43	0.64	0.98	1.32	0.64 (0.21–1.95)
30MS2	0.21	0.31	0.55	0.80	1.19	0.50 (0.12–2.05)	0.21	0.27	0.46	0.77	1.06	0.47 (0.14–1.56)
30MS3	0.16	0.24	0.40	0.59	1.02	0.40 (0.10–1.60)	0.20	0.26	0.39	0.66	0.81	0.41 (0.15–1.60)
30MS4	0.14	0.25	0.36	0.51	0.94	0.37 (0.09–0.47)	0.21	0.27	0.35	0.56	0.78	0.39 (0.13–1.16)
LSL+ homes[f]												
5MF	1.00	1.46	2.19	3.12	5.33	2.19 (0.55–8.81)	1.58	2.09	2.90	4.16	5.95	3.03 (1.06–8.69)
30MS1	1.83	2.61	3.42	5.37	7.05	3.60 (1.07–12.12)	2.69	3.49	4.73	7.13	8.63	4.86 (1.87–12.64)
30MS2	1.64	2.57	3.17	5.35	7.98	3.53 (0.93–13.45)	2.55	3.56	4.28	7.07	10.35	4.78 (1.68–13.65)
30MS3	1.74	2.44	3.64	5.96	8.31	3.77 (0.85–16.67)	2.48	3.14	4.48	7.45	11.41	5.01 (1.44–17.39)
30MS4	1.30	2.25	3.29	6.89	13.98	3.83 (0.67–22.07)	2.34	3.18	5.01	8.95	15.57	5.51 (1.38–22.01)

[a] Refers to home samplings from September 10, 2009 to March 27, 2010.
[b] Refers to home samplings from June 22, 2011 to September 06, 2011.
[c] LSL− homes refers to homes without lead service lines.
[d] 5MF refers to the flushed sample.
[e] 30MSj refers to j^{ième} sample collected after a stagnation time of 30 min.
[f] LSL+ homes refer to homes with a high probability of lead service lines.

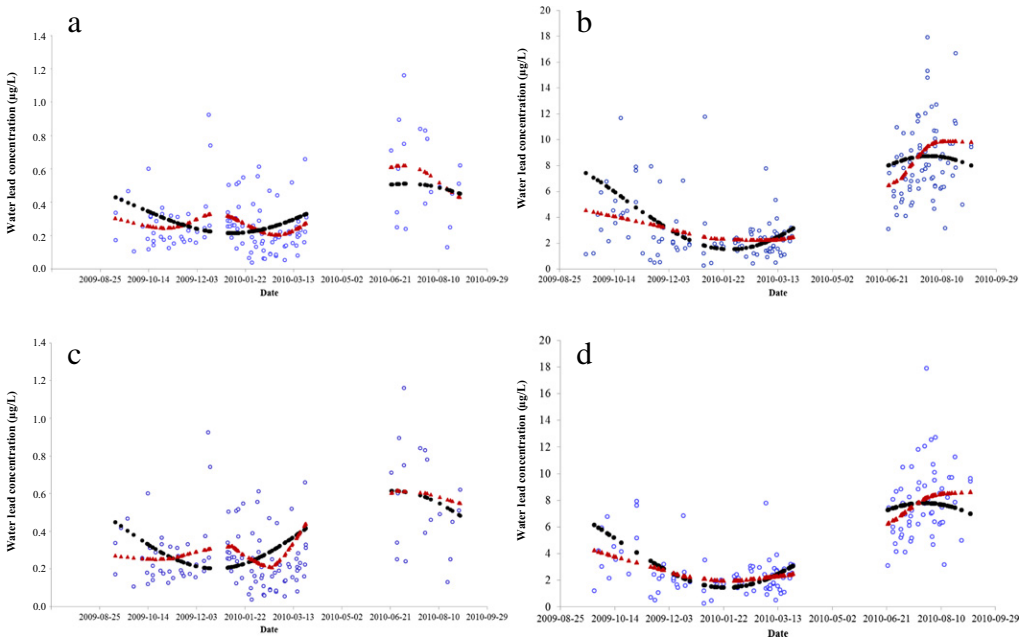

Fig. 1. Temporal variations in water lead concentrations in the flushed sample in homes without (left) and with lead service lines (right), based on the whole sample (above) and after excluding single-houses (below). Observed values (blue circles), smooth curve (red triangle) and predicted values from non-linear regression (black dot).

in regression coefficient in the sensitivity analysis. According to the 2001 Census data, compared with row-houses and apartment buildings, single-homes are a low fraction of total residences in Canada's metropolitan areas, including Montreal (<33%)(Statistics Canada, 2008). Therefore, the distribution of 'type of residence' in our sample is representative of homes in Montreal.

3.3.2. Repeated sampling results

The cross-sectional part allows the estimation of the predictive values of WLL as expected day after day. We could then deduce mean differences in WLL between minimum 'fall/winter' and maximum summer concentrations. However, the characteristics of the households used for transversal sampling conducted during fall, winter and summer may influence the results or trends observed. Indeed, homes included at different seasons may differ in some characteristics unrelated to seasons and which could markedly influence the WLL. In this case, the effect of seasonality may be biased. The follow-up analyses were useful to validate the previous model.

Results from the mixed linear regression are presented in Table 3. The cross-sectional effect at baseline (which represents the mean difference in WLL between 'fall' and 'winter') was very small in LSL− homes. The value of the regression estimate was 0.04 μg/L for the flushed sample ($p = 0.63$). Over the warm months, flushed sample showed a mean increase of 3.60 μg/L ($p < 0.01$) and 0.36 μg/L ($p < 0.01$) in LSL+ and LSL− homes, respectively.

In LSL+ homes, the magnitude of the summer effect on the flushed sample was more marked in homes previously sampled in 'winter'. They showed a discernible additional increase of 2.35 μg/L ($p < 0.01$) in the mean of lead concentrations when compared with homes first sampled in the 'fall' and after adjusting for flow rate, the interval time between two measurements, neighbourhood, construction year, type of residence, the total number of people living in the home, and the floor level where the tap was located. The total increase from winter to summer was then 5.95 μg/L. This winter-to-summer change is very similar to results obtained from the cross-sectional study. Obtaining the same results from both the cross-sectional and follow-up study designs increases the likelihood that these findings are valid, and confirms the adequacy of our non-linear regression. This similarity also suggests that there was no strong selection bias operating in our cross-sectional data. The observed summer effect represents an increase of approximately 150%, given that the mean 5MF observed in LSL+ homes during the winter months was 2.40 μg/L. Some authors argued that lead concentration in the 1 L sample drawn after 5 min of flushing is primarily influenced by the length and the diameter of the LSL (Cartier et al., 2011). However, these parameters are not varying seasonally and the results obtained in our follow-up study support that seasonal-dependent factors play an important role independent of length or diameter of pipes. Given the follow-up design of our study, we believe that the observed lead concentration changes can be mainly attributed to the change in water temperature.

In LSL− homes, the increase of lead concentration in summer in the flushed sample was very low but statistically significant ($\beta = 0.36$ μg/L; $p < 0.01$). In addition, the pattern of changes from baseline (fall or winter) to summer was similar when comparing homes first sampled in the 'fall' and those with first sampled in the 'winter', irrespective of the sample considered. Moreover, the cross-sectional effect at baseline was very small. The slight increase we observed may be due to lead released from solders. Although the use of LSLs for drinking water systems was prohibited in 1975 under the National Plumbing Code of Canada (NPCC), it should be noted that lead solder was allowed to be used in household plumbing until 1986 under the NPCC (Health Canada, 2009).

The summer mean increase of lead in the first-draw samples was observed in both LSL− ($\beta = 0.49$ μg/L, $p < 0.01$) and LSL+ homes ($\beta = 3.28$ μg/L, $p < 0.01$). However, the increase observed in LSL− homes was very low. Moreover, compared with the fall-to-summer change, the winter-to-summer change was more important only in the LSL+ homes. Homes previously sampled over the winter showed an additional increase of 2.52 μg/L ($p < 0.01$), when compared with those previously sampled in the fall. Assuming an absence of contamination at the water source, the changes in WLL may indicate potential contribution of tap itself or lead-based materials contained in the portion of plumbing (fittings, valves, components) close to the tap. The marginal summer

Table 3
Adjusted[a] summer effect on water lead concentration (in μg/L) in the follow-up study (n = 100).

	'LSL−' homes[b] (n = 20)			'LSL+' homes[c] (n = 80)		
	Estimate	Standard error	p-Value	Estimate	Standard error	p-Value
5MF[d]						
Intercept	0.22	0.13	0.1156	8.64	1.51	<0.0001
Time[e]	0.36	0.06	<0.0001	3.60	0.48	<0.0001
Reference period[f]	0.04	0.08	0.6300	−0.76	0.68	0.2624
Reference period ∗ time	−0.11	0.10	0.2803	2.35	0.59	0.0002
R-square	76.84%			71.16%		
30MS1						
Intercept	−0.25	0.89	0.7818	5.09	2.84	0.0773
Time	0.49	0.13	0.0017	3.28	0.70	<0.0001
Reference period	0.15	0.36	0.6978	−1.17	1.19	0.3267
Reference period ∗ time	−0.26	0.17	0.1543	2.52	0.85	0.0042
R-square	48.20%			51.68%		
30MS2-4[g]						
Intercept	0.03	0.49	0.9491	12.73	3.58	0.0007
Time	0.45	0.12	0.0017	3.21	0.77	<0.0001
Reference period	0.15	0.18	0.4129	−1.09	1.60	0.4966
Reference period ∗ time	−0.10	0.17	0.5510	4.21	0.94	<0.0001
R-square	54.96%			49.17%		

[a] Adjusted for flow rate, interval time between two measurements, neighbourhood, type of residence, construction year, total number of people living in home, and floor where tap was located.
[b] Refers to homes without lead service lines.
[c] Refers to homes with a high probability of lead service lines.
[d] Refers to the first 1-L sample collected after 5 min of flushing.
[e] This variable was coded as 0 and 1 for water lead concentration observed in the first and second campaigns respectively.
[f] This variable refers to the period of first sampling: homes whose first sampling was from September 10 to December 15 were coded as 0 and those with a first sampling from December 16 to March 27 were coded as 1.
[g] Refers to the arithmetic mean from the second, third and fourth 1-L samples collected after a stagnation time of 30 min.

effect on lead concentration in the first-draw samples was statistically significant ($\beta = 3.28$ μg/L; $p < 0.01$), thereby suggesting the contribution of premise plumbing sources (faucet and interior plumbing) on seasonal changes in WLL. A previous study reported that premise plumbing can contribute 20–35% of the total lead measured at tap (Sandvig et al., 2008). Older homes are more likely to have LSLs, but also leaded solder and other lead bearing materials. The increase in water temperature and the higher water consumption observed during warm months are associated with an increase in lead released from the LSLs, the faucet, the leaded solder and other lead bearing materials. It is more likely that the increase of lead concentration in the first-draw samples probably reflects the direct contribution of premise plumbing and/or LSL.

3.4. Water temperature and lead concentration in flushed sample

We observed a positive linear relation between baseline-to-summer change in lead concentration in flushed sample and baseline-to-summer change in water temperature (Supplemental material, Fig. S3). Our model suggests that 34% of changes observed in lead concentrations are explained by changes in water temperature. We expect an increase of 0.25 μg/L in lead concentration for each increase of 1 °C in water temperature. In a previous study conducted in Montreal (Canada), Cartier et al. (2011) reported similar association between water temperature and lead concentration in flushed sample.

We also observed that water temperature at household level was highly correlated with the water temperature at treatment plant (Supplemental material, Fig. S4). The latter is then a good approximation of the water temperature as observed at tap-level after 3 min of flushing, with a slight bias of 2.64 °C. Detailed investigation on a subset of 34 houses included in the study showed that the total volume in the premise plumbing varied from 2.7 to 9.9 L (outlier of 23 L) with an average of 6.3 L. In all cases, a 3 minute flush prior to measuring temperature was sufficient to measure the temperature of water entering the service line or in the service line.

3.5. Impact of seasonal changes in water lead levels on blood lead levels of young children: results from IEUBK model

In May 2012, the BLL of concern (i.e. 10 μg/dL) has been revised, and the Advisory Committee on Childhood Lead Poisoning Prevention established the 'reference value', currently 5 μg/dL (U.S. CDC, 2012), to identify U.S. children needing more clinical attention and public health follow-up. The estimated BLLs following IEUBK model runs are shown in Fig. 2. The seasonal change in BLLs is evident from our results. If the stagnant water is routinely consumed (we herein considered the mean of four 1 L-samples collected after 30 min of stagnation), the resulting mean BLLs predicted during the summer months (June, July and August) are 3.4 μg/dL in children aged 0.5–1 year and decrease with increasing child's age (2.4 μg/dL for those aged 6–7 years). The magnitude of change in BLLs (i.e. difference between the summer peak and the lowest value) did not strictly differ with child's age, regardless of the exposure scenario (from 0.88 μg/dL in children aged 6–7 years to 1.02 μg/dL in those aged below 1 year). However, the general trend was towards a decrease of both maximum and minimum BLLs with age. Given that all other external sources of lead were kept stable across seasons, the observed changes in BLLs are mainly attributable to changes in WLL.

Although the magnitude of change appears to be independent of child's age, the change in the percentage of children with BLLs ≥5 μg/dL from colder to warmer months was largest in children aged below 2 years, and progressively declines with increasing child's age (Fig. 3). Not surprisingly, the 'best' scenario (lowest exposure) was observed by assuming that children consumed flushed water exclusively. The consumption of stagnant water represented the worst exposure scenario. By assuming that children aged below 2 years routinely consume stagnant water, at least 20% of children aged 0.5–2 years were predicted to develop BLLs ≥5 μg/dL during warm months (the value was 12% by assuming that children consume exclusively flushed water). This result suggests that, by flushing the water for at least 5 min before consumption, we can reduce by about 40% (from 1/5 to 1/8) the proportion of young children with BLLs exceeding the threshold of 5 μg/dL during summer (assuming that all other sources of lead exposure are kept constant across seasons). The difference between the best and the worst scenario was attenuated with age, suggesting that flushing habits would be more effective to prevent elevated BLLs in younger children. In an intervention study examining the effect of flushing, Fertmann and co-workers showed that flushing water before consumption and using bottled water could lower the BLLs in young women by about 0.82 μg/dL and 1.23 μg/dL, respectively (Fertmann et al., 2004). This corresponded to a reduction of 21% and 37% of the initial BLLs, respectively. However, their study included young women rather than children, and the duration of flushing was not determined. We are unaware of previous studies reporting the impact of changes in household WLL on BLLs using IEUBK model (except for study from Deshommes et al., 2013). A recent study suggests that the percentage of students predicted to exceed BLLs of 5 μg/dL could drop from 11.2% to 4.8% due to remediation by flushing at school level (Triantafyllidou et al., 2014). This corresponds to a reduction of 42.9% in the proportion of student with BLLs ≥5 μg/dL, which is fairly similar to the reduction computed in this study.

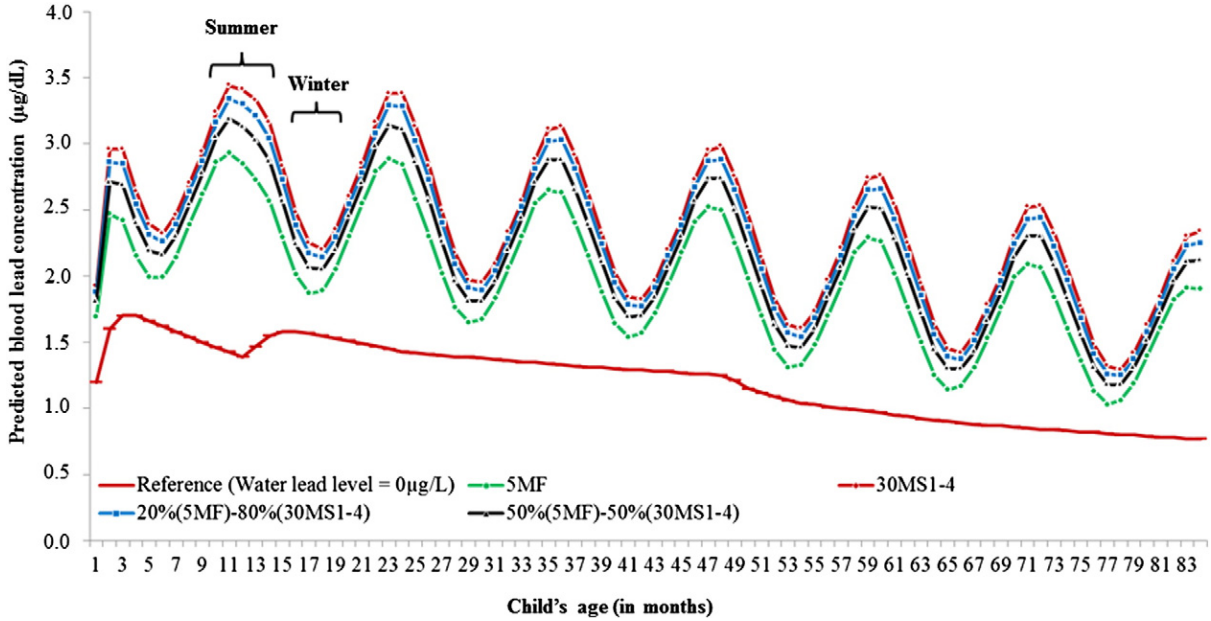

Fig. 2. Predicted distribution of blood lead concentration by child's age and for different exposure scenarios. 5MF: the child is exclusively exposed to water collected after 5 min of flushing; 30MS1-4: the child is exclusively exposed to the mean of the four 1-L samples collected after 30 min of stagnation; 20%(5MF)–80%(30MS1-4): the child consumes 20% of flushed sample and 80% of stagnant sample; 50%(5MF)–50%(30MS1-4): the child consumes 50% of flushed sample and 50% of stagnant sample.

Sensitivity analyses performed after excluding single-homes indicate that children living in row- or multi-level houses are less likely to show BLLs ≥5 μg/dL during summer months (Supplemental material, Fig. S5). Results suggest that, by flushing water at least 5 min before consumption, the proportion of children exceeding 5 μg/dL during summer will still remain under 10.5% whatever the child's age is. Moreover, flushing habits could reduce the likelihood of having BLLs ≥5 μg/dL in warm months by at least 40% in children aged 0.5–2 years. Finally, if the WLL was set to a constant value of 0 μg/L, the resulting percent of children exceeding the threshold of 5 μg/dL was very low (1% for children aged 0.5–2 years and less than 1% for those aged above 2 years). The resulting mean BLLs predicted between June and August were 1.5 μg/dL in children aged 0.5–2 year and decrease with child's age (0.8 μg/dL for those aged 6–7 years). This represents BLLs from other lead sources.

As a whole, the summer increase in household WLL as observed in this study could impact children's BLLs. Another noteworthy implication is linked to the health of developing foetus and pregnant women living in cities with certain water lead problems. Previous studies indicated that pregnancy and lactating period are associated with marked

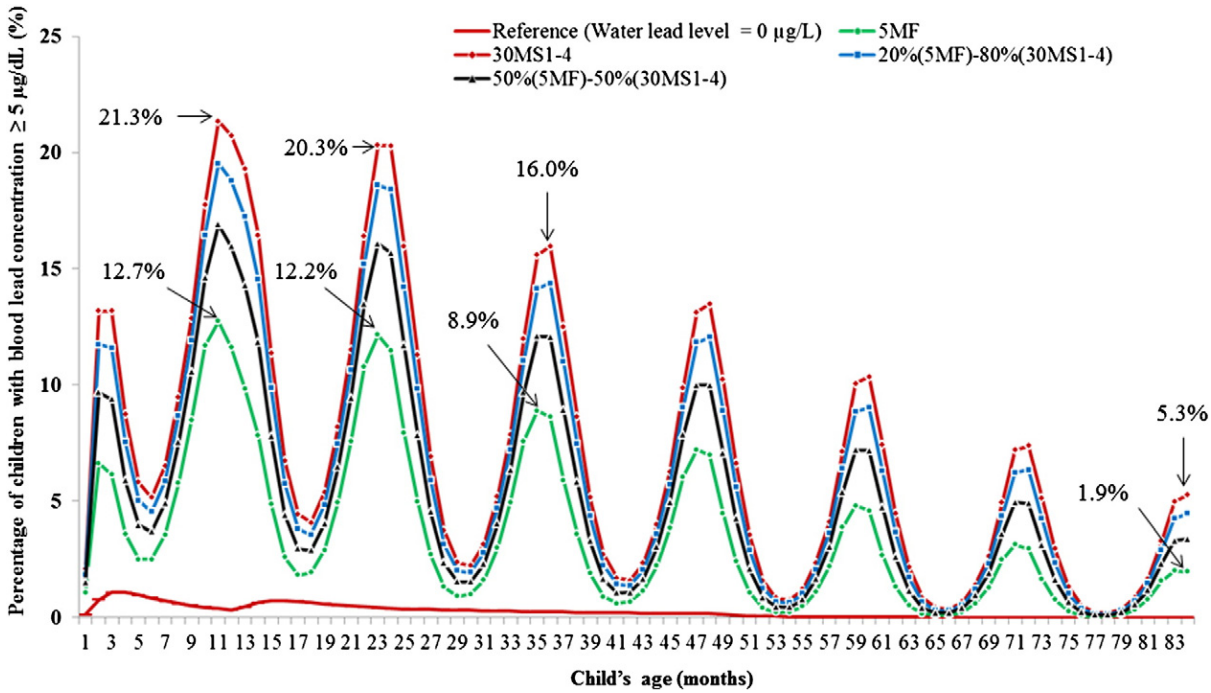

Fig. 3. Predicted distribution of percentage of children with blood lead concentration exceeding 5 μg/dL by child's age and for different exposure scenarios. 5MF: the child is exclusively exposed to water collected after 5 min of flushing; 30MS1-4: the child is exclusively exposed to the mean of the four 1-L samples collected after 30 min of stagnation; 20%(5MF)–80%(30MS1-4): the child consumes 20% of flushed sample and 80% of stagnant sample; 50%(5MF)–50%(30MS1-4): the child consumes 50% of flushed sample and 50% of stagnant sample.

increase in water intake (Ershow et al., 1991; Moya et al., 2014), and that water lead is an important determinant to pregnant women's blood lead (Baghurst et al., 1987; Fertmann et al., 2004). Given the important impact of blood lead to pregnant women and foetus in terms of preterm delivery (Taylor et al., 2014), low birth weight (Andrews et al., 1994; Nishioka et al., 2014) and early neurobehavioral development (U.S. NTP, 2011), even at low maternal blood lead, extension of trends observed in this work to pregnant and lactating women population would be surely interesting for protecting the health of that specific population.

Some study limitations need to be considered when interpreting our results: First, in the multi-level residences/row-houses, although faucets were closed during the stagnation time, we were unable to verify that water was not used in related residences. However, by adjusting for the "type of residence", we believe we corrected for the bias, if it exists. Second, we are aware that there may be other uncontrolled parameters strongly associated with WLL. For example, actual data on water usage were not available. The increased water consumption generally observed during the warm months will reduce the contact time of water with the water distribution pipe surfaces. This can play a major role on the observed lead levels at the tap. Water usage patterns are, at least partly, determined by the number of persons living at home, the type of residence, and possibly other factors (Gregory and Di Leo, 2003). By adjusting for the type of residence and the number of persons living at home, we limited the potential bias due to the absence of data on water usage. Moreover, in the Montreal area, changes in water usage patterns over the year are not evident in the row- or multi-level houses, which represent 90% of homes included in this study. Although the marked difference in WLL was observed between single-homes and row-homes at each campaign, additional analyses indicated that the change in WLL from the baseline to summer is influenced by neither type of residence nor number of persons living at home (Supplemental materials, Tables S7 & S8). The production flow rates at the drinking water plants serving the study area do not support a seasonal change in household water usages. Actually, demand values in hydraulic modelling of these areas are not adjusted for season as industrial demand and leakage are significant in this specific system. It is certainly plausible that increased household usage in summer could lead to lower stagnation times in the service lines and inner plumbing sections, but there is no data to suggest such seasonal trends in the study area. We believe that several features of our study design control for actual drinking water consumption in the household, which is the most important aspect to consider for exposure. Other household demands do not vary significantly in the types of buildings i.e. external uses for pools, gardens etc. are minimal in this dense urban area. Third, data reported here applies to a single distribution system with its proper water quality parameters and hydraulic conditions. They may not fully be generalizable to other distribution system with different characteristics. Finally, IEUBK modelling does not take into account the influence of nutritional intake which could markedly attenuate the changes in BLLs from season to season. The complex interaction between lead ingested from drinking water and nutrients makes it difficult to predict changes in BLLs with high accuracy. Moreover, this model does not consider the time spent outside (specifically at the daycare) and then assumes that the child consumes the same water (either flushed or stagnant), at the same quantity every day.

4. Conclusion

The influence of seasonality on lead concentration in household water is substantial in homes connected to lead service lines. The winter-to-summer change could reach 6 μg/L in flushed samples and 10.55 μg/L in stagnant samples. IEUBK child blood modelling predicts that such changes would lead to a slight increase of about 1 μg/dL in 0.5–7 year-old children. Although such a little increase, the percentage of children aged 1–2 years exceeding the 5 μg/dL BLL threshold could increase by at least 15% due to winter-to-summer changes in water lead levels. Flushing habits reduce the probability for elevated BLLs, especially in children aged below 2 years.

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.envint.2014.07.005.

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NUMBER OF EBL

	May	June	July	August	September	October	November	December	January	February	March	April	Total
2010-2011	**NO DATA**												
2011-2012	15	15	16	26	22	11	15	8	10	5	7	4	**154**
2012-2013	14	7	18	13	17	12	8	3	7	4	5	6	**114**
2013-2014	13	11	10	9	16	10	7	4	3	3	6	5	**97**
2014-2015	8	6	20	25	25	7	7	3	2	5	5	9	**122**

TOTAL KIDS TESTED

	May	June	July	August	September	October	November	December	January	February	March	April	
2010-2011	**NO DATA**												
2011-2012	474	393	332	513	520	420	379	249	343	303	399	375	**4700**
2012-2013	328	338	383	550	464	417	332	246	328	303	328	402	**4419**
2013-2014	380	363	385	404	438	427	310	283	313	325	371	346	**4345**
2014-2015	356	329	386	452	480	361	283	224	305	287	348	339	**4150**

EBL % BY MONTH

	May	June	July	August	September	October	November	December	January	February	March	April	**TOTAL EBL%**
2010-2011	**NO DATA**												
2011-2012	3.16%	3.82%	4.82%	5.07%	4.23%	2.62%	3.96%	3.21%	2.92%	1.65%	1.75%	1.07%	**3.28%**
2012-2013	4.27%	2.07%	4.70%	2.36%	3.66%	2.88%	2.41%	1.22%	2.13%	1.32%	1.52%	1.49%	**2.58%**
2013-2014	3.42%	3.03%	2.60%	2.23%	3.65%	2.34%	2.26%	1.41%	0.96%	0.92%	1.62%	1.45%	**2.23%**
2014-2015	2.25%	1.82%	5.18%	5.53%	5.21%	1.94%	2.47%	1.34%	0.66%	1.74%	1.44%	2.65%	**2.94%**

NUMBER OF EBL

	May	June	July	August	September	October	November	December	January	February	March	April	Total
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2	**168**
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3	**153**
2012-2013	14	7	19	14	17	13	8	4	7	4	5	6	**118**
2013-2014	12	11	10	9	16	9	7	4	3	3	6	5	**95**
2014-2015	8	6	20	25	25	7	7	4	2	5	5	9	**123**
2015	9	6	8	11									

TOTAL KIDS TESTED

	May	June	July	August	September	October	November	December	January	February	March	April	
2010-2011	402	379	325	442	504	315	335	206	276	240	338	285	**4047**
2011-2012	390	370	324	503	512	413	372	248	333	298	389	370	**4522**
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397	**4366**
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339	**4256**
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337	**4089**
2015	297	330	249	284									

EBL % BY MONTH

	May	June	July	August	September	October	November	December	January	February	March	April	**TOTAL EBL%**
2010-2011	5.47%	4.22%	4.31%	6.11%	5.75%	3.49%	4.18%	0.49%	2.17%	7.08%	2.66%	0.70%	**4.15%**
2011-2012	3.85%	4.05%	4.94%	5.17%	4.30%	2.66%	4.03%	3.23%	3.00%	1.68%	1.80%	0.81%	**3.38%**
2012-2013	4.27%	2.09%	5.05%	2.59%	3.71%	3.13%	2.42%	1.69%	2.15%	1.34%	1.54%	1.51%	**2.70%**
2013-2014	3.23%	3.12%	2.65%	2.24%	3.70%	2.17%	2.30%	1.44%	0.99%	0.94%	1.65%	1.47%	**2.23%**
2014-2015	2.31%	1.85%	5.28%	5.62%	5.31%	1.96%	2.49%	1.83%	0.66%	1.74%	1.46%	2.67%	**3.01%**
2015	3.03%	1.82%	3.21%	3.87%									

From: LyonCallo, Sarah (DCH)
To: Dykema, Linda D. (DCH)
Subject: Fwd: Flint follow-up
Date: Monday, September 28, 2015 9:51:44 AM
Attachments: BLLs in Flint.pdf
ATT00001.htm

Sent from my iPad

Begin forwarded message:

From: "Minicuci, Angela (DCH)" <MinicuciA@michigan.gov>
Date: September 25, 2015 at 5:36:40 PM EDT
To: "Larder, Cristin (DCH)" <LarderC@michigan.gov>
Cc: "LyonCallo, Sarah (DCH)" <lyoncallos@michigan.gov>, "McKane, Patricia (DCH)" <McKaneP@michigan.gov>
Subject: RE: Flint follow-up

Not a problem. Let's connect on Monday. Also, attached is the data I have. Thanks!
Angela

From: Larder, Cristin (DCH)
Sent: Friday, September 25, 2015 5:33 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Cc: LyonCallo, Sarah (DCH) <lyoncallos@michigan.gov>; McKane, Patricia (DCH) <McKaneP@michigan.gov>
Subject: RE: Flint follow-up
Hi Angela,
After looking at the data Kristi send you and talking with Sarah, I realize I do not have access to the data I need to answer her specific question about significance. I won't be able to get access before Monday.
Sorry I wasn't able to be helpful right now,
Cristin

From: Minicuci, Angela (DCH)
Sent: Friday, September 25, 2015 2:26 PM
To: Larder, Cristin (DCH)
Subject: FW: Flint follow-up
Hi Cristin,
Can you call me when you have a moment? 517-373-0860. Thanks!
Angela

From: Tanner, Kristi [mailto:ktanner@freepress.com]
Sent: Friday, September 25, 2015 2:19 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: RE: Flint follow-up
Angela,
Is it possible to speak to an epidemiologist before the end of day today?
Thanks!
Kristi
(313) 222-8877

From: Tanner, Kristi
Sent: Friday, September 25, 2015 12:16 PM
To: 'Minicuci, Angela (DCH)'

Subject: Flint follow-up

Hi Angela,

Thanks for the feedback yesterday. I took a look at the numbers last night that you sent over and the year over year increase between 13/14 and 14/15 is statistically significant p<.05

Can you ask you epidemiologist to confirm? Also, is this the first significant increase that Flint has seen for this cohort?

Thanks!

Kristi
(313) 222-8877 office
(586) 322-2094 cell

Children in Flint, less than 16 years of age, tested for lead

Children with Elevated BLL*		
May 2010 - April 2011	168	0.043796
2011-2012	153	0.036085
2012-2013	118	0.028379
2013-2014	95	0.023691
2014-2015	123	0.032106
May - August 2015	34	0.029746

Children Tested**	
May 2010 - April 2011	3,836
2011-2012	4,240
2012-2013	4,158
2013-2014	4,010
2014-2015	3,831
May - August 2015	1,143

*Each child counted only once.

**Some children counted in more than one year.

September 24, 2015

Source: MDHHS Data Warehouse

From:	LyonCallo, Sarah (DCH)
To:	Dykema, Linda D. (DCH)
Subject:	Fwd: Flint Testing and EBLLs.xlsx
Date:	Tuesday, July 28, 2015 10:22:48 AM
Attachments:	Flint Testing and EBLLs_CL.xlsx ATT00001.htm

Sent from my iPhone

Begin forwarded message:

From: "Larder, Cristin (DCH)" <LarderC@michigan.gov>
Date: July 27, 2015 at 10:00:10 PM EDT
To: "McKane, Patricia (DCH)" <McKaneP@michigan.gov>
Cc: "LyonCallo, Sarah (DCH)" <lyoncallos@michigan.gov>
Subject: RE: Flint Testing and EBLLs.xlsx

Thanks, Patti!
It took me a while to get it right, but I was able to create a p-chart, which is Shewhart's version of a control chart for proportions. I'm not sure if you can read the attachment, but I used the monthly data from 2013-14 to calculate a mean proportion, mean number of kids tested per month, plus upper and lower control limits. I then plotted the 2014-15 data on a p-chart with the mean, LCL, and UCL calculated from the previous year. The chart shows that the 3 months in question are the only ones above the UCL for the year.
Ideally, we would want to use more years of data to establish the control limits. Also, mapping the cases might help figure out if specific pipes were the source of exposure. Sarah also suggested a Poisson regression (factoring in such information as when the water treatment procedure changed to stop the chemical reaction), if the folks upstairs think we should investigate further. We could also test to see if reporting changed at all during the exposure period (e.g. were there more capillary tests or tests in general?).
If it looks okay to you, I'll send it off to Nancy as soon as I get in tomorrow. (She called over here this afternoon asking for it, so I'm sure she's anxious to send it upstairs.)
Good night,
Cristin

From: McKane, Patricia (DCH)
Sent: Monday, July 27, 2015 3:12 PM
To: Peeler, Nancy (DCH)
Cc: Larder, Cristin (DCH); Scott, Robert L. (DCH)
Subject: Re: Flint Testing and EBLLs.xlsx
Thanks Nancy.
I was in a session on Shewart charts for QI. I think this might be a good approach for the needs assessment We can talk more. Hopefully the slides will

be available, because I can't type that much with my thumbs

Sent from my iPhone

On Jul 27, 2015, at 1:14 PM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:

> Hi Cristin and Patti –
> This is the CLPPP data for Flint that I had mentioned to you last week. Cristin, can you quickly run any tests to see if the difference in the first graph is statistically significant? Bob is at his desk today, best to connect with him if you have questions about the data. We are hoping to send this up today, so we appreciate anything you can do to get us a response this afternoon, if at all possible. Many thanks!
>
> Nancy

From: Wells, Eden (DCH)
To: Dykema, Linda D. (DCH); Miller, Corinne (DCH)
Subject: Fwd: Prelim GIS results
Date: Tuesday, September 29, 2015 7:05:52 PM
Attachments: season water lead article.pdf
ATT00001.htm

FYI

Sent from my iPhone

Begin forwarded message:

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Date: September 29, 2015 at 6:49:47 PM EDT
To: "Wells, Eden (DCH)" <WellsE3@michigan.gov>
Subject: RE: Prelim GIS results

FYI in regards to seasonality, summer is also the peak for lead in water. Lots of literature regarding this, see attached article - most notably fig 3 which predicts the percentage of EBL in summer due to lead in water.

Mona Hanna-Attisha MD MPH

Director, Pediatric Residency Program

Hurley Children's Hospital at Hurley Medical Center

Assistant Professor, Department of Pediatrics and Human Development

Michigan State University College of Human Medicine

Office: 810-262-7257

mhanna1@hurleymc.com

From: Wells, Eden (DCH) [WellsE3@michigan.gov]
Sent: Tuesday, September 29, 2015 5:58 PM
To: Mona Hanna-Attisha
Subject: Re: Prelim GIS results

Good evening, Mona,

I am looking forward to our results as well.

I certainly understand your role and the need to address the problem you identified; as physicians, our ethical and professional vows to care for and prevent harm to our patients is paramount. No need for data wars- I think we are all just trying to be sure, as you and I said earlier, that we are are comparing the same data the same way- "apples to apples".

Your point about water versus household sources is important, because that is certainly one of the issues here--how to identify what potential sources of lead are responsible for EBLs in children, particularly in the CLPP database. Household (paint) is the most common culprit---(this one contributes most to the seasonality), and need to get the best analysis of the data that can look at the association to potential water sources. More to follow!

I will follow-up in AM with our IRB folks and be sure they know that we have a wish to expedite--not sure how long the process is but will get an estimate.

Eden

Eden V. Wells, MD, MPH, FACPM

Chief Medical Executive

Michigan Department of Health and Human Services

201 Townsend Street, 5th Floor CVB

Lansing, MI 48913

Phone: 517-335-8011

wellse3@michigan.gov

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 5:35 PM
To: Wells, Eden (DCH)
Subject: Re: Prelim GIS results

Thanks Eden.

Looking forward to seeing your analysis.

Our intent has never been to go public with anything. However, when we noticed our findings and the glaring correlation to elevated water lead levels in the same locations and learned that corrosion control was never added to the water treatment, we ethically could not stay silent. In addition, your annual EBL% supports our findings - annual decrease (as seen nationally) and then an increase post-water switch. We also knew that releasing our data would only incite a data war; however, the more we dig, the more alarming the results. (Do you know GM stopped using flint river water because it was too corrosive on their parts??? That should have alerted us to its effect on lead pipes.)

So as of now, no plans to release anything to public, although we did share some of the high risk location info to identify priority response areas (bottled water, filters, etc).

Lastly, the state lead screening programs underestimate risk from lead in water. Infants on formula are most at risk yet we screen when they are developmentally likely to be exposed from lead from house hold sources (paint, dust, soil, etc). Lead levels could have peaked at 4 months and dropped by 12 months.

Finally, we do hope we can receive our data request soon so we can do the exact same analysis.

Thanks and sorry for the long email. Mona

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital

Michigan State University

On Sep 29, 2015, at 2:59 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

Hi Mona,

Quick question--

We hope to get prelim data analysis results starting this afternoon-confirmed likely in next day or so----not sure when you may be going public with the GIS but do you think will be before then? Or are you doing the overlay now? Hoping for coordination of "apples"--I have followed-up on your data request.

Eden

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 12:25 PM
To: Wells, Eden (DCH)
Subject: Prelim GIS results

Dr Wells, thanks for the phone call. I appreciate your reaching out. Below is our most recent analysis looking more specifically at the City of Flint and focusing on wards/neighborhoods via GIS analysis. This is very preliminary, but even more frightening. Our next steps include overlaying this with the locations of lead service lines.

I would appreciate your efforts to expedite our data request for the raw data so that we can run similar analysis with your larger sample size. Thanks again, and let me know if I can be of any assistance. Mona

Updated Findings:

Using GIS (Geographic Information System) map technology, we have further analyzed our blood lead level data. Our initial analysis examined children living in Flint zip codes, 48501-48507; however, this included households receiving non-Flint water. Our refined GIS-based analysis now includes only those households who receive water from the City of Flint.

The results reveal an even greater increase in the percentage of children with elevated blood lead levels (EBL). Pre-switch, the proportion of children with EBL was 2.4%, and post-switch the proportion was 4.9% (p=0.019). This is compared with our initial zip code-based analysis that showed pre-switch 2.1% and post-switch 4.0% (p=0.025). Once again, the change in non-Flint EBL% was not statistically significant.

Preliminary GIS analysis has identified certain areas within the city limits that experienced the greatest rate of EBL% increase. Specifically, we found the greatest increases in wards 5 and 6 (particularly in neighborhoods near Dupont St between University Ave and Pasadena Ave); the EBL% more than **tripled** in these wards. In ward 5, the EBL % increased from 4.9% to 15.7% (p=0.038). The area of intersection between wards 3, 4, and 5 (in the east side of the city) also appeared high. Lastly, ward 7 had high pre and post-levels EBL% above 5% (specifically in the western portion of the ward).

Of note, our results continue to correlate with the high water lead levels from the Virginia Tech samples. Most notably, the high percentage of EBL% in wards 5, 6, and 7 also correspond with the high water lead levels in wards 5, 6, and 7.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From:	Miller, Corinne (DHHS)
To:	LyonCallo, Sarah (DHHS); Dykema, Linda D. (DHHS); Priem, Wesley F. (DHHS)
Subject:	Fwd: Talking Points
Date:	Thursday, October 01, 2015 12:37:34 PM
Attachments:	Flint Water Talking Points.docx ATT00001.htm

Sent from my iPhone

Begin forwarded message:

From: "Eisner, Jennifer (DHHS)" <EisnerJ@michigan.gov>
Date: October 1, 2015 at 11:51:51 AM EDT
To: "Miller, Corinne (DHHS)" <MillerC39@michigan.gov>, "Robinson, Mikelle (DHHS)" <RobinsonM18@michigan.gov>
Cc: "Wells, Eden (DHHS)" <WellsE3@michigan.gov>
Subject: Talking Points

Corinne and Mikelle:
Attached please find the most recent Flint talking points which include edits from Dr. Wells. A 12:30 meeting with the gov's comms team was just called, so we need to have them finalized and ready to share asap.
Can you please send me the bullet points explaining the data – or what is ready of them – by noon?
Thank you,
Jennifer (Smith) Eisner
Public Information Officer
Michigan Department of Health and Human Services
517-241-2112

From:	Miller, Corinne (DHHS)
To:	LyonCallo, Sarah (DHHS); Dykema, Linda D. (DHHS); Priem, Wesley F. (DHHS)
Subject:	Fwd: Talking Points
Date:	Thursday, October 01, 2015 12:37:34 PM
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To: "Miller, Corinne (DHHS)" <MillerC39@michigan.gov>, "Robinson, Mikelle (DHHS)" <RobinsonM18@michigan.gov>
Cc: "Wells, Eden (DHHS)" <WellsE3@michigan.gov>
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Corinne and Mikelle:

Attached please find the most recent Flint talking points which include edits from Dr. Wells. A 12:30 meeting with the gov's comms team was just called, so we need to have them finalized and ready to share asap.

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Thank you,

Jennifer (Smith) Eisner
Public Information Officer
Michigan Department of Health and Human Services
517-241-2112

From:	Miller, Corinne (DCH)
To:	Dykema, Linda D. (DCH); LyonCallo, Sarah (DCH); Priem, Wesley F. (DCH)
Subject:	Fwd: TIME SENSITIVE: Fw: Discrepencies
Date:	Tuesday, September 29, 2015 2:45:44 PM
Attachments:	Flint Testing and EBLLs_updated 092315_with notes (2).pdf ATT00001.htm Flint Testing and EBLLs (4).pdf ATT00002.htm STATELEADDATA with original and updated numbers.xlsx ATT00003.htm

---

FYI only. Keeping you in the loop regarding MDHHS CLPPP data.

Sent from my iPhone

Begin forwarded message:

From: "Wells, Eden (DCH)" <WellsE3@michigan.gov>
Date: September 29, 2015 at 2:41:54 PM EDT
To: "Peeler, Nancy (DCH)" <PeelerN@michigan.gov>
Cc: "Miller, Corinne (DCH)" <MillerC39@michigan.gov>, "Lasher, Geralyn (DCH)" <lasherg@michigan.gov>, "Hertel, Elizabeth (DCH)" <HertelE@michigan.gov>
Subject: TIME SENSITIVE: Fw: Discrepencies

HI Nancy,

I do not have Bob's email, so if you cam talk to him; however, I got a request from Dr. Hanna-Attisha at Hurley today as to why the 2014-2015 may differ in the 2 pdf's she attached (received 9/15 and 9/25). FYI, she stated that Bob is great to work with.

However, due to different numbers and analyses and such flying around in the last 24 hours, please respond back to me ASAP regarding the discrepancies, and I can relay to her.

Thank you!

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services
201 Townsend Street, 5th Floor CVB

Lansing, MI 48913
Phone: 517-335-8011
wellse3@michigan.gov

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 1:07 PM
To: Wells, Eden (DCH)
Subject: FW: Discrepencies

Dr Wells, in regards to the discrepancy noted in state data. Attached are two PDF files that were sent regarding the state lead numbers.

The original PDF was sent on 9/15/15 to Dr Reynolds from Bob Scott from MDHHS's Childhood Lead Poisoning Prevention Program and the updated PDF was sent to me from Bob Scott last Friday.

The attached excel database (that I created) has two tabs that include the original and updated numbers. Yellow highlights are all the numbers that changed. It is very strange how many of the numbers have changed. I'm not sure if the updated numbers tried to refine the location to Flint proper???

The analyses of the data does not change very much (when you look at total annual EBL%) - there has been a statistically significant increase in EBL% since water change (2014-2015) where every year prior there has been a decrease (as has happened nationally). And this does not even include the fact that the data is not scientific – wrong age range and missing lots of EBLS by using first time lead analysis rather than highest lead.

Just thought the discrepancy was odd.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
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Department of Pediatrics and Human Development
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TAKING ACTION ON FLINT WATER

www.mi.gov/FlintWater

- The Action Plan -

- Testing in Flint public schools immediately to ensure that **drinking water is safe**, with testing also available at no cost to any other school in Flint.
- **Offering free water testing** to Flint residents to assure their drinking water is safe.
- **Providing free water filters** to residents with concerns or who are included in state assistance programs.
- **Expanding health exposure testing** of individual homes.
- **Accelerating corrosion controls** in the Flint drinking water system.
- **Accelerating water system improvements** to address replacing lead service lines.
- Expediting the completion of the **Karegnondi Water Authority** pipeline.
- **Expanding a Safe Drinking Water Technical Advisory Committee** to ensure the best technology, practices and science are being followed by adding an expert from the Environmental Protection Agency's Office of Research and Development to the group.
- Naming Dr. Eden Wells, chief medical executive for the Michigan Department of Health and Human Services, as the **Flint drinking water public health adviser**.
- Boosting a **comprehensive lead education program** to make sure residents have detailed information about how to protect themselves and their homes.

To get your water tested for free, please call the city of Flint Water Plant at (810) 787-6537 and then press 1.
You can also email flintwater@cityofflint.com

Visit **www.mi.gov/FlintWater** for more information

TAKING ACTION ON FLINT WATER

www.mi.gov/FlintWater

www.mi.gov/FlintWater - Tips for Flint Residents - www.mi.gov/FlintWater

Lead plumbing is common in homes built prior to 1986, and **anyone in the state with lead pipes in their home can take some extra precautions** to minimize lead in their drinking water.

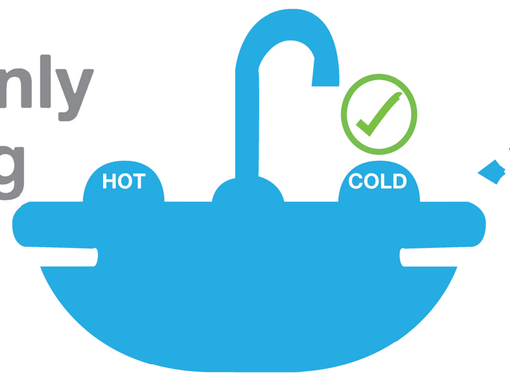
1. Get your water tested at no cost to ensure water is safe. **To get your water tested**, please call the city of Flint Water Plant at (810) 787-6537 and then press 1.

2. To ensure safe drinking water, you can also get a free filter. Please visit **mi.gov/FlintWater** to find where you can get a free filter.

3. It takes time for lead to accumulate in drinking water from plumbing, and so **flushing your pipes prior to using them** can minimize your exposure.

- To flush your pipes, run the water until it's as cold as it will go. This can take as little as 5 to 30 seconds if you have recently flushed the toilet or otherwise used water in your home, or as long as 2 to 5 minutes if you have not used any water in hours.
- In the city of Flint, **running the water for 5 minutes costs between 3 and 16 cents.**

4. Additionally, more lead gets into hot water than cold water. **Use only cold water for drinking, cooking and making baby formula.**



To get your water tested for free, please call the city of Flint Water Plant at (810) 787-6537 and then press 1.
You can also email flintwater@cityofflint.com

Visit **www.mi.gov/FlintWater** for more information

MDHHS PH Updates Response to Flint Lead Event
Oct. 1, 2015, 9:30 am

Participants: Eden Wells, Mikelle Robinson, Jennifer Eisner, Angela Minicuci, Corinne Miller, Mark Miller, Kris Schoenow, Rashmi Travis, Elizabeth Hertel, Nancy Peeler (on the phone-Sandip Shah, Jackie Miller, Kathy Wahl, Linda Scott, Jennifer Lixey, Richard Phalen, and Kristen Hanualcik (WIC).

Status Reports

A. EPID-Corinne Miller
- Replicating Hurley study-Hurley only did ¾ of 2014 and ¾ of 2015
- Study by quarter-elevated blood level for children under 6 in Genesee Co. and Flint-based on tech. that Hurley used (we think). Used 501-507 zip codes the other 15 zip codes in Flint weren't populated.
- DEQ asked for data on zip code 49502.
- Map of water system-they can overlay blood let data.
- Delivery system from other study.
- Graphed trends. Decline in blood level to 2013.
- Started going up in 2014. Spiked up positive, seasonality/yearly-didn't not reach statistically
- There is an association with raise in blood level
- 17 kids were tested high with 5 or better.
- Detroit Free Press-Eden will walk her through chart.
- Corinne to send chart to group- internal not to be shared outside of group.
- 2015-going up more than historically
- Continuing to work on model-working on ways to refine model-will get talking points to Eden.
- Linda Dykema-working on Virginia Tech Study-nothing wrong with study.
- Related to corrosion.
- Virginia Study measured 1st dray at tap. 2nd draw service line to house. 3rd draw farther away from service line. Corinne will share briefing document.
- Lynda Dykema-Kinetic model-Predictive –soil sampling from DEQ, Flint, air samples, blood samples, lead paint date-running models. Taking to Dr. Lynn Wilder at ASTDE-Lead Abatement Program-ready sometime today.
- Sarah LyonCallo's group-geo coding

B MCH-Rashmi Travis/Kristin Hanualcik
- WIC-ready-made formula
- Challenges
    - Manufacturer not ready to give amounts needed
    - Manufacturer converting to powder
    - Can't produce fast enough for fast turnaround
- Genesee Local Health Department (GLHD) 855 infants receiving formula 23.3 cans/month
    - Some babies breastfeed
- Water available in bottle form for powered formula through GLHD (the Diaper Bank)
- Water available for WIC clients only (keep this internal and not public)
- United Way giving away free filters and bottled water
- Elizabeth didn't know this program was going on-asked that information like this is communicated to her and Geralyn.
- SNAP benefits allow bottled water.

- It was mentioned that using SNAP benefits for bottled water would reduce clients amount they had for purchasing regular items.

- Elizabeth-has told Nick Lyon that she is not pushing for pre-made formula but pushing for filters for long term fix (for this short term).

C Local Public Health-Mark Miller

- Mt. Morris biggest area.
- Let Health Office know preliminary results tomorrow? Angela said we could give some stuff today but not data.

Response

D Communication

- Press Releases prepared for a generic lead prevention that is going out
- Lead Prevention Week-Oct. 25-Oct. 31 –more press releases, tool kit
- Can we distribute press releases through MALPH to local health departments?
- Conference Call today with DEQ and us
- Working on talking points-rapid turnaround for talking points
- How many children have been treated for lead poisoning in Flint? Nancy Peeler checked and 1 child since 2010 had a blood level greater than 45 and that was back in 2010.
- 1 on 1 with Detroit Free Press-we know for a fact that she will want a follow-up interview. Eden will handle-Reporter is a statistician-she will want to see analysis we did for Flint.
- Future-Detroit water testing most likely down the road-will go to DEQ-sampling done differently by them.
- IRB-Sent questions but haven't responded at all

E Testing

- Citizens calling in should be told to call their local health department or city
- No message yet for blood
- Could we pose that question to LHDs? Mark will
- Nancy Peeler-said testing is done for blood levels. Drs. need to write orders for the testing. Could Hurley or Motts be set up as testing sites? Do not prefer finger pricks-can get contaminated easily-comment from Nancy

F Filters

- DEQ did an interagency transfer of 1 million dollars to MDHHS for filters to our clients who get subsidies. Elizabeth said they are leaning towards vouchers. Reaching out to local retailers – coordinate human services piece. Need to make sure not duplicating what GLHD and United Way are doing. Kristen to look into it without letting them know what we are planning on doing.

G Investigations

- May have requests to do more-need to be prepared to do more-need a talking point
- Wesley Priem would have to test a Flint home-he works state wide and works a lot in Detroit this would take him away from this work.
- County lost its grant for lead abatement from hub a couple years ago.
- Eden to talk with HUD representative from Washington to see about getting some funds for Flint.

MDHHS PH Updates Response to Flint Lead Event
Oct. 1, 2015, 9:30 am

- From DEQ (Internal use only) cost to run water 5 minutes: 3 to 16 cents.
- Breastfeeding-CLPP website-Nancy will do a talking point
- Comment from Eden-Breastfeeding Mom's need to know what they should do.

Angela needs talking points by noon ASAP is preferred

Nancy Peeler said that she has lead stick tests that she has for other areas and is researching transferring them to the Flint area.
Nancy also said that she believes she can redirect part of the MCH Block Grant money

WIC | KRISTEN HANSELMAN: MADE INQUIRY BUT NO RESPONSE TO Q ON FORMULA

LEAD DATA 9/28/15

(CALL: LINDA D- CORINNE- RASHMI- SARAH- PETER-

1 - VIRGINIA TECH DATA: LINDA & DYKEMA

2 - EBL VISITS : WES PRIEM

3 - City of Flint: KRISTEN LARDER (MCH EPI) trying to redo the analysis done by Flint Hurley

LINDA (1) - MARC EDWARDS DATA
- Hurley data from Virginia Tech Data
- Have protocol (sampling)
  - Directions are different than DEQ
  - ? sure preflushing is recommended in other states
- Out of Control Corrosion of system
-

- SOME Question from EPA (NOT PUBLIC) if Flint City sampling was done correctly (as per DEQ)
Report not approved by upper management

TUESDAY LATE PM - MEET ~ 4pm (Corinne to schedule)

SARA ③ Will have by tomorrow AM (9/28)

- A regression, and stratified
- 6y < 6 and _____?
  - High Risk
  - Gen.
  - Flint only

- Hurly was year pre & year post
- Will have trends

② WES: EBL Investigations (6 Houses) — Done by WES's staff
(DC did investigation in all homes & kids w/ elevated lead levels)

~~9/29 4pm~~

LEAD DATA 9/30 4pm

NP — Nancy P. said CDC might have had use w/ U of V.

LD. — Risk Cup — All sources need to be addressed — Especially since 90% are caused by Lead Paint

SLC — 1st Pass — Data description
- Poisson Progression — (Exclude

LD — ? High # w/ H_2O test < 15 PPB

Flint H_2O

- Det City -
- Flint River (Em. mgr, DEQ) — E coli, chlorine th. — Water caustic — Dissolved lead
- U of Virginia Tech Tests ? Elev. lead in some sample
- Hurley - Double in some zips
- OUR DATA - initially no, but in retrospect supportive
- Bl: Lead in H_2O

99,000 pop
30,000 HH
15,000 lead solder

- Lots of players - Gov, Mdtts, GCHD, Flint Mayor, Flint Water, EPA, variety of com groups
- Much yelling + screaming

Formula? 1 Issue

- Advisory / Em order - not to drink H_2O unless
  - tested
  - filter
  - flush
- filter + months

PEDIATRIC LEAD EXPOSURE IN FLINT, MICHIGAN: A FAILURE OF PRIMARY PREVENTION

Mona Hanna-Attisha MD MPH FAAP

Hurley Children's Hospital

Michigan State University Department of Pediatrics and Human Development

HURLEY CHILDREN'S HOSPITAL

MICHIGAN STATE UNIVERSITY
College of Human Medicine

Introducing Makayla*

- 12 month old girl (DOB 8/15/2014) presented last week for her 1 year old check up. No concerns.
- Lives with single mom and 2 older siblings in west side (48504). Formula from WIC; powder mixed with warm tap water.
- Physical exam and development are normal. Makayla receives her 1 year old vaccines and routine lead and hemoglobin screening.
- *A couple days later, lead level comes back as 6 ug/dL.*

*Hypothetical scenario

Blood lead level of 6 ug/dL….

- Blood lead levels (BLL) above 5 ug/dL are considered elevated blood lead levels (EBL)
- Just a few years ago (2012), 10 ug/dL was cutoff
- Increasing evidence shows NO safe blood lead level
- Disproportionately impacts low income, minority children
- Primary prevention is most important

Primary Prevention

- "Because no measurable level of blood lead is known to be without deleterious effects, and because once engendered, the effects appear to be irreversible in the absence of any other interventions, public health, environmental and housing policies should encourage PREVENTION of all exposure to lead."

"Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention." 2012 CDC Advisory Committee on Childhood Lead Poisoning Prevention.

What will happen to Makayla?

- Vast evidence supports increased likelihood of:
  - Decrease in IQ
    - An increase in BLL from 1 to 4 ug/dL, drops mean IQ -3.7 points
  - Small change in mean IQ, shifts entire population IQ distribution
    - Reduces high achievers IQs (>130) and increases kids with low IQs (<70)
    - Implications for special education services, employment, incarceration, life achievement, etc

Lanphear BP et al., Low-level environmental lead exposure and children's intellectual function: an international pooled analysis. Environ Health Perspect, 2005. 113:894-9.
Fewtrell LJ, Pruss-Ustun A, Landrigan P, and Ayuso-Mateos JL, Estimating the global burden of disease of mild mental retardation and cardiovascular diseases from environmental lead exposure. Environmental Research, 2004. 94:120-33.

Behavioral Burden

- Increased likelihood of :
  - ADHD behaviors
  - Delinquent behaviors and arrests
  - Total arrests and increased rates of arrests involving violent offenses
  - Other health effects: hematologic, cardiovascular, immunologic, endocrine, etc

Wright, JP, KN Dietrich, MD Ris, et al. 2008. Association of prenatal and childhood blood lead concentrations with criminal arrests in early adulthood. *PLoS Med* 5(5): e101
Chen, A, B Cai, KN Dietrich, et al. 2007. Lead exposure, IQ, and behavior in urban 5-7 year-olds: Does lead affect behavior only by lowering IQ? *Pediatrics* 119(3): e650-e658.
Needleman, HL, C McFarland, RB Ness, et al. 2002. Bone lead levels in adjudicated delinquents: A case control study. *Neurotoxicology and Teratology* 24(6):711-717.

The Cost

- "For childhood lead poisoning, $5.9 million in medical care costs, as well as an additional $50.9 billion (sensitivity analysis: $44.8–$60.6 billion) in lost economic productivity resulting from reduced cognitive potential from preventable childhood lead exposure."

- "The present value of Michigan's economic losses attributable to lead exposure in the 2009 cohort of 5 year-olds ranges from $3.19 (using U.S. blood lead levels) to $4.85 billion (using Michigan blood lead levels) per year in loss of future lifetime earnings."

Leonardo Trasande and Yinghua Liu. Reducing The Staggering Costs Of Environmental Disease In Children, Estimated At $76.6 Billion In 2008. *Health Affairs*, 30, no.5 (2011):863-870

The Price of Pollution: Cost Estimates of Environment-Related Childhood Diseases in Michigan. 2010 Report by Michigan Network of Children's Environmental Health

Lead in Water

- Increasing as source of lead, because of success in controlling other sources.
- Increasing due to aging water infrastructures, change in water sources, disinfectant uses, etc
- Disproportionally impacts developmentally-vulnerable formula-fed infants and pregnant mothers
  - For about 25% of infants drinking formula made from tap water at 10 ppb, blood lead would rise above the CDC level of concern of 5 micrograms/deciLiter (or ug/dL).
  - Increase in fetal death and reduced birth weights

Triantafyllidou, S., Gallagher. D. and Edwards, M. Assessing risk with increasingly stringent public health goals: the case of water lead and blood lead in children. Journal of Water and Health. doi: 10.2166/wh.2013.067 58-68 (2014).
Edwards, M. Fetal Death and Reduced Birth Rates Associated with Exposure to Lead–Contaminated Drinking Water. Env. Sci. and Tech. 2013 DOI: 10.1021/es4034952

PRELIMINARY RESULTS

Preliminary Results of Pediatric Blood Lead Levels (BLL)

HURLEY CHILDREN'S HOSPITAL

- **Methods**
  - Data from all blood lead levels processed at Hurley Medical Center
  - HMC Institutional Review Board (IRB) approved
  - All children 5 years of age and younger
  - Zip codes 48501-48507
  - Two periods of comparison:
    - PRE-SWITCH: January 1, 2013 – September 15, 2013
    - POST-SWITCH: January 1, 2015 – September 15, 2015

  - Analyzed % Elevated Blood Lead (EBL)
    - EBL = Blood lead Levels > 5 g/dL

Blood Lead Level Analysis

- Large sample size
  - N= 1746 for Flint children (pre n=906, post n=840)
  - N= 1670 for non-Flint children (pre n=943, post n=727)

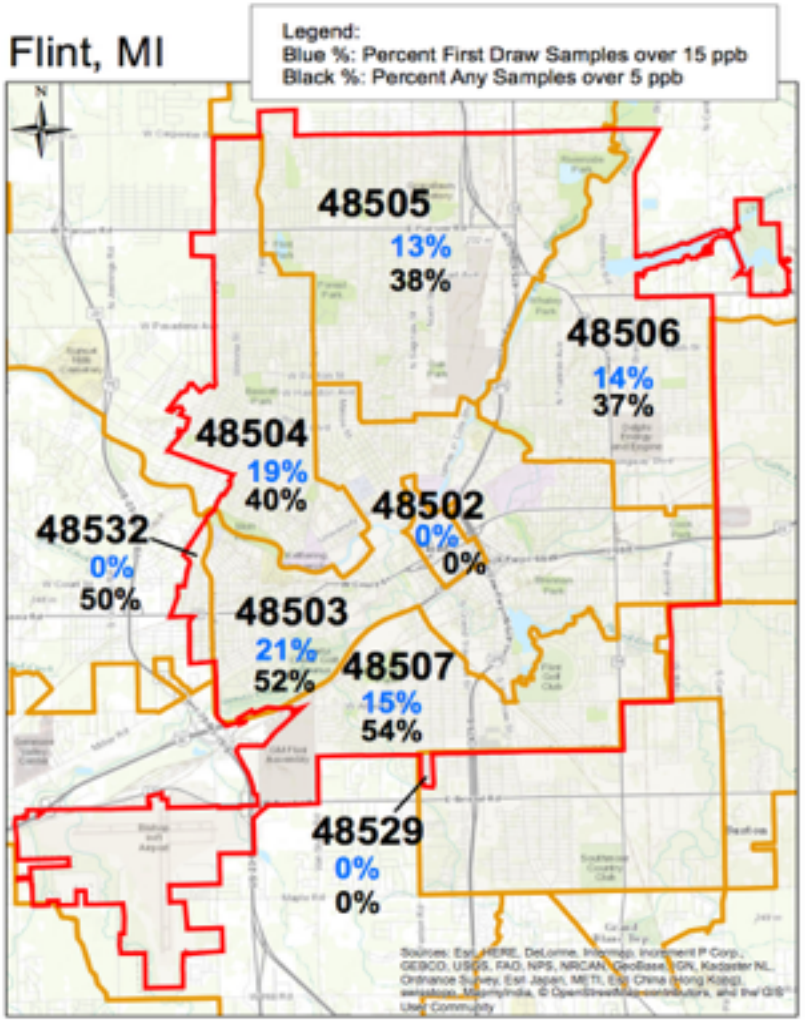
Flint results for children 5 years and under:

PRE-SWITCH % EBL: **2.1%** **(consistent with MDHHS data 2.2)**

POST-SWITCH % EBL: **4.0%**

$p < 0.05$; STATISTICALLY SIGNIFICANT CHANGE

High Risk Zip Codes Results



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  - Results:
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HURLEY CHILDREN'S HOSPITAL

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College of Human Medicine

What was rest of county doing?

HURLEY CHILDREN'S HOSPITAL

- Analysis of same time periods for Genesee County children who live outside of City of Flint zips codes (non 48501-48507)
  - N=1670 for non-Flint children (pre n=943, post n=727)

Non-Flint results for children 5 years and under:

- PRE-SWITCH % EBL: **0.6%**
- POST-SWITCH % EBL: **1.0%**
- **p = 0.637; NO CHANGE**

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Blood Lead Level Analysis

- % EBL all children less than 5 years of age

	ALL FLINT (n=1746)	HIGH-RISK FLINT (n=742)	REST OF FLINT (n=1004)	NON-FLINT (n=1670)
PRE-SWITCH	***2.1%***	***2.5%***	***1.8%***	***0.6%***
POST-SWITCH	**4.0%**	**6.3%**	**2.4%**	**1.0%**

Blood Lead Level Analysis

- % EBL children 15 months or less
  - Total Flint n=619, pre n=295, post n=324
  - Total Non-Flint n=816, pre n=443, post n=376

	HIGH-RISK FLINT (n=269)	REST OF FLINT (n=350)	NON-FLINT (n=816)
PRE-SWITCH	***1.5%***	***0.6%***	***0.5%***
POST-SWITCH	**4.4%**	**1.1%**	**0.5%**

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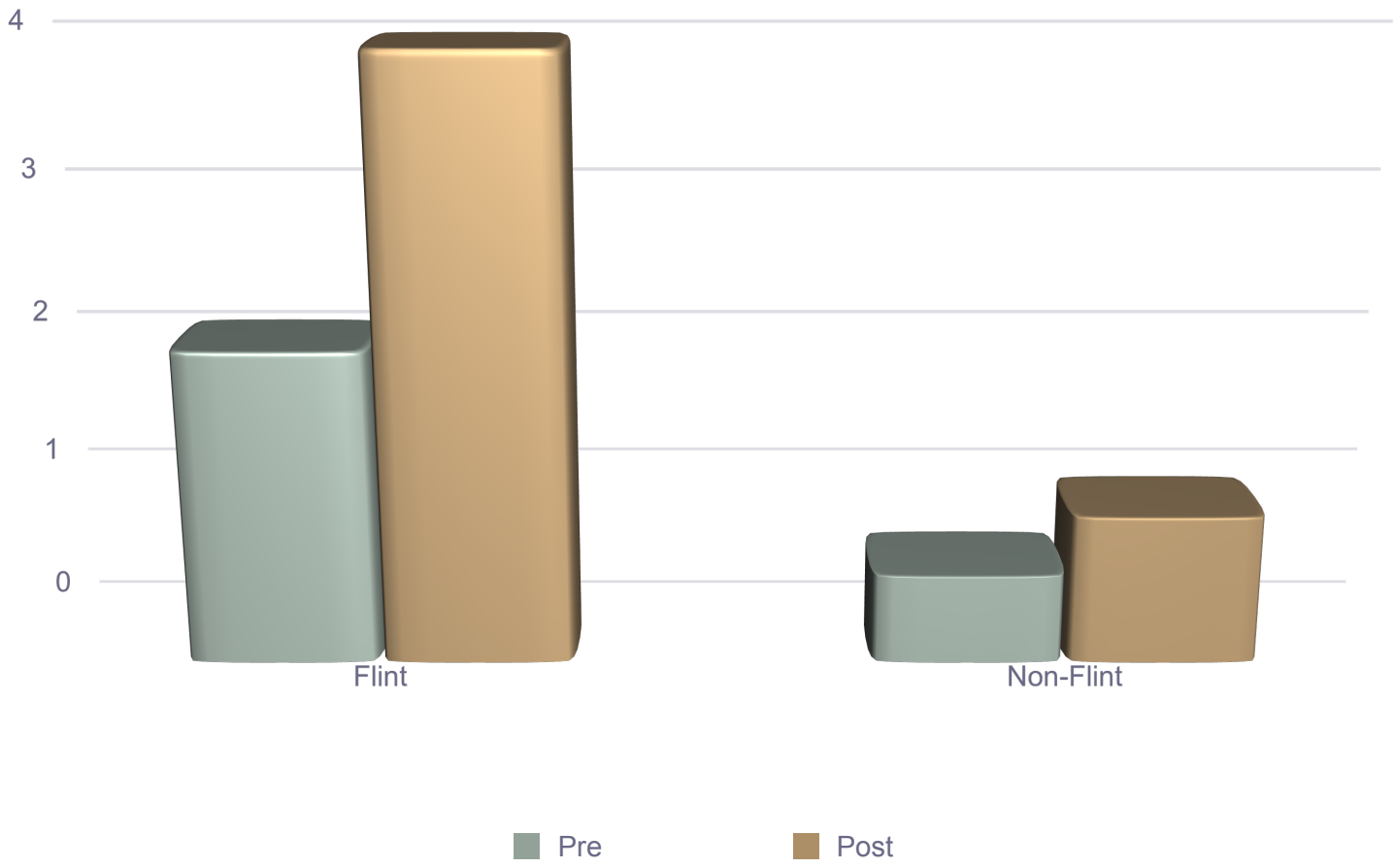
Graphical Summary
Change in % EBL Flint vs Non-Flint



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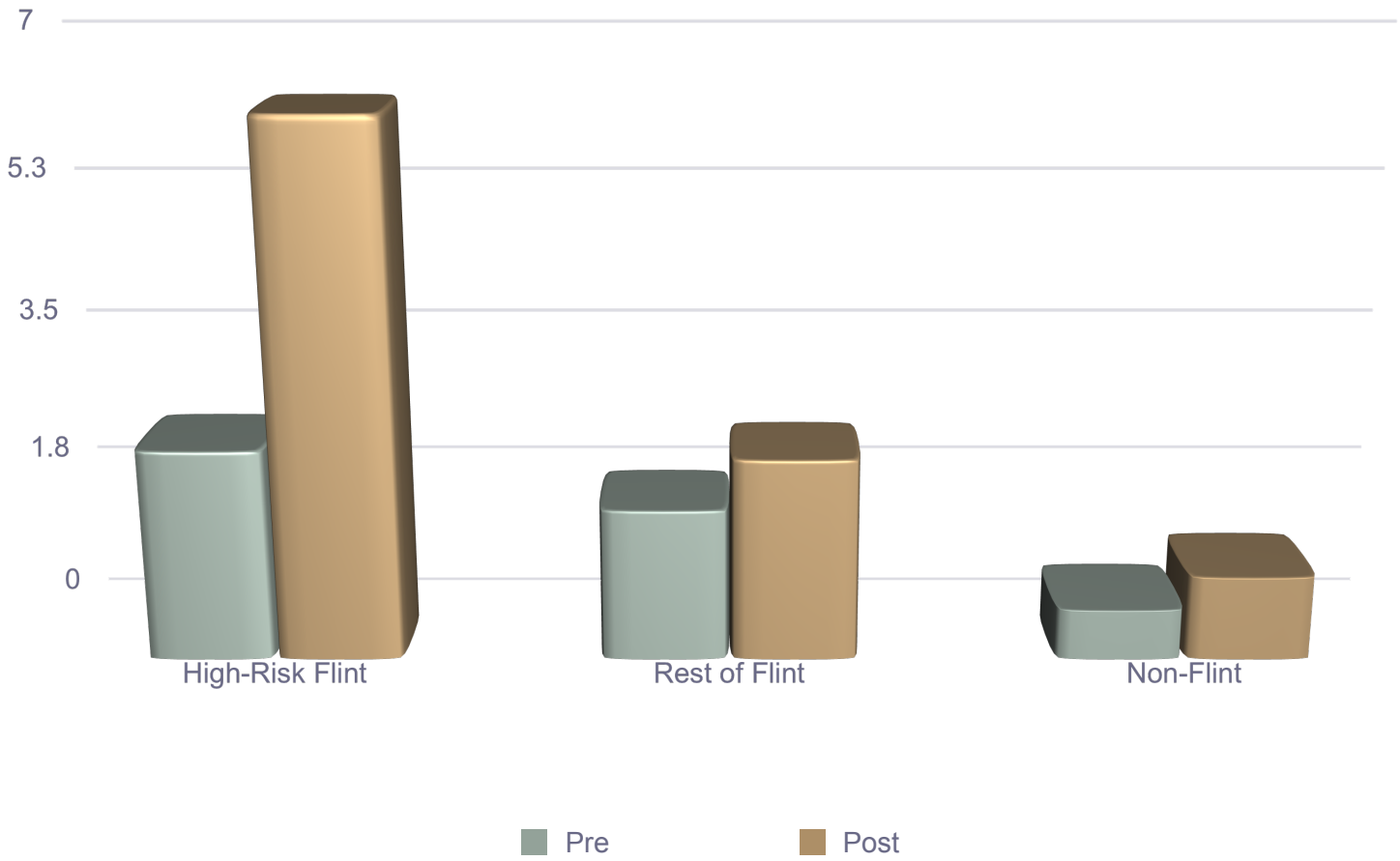
Graphical Summary
Change in % EBL by area



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College of Human Medicine

Conclusions from BLL analysis

HURLEY CHILDREN'S HOSPITAL

- % of children with EBL in Flint has increased
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Next Steps

- Immediately limit further exposure
  - Encourage breast feeding
  - No tap water for high risk groups: infants on formula & pregnant mothers
  - Declare health advisory: allows WIC to administer water or ready-to-feed formula and other resources (Salvation Army & United Way water supplies)
  - Distribution of lead clearing NSF-approved filters
  - Public education regarding precautions (flushing, etc)
  - Re-connect to Lake Huron water source ASAP

And Makayla…

- Asymptomatic now
- But what will her future hold and an entire generation of Flint children?

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PEDIATRIC LEAD EXPOSURE IN FLINT, MICHIGAN: A FAILURE OF PRIMARY PREVENTION

Mona Hanna-Attisha MD MPH FAAP

Hurley Children's Hospital

Michigan State University Department of Pediatrics and Human Development

HURLEY CHILDREN'S HOSPITAL

MICHIGAN STATE UNIVERSITY
College of Human Medicine

Introducing Makayla*

- 12 month old girl (DOB 8/15/2014) presented last week for her 1 year old check up. No concerns.
- Lives with single mom and 2 older siblings in west side (48504). Formula from WIC; powder mixed with warm tap water.
- Physical exam and development are normal. Makayla receives her 1 year old vaccines and routine lead and hemoglobin screening.
- *A couple days later, lead level comes back as 6 ug/dL.*

*Hypothetical scenario

Blood lead level of 6 ug/dL….

- Blood lead levels (BLL) above 5 ug/dL are considered elevated blood lead levels (EBL)
- Just a few years ago (2012), 10 ug/dL was cutoff
- Increasing evidence shows NO safe blood lead level
- Disproportionately impacts low income, minority children
- Primary prevention is most important

Primary Prevention

- "Because no measurable level of blood lead is known to be without deleterious effects, and because once engendered, the effects appear to be irreversible in the absence of any other interventions, public health, environmental and housing policies should encourage PREVENTION of all exposure to lead."

"Low Level Lead Exposure Harms Children: A Renewed Call for Primary Prevention." 2012 CDC Advisory Committee on Childhood Lead Poisoning Prevention.

What will happen to Makayla?

- Vast evidence supports increased likelihood of:
  - Decrease in IQ
    - An increase in BLL from 1 to 4 ug/dL, drops mean IQ -3.7 points
  - Small change in mean IQ, shifts entire population IQ distribution
    - Reduces high achievers IQs (>130) and increases kids with low IQs (<70)
    - Implications for special education services, employment, incarceration, life achievement, etc

Lanphear BP et al., Low-level environmental lead exposure and children's intellectual function: an international pooled analysis. Environ Health Perspect, 2005. 113:894-9.
Fewtrell LJ, Pruss-Ustun A, Landrigan P, and Ayuso-Mateos JL, Estimating the global burden of disease of mild mental retardation and cardiovascular diseases from environmental lead exposure. Environmental Research, 2004. 94:120-33.

Behavioral Burden

- Increased likelihood of :
  - ADHD behaviors
  - Delinquent behaviors and arrests
  - Total arrests and increased rates of arrests involving violent offenses
  - Other health effects: hematologic, cardiovascular, immunologic, endocrine, etc

Wright, JP, KN Dietrich, MD Ris, et al. 2008. Association of prenatal and childhood blood lead concentrations with criminal arrests in early adulthood. *PLoS Med* 5(5): e101
Chen, A, B Cai, KN Dietrich, et al. 2007. Lead exposure, IQ, and behavior in urban 5-7 year-olds: Does lead affect behavior only by lowering IQ? *Pediatrics* 119(3): e650-e658.
Needleman, HL, C McFarland, RB Ness, et al. 2002. Bone lead levels in adjudicated delinquents: A case control study. *Neurotoxicology and Teratology* 24(6):711-717.

The Cost

- "For childhood lead poisoning, $5.9 million in medical care costs, as well as an additional $50.9 billion (sensitivity analysis: $44.8–$60.6 billion) in lost economic productivity resulting from reduced cognitive potential from preventable childhood lead exposure."

- "The present value of Michigan's economic losses attributable to lead exposure in the 2009 cohort of 5 year-olds ranges from $3.19 (using U.S. blood lead levels) to $4.85 billion (using Michigan blood lead levels) per year in loss of future lifetime earnings."

Leonardo Trasande and Yinghua Liu. Reducing The Staggering Costs Of Environmental Disease In Children, Estimated At $76.6 Billion In 2008. *Health Affairs*, 30, no.5 (2011):863-870

The Price of Pollution: Cost Estimates of Environment-Related Childhood Diseases in Michigan. 2010 Report by Michigan Network of Children's Environmental Health

Lead in Water

- Increasing as source of lead, because of success in controlling other sources.
- Increasing due to aging water infrastructures, change in water sources, disinfectant uses, etc
- Disproportionally impacts developmentally-vulnerable formula-fed infants and pregnant mothers
  - For about 25% of infants drinking formula made from tap water at 10 ppb, blood lead would rise above the CDC level of concern of 5 micrograms/deciLiter (or ug/dL).
  - Increase in fetal death and reduced birth weights

Triantafyllidou, S., Gallagher. D. and Edwards, M. Assessing risk with increasingly stringent public health goals: the case of water lead and blood lead in children. Journal of Water and Health. doi: 10.2166/wh.2013.067 58-68 (2014).
Edwards, M. Fetal Death and Reduced Birth Rates Associated with Exposure to Lead–Contaminated Drinking Water. Env. Sci. and Tech. 2013 DOI: 10.1021/es4034952

PRELIMINARY RESULTS

Preliminary Results of Pediatric Blood Lead Levels (BLL)

HURLEY CHILDREN'S HOSPITAL

- **Methods**
  - Data from all blood lead levels processed at Hurley Medical Center
  - HMC Institutional Review Board (IRB) approved
  - All children 5 years of age and younger
  - Zip codes 48501-48507
  - Two periods of comparison:
    - PRE-SWITCH: January 1, 2013 – September 15, 2013
    - POST-SWITCH: January 1, 2015 – September 15, 2015

  - Analyzed % Elevated Blood Lead (EBL)
    - EBL = Blood lead Levels > 5 g/dL

Blood Lead Level Analysis

- Large sample size
  - N= 1746 for Flint children (pre n=906, post n=840)
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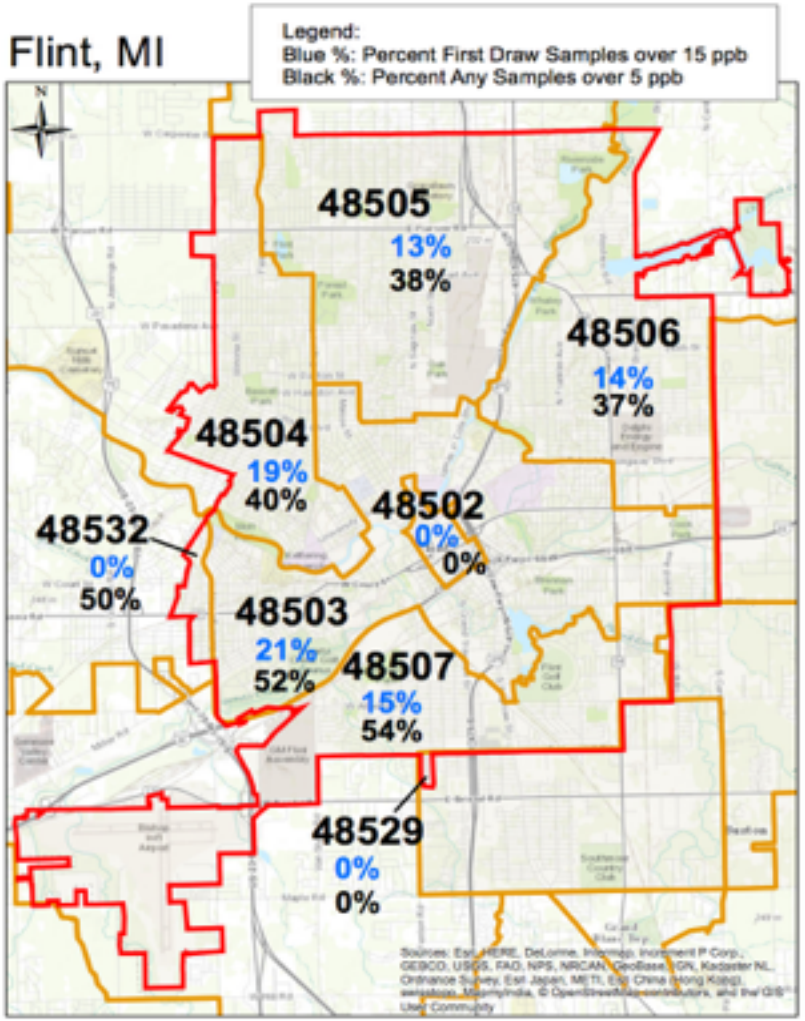

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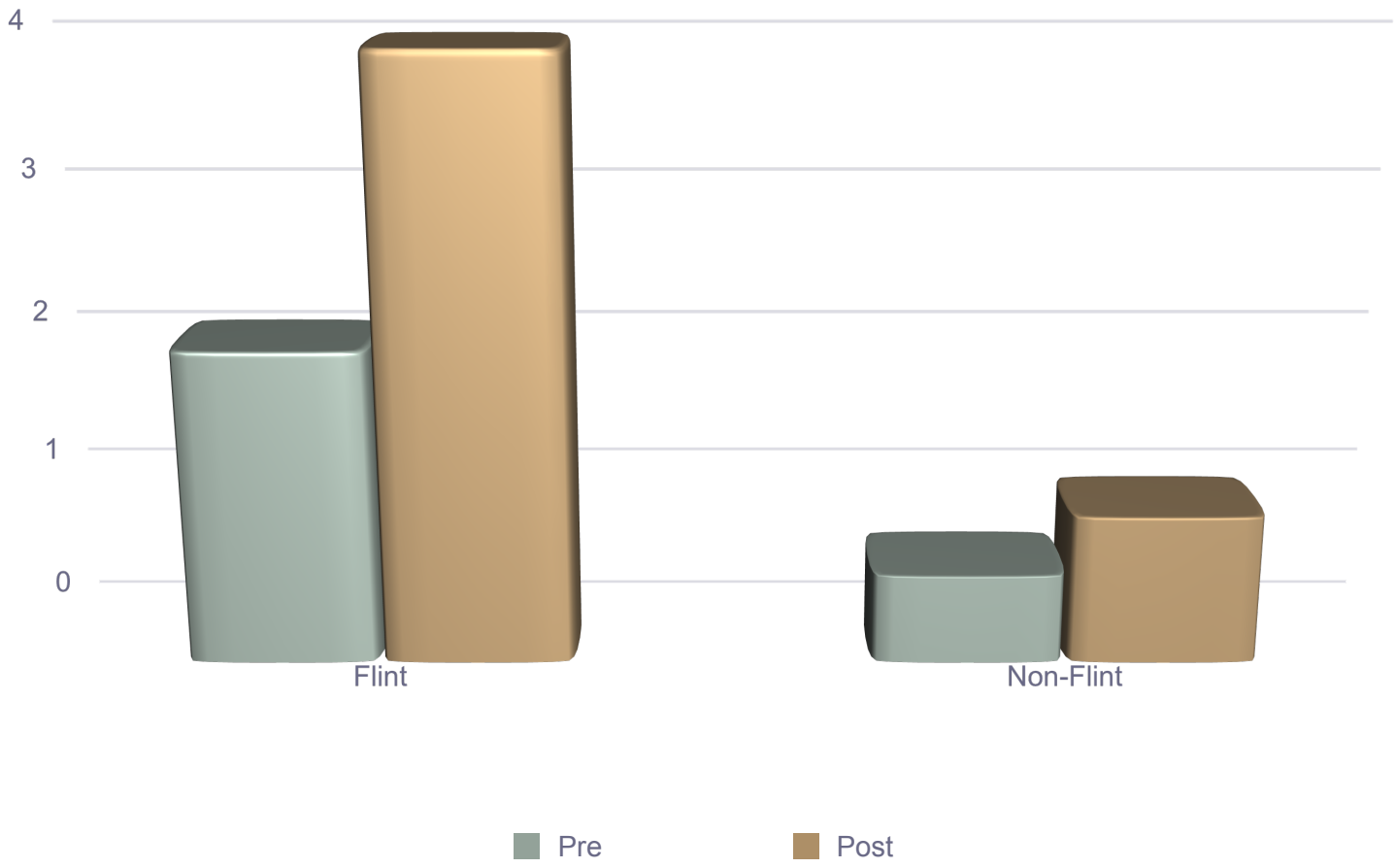

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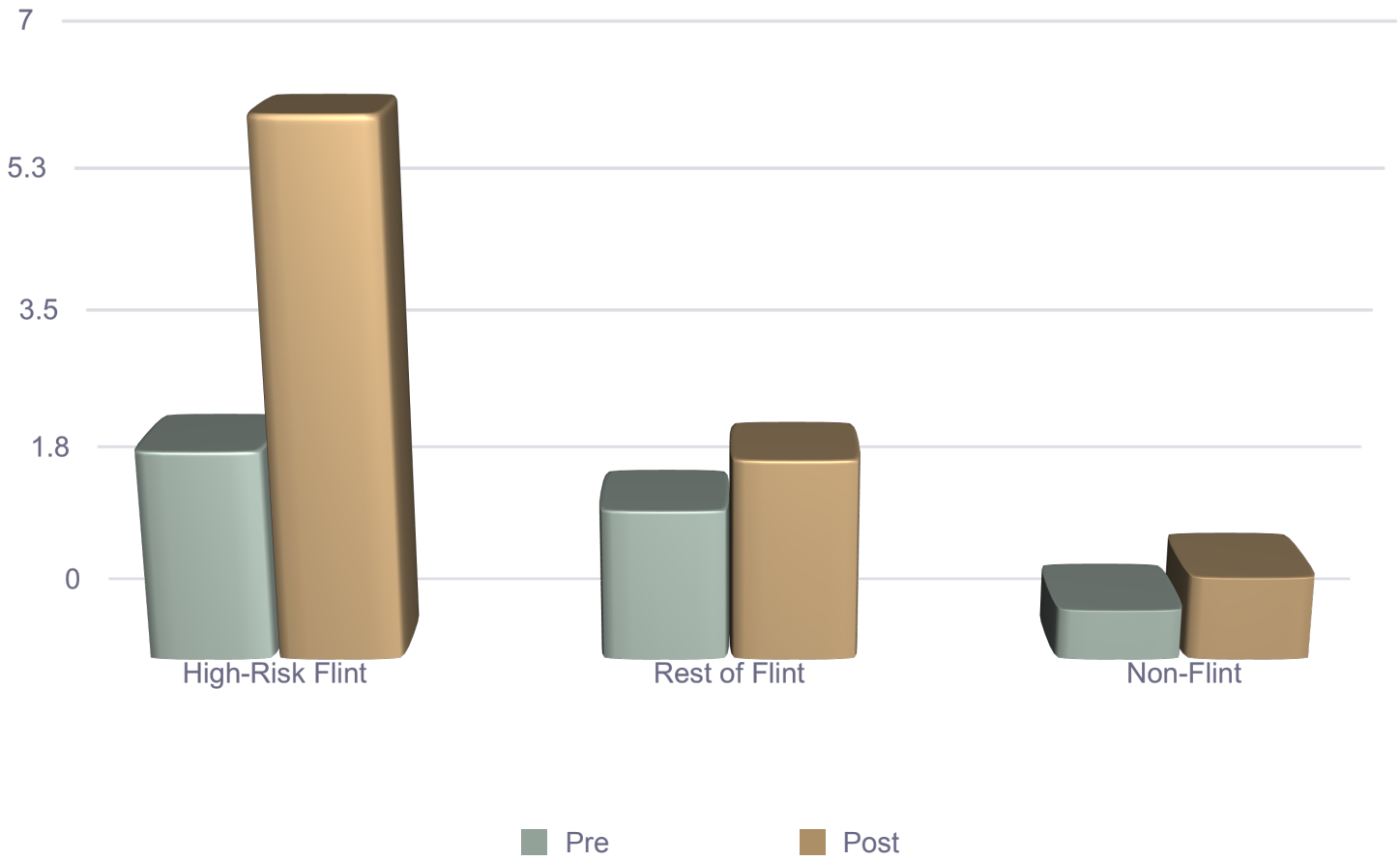

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From: Miller, Corinne (DCH)
To: LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH)
Subject: RE: Director"s Office Assignment -- Flint - need update asap
Date: Tuesday, July 28, 2015 12:23:13 PM

Thanks Sarah. Be sure to cc Brenda Fink too.

-----Original Message-----
From: LyonCallo, Sarah (DCH)
Sent: Tuesday, July 28, 2015 11:17 AM
To: Miller, Corinne (DCH); Dykema, Linda D. (DCH)
Subject: RE: Director's Office Assignment -- Flint - need update asap

Linda and I talked and I am going to cc you both when the request goes back to Nancy.
In the interim, Nancy wanted to add some more years of data to the comparison (so there are 4 total years of data). Cristin is adding these years to the control chart for the proportion of first time elevated BLL of those tested using method by Shewart for proportions. (Linda - the data are deduped to "kid".)

-----Original Message-----
From: Miller, Corinne (DCH)
Sent: Tuesday, July 28, 2015 11:11 AM
To: LyonCallo, Sarah (DCH)
Subject: FW: Director's Office Assignment -- Flint - need update asap

Below is the e-mail Linda sent to a group of individuals last week when the issue about lead in drinking water was raised. Linda reached out to the DEQ regional office that would work with Flint.

Both Brenda Fink and Nancy Peeler were included in Linda's response.

-----Original Message-----
From: Dykema, Linda D. (DCH)
Sent: Thursday, July 23, 2015 10:07 AM
To: Miller, Corinne (DCH); Peeler, Nancy (DCH); Anderson, Paula (DCH); Travis, Rashmi (DCH); Grijalva, Nancy (DCH); Moran, Susan (DCH)
Cc: Priem, Wesley F. (DCH); Bouters, Janese (DCH); Barr, Jacqui (DCH); Fink, Brenda (DCH); Groetsch, Kory J. (DCH)
Subject: RE: Director's Office Assignment -- Flint - need update asap

I spoke with Steve Busch, Lansing District Office manager, DEQ Office of Drinking Water & Municipal Assistance.

The city of Flint recently conducted drinking water testing throughout the city with special attention to those areas known to have old service lines. The city water supply is in compliance with the lead rule, which means that 90% of the water samples were less than the lead action level of 15 ppb. DEQ will, however, recommend that Flint further "optimize" their corrosion control methods. The DEQ has not seen a change in the city's compliance with the lead rule since switching to the Flint River source.

Some water samples had lead levels above 15 ppb. Homeowners receive their sampling results and those with elevated levels are provided with information regarding how to minimize their exposure, including replacement of water supply lines. The city pays for line replacement from the main to the property boundary. The property owner is responsible for some portion of the cost if the line replaced is on their property. To Steve's knowledge, there is no program in Flint to assist homeowners with limited financial means.

Regarding the home with high drinking water lead levels: some years ago the supply line that serves the neighborhood was replaced, but somehow this house was not connected to the new line, such that the family's

drinking water supply was coming from the old corroded lead pipe. None of the neighbors water had elevated lead levels, which was likely why she was temporarily connected by garden hose to a tap supplied by the new line. She has since been permanently connected to the new line.

Regarding the EPA drinking water official quoted in the press articles: the report that he issued was a result of his own research and was not reviewed or approved by EPA management. He has essentially acted outside his authority.

From:	Marc Edwards
To:	Dykema, Linda D. (DCH)
Subject:	RE: Flint Drinking Water Study
Date:	Monday, September 28, 2015 12:52:56 PM
Attachments:	image002.gif

Hi Linda, The sampling protocol is posted on the website. We also posted a video that instructs people on how to sample on the website.
Will send you some of the recent data ASAP…we have not posted it yet. Ask if you have any questions!
Best Regards,
Marc

From: Dykema, Linda D. (DCH) [mailto:DykemaL@michigan.gov]
Sent: Monday, September 28, 2015 12:45 PM
To: edwardsm@vt.edu
Subject: Flint Drinking Water Study
Importance: High

Dr. Edwards,

I am the Director of the Division of Environmental Health with the Michigan Department of Health & Human Services. I'm writing to request information regarding your study protocol and findings for testing for lead in drinking water in the city of Flint. I've been trying to obtain this information from the study web site, but unfortunately the it's not available, perhaps due to the high volume of traffic on the site.

If you can provide this information at your earliest convenience, I'd be very appreciative. As you can imagine, there is intense interest here in your study results. Thanks

Linda D. Dykema, Ph.D.
Environmental Public Health Director
Division of Environmental Health
Michigan Department of Health & Human Services
517.335.8566
dykemal@michigan.gov

From: LyonCallo, Sarah (DCH)
To: Minicuci, Angela (DCH)
Cc: Larder, Cristin (DCH); Eisner, Jennifer (DCH); McKane, Patricia (DCH); Dykema, Linda D. (DCH)
Subject: Re: Flint follow-up
Date: Monday, September 28, 2015 12:24:08 PM

Cristin got a raw data set from Bob Scott about an hour ago. She is deduplicating records and classifying the exposure. Cristin is working as quickly as possible and has been pulled off any other work. However, itis highly unlikely that we can have an answer today. There is a lot of data analysis that needs to be done.

Sent from my iPad

On Sep 28, 2015, at 12:03 PM, Minicuci, Angela (DCH) <MinicuciA@michigan.gov> wrote:

> Just circling back on this. Any updates?
> Angela
>
> **From:** LyonCallo, Sarah (DCH)
> **Sent:** Monday, September 28, 2015 10:06 AM
> **To:** Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
> **Cc:** Larder, Cristin (DCH) <LarderC@michigan.gov>; Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; McKane, Patricia (DCH) <McKaneP@michigan.gov>
> **Subject:** Re: Flint follow-up
> she is not in until 10 and then we need to get a data pull. i am in a meeting with sue, corinne and linda right now. i will be in touch asap
>
> Sent from my iPad
>
> On Sep 28, 2015, at 9:52 AM, Minicuci, Angela (DCH) <MinicuciA@michigan.gov> wrote:
>
>> Thanks Sarah. Do you know when Cristin will be in this morning?
>> Angela
>>
>> **From:** LyonCallo, Sarah (DCH)
>> **Sent:** Monday, September 28, 2015 9:21 AM
>> **To:** Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
>> **Cc:** Larder, Cristin (DCH) <LarderC@michigan.gov>; Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; McKane, Patricia (DCH) <McKaneP@michigan.gov>
>> **Subject:** Re: Flint follow-up
>> Hi Angela
>> Cristin had a medical appointment this morning. She and I are meeting this AM as soon as she gets in and are coordinating with Nancy Peeler who I understand ran the original counts.
>> Sarah
>>
>> Sent from my iPad
>>
>> On Sep 28, 2015, at 9:12 AM, Minicuci, Angela (DCH) <MinicuciA@michigan.gov> wrote:
>>
>>> Good morning Cristin,
>>> Have you had a chance to look over the lead data yet? The Free Press issued a story over the weekend that we need to discuss with them today:
>>> http://www.freep.com/story/opinion/columnists/nancy-kaffer/2015/09/26/state-data-flint-lead/72820798/.
>>> Can you call myself or Jen Eisner when you have a moment?
>>> Thanks!
>>> Angela
>>>
>>> **From:** Larder, Cristin (DCH)
>>> **Sent:** Friday, September 25, 2015 5:42 PM
>>> **To:** Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
>>> **Cc:** LyonCallo, Sarah (DCH) <lyoncallos@michigan.gov>; McKane, Patricia (DCH) <McKaneP@michigan.gov>
>>> **Subject:** RE: Flint follow-up
>>> Understood - Thanks, Angela.
>>>
>>>> **From:** Minicuci, Angela (DCH)
>>>> **Sent:** Friday, September 25, 2015 5:38 PM

To: Larder, Cristin (DCH)
Cc: LyonCallo, Sarah (DCH); McKane, Patricia (DCH)
Subject: RE: Flint follow-up

This as well, though this is not for public use.

Angela

From: Minicuci, Angela (DCH)
Sent: Friday, September 25, 2015 5:37 PM
To: Larder, Cristin (DCH) <LarderC@michigan.gov>
Cc: LyonCallo, Sarah (DCH) <lyoncallos@michigan.gov>; McKane, Patricia (DCH) <McKaneP@michigan.gov>
Subject: RE: Flint follow-up

Not a problem. Let's connect on Monday. Also, attached is the data I have. Thanks!

Angela

From: Larder, Cristin (DCH)
Sent: Friday, September 25, 2015 5:33 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Cc: LyonCallo, Sarah (DCH) <lyoncallos@michigan.gov>; McKane, Patricia (DCH) <McKaneP@michigan.gov>
Subject: RE: Flint follow-up

Hi Angela,

After looking at the data Kristi send you and talking with Sarah, I realize I do not have access to the data I need to answer her specific question about significance. I won't be able to get access before Monday.

Sorry I wasn't able to be helpful right now,

Cristin

From: Minicuci, Angela (DCH)
Sent: Friday, September 25, 2015 2:26 PM
To: Larder, Cristin (DCH)
Subject: FW: Flint follow-up

Hi Cristin,

Can you call me when you have a moment? 517-373-0860. Thanks!

Angela

From: Tanner, Kristi [mailto:ktanner@freepress.com]
Sent: Friday, September 25, 2015 2:19 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: RE: Flint follow-up

Angela,

Is it possible to speak to an epidemiologist before the end of day today?

Thanks!

Kristi

(313) 222-8877

From: Tanner, Kristi
Sent: Friday, September 25, 2015 12:16 PM
To: 'Minicuci, Angela (DCH)'
Subject: Flint follow-up

Hi Angela,

Thanks for the feedback yesterday. I took a look at the numbers last night that you sent over and the year over year increase between 13/14 and 14/15 is statistically significant p<.05

Can you ask you epidemiologist to confirm? Also, is this the first significant increase that Flint has seen for this cohort?

Thanks!

Kristi

(313) 222-8877 office

(586) 322-2094 cell

Children in Flint, less than 16 years of age, tested for lead

Children with Elevated BLL*			Children Tested**	
May 2010 - April 2011	168	0.043796	May 2010 - April 2011	3,836
2011-2012	153	0.036085	2011-2012	4,240
2012-2013	118	0.028379	2012-2013	4,158
2013-2014	95	0.023691	2013-2014	4,010

2014-2015	123	0.032106	2014-2015	3,831
May - August 2015	34	0.029746	May - August 2015	1,143

*Each child counted only once.

**Some children counted in more than one year.

September 24, 2015
Source: MDHHS Data Warehouse

From: Miller, Corinne (DCH)
To: LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx
Date: Wednesday, July 29, 2015 8:54:24 AM

Thanks Sarah.

From: LyonCallo, Sarah (DCH)
Sent: Tuesday, July 28, 2015 5:01 PM
To: Miller, Corinne (DCH); Dykema, Linda D. (DCH)
Subject: FW: Flint Testing and EBLLs.xlsx

Attached is Cristin's work with the monthly EBLL proportion data for Flint.

From: Larder, Cristin (DCH)
Sent: Tuesday, July 28, 2015 4:54 PM
To: Scott, Robert L. (DCH); Peeler, Nancy (DCH)
Cc: LyonCallo, Sarah (DCH); McKane, Patricia (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

Hello Nancy and Bob,

It turns out that adding in the additional two years of data did not change the results of the analysis: there does appear to be a higher proportion of EBLL last summer than usual. I wrote up my methods and results in the attached brief, just in case anyone asks for specifics.

Have a good night!

Cristin

From: Scott, Robert L. (DCH)
Sent: Tuesday, July 28, 2015 10:15 AM
To: Larder, Cristin (DCH); Peeler, Nancy (DCH); McKane, Patricia (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

Cristin,

I can safely say I don't understand it without some explanation.

However, late yesterday Nancy and I decided to take a look two years farther back to see how they fit with the recent years. Please see attached, which I just finished this morning. Sorry I didn't have this for you yesterday before you did the analysis. Would this new information change the analysis?

Thanks,

Bob

From: Larder, Cristin (DCH)
Sent: Tuesday, July 28, 2015 10:07 AM
To: Peeler, Nancy (DCH); McKane, Patricia (DCH)
Cc: Scott, Robert L. (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

Nancy and Bob,

Is the control chart clear enough, do you think? I could whip up a fact sheet with a description of what it shows, if you think it would help make it more digestible for our audience.

Cristin

From: Larder, Cristin (DCH)
Sent: Tuesday, July 28, 2015 9:25 AM
To: Peeler, Nancy (DCH); McKane, Patricia (DCH)
Cc: Scott, Robert L. (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

Hi Nancy,

I made a p-chart, which Shewhart's version of a control chart for proportions, for the data you sent. Basically, I used the monthly data from 2013-14 to create upper and lower control limits, then plotted the 2014-15 data in a run chart. It shows that the three months in question are the only ones that lie outside the control limit: in fact, they are the only points that lie well above the mean at all. This doesn't say anything about causality, but it does warrant further investigation.

There are several next steps we can employ if the folks upstairs ask us to look deeper into the data. Also, I'm not sure if you talked at all with the Environmental Health folks, but their toxicologists could probably help give us some context to the issue.

Cristin

From: Peeler, Nancy (DCH)
Sent: Monday, July 27, 2015 3:37 PM
To: McKane, Patricia (DCH)
Cc: Larder, Cristin (DCH); Scott, Robert L. (DCH)
Subject: Re: Flint Testing and EBLLs.xlsx

Thanks, Patti. I'm looking forward to hearing about your CoIIN meeting, I'm sure you will be bringing great information back.

Sent from my iPhone

On Jul 27, 2015, at 3:11 PM, "McKane, Patricia (DCH)" <McKaneP@michigan.gov> wrote:

> Thanks Nancy.
> I was in a session on Shewart charts for QI. I think this might be a good approach for the needs assessment We can talk more. Hopefully the slides will be available, because I can't type that much with my thumbs
>
> Sent from my iPhone
>
> On Jul 27, 2015, at 1:14 PM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:
>
>> Hi Cristin and Patti –
>> This is the CLPPP data for Flint that I had mentioned to you last week. Cristin, can you quickly run any tests to see if the difference in the first graph is statistically significant? Bob is at his desk today, best to connect with him if you have questions about the data. We are hoping to send this up today, so we appreciate anything you can do to get us a response this afternoon, if at all possible. Many thanks!
>>
>> Nancy

From: Miller, Corinne (DCH)
To: Robinson, Mikelle (DCH)
Cc: Dykema, Linda D. (DCH); Moran, Susan (DCH)
Subject: Re: Flint Water FAQ Document
Date: Wednesday, September 23, 2015 7:06:15 PM

Thanks for the update.

Sent from my iPhone

On Sep 23, 2015, at 5:04 PM, Robinson, Mikelle (DCH) <RobinsonM18@michigan.gov> wrote:

Hi Corinne and Linda,

Geralyn and Elizabeth requested a call with DEQ today in order to brief Nick and respond to some legislative inquiries. Below are my notes from the call that I sent to brief Sue and Mark as well as a Q & A document that DEQ developed and is currently being vetted by the Gov's office. Just wanted to be sure to keep you in the loop on this.

The DEQ PIO (Brad Wurfel) gave a long summary about the Flint water issue. He said bottom line is that the water itself is safe but they have an old water treatment plant and old cast iron pipes that haven't been upgraded in more than 40 years. 15,000 homes have old connections with varying levels of lead. Flint is not in violation of the lead standards however they could optimize the water supply by adding phosphate. Flint is also working on a meaningful optimization plan that will be completed sometime next year. He said that DEQ briefed the Mayor and some legislators on Monday on the situation**. He said Flint's water supply is not an imminent public health problem but a public confidence problem due to the many groups getting involved and controversial reports/media coverage on it.**

Some data from a local group of Peds is showing an uptick in blood lead levels which seems to contradict the data that CLPP collects. I've asked Rashmi to follow-up with Nancy P on a) the issue of the lead testing that a group of pediatricians did in Flint? b) messaging about lead, where it is found in the environment c) a brief explanation in writing that explains the results from the blood lead tests that Nancy's program has access to. I found the charts a bit hard to read/interpret. d) availability of any local programs that might be relevant, and e)anything else that might be useful for us to share with Genesee CHD. I'll also check with Linda D. on this. *(Linda, any thoughts on what might be useful?)*

DEQ developed a Q & A document that is being reviewed by the Gov's office and they will share with us. They will post this on their website after it is approved. DEQ would like the local health department to get involved in the messaging about what can be done such as running the water before using or get a filtration system. **Mark or I will need to follow-up with H.O. Valacak once we have some suggested talking points and information that can be provided to the public.**

The city owns only the first couple of feet of pipes in connections with homes, the rest is privately owned by the homeowner therefore it would be their expense to replace.

The longer water sits in lead pipes, the higher the lead readings. DEQ's testing protocol produces consistent results across the state and matches the EPA's protocol. There are other areas of the state with the same problem. He estimated it would take $60 M to replace the city's infrastructure. The city has request $30 M from the state to help with the situation. The state told them to check with Congress. But we are calling on EPA to assist along with our Congressional delegation.

Brad said they are hoping to have their director submit an op ed to the Flint paper (and perhaps have Nick co-sign) with a message such as lead is a serious issue and there are actions that can be taken to minimize exposure. He wants to coordinate our messaging to align. He will circle back with Geralyn on this. Also, they will be reviewing the various water test results and will look at Flint's water treatment protocols. He cautioned that they are receiving FOIA requests every day.

Let me know if you have questions.

Mikelle

From:	Scott, Robert L. (DHHS)
To:	Priem, Wesley F. (DHHS)
Subject:	RE: Flint water study
Date:	Friday, September 11, 2015 2:53:06 PM

Prof. Marc Edwards, Virginia Tech

From: Priem, Wesley F. (DCH)
Sent: Friday, September 11, 2015 2:34 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Flint water study

I know when I share this with my Division Director Linda Dykema she will also want to know who sent the request in to you. She has been involved in this issue.

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 2:08 PM
To: Priem, Wesley F. (DCH); Peeler, Nancy (DCH); Lishinski, Karen (DCH)
Subject: RE: Flint water study

Yes, it looks that way, but that's how I received it.

From: Priem, Wesley F. (DCH)
Sent: Friday, September 11, 2015 1:57 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>; Lishinski, Karen (DCH) <LishinskiK@michigan.gov>
Subject: RE: Flint water study

Bob:

Was this all that was sent to you, looks like the cover page is missing?

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:09 PM
To: Peeler, Nancy (DCH); Lishinski, Karen (DCH); Priem, Wesley F. (DCH)
Subject: Flint water study

Nancy, Karen and Wes,

I'm passing this along as follow-up to our previous attention to the Flint water changeover situation. The attached was submitted to me along with a request for de-identified data, which should be no problem.

When you have a few minutes you might want to take a look at it. Sounds like there might be more to this than what we learned previously. Yikes!

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Wells, Eden (DCH)
To: Peeler, Nancy (DHHS)
Cc: Miller, Corinne (DHHS); Miller, Mark (DHHS); LyonCallo, Sarah (DHHS); Dykema, Linda D. (DHHS); Priem, Wesley F. (DHHS); Travis, Rashmi (DHHS); Fink, Brenda (DHHS); Scott, Robert L. (DHHS)
Subject: Re: Hurley -- follow up about the question on Hurley lab results
Date: Wednesday, September 30, 2015 7:52:34 PM

Very cool-- what a way to learn about a program! Thx!

Sent from my iPhone

On Sep 30, 2015, at 6:50 PM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:

> I can partially answer your question now, will get additional info from Bob and send more later.
>
> The data flows in daily, year-round. We process several thousand test results every week. We monitor the results daily, and have an algorithm for our follow-up response, based on the blood lead level.
>
> Because we are processing results every day, we do see some patterns if they begin to emerge, especially with the higher lead levels. We normally track and report data at health department level, county level/Detroit. We are still building our capacity and putting new procedures in place via our CDC Surveillance grant to crank out more reports/report cards, and more frequent data reports, especially with the switch in focus to levels of 5 and above (which means we are focusing on a larger number of results than just 10 and above). We develop and share out many maps, charts, graphs, and yes, do publish an annual legislative report.
>
> We have .2 FTE Epi support (Cristin Larder), mostly for special projects and/or reports, for example, Cristin is working with us and Dr. Stan Kaplowitz from MSU to use his research to help pinpoint smaller geographic areas with higher risk, so we can better direct resources toward those areas.
>
> Bob, can you please add more information about frequency of your analysis, and how we detect issues?

From: Wells, Eden (DCH)
Sent: Wednesday, September 30, 2015 6:24 PM
To: Peeler, Nancy (DCH); Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH)
Subject: RE: Hurley -- follow up about the question on Hurley lab results

That sounds about right.

May I ask,, is it CLPP's usual process to collect the lead data on an ongoing basis…if so, at what level is the data usually analyzed (by Epi?) IS it daily,nmonthly? Quarterly? Annually? How would we normally detect/know if there is an issue in a particular locality---do you look at it at county level or smaller when you peruse your data? This question may arise…

E

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 30, 2015 5:22 PM
To: Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH); Wells, Eden (DCH)
Subject: FW: Hurley -- follow up about the question on Hurley lab results

Hi all – I talked to Bob to confirm the information I had shared about the Hurley lab results. It is a little more nuanced than I had explained, forwarding Bob's explanation, FYI.

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 5:05 PM
To: Peeler, Nancy (DCH)
Subject: Hurley

Hurley Medical Center is listed as the "Provider" on approximately half of the blood lead results we received for Flint children in 2014—I assume that pattern holds in 2015 and in recent years. Warde Medical Lab is listed as the "Laboratory" on those results. Warde reported the results to CLPPP in accordance with State law.

I can't say whether the blood specimens were a) drawn at Hurley's lab, or b) simply passed through Hurley's lab—from physician office to Hurley to Warde for analysis. As I understand it, both scenarios are common at various hospital labs.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Moran, Susan (DCH)
To: Lyon, Nick (DCH)
Cc: Robinson, Mikelle (DCH); Wells, Eden (ewells@umich.edu); Hertel, Elizabeth (DCH); Lasher, Geralyn (DCH); Grijalva, Nancy (DCH); Becker, Timothy (DCH); Dykema, Linda D. (DCH); Miller, Corinne (DCH); Anderson, Paula (DCH)
Subject: Re: Proposed Press Conference on Flint Drinking Water
Date: Monday, September 28, 2015 10:09:05 AM

Lynda Dykema is the contact for questions on Virginia Tech/Hurley data.

Sent from my iPhone

On Sep 28, 2015, at 7:52 AM, Lyon, Nick (DCH) <LyonN2@michigan.gov> wrote:

> Director Wyant and I agreed this morning to establish a team to look at the recommendations below in preparation for a joint press conference later this week. I did modify one and remove one from his original email. He was suggesting an outside public health advisor. I think it's appropriate that this be our CME so I changed that piece. I volunteered Geralyn, Elizabeth, and Dr. Wells to serve on the team.
>
> The areas where we need more attention are as follows:
>
> <!--[if !supportLists]-->1) <!--[endif]-->I need an analysis of the Virginia Tech/Hurley data and their conclusions. I would like to make a strong statement with a demonstration of proof that the lead blood levels seen are not out of the ordinary and are attributable to seasonal fluctuations. Geralyn is working on this for me but she needs someone in public health who can work directly with her on immediate concerns/questions. Sue – Please get her a name immediately.
> <!--[if !supportLists]-->2) <!--[endif]-->I need an understanding of what WIC will pay for and when. We are hearing that the USDA is indicating that premade formula can be provided. Internal WIC staff don't seem to be saying the same things. And there may also be a supply issue. Elizabeth is following up for me on this.
> <!--[if !supportLists]-->3) <!--[endif]-->Elizabeth will also follow up with Terry Beuer to see what FNS will pay for on the food assistance side, or if there are other programs that may cover water or premade formula.
> <!--[if !supportLists]-->4) <!--[endif]-->I think we did a good job getting the local public health department involved and I ask that we work in concert with him. The recommendation is that they be included in the press event this week.
>
> We need immediate action on these. I have a follow up phone call early this afternoon. I also ask that any requests coming from the team be treated with great urgency. The expectation is that we will get on top of this and provide leadership on the issue.
>
> Nick

From: Wyant, Dan (DEQ)
Sent: Monday, September 28, 2015 7:18 AM
To: Muchmore, Dennis (GOV); Lyon, Nick (DCH); Hollins, Harvey (GOV)
Cc: Wurfel, Sara (GOV); Wurfel, Sara (GOV); Lasher, Geralyn (DCH); Thelen, Mary Beth (DEQ)
Subject: Proposed Press Conference on Flint Drinking Water

Per the ongoing issues in Flint concerning their drinking water, I would offer the following recommendations. Let's discuss.

Recommendation

Press Conference in Flint – Wednesday, Thursday or Friday.

Participants

Mayor of Flint
Dan Wyant – Michigan Department of Environmental Quality
Nick Lyon – Department of Community Health
Susan Hedman – Region 5 Administrator or EPA
Harvey Hollins – Governor's office
Local Public Health Department

Announcement

Federal – State – Local action plan to address Flint Drinking Water

<!--[if !supportLists]-->1. <!--[endif]-->Governor Snyder names Dr. Eden Wells (DHHS Chief Medical Executive) as Flint drinking water Public Health Advisor.

<!--[if !supportLists]-->2. <!--[endif]-->All Flint schools water will immediately be tested to ensure that drinking water is safe.

<!--[if !supportLists]-->3. <!--[endif]-->Advisories will be disseminated recommending citizens flush your cold water pipes, use only water from the cold water tap for drinking, cooking and especially for making baby formula.

<!--[if !supportLists]-->4. <!--[endif]-->Implementation of fully optimized corrosion controls in the Flint drinking water system.

<!--[if !supportLists]-->5. <!--[endif]-->Expanded water testing of at risk

properties.

<!--[if !supportLists]-->6. <!--[endif]-->Offer water testing at no cost to Flint residents to assure water is safe.

<!--[if !supportLists]-->7. <!--[endif]-->Convene a safe drinking water " Technical Review Advisory" to ensure best technology, practices and science is being utilized, including EPA's expertise and assistance from their Office of Research and Development.

<!--[if !supportLists]-->8. <!--[endif]-->Offer bottled water and premixed formula if test results indicate high levels of lead.

Dan Wyant, Director
Department of Environmental Quality
517-284-6700 (New Number)

From:	Moran, Susan (DCH)
To:	Lasher, Geralyn (DCH)
Cc:	Peeler, Nancy (DCH); Robinson, Mikelle (DCH); Wells, Eden (DCH); Minicuci, Angela (DCH); Hertel, Elizabeth (DCH); Eisner, Jennifer (DCH); Dykema, Linda D. (DCH); Miller, Corinne (DCH)
Subject:	Re: State data confirms higher blood-lead levels in Flint kids
Date:	Sunday, September 27, 2015 5:04:24 PM

Copying Corrine and Lynda Dykema.

Sent from my iPhone

> On Sep 27, 2015, at 2:11 PM, Lasher, Geralyn (DCH) <lasherg@michigan.gov> wrote:
>
> We will need help responding to what the Free Press is claiming in this article.
>
> Sue--let us know who can get us this as early Monday as possible.
>
> State data confirms higher blood-lead levels in Flint kids
>
> http://www.freep.com/story/opinion/columnists/nancy-kaffer/2015/09/26/state-data-flint-lead/72820798/
>
>
> Sent from my iPad

From: Miller, Corinne (DHHS)
To: Dykema, Linda D. (DHHS); LyonCallo, Sarah (DHHS); Priem, Wesley F. (DHHS); Wells, Eden (DHHS)
Subject: RE: Talking Points
Date: Thursday, October 01, 2015 2:18:30 PM

Eden,

More analysis and review has been done by Sarah's staff. Here are the talking points:

The high risk Zip codes (48503 and 48504)

Blood lead level rates among children under six years of age in the high risk Zip codes (48503, 48504) were 2.7 times higher than the rest of Genesee County before the switch to Flint River Water ($p<0.0001$). After the switch to Flint River Water, rates in the high risk Zip codes were 3.2 times that of the rest of Genesee County ($p<0.0001$).

Thus, compared to rates during 2010-2013, the rates after the switch to Flint River water in the high risk Zip codes increased 18 percent, although this difference did not reach statistical significance.

Other Zip codes in Flint

Rates of elevated blood lead levels among children under six years of age in other parts of the city of Flint were 2 times that of the rest of Genesee County before the switch to Flint River Water ($p<0.0001$). The magnitude of the elevated rate remained roughly the same during the period after the water source switch.

From: Dykema, Linda D. (DHHS)
Sent: Thursday, October 01, 2015 1:06 PM
To: Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); Priem, Wesley F. (DHHS); Wells, Eden (DHHS)
Subject: RE: Talking Points
Importance: High

2 things:

- Leaded gasoline has been banned for use in road vehicles since 1996, so it's not likely that Flint kids would be exposed that way
- The sentence "Most of the lead in household water usually comes from the plumbing in your house, not from the local water supply" is not completely accurate and could be challenged. On the call with EPA today I heard that maybe 50% of the city's lead supply lines are lead…these are outside the house and would include the portion of the run owned by the resident and the portion owned by the city water supply.

From: Miller, Corinne (DHHS)
Sent: Thursday, October 01, 2015 12:38 PM
To: LyonCallo, Sarah (DHHS); Dykema, Linda D. (DHHS); Priem, Wesley F. (DHHS)
Subject: Fwd: Talking Points

Sent from my iPhone

Begin forwarded message:

> **From:** "Eisner, Jennifer (DHHS)" <EisnerJ@michigan.gov>
> **Date:** October 1, 2015 at 11:51:51 AM EDT
> **To:** "Miller, Corinne (DHHS)" <MillerC39@michigan.gov>, "Robinson, Mikelle (DHHS)" <RobinsonM18@michigan.gov>
> **Cc:** "Wells, Eden (DHHS)" <WellsE3@michigan.gov>

Subject: Talking Points

Corinne and Mikelle:
Attached please find the most recent Flint talking points which include edits from Dr. Wells. A 12:30 meeting with the gov's comms team was just called, so we need to have them finalized and ready to share asap.
Can you please send me the bullet points explaining the data – or what is ready of them – by noon?
Thank you,
Jennifer (Smith) Eisner
Public Information Officer
Michigan Department of Health and Human Services
517-241-2112

From:	Miller, Mark (DCH)
To:	Dykema, Linda D. (DCH); Priem, Wesley F. (DCH)
Subject:	FW: Childhood Lead Poisoning Prevention program documents
Date:	Friday, September 25, 2015 1:54:55 PM
Attachments:	Flint Testing and EBLLs_updated 092315_with notes.pdf Pediatric Lead Exposure Flint Water.from Hurley.pdf
Importance:	High

FYI. Don't distribute too broadly!

From: Travis, Rashmi (DCH)
Sent: Friday, September 25, 2015 11:15 AM
To: Miller, Mark (DCH) <millerm1@michigan.gov>
Subject: FW: Childhood Lead Poisoning Prevention program documents
Importance: High

FYI the PPT from Hurley.

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 23, 2015 5:33 PM
To: Travis, Rashmi (DCH); Robinson, Mikelle (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Cc: Fink, Brenda (DCH)
Subject: Childhood Lead Poisoning Prevention program documents
Importance: High

Hello – I'm going to send a series of emails with materials you have asked for, as a way to organize them.

The first document attached to this email is our CLPPP updated analysis of the blood lead testing data we have for children aged 0-16 in Flint. This is an update from what we sent to the Director's office earlier in the year, in that we added an additional year (2010-2011), and added data for May-August 2015 (per Geralyn's request in an email late last week).

Regarding this data:

- We are using the timeframe of May –April for this chart, because the water source change in Flint happened in April 2014. So, we started by looking at the 12 month time period from May 2014 – April 2015. Then we went back and compared that same time frame to the 4 previous years, to see if the pattern was similar, significantly different, etc.
- We included all children with a Flint address, which may not exactly conform to the city boundaries.
- We only included first time blood lead levels of $\geq$ 5 mcg/dL, not all subsequent tests a child may have received.
- We included all types of blood samples – venous blood draws, capillary samples, or unknown (e.g. not labeled as venous or capillary). Typically we would point to venous samples as the best, most reliable, but we had many non-venous samples, so to be inclusive added those in.

Looking at the charts, you can definitely see the seasonal impact associated with lead poisoning.

We do NOT see a different pattern of results for the 2014-2015 year, right after the change in water source. That year looks more like the data from 10-11, and 11-12.

For the full 5 years worth of data, testing rates were pretty consistent, so we don't think that is driving the data. However, note that testing levels for May-August 2015 appear to be lower than in the previous 5 years.

The second document I have attached is a presentation sent to us this morning by Dr. Mona Hanna-Attisha, from Hurley Medical Center. She shared this related to her data request that she sent to our program. In scanning it, we noted that she is using different data than we did (by age, by zip code, time frames, which years she included, etc.), so comparing our data chart to her results is like comparing apples and oranges. We have not run any analyses using her parameters. We did note some slides in her document that we might disagree with, for example her statement that water is the primary source of lead (in Michigan, it remains lead paint that is our primary source of lead exposure).

Please let us know if you have questions you have about the data charts we produced. Next email will be some of our program materials, that may be of use in the upcoming outreach effort. Also, Rashmi indicated who I should include on this email, and I trust you will share with others as appropriate.

Nancy

From: Miller, Corinne (DCH)
To: LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH)
Subject: FW: Flint lead powerpoint slides
Date: Tuesday, September 29, 2015 12:07:52 PM

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 11:56 AM
To: Lasher, Geralyn (DCH); Peeler, Nancy (DCH); Scott, Robert L. (DCH)
Cc: Hertel, Elizabeth (DCH); Minicuci, Angela (DCH); Ridley, Nancy (DCH); Eisner, Jennifer (DCH); Miller, Corinne (DCH)
Subject: Re: Flint lead powerpoint slides

Looping in Corinne now---

From: Lasher, Geralyn (DCH)
Sent: Tuesday, September 29, 2015 11:49 AM
To: Peeler, Nancy (DCH); Wells, Eden (DCH); Scott, Robert L. (DCH)
Cc: Hertel, Elizabeth (DCH); Minicuci, Angela (DCH); Ridley, Nancy (DCH); Eisner, Jennifer (DCH)
Subject: RE: Flint lead powerpoint slides

Is it possible to get the same type of data for just children under the age of six? So basically, the City of Flint kids ages six and under with the same type of approach as the attached chart you gave us last week?

From: Peeler, Nancy (DCH)
Sent: Thursday, September 24, 2015 3:40 PM
To: Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>
Cc: Lasher, Geralyn (DCH) <lasherg@michigan.gov>; Hertel, Elizabeth (DCH) <HertelE@michigan.gov>; Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Ridley, Nancy (DCH) <RidleyN@michigan.gov>
Subject: Re: Flint lead powerpoint slides

Yes, fine if you all are ok with it.
Nancy

Sent from my iPhone

On Sep 24, 2015, at 3:36 PM, Eisner, Jennifer (DCH) <EisnerJ@michigan.gov> wrote:

> Geralyn and Elizabeth – waiting on final OK from Nancy before sharing publicly..
>
> ---
>
> **From:** Scott, Robert L. (DCH)
> **Sent:** Thursday, September 24, 2015 3:31 PM
> **To:** Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>
> **Cc:** Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>
> **Subject:** RE: Flint lead powerpoint slides
>
> OK with me if it's OK with Nancy.
>
> ---
>
> **From:** Eisner, Jennifer (DCH)
> **Sent:** Thursday, September 24, 2015 3:29 PM
> **To:** Scott, Robert L. (DCH) <ScottR9@michigan.gov>
> **Cc:** Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Peeler, Nancy (DCH)

<PeelerN@michigan.gov>
Subject: RE: Flint lead powerpoint slides
Great, thanks Bob – can we make this available to the public?

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 3:27 PM
To: Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>
Cc: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>
Subject: Flint lead powerpoint slides
Jennifer,
Nancy asked me to put this together, in case it's helpful. Please see attached.
Bob
Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Peeler, Nancy (DHHS)
To: Miller, Corinne (DHHS); Miller, Mark (DHHS); LyonCallo, Sarah (DHHS); Dykema, Linda D. (DHHS); Priem, Wesley F. (DHHS); Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject: FW: Hurley -- follow up about the question on Hurley lab results
Date: Wednesday, September 30, 2015 5:22:20 PM

Hi all – I talked to Bob to confirm the information I had shared about the Hurley lab results. It is a little more nuanced than I had explained, forwarding Bob's explanation, FYI.

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 5:05 PM
To: Peeler, Nancy (DCH)
Subject: Hurley

Hurley Medical Center is listed as the "Provider" on approximately half of the blood lead results we received for Flint children in 2014—I assume that pattern holds in 2015 and in recent years. Warde Medical Lab is listed as the "Laboratory" on those results. Warde reported the results to CLPPP in accordance with State law.

I can't say whether the blood specimens were a) drawn at Hurley's lab, or b) simply passed through Hurley's lab—from physician office to Hurley to Warde for analysis. As I understand it, both scenarios are common at various hospital labs.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Miller, Corinne (DCH)
To: Dykema, Linda D. (DCH); LyonCallo, Sarah (DCH)
Subject: FW: Prelim GIS results
Date: Wednesday, September 30, 2015 8:45:36 AM

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 6:31 PM
To: Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH); Miller, Corinne (DCH); Moran, Susan (DCH)
Subject: Fw: Prelim GIS results

FYI only on latest exchange with Mona.

E

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 5:58 PM
To: Mona Hanna-Attisha
Subject: Re: Prelim GIS results

Good evening, Mona,

I am looking forward to our results as well.

I certainly understand your role and the need to address the problem you identified; as physicians, our ethical and professional vows to care for and prevent harm to our patients is paramount. No need for data wars- I think we are all just trying to be sure, as you and I said earlier, that we are are comparing the same data the same way- "apples to apples".

Your point about water versus household sources is important, because that is certainly one of the issues here--how to identify what potential sources of lead are responsible for EBLs in children, particularly in the CLPP database. Household (paint) is the most common culprit---(this one contributes most to the seasonality), and need to get the best analysis of the data that can look at the association to potential water sources. More to follow!

I will follow-up in AM with our IRB folks and be sure they know that we have a wish to expedite--not sure how long the process is but will get an estimate.

Eden

Eden V. Wells, MD, MPH, FACPM
Chief Medical Executive
Michigan Department of Health and Human Services
201 Townsend Street, 5th Floor CVB
Lansing, MI 48913
Phone: 517-335-8011
wellse3@michigan.gov

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 5:35 PM
To: Wells, Eden (DCH)
Subject: Re: Prelim GIS results

Thanks Eden.

Looking forward to seeing your analysis.

Our intent has never been to go public with anything. However, when we noticed our findings

and the glaring correlation to elevated water lead levels in the same locations and learned that corrosion control was never added to the water treatment, we ethically could not stay silent. In addition, your annual EBL% supports our findings - annual decrease (as seen nationally) and then an increase post-water switch. We also knew that releasing our data would only incite a data war; however, the more we dig, the more alarming the results. (Do you know GM stopped using flint river water because it was too corrosive on their parts??? That should have alerted us to its effect on lead pipes.)

So as of now, no plans to release anything to public, although we did share some of the high risk location info to identify priority response areas (bottled water, filters, etc).

Lastly, the state lead screening programs underestimate risk from lead in water. Infants on formula are most at risk yet we screen when they are developmentally likely to be exposed from lead from house hold sources (paint, dust, soil, etc). Lead levels could have peaked at 4 months and dropped by 12 months.

Finally, we do hope we can receive our data request soon so we can do the exact same analysis.

Thanks and sorry for the long email. Mona

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Sep 29, 2015, at 2:59 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

> Hi Mona,
> Quick question--
> We hope to get prelim data analysis results starting this afternoon-confirmed likely in next day or so----not sure when you may be going public with the GIS but do you think will be before then? Or are you doing the overlay now? Hoping for coordination of "apples"--I have followed-up on your data request.
> Eden
>
> ---
>
> **From:** Mona Hanna-Attisha <MHanna1@hurleymc.com>
> **Sent:** Tuesday, September 29, 2015 12:25 PM
> **To:** Wells, Eden (DCH)
> **Subject:** Prelim GIS results
>
> Dr Wells, thanks for the phone call. I appreciate your reaching out. Below is our most recent analysis looking more specifically at the City of Flint and focusing on wards/neighborhoods via GIS analysis. This is very preliminary, but even more frightening. Our next steps include overlaying this with the locations of lead service lines.
>
> I would appreciate your efforts to expedite our data request for the raw data so that we can run similar analysis with your larger sample size. Thanks again, and let me know if I can be of any assistance. Mona

Updated Findings:

Using GIS (Geographic Information System) map technology, we have further analyzed our blood lead level data. Our initial analysis examined children living in Flint zip codes, 48501-48507; however, this included households receiving non-Flint water. Our refined GIS-based analysis now includes only those households who receive water from the City of Flint.

The results reveal an even greater increase in the percentage of children with elevated blood lead levels (EBL). Pre-switch, the proportion of children with EBL was 2.4%, and post-switch the proportion was 4.9% (p=0.019). This is compared with our initial zip code-based analysis that showed pre-switch 2.1% and post-switch 4.0% (p=0.025). Once again, the change in non-Flint EBL% was not statistically significant.

Preliminary GIS analysis has identified certain areas within the city limits that experienced the greatest rate of EBL% increase. Specifically, we found the greatest increases in wards 5 and 6 (particularly in neighborhoods near Dupont St between University Ave and Pasadena Ave); the EBL% more than **tripled** in these wards. In ward 5, the EBL % increased from 4.9% to 15.7% (p=0.038). The area of intersection between wards 3, 4, and 5 (in the east side of the city) also appeared high. Lastly, ward 7 had high pre and post-levels EBL% above 5% (specifically in the western portion of the ward).

Of note, our results continue to correlate with the high water lead levels from the Virginia Tech samples. Most notably, the high percentage of EBL% in wards 5, 6, and 7 also correspond with the high water lead levels in wards 5, 6, and 7.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From:	Miller, Corinne (DHHS)
To:	LyonCallo, Sarah (DHHS); Dykema, Linda D. (DHHS)
Subject:	FW: Updated Talking points
Date:	Tuesday, October 06, 2015 8:47:41 AM
Attachments:	Flint Water Talking Points 100515.docx ATT00001.htm

---

They didn't take the gasoline out per your suggestion Linda but altered the sentence on lead paint exposure from earlier versions at least.

From: Wells, Eden (DHHS)
Sent: Monday, October 05, 2015 5:49 PM
To: Travis, Rashmi (DHHS); Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Moran, Susan (DHHS); Bien, Stan (DHHS)
Subject: Fwd: Updated Talking points

Forwarding-

Sent from my iPhone

Begin forwarded message:

> **From:** "Lasher, Geralyn (DHHS)" <lasherg@michigan.gov>
> **Date:** October 5, 2015 at 5:44:03 PM EDT
> **To:** "Beurer, Terrence (DHHS)" <BeurerT@michigan.gov>, "Lyon, Nick (DHHS)" <LyonN2@michigan.gov>, "Grijalva, Nancy (DHHS)" <GrijalvaN@michigan.gov>, "Becker, Timothy (DHHS)" <beckert1@michigan.gov>, "Hertel, Elizabeth (DHHS)" <HertelE@michigan.gov>, "Thompson, Sheryl D. (DHHS)" <ThompsonS2@michigan.gov>, "Wells, Eden (DHHS)" <WellsE3@michigan.gov>, "Moran, Susan (DHHS)" <MoranS@michigan.gov>, "Ray, Patricia (DHHS)" <RayP2@michigan.gov>, "Ruest, Karla (DHHS)" <RuestK@michigan.gov>
> **Cc:** "Eisner, Jennifer (DHHS)" <EisnerJ@michigan.gov>, "Minicuci, Angela (DHHS)" <MinicuciA@michigan.gov>, "Ridley, Nancy (DHHS)" <RidleyN@michigan.gov>, "Wheaton, Bob (DHHS)" <WheatonB@michigan.gov>
> **Subject: Updated Talking points**
>
> All—attached please find the updated talking points reflecting the new information today on water filter distribution.
>
> Just wanted to make sure everyone had the most recent version.
>
> Thanks--g

Lishinski, Karen (DHHS)

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 16, 2015 10:35 PM
To: Smith, Jennifer (DCH)
Cc: Emily Houk R2P (emily@r2pconsultants.com); Lishinski, Karen (DCH)
Subject: Re: childhood lead, question

Yes, I think we can create and share a first draft, and try to connect with you early next week to review it.

Sent from my iPad

On Sep 16, 2015, at 4:21 PM, Smith, Jennifer (DCH) <smithj32@michigan.gov> wrote:

> Thanks Nancy. To confirm, will your team be doing a first draft? Or providing some language?
>
> **From:** Peeler, Nancy (DCH)
> **Sent:** Wednesday, September 16, 2015 11:57 AM
> **To:** Smith, Jennifer (DCH) <smithj32@michigan.gov>
> **Cc:** Emily Houk R2P (emily@r2pconsultants.com) <emily@r2pconsultants.com>; Lishinski, Karen (DCH) <LishinskiK@michigan.gov>
> **Subject:** RE: childhood lead, question
>
> Our staff will use the talking points, and we can also share them with the Healthy Homes Section.
>
> Attached is the data that we had forwarded in response to the request from the Director's office, which was passed on to the Governor's office.
>
> ---
>
> **From:** Smith, Jennifer (DCH)
> **Sent:** Wednesday, September 16, 2015 11:22 AM
> **To:** Peeler, Nancy (DCH)
> **Cc:** Emily Houk R2P (emily@r2pconsultants.com); Lishinski, Karen (DCH)
> **Subject:** RE: childhood lead, question
>
> Sounds good – I haven't seen any of the info that was sent to the gov's office. Can you send that my way?
>
> Also, who do you foresee using the talking points?
>
> I'll be out of the office for the next couple of days, so if your team could send a first draft my way that would help get the ball rolling.
>
> Thank you!
> Jennifer
>
> **From:** Peeler, Nancy (DCH)
> **Sent:** Wednesday, September 16, 2015 11:15 AM
> **To:** Smith, Jennifer (DCH) <smithj32@michigan.gov>
> **Cc:** Emily Houk R2P (emily@r2pconsultants.com) <emily@r2pconsultants.com>; Lishinski, Karen (DCH)

<LishinskiK@michigan.gov>
Subject: RE: childhood lead, question

We are starting to get questions, so relatively soon, say within a week or so?

From: Smith, Jennifer (DCH)
Sent: Wednesday, September 16, 2015 11:13 AM
To: Peeler, Nancy (DCH)
Cc: Emily Houk R2P (emily@r2pconsultants.com); Lishinski, Karen (DCH)
Subject: RE: childhood lead, question

Thanks Nancy – sounds good! When are you looking to have these finalized?

Jennifer

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 16, 2015 11:03 AM
To: Smith, Jennifer (DCH) <smithj32@michigan.gov>
Cc: Emily Houk R2P (emily@r2pconsultants.com) <emily@r2pconsultants.com>; Lishinski, Karen (DCH) <LishinskiK@michigan.gov>
Subject: FW: childhood lead, question

Hi Jen – based on email with Angela, we'd like to set up a time to work with you to develop some talking points about our state childhood lead program, especially related to the water situation in Flint.

I am in and out of the office quite a bit the next week or so, so I wanted to ask if our communications consultant Emily Houk, and our program nurse, Karen Lishinski, can work with you to get started on this? We appreciate the help! I have copied Emily and Karen on this email so you can reach out to them, or vice versa.

Nancy

From: Minicuci, Angela (DCH)
Sent: Friday, September 11, 2015 4:16 PM
To: Peeler, Nancy (DCH)
Subject: RE: childhood lead, question

I'd recommend touching base with Jen Smith. She can help draft talking points!

Angela

From: Peeler, Nancy (DCH)
Sent: Friday, September 11, 2015 4:11 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: RE: childhood lead, question

Thanks, Angela – I will reach out to him on Monday.

After I contacted you, had a call from CDC. They are hearing about the issues/questions regarding Flint, and were suggesting that we take time to develop a response to any questions we are getting, that is carefully considered. I think that means we need your assistance! What's the best way to connect with you or your staff for this purpose?

From: Minicuci, Angela (DCH)
Sent: Friday, September 11, 2015 4:05 PM
To: Peeler, Nancy (DCH)
Subject: RE: childhood lead, question

Hi Nancy,

I don't see an issue with this. Seems pretty straightforward to me.

Angela

From: Peeler, Nancy (DCH)
Sent: Friday, September 11, 2015 2:43 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: childhood lead, question
Importance: High

Hi Angela – we had a call from a pediatrician in Flint, who we know because he sits on our Provider Work Group. He asked for some childhood lead data, of the type that we had sent over to the Director, that was forwarded to the Governor's office. Erring on the side of caution, I wanted to check whether you are good with us sharing that same information with him. See attached. I realize that the Gov's office shared it with the group of Pastors they were meeting with, so it may be out in the public already. Anyway – if you see this and can give an opinion, I appreciate it.

Nancy

Lishinski, Karen (DHHS)

From: Baker, Mary A. (DCH)
Sent: Thursday, September 17, 2015 11:05 AM
To: Bien, Stan (DCH); Hanulcik, Kristen (DCH)
Subject: Flint water supply

In Nancy Peeler's absence, I was able to reach a nurse consultant in the Lead program by the name of Karen Lishinski. The Lead program is working with Jennifer Smith of the Communications division to craft a department response to the issue. She had no timeline for when the response is expected. I explained our stake in this and asked her to keep us in the loop, which she agreed to do. Here are a few of the points I picked up from her during our conversation.

- This issue has been ongoing for a while now, but picked up steam in July when the Virginia Tech folks got involved
- The Lead program's division epidemiologist has analyzed results and finds that there is a seasonal uptick in elevated blood lead levels, but it is not unusual compared to previous years. They frequently see elevated levels in the summer, presumably because children are outside more and exposed to dirt which may have elevated levels of lead, windows are opened and closed so the paint is disturbed, etc.
- The EPA conducted tests in Genesee Co. and found that 70 out of 995 samples showed lead levels of 25 parts per billion (the recommended allowable level is no more than 15 parts per billion)
- There's no way to identify exactly what kind of exposure to lead caused those 70 samples to be elevated. In other words, they don't know with certainty that it was due to the water supply situation.
- The Lead program has also been in touch with a CDC public health advisor about the issue

Nancy Peeler, who I gathered is the division director, will be back in the office on Monday. In the meantime, if you have questions, Karen is very helpful.

Mary Ann Baker
WIC Policy Specialist
MDHHS/WIC Program
Consultation and Nutrition Services Unit
Phone: 517-335-0031
Fax: 517-335-8835

MICHIGAN WIC
Women Infants & Children

Lishinski, Karen (DHHS)

From: Baker, Mary A. (DCH)
Sent: Thursday, September 17, 2015 11:54 AM
To: Lishinski, Karen (DCH)
Subject: FW: Reply - Information requested about Flint, MI and lead in water issue
Attachments: Flint water supply

Importance: High

Wow, Karen – things are really moving fast now, the issue has gone up to the Secretary of the USDA! Here's an FYI for you (see below). BTW, I should've copied you on my message to Stan and Kristen after our conversation --sorry for the oversight but the message is attached.

Mary Ann Baker
WIC Policy Specialist
MDHHS/WIC Program
Consultation and Nutrition Services Unit
Phone: 517-335-0031
Fax: 517-335-8835

MICHIGAN WIC
Women Infants & Children

From: Bien, Stan (DCH)
Sent: Thursday, September 17, 2015 11:47 AM
To: Bartholomew, Anne - FNS
Cc: Hillman, Bruce - FNS; Travis, Rashmi (DCH); Hanulcik, Kristen (DCH); Baker, Mary A. (DCH)
Subject: Reply - Information requested about Flint, MI and lead in water issue
Importance: High

Hi Anne – In follow up to our phone discussion, attached is info our staff obtained this morning on the water issue.

As discussed, this is a Public Health issue, not just WIC. As of now, there has been no 'official advisory' to not use the water and our SNAP clients can purchase water with their benefits if so needed.
Per the WIC Regs, we must have special justification to issue RTF of 'If the water is unsanitary or restricted'.

We will continue to work with our Lead Program and monitor the situation. Thank you.

Stan Bien, Director
Michigan WIC Program - BFMCH
Michigan Department of Health & Human Services
320 South Walnut Street - 6th Floor
Lansing, MI 48913
517.335.8448

From: Bartholomew, Anne - FNS [mailto:Anne.Bartholomew@fns.usda.gov]
Sent: Thursday, September 17, 2015 11:22 AM
To: Bien, Stan (DCH)
Cc: Hillman, Bruce - FNS
Subject: Information requested about Flint, MI and lead in water issue

Hi Stan,
Bruce suggested that I contact you directly. I did leave a voice mail. We have an urgent request from the USDA Secretary on behalf of a Congressperson about a problem with high lead levels in water supply in Flint, MI We are wondering what steps, if any, that Michigan WIC has taken with respect to this issue. Has Michigan WIC determined a need to issue ready-to-feed for affected participants? If yes, is this being done on an individual basis or universally to those living in the affected area. The Secretary has requested a quick response so your attention to this request is greatly appreciated.

Many thanks,
Anne
Anne Bartholomew M.S., R.D.
Supplemental Food Programs Division
Branch Chief, Nutrition Services

Lishinski, Karen (DHHS)

From: Baker, Mary A. (DCH)
Sent: Thursday, September 17, 2015 10:34 AM
To: Lishinski, Karen (DCH)
Subject: FW: Water with WIC

Hi Karen. Thank you so much for your time and the information you provided today. Here is the e-mail to which I referred. Again, please don't share this with anyone else. I will be out on Friday, but back in the office on Monday. However, if something urgent arises on Friday, please contact my supervisor, Kristen Hanulcik at hanulcikk@michigan.gov or our division director, Stan Bien at biens@michigan.gov.

Thanks,

Mary Ann Baker
WIC Policy Specialist
MDHHS/WIC Program
Consultation and Nutrition Services Unit
Phone: 517-335-0031
Fax: 517-335-8835

From: Hanulcik, Kristen (DCH)
Sent: Wednesday, September 16, 2015 8:07 PM
To: Bien, Stan (DCH)
Cc: Baker, Mary A. (DCH)
Subject: Re: Water with WIC

I would agree with that from an access perspective, for instances when an alternative to tapwater is desirable.

I would like to talk with you and Mary Ann about this more in the morning if we can make that happen.

Meanwhile, I have Mary Ann copied as a think we should be in touch with our state lead contact regarding this.

If area hospitals are going to be providing discharge instructions to mix formula with bottled water, this will have big implications for the WIC agency.

Sent from my iPhone

On Sep 16, 2015, at 4:24 PM, Bien, Stan (DCH) <biens@michigan.gov> wrote:

Kristen – Please review and my suggestion is to obtain water via SNAP benefits, as WIC can not provide the bottled water. Comments? Thanks

Stan Bien, Director
Michigan WIC Program - BFMCH
Michigan Department of Health & Human Services
320 South Walnut Street - 6th Floor
Lansing, MI 48913
517.335.8448

From: Valacak, Mark [mailto:MVALACAK@gchd.us]
Sent: Wednesday, September 16, 2015 4:19 PM
To: Bien, Stan (DCH)
Cc: Brickey, Tamara; Scharer, Dawn; LaRocco, Toni
Subject: FW: Water with WIC

Stan,

This is the request we received from Dr. Hanna- Attisha at Hurley regarding infant formula that I left you a message about on your voicemail.

I am also including a link to the M-live article about the controversy.
http://www.mlive.com/news/flint/index.ssf/2015/09/virginia_tech_researcher_says.html

Mark Valacak, MPH, Health Officer
Genesee County Health Department,

630 S. Saginaw St. Suite 4 Flint, MI 48502-1540

Phone 810-257-3588 Fax 810 257-3147
E-mail mvalacak@gchd.us

<image002.jpg>

Please consider the environment before printing this e-mail.

"There are two lasting bequests we can hope to give our children: one is roots; the other is wings." Hodding Carter

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From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Wednesday, September 16, 2015 1:40 PM
To: Valacak, Mark; Johnson, M.D., Gary; LaRocco, Toni; Brickey, Tamara
Cc: Lawrence Reynolds; 'Dean Sienko'
Subject: Water with WIC

All,

I briefly spoke with Toni yesterday about this, but would it be possible to give bottled water or nursery water (vouchers or actual bottles) to our families with formula fed babies through WIC. The babies who

are drinking formula mixed with tap water (especially warm tap water) are at greatest risk for lead exposure. Water is such a huge proportion of their diet and their brains are still developing.

Until we have definitive information about lead exposure, we should err on additional prevention, especially for our most vulnerable kids.

Let me know what you think or if there is someone else I should contact about this. Thanks! Mona

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

<image001.jpg>

Lishinski, Karen (DHHS)

From: Peeler, Nancy (DCH)
Sent: Monday, September 21, 2015 2:19 PM
To: Lishinski, Karen (DCH)
Cc: Fink, Brenda (DCH)
Subject: Re: Angela

Were you able to encourage her to speak directly with Healthy Homes to get an answer about what their program does? I understand her frustration, just want to support her as much as possible.

Sent from my iPad

On Sep 21, 2015, at 2:02 PM, Lishinski, Karen (DCH) <LishinskiK@michigan.gov> wrote:

> Hi Nancy and Brenda,
> Just to let you know that Angela Minicucci called and wanted to know if our program did any water testing. Of course I told her "no" and explained that all of the blood lead levels of anyone tested in Michigan come to our office.
> She was told by DEQ that we did water testing. I said that HHS may do some on occasion but I do not believe it is part of a standard Lead Investigation/Risk assessment or EBL investigation. She seemed a little frustrated, getting conflicting information.
> Karen

Lishinski, Karen (DHHS)

From:	Groetsch, Kory J. (DCH)
Sent:	Thursday, September 24, 2015 1:19 PM
To:	Benzie, Richard (DEQ); Bruneau, Michelle (DCH); Busch, Stephen (DEQ); Dawn Hallwood (dhallwood@gchd.us); Dykema, Linda D. (DCH); Henry, James; Houk, Emily (DCH); Lishinski, Karen (DCH); Peeler, Nancy (DCH); Shekter Smith, Liane (DEQ); Valacak, Mark; Wurfel, Brad (DEQ)
Cc:	Groetsch, Kory J. (DCH)
Subject:	Flint Pb Health Education Conference Call Summary

Hello All,

Below is a summary from our call. Please note the action items. In addition, Karen Lishinski pointed out this EPA website as a good resource: http://water.epa.gov/drink/contaminants/basicinformation/lead.cfm

SUMMARY:
A conference call with the attendees listed below occurred on 9/22/2015 discussing lead (Pb) outreach in the city of Flint. The purpose of the call was to facilitate introductions, and identify Pb health education materials, current Pb outreach efforts in Flint and existing resources. DEQ provided a brief background of the drinking water compliance process in relation to efforts being conducted in Flint. Information sharing occurred between attendees about the Pb in drinking water sampling efforts in Flint.

Each agency/department listed their current health education efforts and available resources that could be made available relative to Pb outreach in Flint. The CLPPP provides some limited funding to prosperity region 6 to conduct Pb outreach. CLPPP is building a Pb Tool Kit for providers. Information about Pb in drinking water does not currently exist in these materials, but they are interested to build that information into the tool kit. DEQ has contacts with the Flint's drinking water program. GCHD has been getting many phone calls and they have had to create factsheets about water hardness and trihalomethanes.

Action Items from the Call:

1. Participants will e-mail their Pb outreach materials and presentations that are in current use to Michelle Bruneau (BruneauM@michigan.gov).
2. GCHD will send Michelle a list of concerns they have been getting from the Flint community.
3. Michelle will to look over the materials to assess what messages are covered, what messages are not covered, and provide suggestions on what work may need to be done to address gaps.
4. Follow-up is needed on the water sampling directions being provided by the city to homeowners that request a Pb in tap water analysis. (There are two sampling procedures depending on the purpose of the water sample.)
5. Karen Lishinski will provide a contact at WIC, so they can be invited to our follow-up conference call.
6. MDHHS-DEH will arrange a follow-up conference call in approximately two weeks.

Attendees:
Dawn Hallwood (Genesse Co HD)
James Henry (GCHD)
Mark Valacak (GCHD)
Brad Wurfel (DEQ)
Liane Shekter-Smith (DEQ)
Richard Benzie (DEQ)
Stephen Busch (DEQ)

Nancy Peeler (DHHS)
Karen Lishinski (DHHS)
Linda Dykema (DHHS)
Kory Groetsch (DHHS)
Michelle Bruneau (DHHS)

Current plan is to schedule another conference call in two weeks. Clearly, this is a dynamic and evolving situation.

FYI- I am currently in St. Ignace participating in an emergency response exercise.

Best Regards,

Kory Groetsch, MS , Manager
Toxicology and Response Section
Michigan Dept of Health and Human Services (MDHHS)
201 Townsend St.
Lansing, MI 48913
517-335-9935
groetschk@michigan.gov

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Lishinski, Karen (DHHS)

From: Lishinski, Karen (DHHS)
Sent: Thursday, October 01, 2015 8:12 AM
To: Peeler, Nancy (DCH)
Subject: FW: Hurley -- follow up about the question on Hurley lab results

Nancy,
I just wanted to add that the Spice Collaborative was founded when I noticed a trend of groups of siblings with high lead levels in areas that normally have fewer EBLs. At this time I was only seeing the 20+. Now I see all children with ebls.

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 8:06 AM
To: Peeler, Nancy (DHHS)
Cc: Lishinski, Karen (DHHS)
Subject: RE: Hurley -- follow up about the question on Hurley lab results

We report on testing and elevated levels annually by fiscal year for the legislature--by county/Detroit and the state. We report annually by calendar year for stakeholders and the public--by county, by several funded communities, and by ZIP code; also the Medicaid population by county. These annual reports include tables, graphs and maps to provide detailed information about the past year, as well as trends over several years. We produce other reports by request.

We used to produce similar reports by quarter, and even a special monthly report for funded health departments. But as we have lost funding and staff, and as my own time has been pulled in other directions, these other more-frequent reports have fallen away.

Child- and address-specific data continues to be provided to every local health department every week—via HHLPSS on-line system, and via securely-transmitted Excel files--so that they have information on lead levels for children in their jurisdictions.

BLLs >= 20 are faxed to local health departments the same day we receive them. Starting a few months ago, copies of all BLLs >= 5 are provided to our Nurse Consultant weely, to help her monitor elevated levels in each local jurisdiction.

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 30, 2015 6:50 PM
To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; Miller, Corinne (DHHS) <MillerC39@michigan.gov>; Miller, Mark (DHHS) <millerm1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>; Dykema, Linda D. (DHHS) <DykemaL@michigan.gov>; Priem, Wesley F. (DHHS) <priemw@michigan.gov>; Travis, Rashmi (DHHS) <TravisR@michigan.gov>
Cc: Fink, Brenda (DHHS) <FinkB@michigan.gov>; Scott, Robert L. (DHHS) <ScottR9@michigan.gov>
Subject: RE: Hurley -- follow up about the question on Hurley lab results

I can partially answer your question now, will get additional info from Bob and send more later.

The data flows in daily, year-round. We process several thousand test results every week. We monitor the results daily, and have an algorithm for our follow-up response, based on the blood lead level.

Because we are processing results every day, we do see some patterns if they begin to emerge, especially with the higher lead levels. We normally track and report data at health department level, county level/Detroit. We are still building our capacity and putting new procedures in place via our CDC Surveillance grant to crank out more

reports/report cards, and more frequent data reports, especially with the switch in focus to levels of 5 and above (which means we are focusing on a larger number of results than just 10 and above). We develop and share out many maps, charts, graphs, and yes, do publish an annual legislative report.

We have .2 FTE Epi support (Cristin Larder), mostly for special projects and/or reports, for example, Cristin is working with us and Dr. Stan Kaplowitz from MSU to use his research to help pinpoint smaller geographic areas with higher risk, so we can better direct resources toward those areas.

Bob, can you please add more information about frequency of your analysis, and how we detect issues?

From: Wells, Eden (DCH)
Sent: Wednesday, September 30, 2015 6:24 PM
To: Peeler, Nancy (DCH); Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH)
Subject: RE: Hurley -- follow up about the question on Hurley lab results

That sounds about right.

May I ask,, is it CLPP's usual process to collect the lead data on an ongoing basis...if so, at what level is the data usually analyzed (by Epi?) IS it daily,nmonthly? Quarterly? Annually? How would we normally detect/know if there is an issue in a particular locality---do you look at it at county level or smaller when you peruse your data? This question may arise...

E

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 30, 2015 5:22 PM
To: Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH); Wells, Eden (DCH)
Subject: FW: Hurley -- follow up about the question on Hurley lab results

Hi all – I talked to Bob to confirm the information I had shared about the Hurley lab results. It is a little more nuanced than I had explained, forwarding Bob's explanation, FYI.

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 5:05 PM
To: Peeler, Nancy (DCH)
Subject: Hurley

Hurley Medical Center is listed as the "Provider" on approximately half of the blood lead results we received for Flint children in 2014—I assume that pattern holds in 2015 and in recent years. Warde Medical Lab is listed as the "Laboratory" on those results. Warde reported the results to CLPPP in accordance with State law.

I can't say whether the blood specimens were a) drawn at Hurley's lab, or b) simply passed through Hurley's lab—from physician office to Hurley to Warde for analysis. As I understand it, both scenarios are common at various hospital labs.

Robert L. Scott
Childhood Lead Poisoning Prevention Program

Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Lishinski, Karen (DHHS)

From: Lishinski, Karen (DHHS)
Sent: Thursday, October 01, 2015 11:19 AM
To: Peeler, Nancy (DCH)
Subject: V45 in Flint

The only child in Flint with a V45 since 2010- was a gunshot victim in 2009.

Lishinski, Karen (DHHS)

From: Lishinski, Karen (DHHS)
Sent: Thursday, October 01, 2015 11:41 AM
To: Peeler, Nancy (DHHS)
Subject: RE: more follow up from morning meeting

Yes- to some extent I log most of my calls.
From Flint since the beginning of the year-
Feb- 2 calls from [redacted]-about her son's lead level ([redacted]!)
March- 1 call from [redacted]
May-1 call from [redacted]
August- dad from Flint re: his 16 year old son who was lead poisoned as a toddler in Detroit
September- Dr. Mona Attisha & Dr Reynolds requesting data- And then an occasional call from [redacted]- I have had virtually no calls from the public about the water situation!

-----Original Message-----
From: Peeler, Nancy (DHHS)
Sent: Thursday, October 01, 2015 11:26 AM
To: Lishinski, Karen (DHHS); Scott, Robert L. (DHHS)
Subject: more follow up from morning meeting

For Karen - Are you still logging the lead calls you receive? It was requested this morning that we log the calls from Flint (to understand how many we are getting), and what the questions are. And, can you give me a summary, best you can remember, about calls you've had so far? So:
--number of calls
--topics of the calls/questions received

For both, the timeline on the press release is shifting as additional analyses are conducted. All information is embargoed at this point.

Bob, just saw the email about the IRB, thanks for the update!

Sent from my iPad

Scott, Robert L. (DHHS)

From: Larder, Cristin (DCH)
Sent: Tuesday, July 28, 2015 4:54 PM
To: Scott, Robert L. (DCH); Peeler, Nancy (DCH)
Cc: LyonCallo, Sarah (DCH); McKane, Patricia (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx
Attachments: City of Flint EBLL May 2011-Apr 2015_Final.pdf

Hello Nancy and Bob,

It turns out that adding in the additional two years of data did not change the results of the analysis: there does appear to be a higher proportion of EBLL last summer than usual. I wrote up my methods and results in the attached brief, just in case anyone asks for specifics.

Have a good night!
Cristin

From: Scott, Robert L. (DCH)
Sent: Tuesday, July 28, 2015 10:15 AM
To: Larder, Cristin (DCH); Peeler, Nancy (DCH); McKane, Patricia (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

Cristin,

I can safely say I don't understand it without some explanation.

However, late yesterday Nancy and I decided to take a look two years farther back to see how they fit with the recent years. Please see attached, which I just finished this morning. Sorry I didn't have this for you yesterday before you did the analysis. Would this new information change the analysis?

Thanks,
Bob

From: Larder, Cristin (DCH)
Sent: Tuesday, July 28, 2015 10:07 AM
To: Peeler, Nancy (DCH); McKane, Patricia (DCH)
Cc: Scott, Robert L. (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

Nancy and Bob,

Is the control chart clear enough, do you think? I could whip up a fact sheet with a description of what it shows, if you think it would help make it more digestible for our audience.

Cristin

From: Larder, Cristin (DCH)
Sent: Tuesday, July 28, 2015 9:25 AM
To: Peeler, Nancy (DCH); McKane, Patricia (DCH)

Cc: Scott, Robert L. (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

Hi Nancy,

I made a p-chart, which Shewhart's version of a control chart for proportions, for the data you sent. Basically, I used the monthly data from 2013-14 to create upper and lower control limits, then plotted the 2014-15 data in a run chart. It shows that the three months in question are the only ones that lie outside the control limit: in fact, they are the only points that lie well above the mean at all. This doesn't say anything about causality, but it does warrant further investigation.

There are several next steps we can employ if the folks upstairs ask us to look deeper into the data. Also, I'm not sure if you talked at all with the Environmental Health folks, but their toxicologists could probably help give us some context to the issue.

Cristin

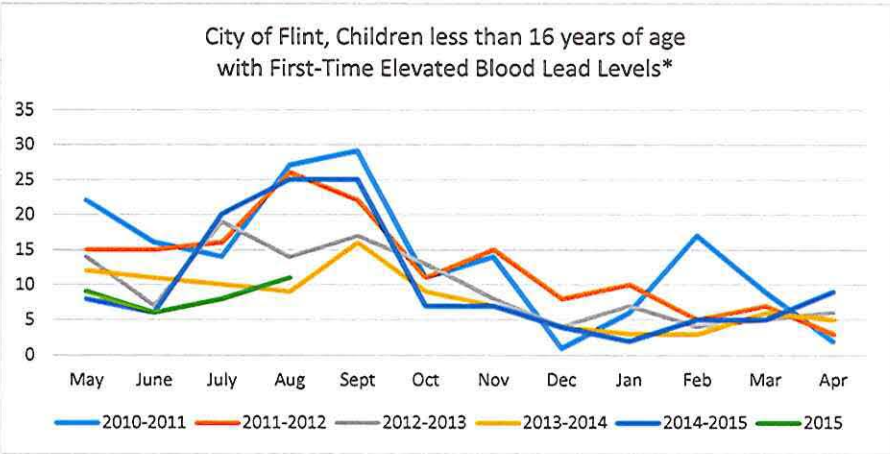
From: Peeler, Nancy (DCH)
Sent: Monday, July 27, 2015 3:37 PM
To: McKane, Patricia (DCH)
Cc: Larder, Cristin (DCH); Scott, Robert L. (DCH)
Subject: Re: Flint Testing and EBLLs.xlsx

Thanks, Patti. I'm looking forward to hearing about your CoIIN meeting, I'm sure you will be bringing great information back.

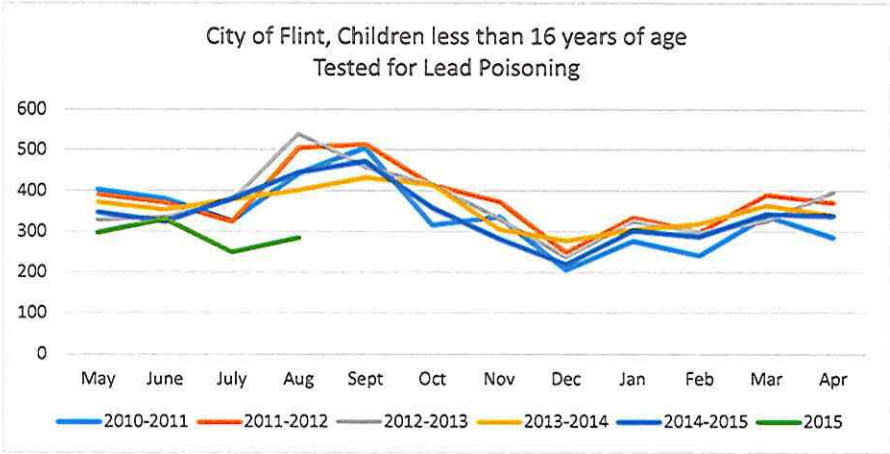
Sent from my iPhone

On Jul 27, 2015, at 3:11 PM, "McKane, Patricia (DCH)" <McKaneP@michigan.gov> wrote:

> Thanks Nancy.
> I was in a session on Shewart charts for QI. I think this might be a good approach for the needs assessment We can talk more. Hopefully the slides will be available, because I can't type that much with my thumbs
>
> Sent from my iPhone
>
> On Jul 27, 2015, at 1:14 PM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:
>
>> Hi Cristin and Patti –
>>
>> This is the CLPPP data for Flint that I had mentioned to you last week. Cristin, can you quickly run any tests to see if the difference in the first graph is statistically significant? Bob is at his desk today, best to connect with him if you have questions about the data. We are hoping to send this up today, so we appreciate anything you can do to get us a response this afternoon, if at all possible. Many thanks!
>>
>> Nancy
>>
>> <Flint Testing and EBLLs.xlsx>



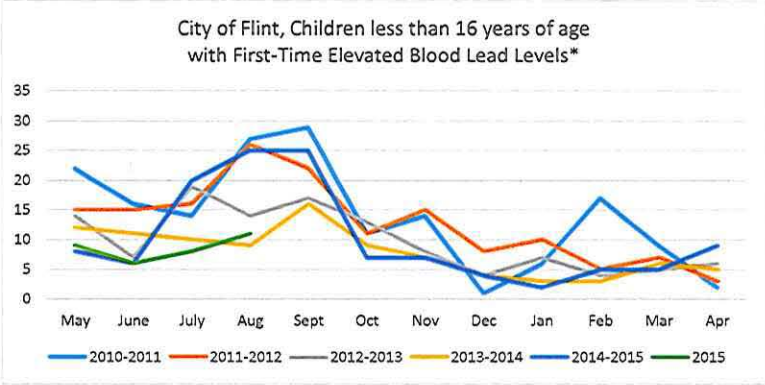
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3
2012-2013	14	7	19	14	17	13	8	4	7	4	5	6
2013-2014	12	11	10	9	16	9	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	4	2	5	5	9
2015	9	6	8	11								



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	402	379	325	442	504	315	335	206	276	240	338	285
2011-2012	390	370	324	503	512	413	372	248	333	298	389	370
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337
2015	297	330	249	284								

*Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Less than 16 years of age at time of test
Includes only first-time blood lead levels >= 5 ug/dL
Includes sample type of venous, capillary or unknown

September 23, 2015
Source: MDHHS Data Warehouse, Lead Specimen table



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3
2012-2013	14	7	19	14	17	13	8	4	7	4	5	6
2013-2014	12	11	10	9	16	9	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	4	2	5	5	9
2015	9	6	8	11								

*Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Less than 16 years of age at time of test
Includes only first-time blood lead levels >= 5 ug/dL
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September 23, 2015
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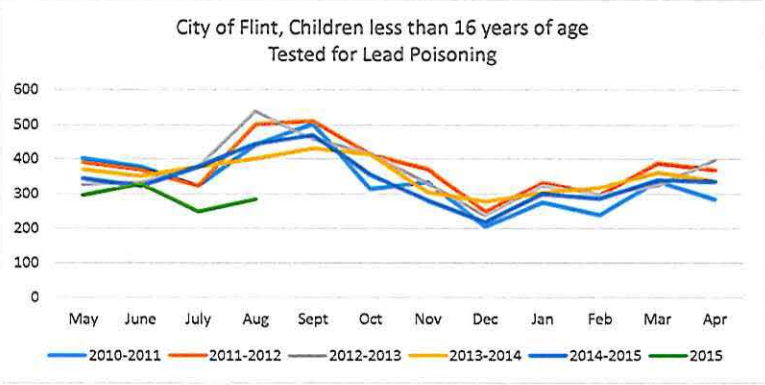

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	402	379	325	442	504	315	335	206	276	240	338	285
2011-2012	390	370	324	503	512	413	372	248	333	298	389	370
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397
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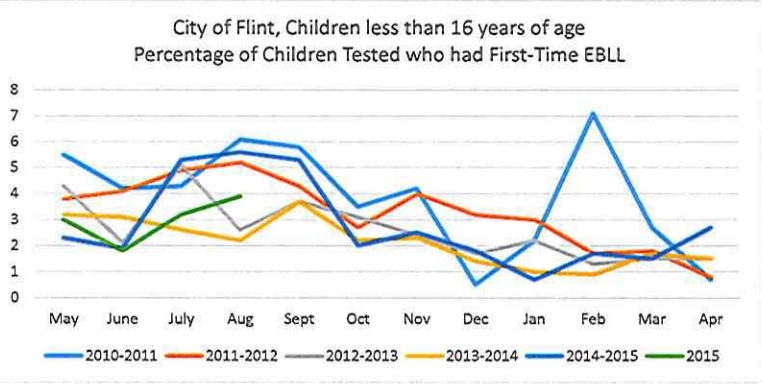
2015	297	330	249	284								



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	5.5	4.2	4.3	6.1	5.8	3.5	4.2	0.5	2.2	7.1	2.7	0.7
2011-2012	3.8	4.1	4.9	5.2	4.3	2.7	4	3.2	3	1.7	1.8	0.8
2012-2013	4.3	2.1	5.1	2.6	3.7	3.1	2.4	1.7	2.2	1.3	1.5	1.5
2013-2014	3.2	3.1	2.6	2.2	3.7	2.2	2.3	1.4	1	0.9	1.7	1.5
2014-2015	2.3	1.9	5.3	5.6	5.3	2	2.5	1.8	0.7	1.7	1.5	2.7
2015	3	1.8	3.2	3.9								

Children Tested for Blood Lead Before and After the Change in Flint's Water Supply

Hurley tests only
(Provider ID = 00000252)

	Children Tested	(Hurley analysis) Children Tested	Pct >= 6	Children with elevated blood lead levels: Venous only BLL >= 5	Venous only Pct >= 5	Venous only BLL >= 6	Venous only Pct >= 6	All (V, C, unknown) BLL >= 5	All (V, C, unknown) Pct >= 5	All (V, C, unknown) BLL >= 6	All (V, C, unknown) Pct >= 6
January 1 - September 15, 2013	1177	906	2.1	24	2.0	8	0.7	41	3.5	19	1.6
January 1 - September 15, 2015*	966	840	4.0	29	3.0	21	2.2	39	4	28	2.9

All Providers

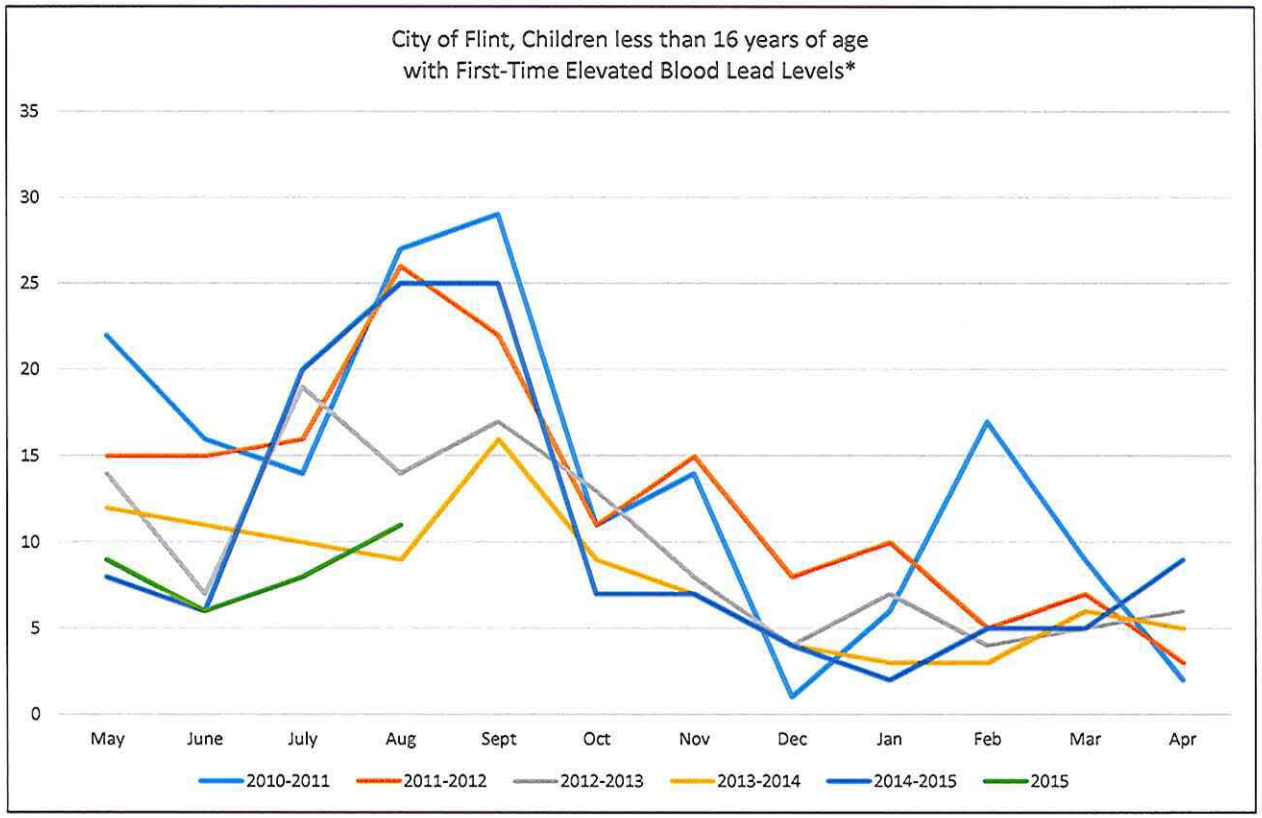
	Children Tested	Children with elevated blood lead levels: Venous only BLL >= 5	Venous only Pct >= 5	Venous only BLL >= 6	Venous only Pct >= 6	All (V, C, unknown) BLL >= 5	All (V, C, unknown) Pct >= 5	All (V, C, unknown) BLL >= 6	All (V, C, unknown) Pct >= 6
January 1 - September 15, 2013	2380	33	2.8	16	1.4	86	7.3	44	3.7
January 1 - September 15, 2015*	1928	40	4.1	28	2.9	80	8.3	54	5.6

Notes:
Children 0 - 5 years of age
Children living in zip codes 48501 -48507

Source: MDHHS Data Warehouse
September 24, 2015

Blood Lead Testing of Children in Flint, Before and After the Change in Flint's Water

- The change in Flint's water source occurred in April 2014. MDHHS looked at children's blood lead levels (BLL) before and after this event.
- The dark blue line (May 2014 – April 2015) and the green line (May-August 2015) reflect children's blood lead tests after the change. All other lines reflect tests before the change.
- An increase in childhood lead poisoning in summer (July, August, September) is typical throughout Michigan every year.
- While there is a dramatic difference between the numbers of elevated BLL in the summer before and after the event, a wider look that includes data back to 2010 shows that the year BEFORE the event (the yellow line) was more of an anomaly than the year after (the dark blue line).
- If elevated BLL were being driven by the change in water, we would expect the dark blue line to stay high rather than follow the seasonal pattern.
- All data included in this analysis were reported by laboratories directly to MDHHS, in accordance with State law.



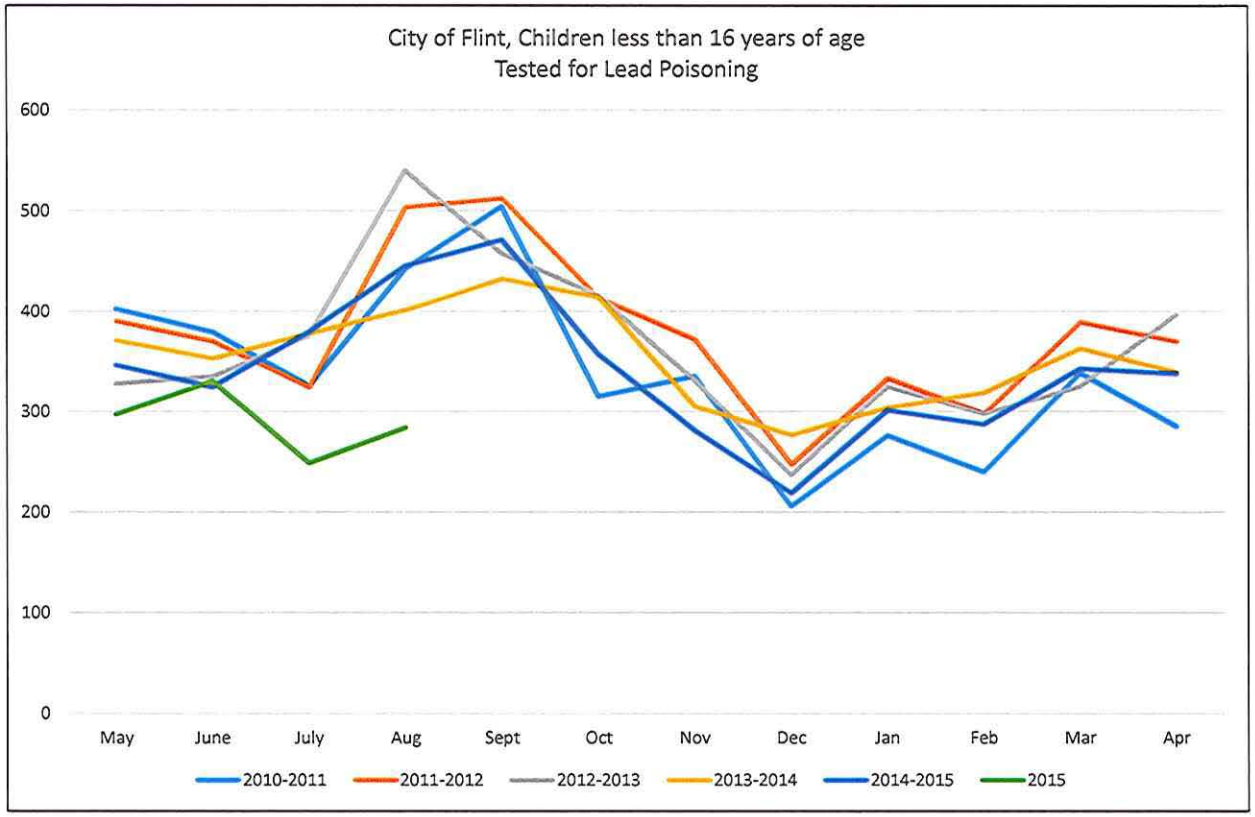
*This graph includes:
Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Children less than 16 years of age at time of test
Only first-time blood lead levels >= 5 ug/dL
All first-time elevated levels, regardless of sample type (venous, capillary or unknown)

September 24, 2015

Source: MDHHS Data Warehouse, Lead Specimen table

Blood Lead Testing of Children in Flint, Before and After the Change in Flint's Water

- Blood lead testing (regardless of elevated levels) also tends to rise during late summer (August, September, October).
- This graph shows that testing in Flint has remained fairly steady over the last five years, except for a recent decline(May – August 2015).



*This graph includes:
Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Children less than 16 years of age at time of test
The number of children tested within each month.
Some children are tested more than once, and may be included in more than one month or year.

September 24, 2015

Source: MDHHS Data Warehouse, Lead Specimen table

Children in Flint, less than 16 years of age, tested for lead

Children with Elevated BLL*	
May 2010 - April 2011	168
2011-2012	153
2012-2013	118
2013-2014	95
2014-2015	123
May - August 2015	34

*Each child counted only once.

Children Tested**	
May 2010 - April 2011	3,836
2011-2012	4,240
2012-2013	4,158
2013-2014	4,010
2014-2015	3,831
May - August 2015	1,143

**Some children counted in more than one yea

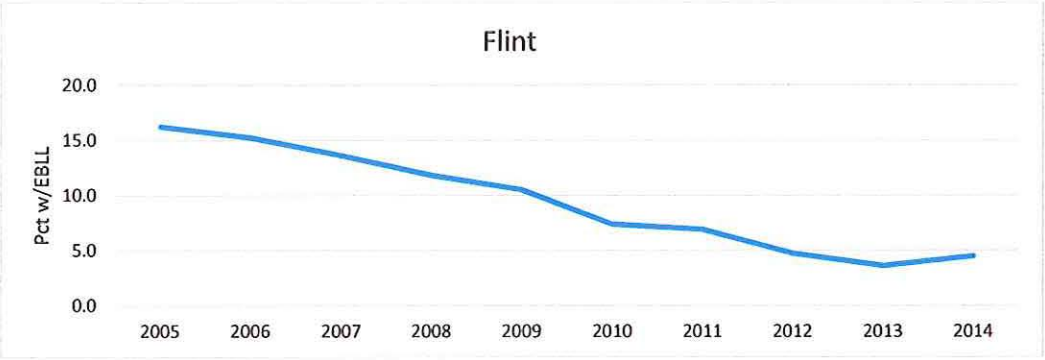
September 24, 2015
Source: MDHHS Data Warehouse

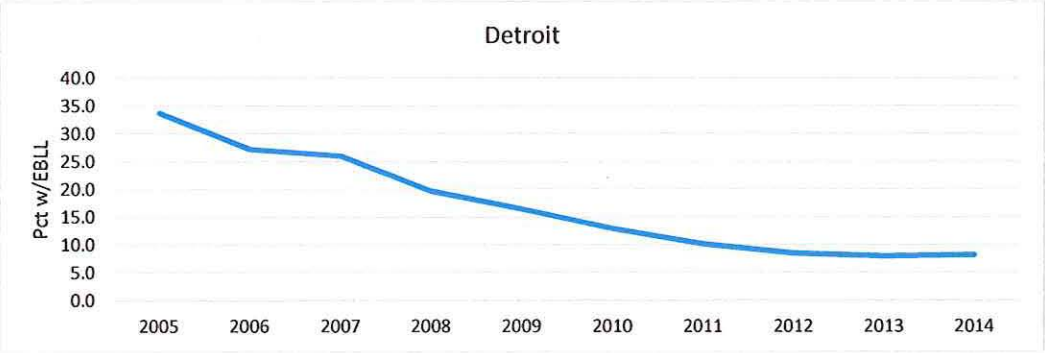
ar.

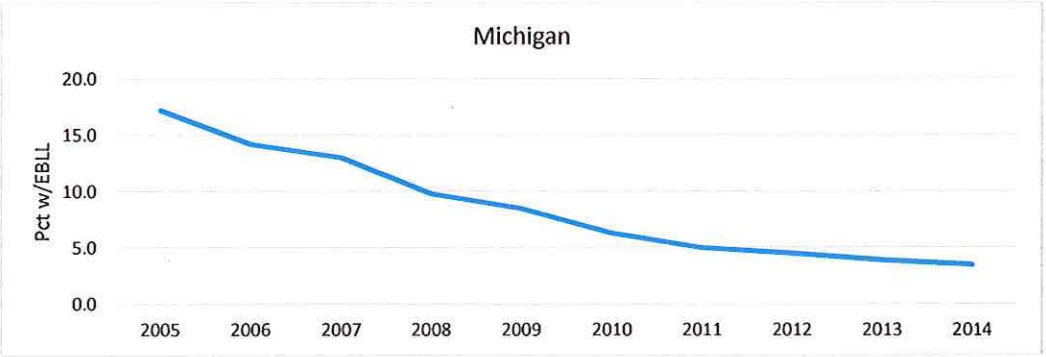
Percentage of Children age 0-5 with Elevated Blood Lead Levels by Calendar Year

Calendar Year	Flint Children Tested	Flint Number of Children >= 5*	Flint Pct >= 5*	Detroit Children Tested	Detroit Number of Children >= 5*	Detroit Pct >= 5*	Michigan Children Tested	Michigan Number of Children >= 5*	Michigan Pct >= 5*
2005	3,076	499	16.2	32,704	11,032	33.7	132,913	22,843	17.2
2006	3,207	488	15.2	33,190	9,019	27.2	141,011	20,063	14.2
2007	2,950	401	13.6	33,010	8,571	26.0	149,445	19,496	13.0
2008	2,372	279	11.8	32,105	6,326	19.7	153,248	15,041	9.8
2009	2,321	244	10.5	31,969	5,266	16.5	154,291	13,161	8.5
2010	2,876	212	7.4	30,812	3,999	13.0	155,847	9,762	6.3
2011	2,349	162	6.9	28,674	2,928	10.2	151,867	7,547	5.0
2012	2,375	111	4.7	27,298	2,327	8.5	149,046	6,772	4.5
2013	2,345	85	3.6	25,026	1,996	8.0	147,841	5,702	3.9
2014	2,343	106	4.5	22,842	1,876	8.2	143,123	5,053	3.5

*Confirmed and unconfirmed





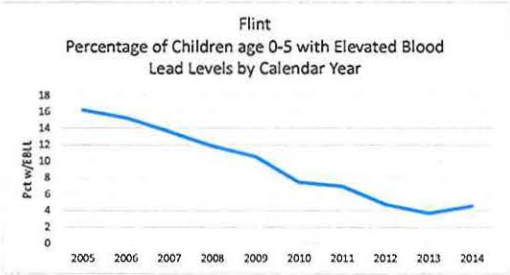


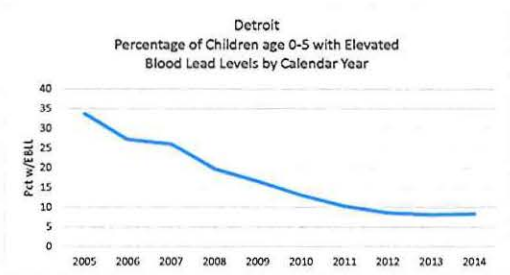
	Flint			Detroit			Michigan		
	Children Tested	C P Conf & o c Unconf n t >= 5	Pct Conf & Unconf >= 5	Children Tested	Co Pct Conf & nfi Co Unconf rm nf >= 5	Pct Conf & Unconf >= 5	Children Tested	Co Pct Conf & nfi Co Unconf rm nf >= 5	Pct Conf & Unconf >= 5
2005	3076	499	16.2	32704	11032	33.7	132913	22843	17.2
2006	3207	488	15.2	33190	9019	27.2	141011	20063	14.2
2007	2950	401	13.6	33010	8571	26	149445	19496	13
2008	2372	279	11.8	32105	6326	19.7	153248	15041	9.8
2009	2321	244	10.5	31969	5266	16.5	154291	13161	8.5
2010	2876	212	7.4	30812	3999	13	155847	9762	6.3
2011	2349	162	6.9	28674	2928	10.2	151867	7547	5
2012	2375	111	4.7	27298	2327	8.5	149046	6772	4.5
2013	2345	85	3.6	25026	1996	8	147841	5702	3.9
2014	2343 # 3	106	4.5	22842 ## 7	1876	8.2	143123 ## 2	5053	3.5

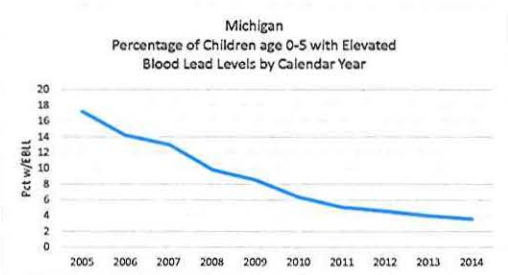
	Lansing			Grand rapids			Saginaw		
	tested	nbr	pct	tested	nbr	pct	tested	nbr	pct
2005	1934	294	15.2	5530	1447	26.2	1762	458	26
2006	2512	291	11.6	5334	1299	24.4	1721	329	19.1
2007	3539	366	10.3	4976	1100	22.1	1723	400	23.2
2008	3330	321	9.6	4296	818	19	1697	313	18.4
2009	3522	393	11.2	4084	708	17.3	1613	228	14.1
2010	3373	196	5.8	4959	698	14.1	1828	207	11.3
2011	3120	178	5.7	5185	579	11.2	1702	125	7.3
2012	3121	129	4.1	4878	540	11.1	1628	132	8.1
2013	3135	187	6	4639	426	9.2	1550	88	5.7
2014	2995	103	3.4	4379	359	8.2			

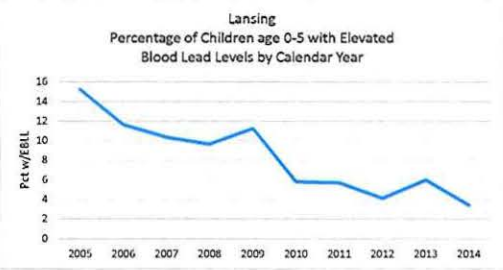
Flint

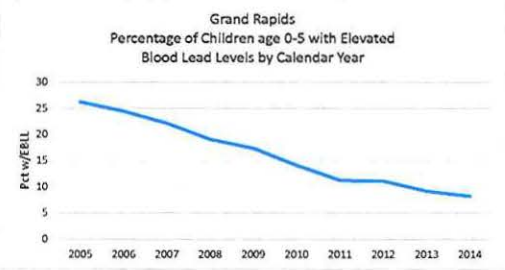
2005	16.2
2006	15.2
2007	13.6
2008	11.8
2009	10.5
2010	7.4
2011	6.9
2012	4.7
2013	3.6
2014	4.5

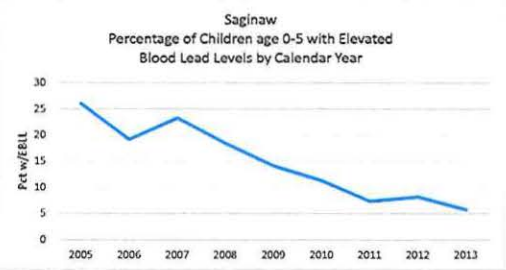


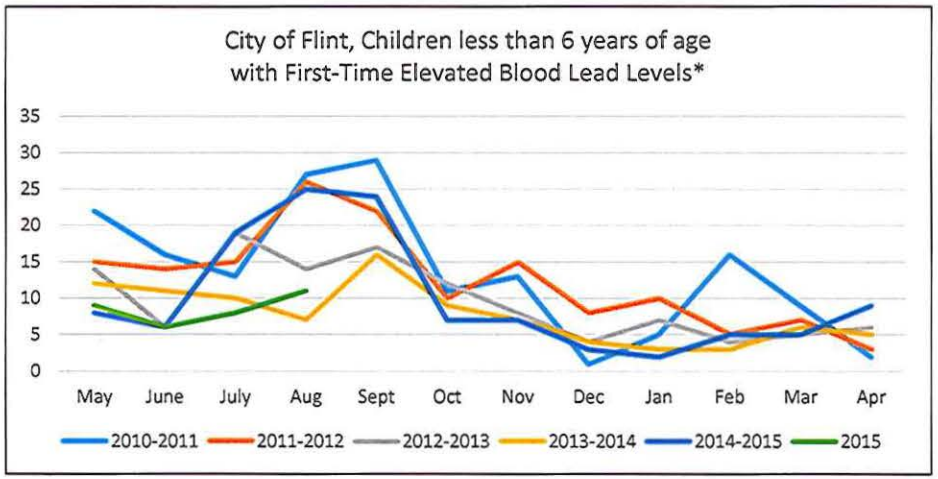




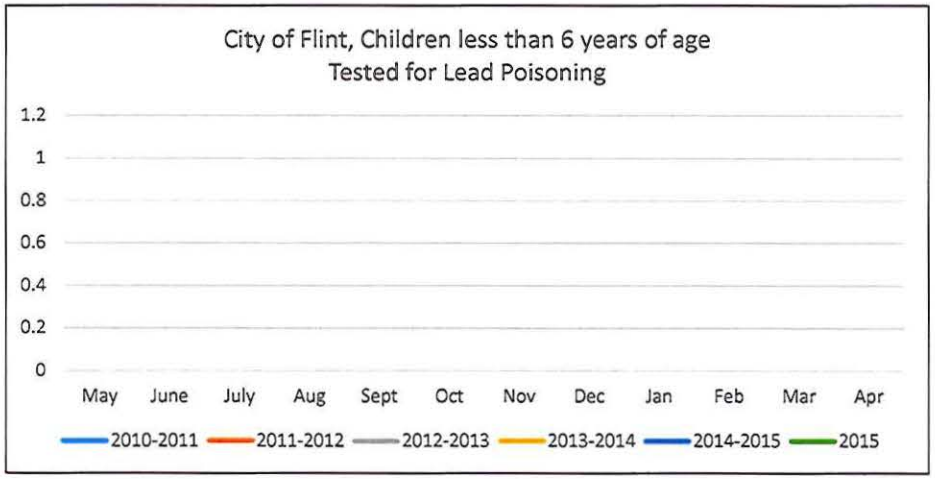








	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	22	16	13	27	29	11	13	1	5	16	9	2
2011-2012	15	14	15	26	22	10	15	8	10	5	7	3
2012-2013	14	6	19	14	17	12	8	4	7	4	5	6
2013-2014	12	11	10	7	16	9	7	4	3	3	6	5
2014-2015	8	6	19	25	24	7	7	3	2	5	5	9
2015	9	6	8	11								



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011												
2011-2012												
2012-2013												
2013-2014												
2014-2015												
2015												

*Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Less than 16 years of age at time of test
Includes only first-time blood lead levels >= 5 ug/dL
Includes sample type of venous, capillary or unknown

September 30, 2015
Source: MDHHS Data Warehouse, Lead Specimen table

Follow-up for Children in Flint (ZIPs 48501-48507) with Elevated Blood Lead Levels April 2014 through March 2015

Children with Initial Confirmed (Venous) Elevated BLL 5-14

Children w/BLL 5-14:	43	
With retest:	14	
Most recent retest was <5:		4
5 to 14:		9
>= 15:		1

Children with Initial Confirmed (Venous) Elevated BLL >= 15

Children w/BLL >= 15:	3	
With retest:	1	
Most recent retest was <5:		0
5 to 14:		0
>= 15:		1

Children with Initial Capillary Elevated BLL 5-14 (needing confirmation)

Children w/BLL 5-14:	70	
With confirmatory venous:	15	
Confirmatory test was <5:		7
5 to 14:		7
>= 15:		1

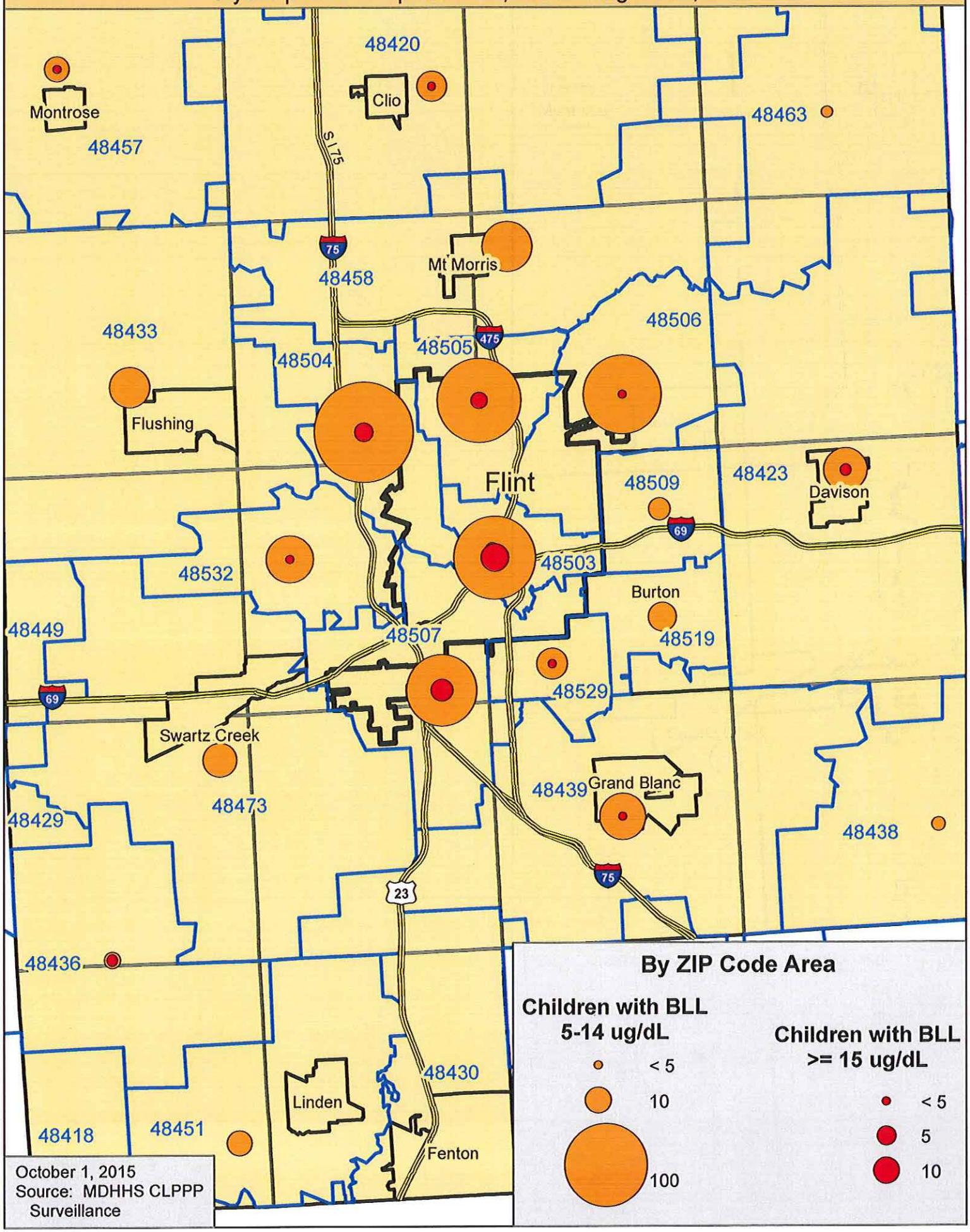
Children with Initial Capillary Elevated BLL >= 15 (needing confirmation)

Children w/BLL >= 15:	1
With confirmatory venous:	0

October 5, 2015

Source: MDHHS Data Warehouse

Children with Elevated Blood Lead Levels in Genesee County, by ZIP Code Area
5-year period: September 1, 2010 - August 31, 2015



Children in Genesee County, Tested for Lead Poisoning, by Blood Lead Level

Most Recent 12-Month Period: September 1, 2014 - August 31, 2015

	0 - 4 ug/dL	5 - 14 ug/dL Confirmed*	5 - 14 ug/dL Not Confirmed*	15 - 44 ug/dL Confirmed*	15 - 44 ug/dL Not Confirmed*	>= 45 ug/dL
Flint ZIPS (48501-48507)	2,721	49	53	5	**	0
Genesee County (all ZIPs)	6,086	58	94	6	**	0

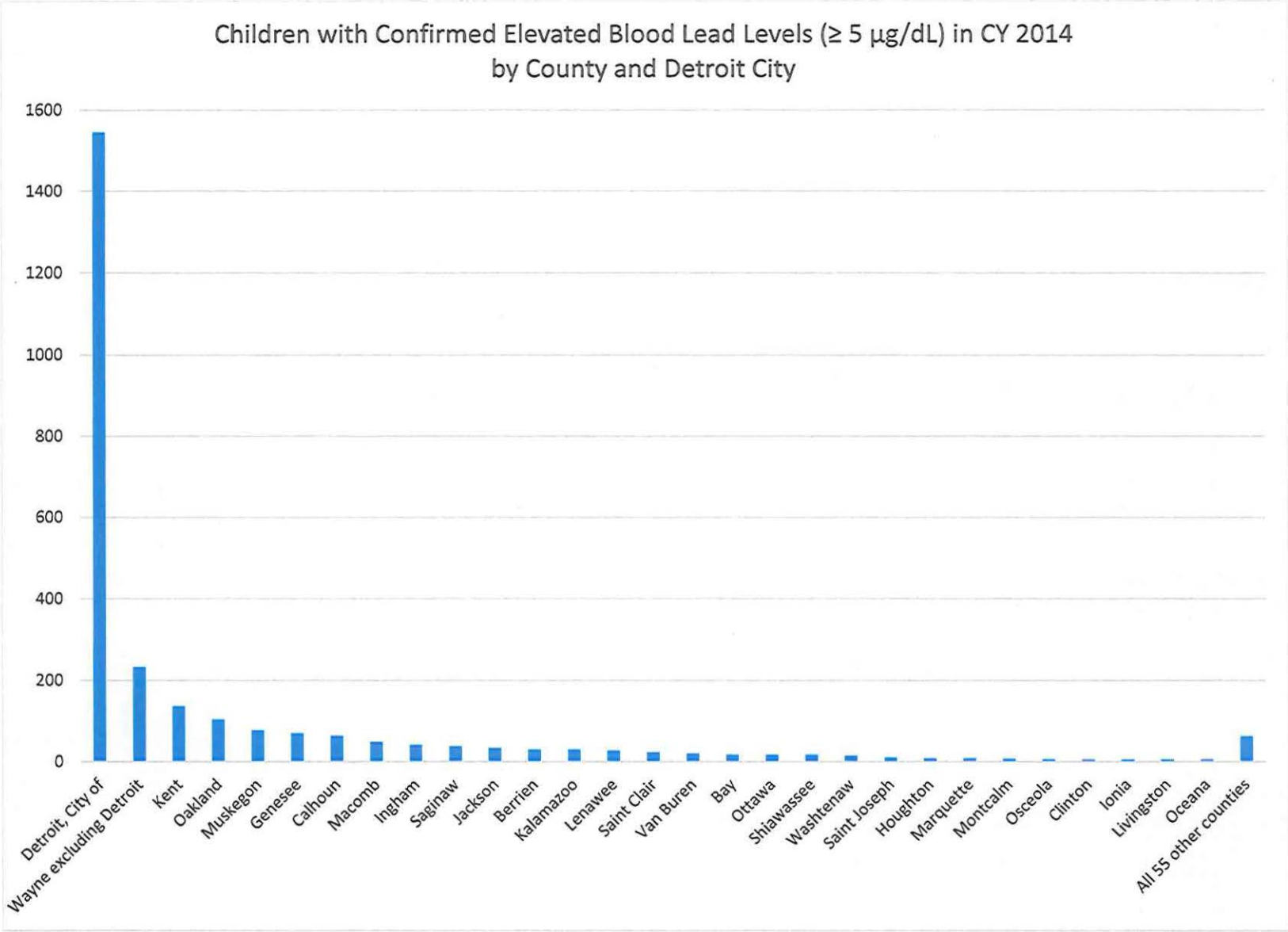
Most Recent Five-Year Period: September 1, 2010 - August 31, 2015

	0 - 4 ug/dL	5 - 14 ug/dL Confirmed*	5 - 14 ug/dL Not Confirmed*	15 - 44 ug/dL Confirmed*	15 - 44 ug/dL Not Confirmed*	>= 45 ug/dL
Flint ZIPS (48501-48507)	11,596	287	219	24	**	0
Genesee County (all ZIPs)	26,362	359	415	29	9	0

*One test per child is included in each table: the highest venous result, or if no venous, then the highest capillary result.
Only venous tests are considered to be "confirmed."
**Supressed (N<5)

October 1, 2015

Source: MDHHS CLPPP Surveillance



October 1, 2015
Source: MDHHS Data Warehouse

Scott, Robert L. (DHHS)

From:	Scott, Robert L. (DCH)
Sent:	Tuesday, September 08, 2015 4:19 PM
To:	'Marc Edwards'
Subject:	RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.
Attachments:	DCH-1294 Data Use and Non-Disclosure Agreement 5-2015.doc

Marc,

Sorry I'm slow to get back to you. Yes, I think this sounds great. There has been some concern about the water source change in Flint, and in fact we had a call about it today. Yes, this will need a new data sharing agreement. Please fill out the attached and send back to me, leaving it as a Word document without signature. I'll run it past Legal, and they'll no doubt ask for a couple of changes.

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Wednesday, September 02, 2015 8:36 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

Hi Robert,

I would like to repeat the study I did below, but updated for Flint Michigan, Genessee Country Michigan, and Detroit. What I need is blood lead data from all Flint zip codes, Genesee County zip codes and Detroit zip codes from 2011 to present.
Please do not identify the records by name, but have an ID code for each individual that can be sorted, along with the date of the measurement, blood lead result, zip code in which the child resides, and child's birth date so I can determine the age of the subject.

The intervention of interest, is the change from Detroit water to Flint River water, in Flint Michigan. Genesee County and Detroit serve as control data sets.

If it can be provided in a format that can be read into EXCEL, that would be best.

Let me know if you need a new signed data sharing agreement, or whether our agreement from 2006 is still ok.

Best Regards,
Marc Edwards

Date: Fri, 17 Nov 2006 15:41:55 -0500
To: "Robert L. Scott" <scottrob@michigan.gov>
From: Marc Edwards <edwardsm@vt.edu>
Subject: Proposal and signed data agreement

Robert,

Attached is my signed agreement. My proposal is to do a study of potential benefits resulting from a community intervention in Lansing, MI.

Specifically, last year Lansing distributed drinking water filters and sent out enhanced flushing instructions to mitigate levels of lead in drinking water in homes with lead pipes. I am trying to determine whether this intervention had any discernable benefit on blood lead levels in the population.

To conduct this statistical test, I would like the following fields extracted from your database:

1) City of Lansing blood lead values, draw dates, and subject ID number from January 1 2001 to present.
If you do not have accessible data starting in 2001, then go back as far as you can (e.g., 2002).

2) The same data for Ingham County (which I assume includes Lansing). If it is possible to get all data from within Ingham County but excluding Lansing that would be ideal. But I could presumably delete the duplicate data between set 1 and set 2 by hand if necessary.

3) The same data for the city of Detroit MI.

The statistical comparison will examine 1) temporal changes in % elevated blood lead for Lansing before and after the intervention, and 2) cross comparisons in trends between Lansing (with intervention) and Detroit and Ingham County (without intervention).

This is a fairly straightforward test that I suspect will confirm that no significant change arose due to the intervention in Lansing, consistent with water as a minor contributor to blood lead in Lansing.

If you should have additional questions please e-mail me at this address or call me at 540 231-7236,

Regards,
Marc Edwards

At 03:14 PM 11/17/2006, Robert L. Scott wrote:
Thanks for the info. Please see attached. Just a reminder that a "proposal" is also required. It need not be particularly long or formal, but should indicate clearly the data requested, and what you intend to do with it.

Scott, Robert L. (DHHS)

From:	Marc Edwards <edwardsm@vt.edu>
Sent:	Tuesday, September 08, 2015 5:39 PM
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Subject:	RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.
Attachments:	DCH-1294 Data Use and Non-Disclosure Agreement 5-2015.doc; 94 DC_Water_Lead_Edwards_2009.pdf; Rapid Proposal Final.pdf

Here you go.

Best Regards,
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From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Tuesday, September 08, 2015 7:55 AM
To: Marc Edwards
Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

Yes, sorry for the delay; I'll get you a more complete answer later today.

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Monday, September 07, 2015 11:40 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: FW: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

Robert,

Can you confirm that you received the e-mail below, with the request for blood lead data on Flint?

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Thanks for the info. Please see attached. Just a reminder that a "proposal" is also required. It need not be particularly long or formal, but should indicate clearly the data requested, and what you intend to do with it.

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:09 PM
To: Peeler, Nancy (DCH); 'Lishinski Karen (LishinskiK@michigan.gov)'; Priem, Wesley F. (DCH)
Subject: Flint water study
Attachments: Rapid Proposal Final.pdf

Nancy, Karen and Wes,

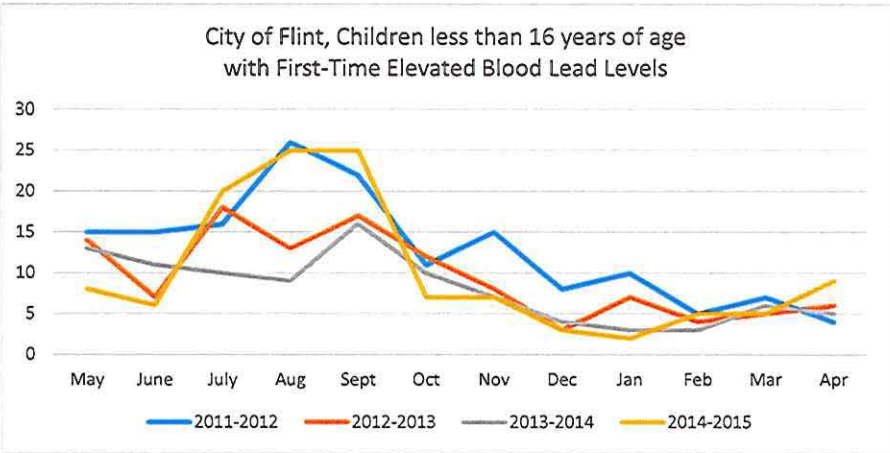
I'm passing this along as follow-up to our previous attention to the Flint water changeover situation. The attached was submitted to me along with a request for de-identified data, which should be no problem.

When you have a few minutes you might want to take a look at it. Sounds like there might be more to this than what we learned previously. Yikes!

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Pending Data Sharing
Agreements

Organization/Individual	Date Initiated	Have I responded?	Status	IRB Status	Date last action	MOU developed?		
Center for Urban Studies	6/2/2015	yes	discussed with Colin		7/2/2015	no		
ClearCorp	6/4/2015	yes	discussed with Colin		7/2/2015	no		
Gazze/MIT	6/3/2015	yes	discussed with Colin		7/2/2015	no	8/3/15 still waiting for LG to send MIT IRB	
DDD	6/8/2015	yes	discussed with Colin		8/11/2015	no	I sent email asking for changes, also suggesting wait for Kaplowitz/Larder work. Kit left phone message, I sent email explaining the project.	
Moody & Grady, MSU	6/23/2015	yes	resubmitted to Colin		8/25/2015	no	Sent feedback to Heather, asking for revised DCH-1204 and letter, MSU IRB app, and MDCH IRB app.	8/25/15 made a
Tanaka/Tufts	8/5/2015	yes	submitted to Colin		8/27/2015	no	Nudge Colin when you get IRB response.	
McElmurry, WSU	9/8/2015	yes	returned to McElmurry		9/9/2015	no		
Edwards, Virginia Tech	9/7/2015	yes					request was withdrawn	
Hanna-Attisha, Hurley	9/22/2015	yes	Approved	Approved	10/2/2015	no	Data sent	



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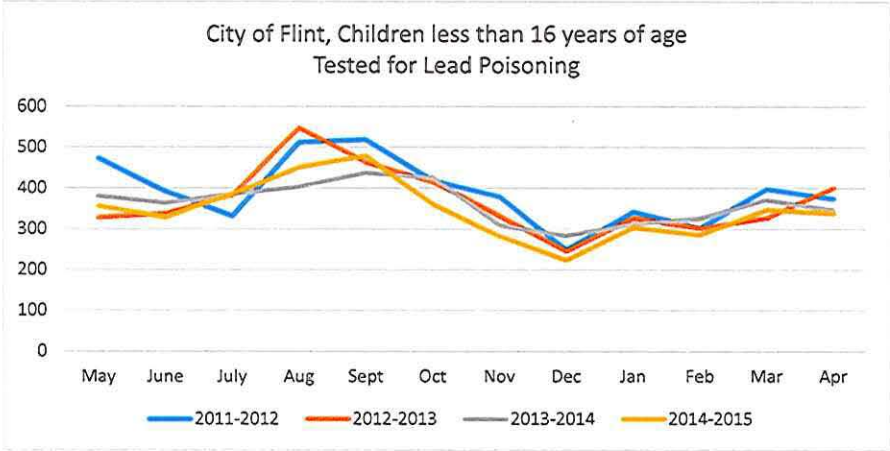
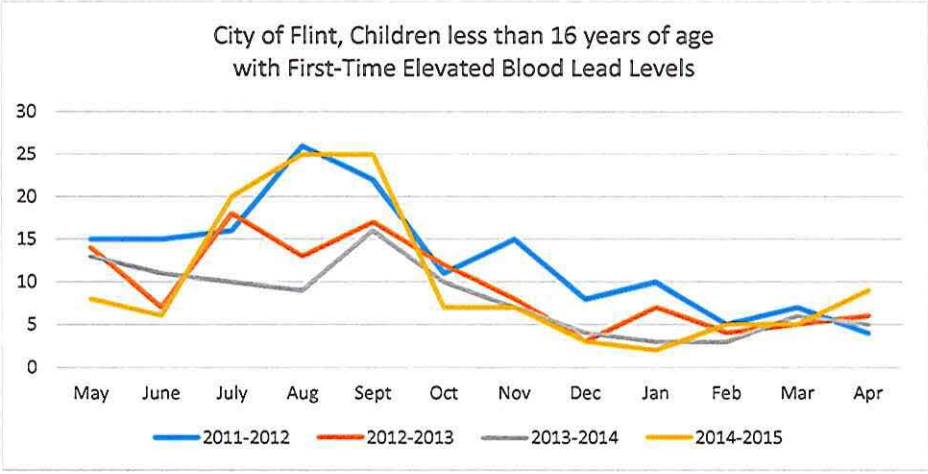
2013-2014	13	11	10	9	16	10	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	3	2	5	5	9



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2011-2012	474	393	332	513	520	420	379	249	343	303	399	375
2012-2013	328	338	383	550	464	417	332	246	328	303	328	402
2013-2014	380	363	385	404	438	427	310	283	313	325	371	346
2014-2015	356	329	386	452	480	361	283	224	305	287	348	339



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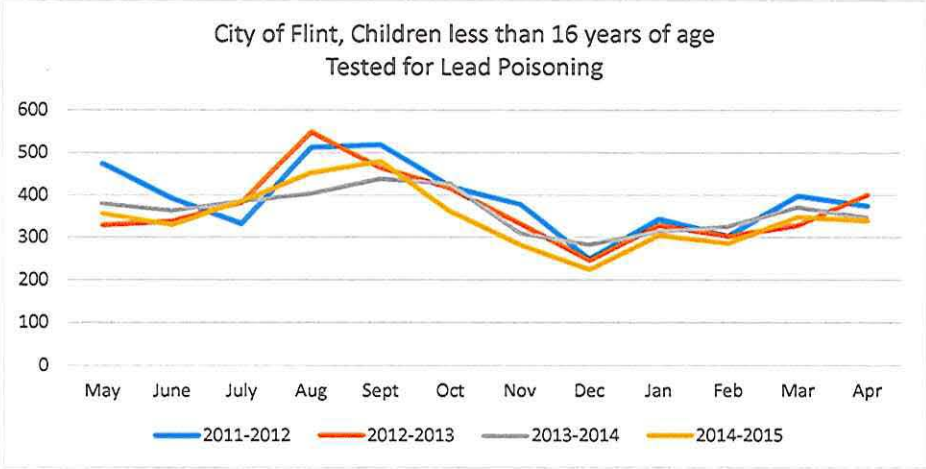

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2014-2015	356	329	386	452	480	361	283	224	305	287	348	339

Date	Elevated	Tested	Proportion	Mean P	P LCL	P UCL
May-13	13	380	0.034	0.022	0	0.04
Jun-13	11	363	0.030	0.022	0.00	0.04
Jul-13	10	385	0.026	0.022	0.00	0.04
Aug-13	9	404	0.022	0.022	0.00	0.04
Sep-13	16	438	0.037	0.022	0.00	0.04
Oct-13	10	427	0.023	0.022	0.00	0.04
Nov-13	7	310	0.023	0.022	0.00	0.04
Dec-13	4	283	0.014	0.022	0.00	0.04
Jan-14	3	313	0.010	0.022	0.00	0.04
Feb-14	3	325	0.009	0.022	0.00	0.04
Mar-14	6	371	0.016	0.022	0.00	0.04
Apr-14	5	346	0.014	0.022	0.00	0.04
May-14	8	356	0.022	0.022	0.00	0.04
Jun-14	6	329	0.018	0.022	0.00	0.04
Jul-14	20	386	0.052	0.022	0.00	0.04
Aug-14	25	452	0.055	0.022	0.00	0.04
Sep-14	25	480	0.052	0.022	0.00	0.04
Oct-14	7	361	0.019	0.022	0.00	0.04
Nov-14	7	283	0.025	0.022	0.00	0.04
Dec-14	3	224	0.013	0.022	0.00	0.04
Jan-15	2	305	0.007	0.022	0.00	0.04
Feb-15	5	287	0.017	0.022	0.00	0.04
Mar-15	5	348	0.014	0.022	0.00	0.04
Apr-15	9	339	0.027	0.022	0.00	0.04

	2013/14
Mean P	0.022
Mean n	362.08

$\hat{p}$–chart

$$\text{UCL} = \overline{p} + 3\sqrt{\frac{\overline{p}(1-\overline{p})}{n}}$$

$$\text{Center Line:} \quad \overline{p}$$

$$\text{LCL} = \overline{p} - 3\sqrt{\frac{\overline{p}(1-\overline{p})}{n}}$$

Scott, Robert L. (DHHS)

From: Marc Edwards <edwardsm@vt.edu>
Sent: Friday, September 11, 2015 1:03 PM
To: Scott, Robert L. (DCH)
Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

Yes, I think there is clearly some urgency to the situation.
MDEQ has publicly stated that your blood lead records, are showing that there is no public health concern for residents in Flint.
The levels of lead in Flint water, that we are finding in our water sampling, are certainly in a range that can cause childhood lead poisoning.
Indeed, one child has already, likely been lead poisoned from exposure to high lead in water.
I think the fact that you already have other teams working on these records, indicates a high level of interest, and urgency.
Congressional interest in the safety of the water is also very high, and this will be an important issue in deciding options for treating the water, in the weeks and months ahead.

Best Regards,

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Friday, September 11, 2015 12:58 PM
To: Marc Edwards
Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

Maybe. My contact at Legal let me know the other day that he's unusually busy with other matters right now, so his review of DUAs might be delayed unless there was a specific reason for quicker action on his part.

If you are in need of a reasonably-quick turnaround—i.e., a week rather than a month or so—then please send me a paragraph explaining why. I'll pass that along with your DUA.

If you're not in a hurry, then I'm all set for now—I'll submit your DUA as is.

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 10, 2015 7:57 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

Do you need anything else from me?
Marc

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Tuesday, September 08, 2015 5:39 PM
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Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

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To: "Robert L. Scott" <scottrob@michigan.gov>
From: Marc Edwards <edwardsm@vt.edu>
Subject: Proposal and signed data agreement

Robert,

Attached is my signed agreement. My proposal is to do a study of potential benefits resulting from a community intervention in Lansing, MI.

Specifically, last year Lansing distributed drinking water filters and sent out enhanced flushing instructions to mitigate levels of lead in drinking water in homes with lead pipes. I am trying to determine whether this intervention had any discernable benefit on blood lead levels in the population.

To conduct this statistical test, I would like the following fields extracted from your database:

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This is a fairly straightforward test that I suspect will confirm that no significant change arose due to the intervention in Lansing, consistent with water as a minor contributor to blood lead in Lansing.

If you should have additional questions please e-mail me at this address or call me at 540 231-7236,

Regards,
Marc Edwards

At 03:14 PM 11/17/2006, Robert L. Scott wrote:
Thanks for the info. Please see attached. Just a reminder that a "proposal" is also required. It need not be particularly long or formal, but should indicate clearly the data requested, and what you intend to do with it.

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:26 PM
To: Boes, Colin (DCH)
Subject: New DCH-1294, time-sensitive
Attachments: DCH-1294 Data Use and Non-Disclosure Agreement Edwards 091115.doc; Rapid Proposal Final.pdf

Colin,

Please see attached DUA and related proposal. I'm asking for a reasonably-quick turn-around on this request for de-identified data, if possible given your schedule. I've pasted Professor Edwards' comments below:

"Yes, I think there is clearly some urgency to the situation.
MDEQ has publicly stated that your blood lead records, are showing that there is no public health concern for residents in Flint.
The levels of lead in Flint water, that we are finding in our water sampling, are certainly in a range that can cause childhood lead poisoning.
Indeed, one child has already, likely been lead poisoned from exposure to high lead in water.
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Congressional interest in the safety of the water is also very high, and this will be an important issue in deciding options for treating the water, in the weeks and months ahead."

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:31 PM
To: 'Marc Edwards'
Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.
Attachments: DCH-1294 Data Use and Non-Disclosure Agreement Edwards 091115.doc

Marc,

OK, I submitted your request including your proposal and the paragraph below. No guarantees on the timing, though.

I've attached a copy of the DCH-1294 here, because I made a few edits based on my previous experience with the review process.

Bob

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Friday, September 11, 2015 1:03 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

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If you are in need of a reasonably-quick turnaround—i.e., a week rather than a month or so—then please send me a paragraph explaining why. I'll pass that along with your DUA.

If you're not in a hurry, then I'm all set for now—I'll submit your DUA as is.

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Sent: Thursday, September 10, 2015 7:57 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

Do you need anything else from me?
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Sent: Tuesday, September 08, 2015 5:39 PM
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From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Monday, September 07, 2015 11:40 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: FW: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

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Sent: Wednesday, September 2, 2015 8:36 PM
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Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:57 PM
To: 'Marc Edwards'
Subject: FW: New DCH-1294, time-sensitive

Marc,

(I also left you a phone message.) Please see below regarding an IRB review application. I told Colin that, as far as I know, our IRB director is expected back on Monday.

Have you submitted an IRB review application to Virginia Tech's IRB? If so, has it been approved? If that's the case, you can submit an Abbreviated IRB review app to MDHHS. It's available at www.michigan.gov/IRB.

If you haven't and don't intend to, please send me yet another paragraph explaining why not. I'm not an expert on these matters, and I'm still a little fuzzy on when an IRB review is required.

There is far more scrutiny of all data requests now than in 2006. That's a good thing in the long run, but makes it harder to move quickly.

Bob

From: Boes, Colin (DCH)
Sent: Friday, September 11, 2015 1:33 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: New DCH-1294, time-sensitive

Robert, thank you for letting me know about the time-sensitivity. I will do my best to get this turned around as soon as I can. Since this involves research you may wish to send it the IRB as well and let them know about the urgency. How soon do you think they were hoping to get it back? A few weeks? Shorter? I ask because our IRB director Ian is out of the office until at least next week (I cannot remember exactly how long he is out).

Colin Boes, JD
Privacy Specialist
Office of Legal Affairs & FOIA
Michigan Department of Health & Human Services
201 Townsend St.
Lansing, Michigan 48933
(517) 335-8558 – T (517) 241-1200 - F

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Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 2:53 PM
To: Priem, Wesley F. (DCH)
Subject: RE: Flint water study

Prof. Marc Edwards, Virginia Tech

From: Priem, Wesley F. (DCH)
Sent: Friday, September 11, 2015 2:34 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Flint water study

I know when I share this with my Division Director Linda Dykema she will also want to know who sent the request in to you. She has been involved in this issue.

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 2:08 PM
To: Priem, Wesley F. (DCH); Peeler, Nancy (DCH); Lishinski, Karen (DCH)
Subject: RE: Flint water study

Yes, it looks that way, but that's how I received it.

From: Priem, Wesley F. (DCH)
Sent: Friday, September 11, 2015 1:57 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>; Lishinski, Karen (DCH) <LishinskiK@michigan.gov>
Subject: RE: Flint water study

Bob:

Was this all that was sent to you, looks like the cover page is missing?

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:09 PM
To: Peeler, Nancy (DCH); Lishinski, Karen (DCH); Priem, Wesley F. (DCH)
Subject: Flint water study

Nancy, Karen and Wes,

I'm passing this along as follow-up to our previous attention to the Flint water changeover situation. The attached was submitted to me along with a request for de-identified data, which should be no problem.

When you have a few minutes you might want to take a look at it. Sounds like there might be more to this than what we learned previously. Yikes!

Robert L. Scott
Childhood Lead Poisoning Prevention Program

Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 15, 2015 9:18 AM
To: 'Marc Edwards'
Subject: RE: Repeat of 2006 study request, but for Flint and Genesee County and Detroit zip codes, from January 1 2011 to present.

Marc,

Turns out you should submit an IRB review application to MDHHS. The application is available at www.michigan.gov/irb. It should be submitted to me, and then I'll add my info as "responsible employee" and submit it to the IRB board.

Bob

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Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 15, 2015 9:21 AM
To: 'Marc Edwards'
Subject: FW: New DCH-1294, time-sensitive

Marc,

Please see Colin's (Legal Affairs) comments below. I apologize for not passing it along yesterday—the day got away from me. I clearly have a lot to learn—I made changes to your document thinking it was a slam-dunk as de-identified, but was wrong, as indicated below.

Please make changes to your DCH-1294 as directed by Colin's comments, and re-submit to me, still no signature.

Thanks,
Bob

From: Boes, Colin (DCH)
Sent: Friday, September 11, 2015 2:08 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Horste, Ian (DCH) <HorstelI@michigan.gov>
Subject: RE: New DCH-1294, time-sensitive

Robert,

Here are my comments regarding this DUA. Please feel free to give me a call if you have any questions. As I indicate below, we also need to see about whether our IRB needs to be involved.

1. I want to know more about the study that is being recreated in item 1. The attached protocol seems to discuss more about the study of the water samples, not the blood lead data. Saying that the researcher wants to verify the claim of MDEQ is not sufficient. It does not have to be a great deal longer, but it should explain what the intended use of the blood lead data is.

   It is also important to know exactly how it will be used for research in order to justify the release not just under HIPAA, but also under R 325.9086 pertaining to the confidentiality of blood lead test reports. It must be for the "If necessary for the purpose of research designed to develop or contribute to generalizable knowledge, with documented approval by the department's institutional review board." R 325.9086(2)(e). I am not sure how Ian would handle this, given the language in the rule that seems to require IRB approval.

2. Tying in with 1. above, telling us that the analysis will be similar to some other study is insufficient. This section should tell us how the data will be used and disclosed, how many people (research team) might have access, what formats it might be used in and other similar information. The attached research protocol, as noted above, does not get into sufficient detail regarding exactly how our blood lead data will be used and how its use will be restricted.

I also need to know more about how the data will be secured on their end, how it will be handled, by who, and what will be done with it when it is no longer needed for their study.

3. The researcher indicates this data will be deidentified, but then goes on to ask for a number of identifiers that make the data identifiable, including county, city, and birth date of the child. In order for data to be deidentified (short of the statistical analysis method which would have to be documented and shown to us), it must not contain any geographic subdivision smaller than state. 45 CFR 164.414(b)(2)(i)(B). Additionally, all elements of dates related to the individual must not be included, which includes birth date. 45 CFR 164.414(b)(2)(i)(C). Therefore, the researcher must follow protocols for identifiable data, which may include requesting a waiver of informed consent from the IRB.

   The researcher could possibly obtain the data requested as a limited data set without a waiver I believe (though we still would want to run it by the IRB). If this is the case, item 3.b. should be changed to "Limited Data Set."

Colin Boes, JD
Privacy Specialist
Office of Legal Affairs & FOIA
Michigan Department of Health & Human Services
201 Townsend St.
Lansing, Michigan 48933
(517) 335-8558 – T (517) 241-1200 - F

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:44 PM
To: Boes, Colin (DCH)
Subject: RE: New DCH-1294, time-sensitive

Thanks. I was told by a colleague of mine that Ian is expected back on Monday (I hope she was right).

I think the researcher is hoping for a turn-around with a week or so, but I'm sure he knows he can't make (and hasn't made) demands. I'll check with him about an IRB.

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Sent: Friday, September 11, 2015 1:33 PM
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Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 16, 2015 10:48 AM
To: Lawrence Reynolds; Mona Hanna-Attisha; Laura Carravallah; Dr. Lawrence Reynolds, M.D.
Cc: Peeler, Nancy (DCH); Lishinski, Karen (DCH); Emily Houk (emily@r2pconsultants.com); Scott, Robert L. (DCH)
Subject: RE: Lead level data

Dr. Reynolds,

I'll be happy to slice up the data in that way, including the most recent months available. I'll be out of the office for the next few days, but will work on it when I get back.

It's my understanding that the State will develop a fact sheet as well as a tip sheet on lead-safe water use for parents. I'm not sure how they'll be made public.

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Lawrence Reynolds [mailto:lrey52@gmail.com]
Sent: Wednesday, September 16, 2015 10:31 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Mona Hanna-Attisha <MHanna1@hurleymc.com>; Laura Carravallah <lcarrav1@yahoo.com>; Dr. Lawrence Reynolds, M.D. <reynolds@mottchc.org>
Subject: Lead level data

Good morning Mr. Scott .
Thank you for your timely response.I have reviewed the graphs with our GCHD and Dr. Mona Hanna-Attisha of Hurley.Is it possible to stratify the data by age -under 15 months, 16 months to under 6 years of age , over 6 years.Also can we get the most recent data for 2015.
At this point we will work with our patients to educate them.
Breast feeding is first choice .
I understand different filters do different things for lead , and not all get lead clumps from leaching pipes so we will not emphasize them.
We will try to get WIC to cover bottled water and encourage using water from outside the city system
Our goal is to give the most consistent correct information.
Are there any plans for public service announcements from the state ?

I am asking you to cc my reynolds@mottchc.org email along with lrey52@ gmail so I can access from anywhere.

--

Lawrence Reynolds

Scott, Robert L. (DHHS)

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Wednesday, September 16, 2015 3:10 PM
To: Scott, Robert L. (DCH)
Cc: Lawrence Reynolds
Subject: FW: IRBNet Board Action
Attachments: IRBNetDocument (33).pdf; Study Proposal IRB BLL MHA.pdf

Bob, I just received IRB approval to look at the City of Flint blood lead levels. I would love to get the raw data if that is possible. Attached is my study proposal and the IRB approval.

Specific fields that we are looking for include:
MCIR ID or some sort of identifier to ensure first time lead level only Zip code Date of Birth Date of Blood lead level Lead level

Would greatly appreciate your assistance! Thanks!

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center Michigan State University College of Human Medicine Department of Pediatrics and Human Development Mhanna1@hurleymc.com

-----Original Message-----
From: Nicolas Lecea [mailto:no-reply@irbnet.org]
Sent: Wednesday, September 16, 2015 2:09 PM
To: Jenny LaChance; Mona Hanna-Attisha
Subject: IRBNet Board Action

Please note that Hurley Medical Center Institutional Review Board has taken the following action on IRBNet:

Project Title: [807433-1] Analysis of Pediatric Blood Lead Levels Principal Investigator: Mona Hanna-Attisha, MD MPH

Submission Type: New Project
Date Submitted: September 15, 2015

Action: APPROVED
Effective Date: September 16, 2015
Review Type: Expedited Review

Should you have any questions you may contact Nicolas Lecea at nlecea1@hurleymc.com.

Thank you,
The IRBNet Support Team

www.irbnet.org

Scott, Robert L. (DHHS)

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 16, 2015 4:14 PM
To: Scott, Robert L. (DCH); Lishinski, Karen (DCH); Emily Houk R2P (emily@r2pconsultants.com)
Cc: Smith, Jennifer (DCH)
Subject: FW: MI lead POC

FYI - Jen, this is part of why we are working on talking points. Because of this, I imagine we'll want to include points about what our program offers/can do.

-----Original Message-----
From: Credle, Kimball (CDC/ONDIEH/NCEH) [mailto:kfc2@cdc.gov]
Sent: Wednesday, September 16, 2015 3:39 PM
To: Merkle, Sarah (CDC/ONDIEH/NCEH)
Cc: Peeler, Nancy (DCH)
Subject: RE: MI lead POC

Sure!

The POC there is Nancy Peeler. Her phone number and email address is (517)335-9230 - peelern@michigan.gov

I spoke with her last week about this issue and she assured me that they were complying with local inquiries and providing the necessary support.

Kimball F. Credle, MPH
Public Health Advisor
Healthy Homes and Lead Poisoning Prevention Program CDC, NCEH, EEHS
4770 Buford Highway (MS - F58)
Atlanta, GA. 30341
(770)488-3643 Office
(770)488-3635 Fax
(404)232-9063 Cell

kc

-----Original Message-----
From: Merkle, Sarah (CDC/ONDIEH/NCEH)
Sent: Wednesday, September 16, 2015 12:09 PM
To: Credle, Kimball (CDC/ONDIEH/NCEH) <kfc2@cdc.gov>
Cc: Brown, Mary Jean (CDC/ONDIEH/NCEH) <mjb5@cdc.gov>
Subject: MI lead POC

Hi Kimball,

I've been working with OPPE and Mary Jean on a a congressional inquiry about lead in water in Flint, MI.

Could you please send me the MI lead program POC?

Thanks!
Sarah
Sarah Merkle, MPH
Associate Director for Policy || Division of Emergency and Environmental Health Services (DEEHS)|| CDC - National Center for Environmental Health
Phone: 770-488-0541 || Email: smerkle@cdc.gov || Cell: 678-446-7731

Scott, Robert L. (DHHS)

From:	Smith, Jennifer (DCH)
Sent:	Wednesday, September 16, 2015 4:19 PM
To:	Peeler, Nancy (DCH); Scott, Robert L. (DCH); Lishinski, Karen (DCH); Emily Houk R2P (emily@r2pconsultants.com)
Cc:	Lasher, Geralyn (DCH); Minicuci, Angela (DCH); Hertel, Elizabeth (DCH)
Subject:	RE: MI lead POC

Thanks Nancy. I'm looping in Geralyn, Angela, and Elizabeth as a heads up about the congressional hearing.

Do you know when the hearing is taking place? Is DEQ involved?

Thank you,
Jennifer

-----Original Message-----
From: Peeler, Nancy (DCH)
Sent: Wednesday, September 16, 2015 4:14 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Lishinski, Karen (DCH) <LishinskiK@michigan.gov>; Emily Houk R2P (emily@r2pconsultants.com) <emily@r2pconsultants.com>
Cc: Smith, Jennifer (DCH) <smithj32@michigan.gov>
Subject: FW: MI lead POC

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Sent: Wednesday, September 16, 2015 4:21 PM
To: Smith, Jennifer (DCH); Scott, Robert L. (DCH); Lishinski, Karen (DCH); Emily Houk R2P (emily@r2pconsultants.com)
Cc: Lasher, Geralyn (DCH); Minicuci, Angela (DCH); Hertel, Elizabeth (DCH)
Subject: RE: MI lead POC

I don't have any details other than what I forwarded, sorry. The Congressional piece is new information for me. If I hear from the CDC person, I will pass along whatever I learn from him/her.

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Sent: Wednesday, September 16, 2015 4:19 PM
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Kimball F. Credle, MPH
Public Health Advisor
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12 October 2015

DRAFT MDHHS Flint Water Action Plan

Last Updated: 11:30 AM on October 12, 2015			
Action	**Local Lead**	**MDHHS Lead**	**Tasks**
Filter/Water Distribution	United Way (current) A local lead needs to be identified to head distribution operations (possibly with the LHD)*	E. Hertel (filters) It is possible that Richard Thelen may be the new MDHHS lead; requires further discussion*	Eden to talk to Jamie: - Coordination - Tracking filters - Ordering filter replacements - Identify a local lead

Blood Testing (venous preferable; confirm with Linda Dykema or do we want capillary testing?)	Needs to be identified*
	
	Possible partners:
	- Hurley
	- Great Flint Health Coalition
	- MIHP
	- LHD
	- Schools
		Linda Dykema	- Identification of all current positives (retest)
			- Test all (capillary v. venous testing?*)
			  o Students 0-16
			  o Priorities:
			  ▪ 3 schools
			  ▪ 2 zip codes
			  ▪ ages 0-15
			- Partner with schools
			- Partner with Great Flint Health Coalition
			- Partner with Hurley
			- Partner with LHD
			- Partner with MIHP (Medicaid)
			- Confirm that the state lab has capacity to handle increase in tests

Elevated Blood Level Investigations(all > 5 mlg/dl)	Needs to be identified*	Linda Dykema	
Communications	Needs to be identified*	Geralyn L/Tim B	- Develop plan - Provide provider education - Provide public education - Provide risk education - Send resources to Flint

Scott, Robert L. (DHHS)

From: Marc Edwards <edwardsm@vt.edu>
Sent: Monday, September 21, 2015 1:20 PM
To: Scott, Robert L. (DCH)
Subject: RE: New DCH-1294, time-sensitive

I am not sure how we can proceed. The Age in months would be fine.

But is it true that providing zip code level analysis, if you combine 48503 and 48504 into a "high risk" Flint area (50000+ residents), and the rest into a "low risk" Flint area, is by definition identified?

In that case, do I need to do an IRB, with my institution, to obtain data from you identified at the zip code level, and then get approval for that? Data would only be handled by me on my computer which is password protected.
If I get our IRB approval for my study with only zip code identified, are you then allowed to share that data (with zip code identified) with me?
Ultimately, zip code data will be combined into EBL% within that zip code, and there is no intention to look at individuals except by age in months.

I am not sure how to proceed.

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Tuesday, September 15, 2015 5:10 PM
To: Marc Edwards
Subject: RE: New DCH-1294, time-sensitive

I can certainly provide age in years instead of date of birth, although either one would be acceptable according to this link I found:

http://www.hopkinsmedicine.org/institutional_review_board/hipaa_research/limited_data_set.html

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Tuesday, September 15, 2015 4:58 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: New DCH-1294, time-sensitive

Can you tell me how I can do a limited dataset? Can I just have the age in years, for example?

Thanks so much!

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Tuesday, September 15, 2015 9:21 AM
To: Marc Edwards
Subject: FW: New DCH-1294, time-sensitive

Marc,

Please see Colin's (Legal Affairs) comments below. I apologize for not passing it along yesterday—the day got away from me. I clearly have a lot to learn—I made changes to your document thinking it was a slam-dunk as de-identified, but was wrong, as indicated below.

Please make changes to your DCH-1294 as directed by Colin's comments, and re-submit to me, still no signature.

Thanks,
Bob

From: Boes, Colin (DCH)
Sent: Friday, September 11, 2015 2:08 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Horste, Ian (DCH) <HorstelI@michigan.gov>
Subject: RE: New DCH-1294, time-sensitive

Robert,

Here are my comments regarding this DUA. Please feel free to give me a call if you have any questions. As I indicate below, we also need to see about whether our IRB needs to be involved.

1. I want to know more about the study that is being recreated in item 1. The attached protocol seems to discuss more about the study of the water samples, not the blood lead data. Saying that the researcher wants to verify the claim of MDEQ is not sufficient. It does not have to be a great deal longer, but it should explain what the intended use of the blood lead data is.

   It is also important to know exactly how it will be used for research in order to justify the release not just under HIPAA, but also under R 325.9086 pertaining to the confidentiality of blood lead test reports. It must be for the "If necessary for the purpose of research designed to develop or contribute to generalizable knowledge, with documented approval by the department's institutional review board." R 325.9086(2)(e). I am not sure how Ian would handle this, given the language in the rule that seems to require IRB approval.

2. Tying in with 1. above, telling us that the analysis will be similar to some other study is insufficient. This section should tell us how the data will be used and disclosed, how many people (research team) might have access, what formats it might be used in and other similar information. The attached research protocol, as noted above, does not get into sufficient detail regarding exactly how our blood lead data will be used and how its use will be restricted.

   I also need to know more about how the data will be secured on their end, how it will be handled, by who, and what will be done with it when it is no longer needed for their study.

3. The researcher indicates this data will be deidentified, but then goes on to ask for a number of identifiers that make the data identifiable, including county, city, and birth date of the child. In order for data to be deidentified (short of the statistical analysis method which would have to be documented and shown to us), it must not contain any geographic subdivision smaller than state. 45 CFR 164.414(b)(2)(i)(B).

Additionally, all elements of dates related to the individual must not be included, which includes birth date. 45 CFR 164.414(b)(2)(i)(C). Therefore, the researcher must follow protocols for identifiable data, which may include requesting a waiver of informed consent from the IRB.

The researcher could possibly obtain the data requested as a limited data set without a waiver I believe (though we still would want to run it by the IRB). If this is the case, item 3.b. should be changed to "Limited Data Set."

Colin Boes, JD
Privacy Specialist
Office of Legal Affairs & FOIA
Michigan Department of Health & Human Services
201 Townsend St.
Lansing, Michigan 48933
(517) 335-8558 – T (517) 241-1200 - F

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:44 PM
To: Boes, Colin (DCH)
Subject: RE: New DCH-1294, time-sensitive

Thanks. I was told by a colleague of mine that Ian is expected back on Monday (I hope she was right).

I think the researcher is hoping for a turn-around with a week or so, but I'm sure he knows he can't make (and hasn't made) demands. I'll check with him about an IRB.

From: Boes, Colin (DCH)
Sent: Friday, September 11, 2015 1:33 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: New DCH-1294, time-sensitive

Robert, thank you for letting me know about the time-sensitivity. I will do my best to get this turned around as soon as I can. Since this involves research you may wish to send it the IRB as well and let them know about the urgency. How soon do you think they were hoping to get it back? A few weeks? Shorter? I ask because our IRB director Ian is out of the office until at least next week (I cannot remember exactly how long he is out).

Colin Boes, JD
Privacy Specialist
Office of Legal Affairs & FOIA
Michigan Department of Health & Human Services
201 Townsend St.
Lansing, Michigan 48933
(517) 335-8558 – T (517) 241-1200 - F

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:26 PM
To: Boes, Colin (DCH)
Subject: New DCH-1294, time-sensitive

Colin,

Please see attached DUA and related proposal. I'm asking for a reasonably-quick turn-around on this request for de-identified data, if possible given your schedule. I've pasted Professor Edwards' comments below:

"Yes, I think there is clearly some urgency to the situation.
MDEQ has publicly stated that your blood lead records, are showing that there is no public health concern for residents in Flint.
The levels of lead in Flint water, that we are finding in our water sampling, are certainly in a range that can cause childhood lead poisoning.
Indeed, one child has already, likely been lead poisoned from exposure to high lead in water.
I think the fact that you already have other teams working on these records, indicates a high level of interest, and urgency.
Congressional interest in the safety of the water is also very high, and this will be an important issue in deciding options for treating the water, in the weeks and months ahead."

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

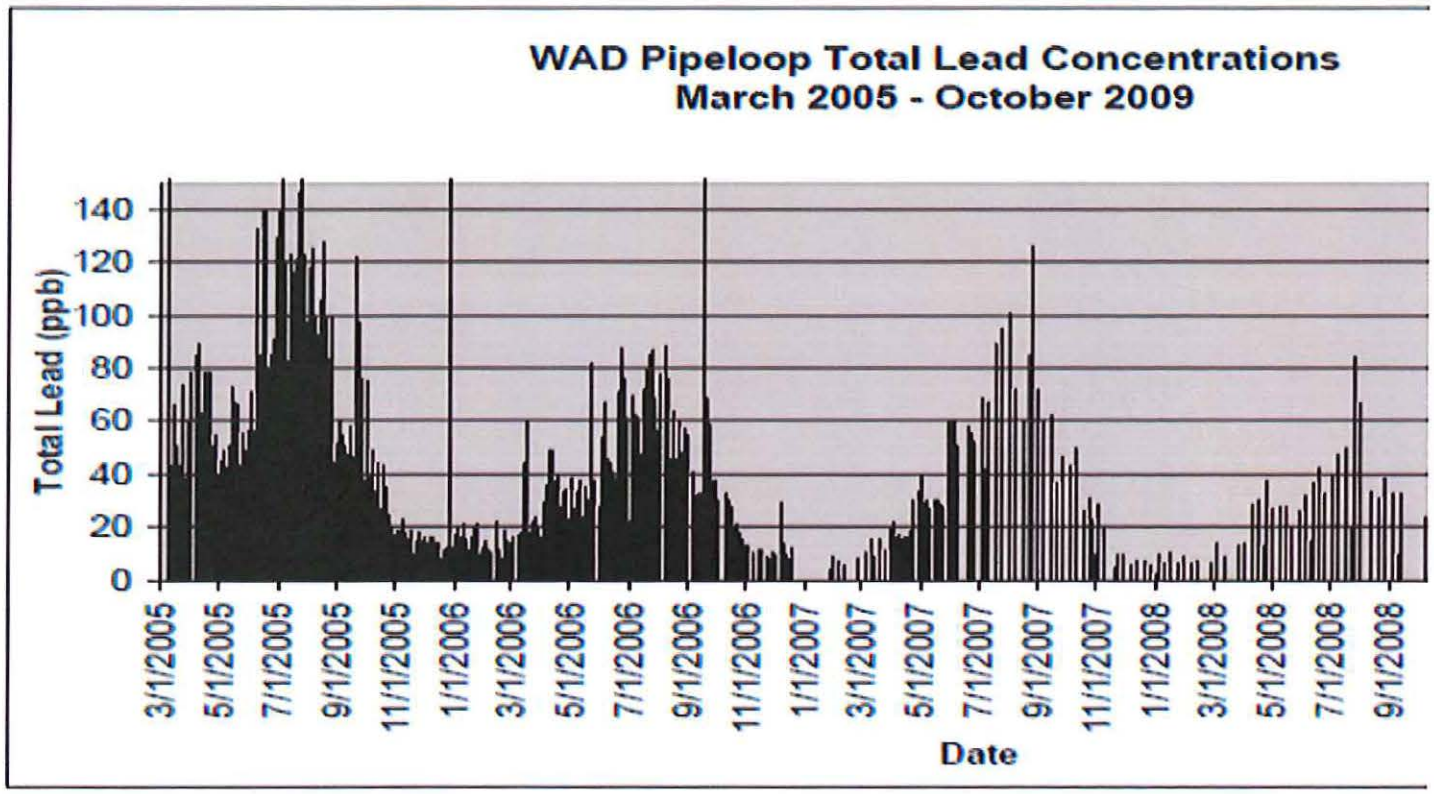
Scott, Robert L. (DHHS)

From: Marc Edwards <edwardsm@vt.edu>
Sent: Friday, September 25, 2015 10:08 PM
To: Scott, Robert L. (DCH)
Subject: lead in water seasonal

These results are from lead pipe loops run at the Washington Aqueduct in Triplicate....you get the idea.
The correlation with temperature in that system was something like R2 = 0.7 or so.

There are also peer reviewed papers showing that blood lead in summer peaks due to elevated water lead.
Water lead does not have to be constant. This is well known.

Marc



Scott, Robert L. (DHHS)

From: Marc Edwards <edwardsm@vt.edu>
Sent: Friday, September 25, 2015 1:12 PM
To: 'Mona Hanna-Attisha'; Scott, Robert L. (DCH); 'Jenny LaChance'
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Mona,

When you get the data let me know. Since you are involved and have apparently requested the data already (independently), I will not be bothering Robert further.

However, I will be speaking out, about the unethical behavior of the state in not sharing the data to date, and their abusing of power to discredit the work you have done.
The second they give you the data I will stop speaking out.

Robert, I apologize to you because I know you did not have anything to do with it, but what is happening here is just wrong.

Best Regards,

Marc

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Friday, September 25, 2015 1:00 PM
To: 'Mona Hanna-Attisha'; 'Scott, Robert L. (DCH)'; 'Jenny LaChance'
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

I understand that, and I appreciate what you are doing.

I also hope you can understand my frustration, at seeing this data given to reporters in an relatively unprocessed and unscientific format, used to support a claim that there is not a problem with lead in water in Flint.
And worst of all, seeing it used to "refute" the sound science that Mona did with her in-house data. I know you did not have anything to do with that, but I strongly feel that what is happening is unethical.
I hope you send my message to whoever is abusing the data (and the public trust, and the science method) in this way.

I will be calling the state out on this abuse, as long as it continues. I stand by my statements this is third rate and unscientific science that is being circulated by the state, and your department should have expedited Mona's requests to get access to the data. I am probably going to step aside and let her handle it from here, and as soon as you get her the data I will stop speaking out. She has proven herself to be a capable researcher.

You should also tell the team that is analyzing the data, that lead in water often peaks in the summer months, and declines in the winter months. It is clear from their one pager that they do not know the first thing about lead in water.

Marc

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, September 25, 2015 12:51 PM
To: 'Scott, Robert L. (DCH)'; Marc Edwards; Jenny LaChance
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Thanks Bob. We greatly appreciate all your assistance and your hard work!

It's interesting to note that the number of children tested in July and August of 2015 is so small as compared to the same months in previous years? Do you think those numbers capture all the tests that were done – is there a lag time in reporting to your system?

Thanks! Mona

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Friday, September 25, 2015 12:44 PM
To: Marc Edwards
Cc: Mona Hanna-Attisha; Peeler, Nancy (DCH); Minicuci, Angela (DCH)
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Marc,

As you well know, the data you and Dr. Hanna-Attisha have requested are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public.

I worked with you earlier this month to get data to you relatively quickly, but we did not manage to complete the process before I went on annual leave for several days. I neglected to inform you that I'd be away. I returned on Wednesday and corresponded that day with Dr. Hanna-Attisha, providing her with the forms she'll need for her request.

Regarding your email from Monday, I think you'll be able to get approval for data with zip code identified. I'll edit your data use agreement accordingly, will adjust it to say "limited data set" instead of "de-identified," and will re-submit it to our Legal office. You will need to submit an MDHHS IRB review application (attached) because this is considered research. You should also submit a "HIPAA Waiver Request" (attached). (I wasn't aware of the Waiver Request when we talked earlier this month.) Send those documents to me, and I'll pass them on to our IRB contact. I don't know whether you'll need to go through an IRB review with your institution.

In short, both your request and Dr. Hanna-Attisha's are in process in accordance with departmental policies.

I've attached a PDF that includes the numbers behind the graphs you referred to, and I'm CC'ing Dr. Hanna-Attisha so that she has it as well.

Please keep in mind that I work for a very small program responsible for processing several thousand blood lead results every week--in order to get them out to the professionals working directly with children and families, which is the primary purpose and highest priority of our program.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 24, 2015 8:14 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Dear Robert,

I just spoke to this young researcher at Hurley, and apparently, she has been unable to get access to the state blood lead records.
I have to say, it is very disturbing that the state keeps issuing these blood lead reports and statements in their press releases, and refuses to share the data backing them up with outside researchers.
Even worse, state reps are running around claiming that these reports are proof that Flint water is safe to drink.

Can you tell me why it is so difficult to get this data, and why your agency is raising so many obstacles to sharing it with everyone who asks? I note that I have been asking to see your data since MDEQ first sent it to reporters back in August, and I count 10 e-mails that I sent responding to all your questions. As of yet, you have given me nothing in response. Yet you have been sending reporters one report after another. It seems your agency is more interested in public relations than sound science.

In the meantime, can I at least be given the numbers of EBL cases and number of tests each month, that are the basis for the latest graph your agency is sending to the press...or is that top secret as well?

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Monday, September 21, 2015 1:21 PM
To: Marc Edwards
Subject: Automatic reply: New DCH-1294, time-sensitive

I'll be out of the office until Wednesday, Sept 23. I'll respond to your message when I return.

Scott, Robert L. (DHHS)

From:	Scott, Robert L. (DCH)
Sent:	Friday, September 25, 2015 9:35 AM
To:	Minicuci, Angela (DCH); Eisner, Jennifer (DCH)
Cc:	Peeler, Nancy (DCH)
Subject:	question on email response regarding Flint blood lead data
Attachments:	Flint Testing and EBLLs_updated 092315_with notes.pdf; HIPAA Waiver Request Template.doc; DCH-1277 IRB Initial Review Application.doc

Angela or Jennifer,

Please see Dr. Edwards email below, and my draft response to him. I'm not very happy with him right now, but tried to respond appropriately. Given the sensitive nature of the situation, I'm checking with you first. Nancy is on annual leave, but I've CC'd her here.

Is it OK to send this? Please feel free to make changes as appropriate. I'm also asking if it's OK now to share the attached PDF with Dr. Edwards and Dr. Hanna-Attisha.

Thanks,
Bob

Marc,

As you well know, the data you and Dr. Hanna-Attisha are requesting are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public. In addition, my Department has policies on how to determine what can be shared.

I worked with you earlier this month to get data to you relatively quickly, but did not manage to complete the process before I went on annual leave for several days. I neglected to inform you that I'd be away, and I apologize for not informing you. Unfortunately we are a very small program, and there's no one else here to process your request—or Dr. Hanna-Attisha's.

Since I returned on Wednesday, my time has been largely taken up with my Department's response to the current situation in Flint. I did manage to correspond to Dr. Hanna-Attisha, and provided her with the forms she'll need for her request. I hope to submit her request to our Legal office and to our IRB contact today.

Sorry I haven't responded to your email from Monday—as I mentioned above, I was away, and then have been juggling many tasks since I returned. I think you'll be able to get approval for data with zip code identified. I'll edit your data use agreement accordingly, and will adjust it to say "limited data set" instead of "de-identified." I'll re-submit your DUA to Legal today. You will need to submit an MDHHS IRB review application (attached) because this is considered research. You should also submit a "HIPAA Waiver Request" (attached). (I wasn't aware of that when we talked earlier this month.) I don't know whether you'll need to go through an IRB review with your institution.

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Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 24, 2015 8:14 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Dear Robert,

I just spoke to this young researcher at Hurley, and apparently, she has been unable to get access to the state blood lead records.
I have to say, it is very disturbing that the state keeps issuing these blood lead reports and statements in their press releases, and refuses to share the data backing them up with outside researchers.
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In the meantime, can I at least be given the numbers of EBL cases and number of tests each month, that are the basis for the latest graph your agency is sending to the press...or is that top secret as well?

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Monday, September 21, 2015 1:21 PM
To: Marc Edwards
Subject: Automatic reply: New DCH-1294, time-sensitive

I'll be out of the office until Wednesday, Sept 23. I'll respond to your message when I return.

Scott, Robert L. (DHHS)

From: Peeler, Nancy (DCH)
Sent: Friday, September 25, 2015 9:53 AM
To: Scott, Robert L. (DCH)
Cc: Minicuci, Angela (DCH); Eisner, Jennifer (DCH)
Subject: Re: question on email response regarding Flint blood lead data

Bob, I appreciate your efforts to work on this email. I think we can apologize less, and just concisely lay out the steps that have been taken, and need to be taken (which you have). Angela and Jennifer, if you have input that can help shape this, I also would appreciate that help.

Nancy

Sent from my iPad

On Sep 25, 2015, at 9:34 AM, Scott, Robert L. (DCH) <ScottR9@michigan.gov> wrote:

> Angela or Jennifer,
>
> Please see Dr. Edwards email below, and my draft response to him. I'm not very happy with him right now, but tried to respond appropriately. Given the sensitive nature of the situation, I'm checking with you first. Nancy is on annual leave, but I've CC'd her here.
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> Is it OK to send this? Please feel free to make changes as appropriate. I'm also asking if it's OK now to share the attached PDF with Dr. Edwards and Dr. Hanna-Attisha.
>
> Thanks,
> Bob
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> Marc,
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> As you well know, the data you and Dr. Hanna-Attisha are requesting are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public. In addition, my Department has policies on how to determine what can be shared.
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> Since I returned on Wednesday, my time has been largely taken up with my Department's response to the current situation in Flint. I did manage to correspond to Dr. Hanna-Attisha, and provided her with the forms she'll need for her request. I hope to submit her request to our Legal office and to our IRB contact today.

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<Flint Testing and EBLLs_updated 092315_with notes.pdf>

<HIPAA Waiver Request Template.doc>

<DCH-1277 IRB Initial Review Application.doc>

Scott, Robert L. (DHHS)

From: Peeler, Nancy (DCH)
Sent: Friday, September 25, 2015 10:37 AM
To: Scott, Robert L. (DCH)
Subject: Re: question on email response regarding Flint blood lead data

I'm sitting in Zoe's quantum mechanics class, no clue what these differential equations are telling me, but I am stewing a bit about this situation. I want to say that you always do a great job, and are responsive to all data requests, and advocate to help researchers get whatever paperwork completed and turned in. That's why this feels so inappropriate to me - this isn't your fault, thus my earlier comment about apologizing less. And having said that, it probably wasn't a really helpful comment toward revising the response.

The email you received could be read as an intent to escalate and spin things, and I don't think you need to get caught up in that. A calm, fact-based response is very appropriate.

I think your first paragraph is good, but I would remove the last sentence, as I'm not sure what policies you are referencing beyond state and federal law -- and, I think the state and federal law carry enough weight that our departmental policies probably don't change much of anything about the process.

For paragraphs 2 and 3 I think I would just say state the facts, which is that both requests are in process in accordance with departmental policies - because they are. You really don't need to apologize for taking vacation, and I consider anybody's vacation time to be a normal part of doing business - none of us are expected to be at our desks every day, and there is no way to predict what might come up when we are planning to be away.

In your 4th paragraph, it looks like he is changing his data request? I appreciate your generosity in taking on responsibility to do his work for him (editing his paperwork) - your option, whether you want to do that, or request that he re-do it. I would outline the steps, clarify that you have confirmed the process which revealed the extra step, and let him know you'll watch for his response.

Finally, I might close with the piece about a small program, responsible for processing a high number of results every day or week (you sent me a number last week) in order to get them out to the professionals working directly with children and families, which IS the purpose and highest priority of our program.

I hope some of this is helpful and not too late - hope the rest of the day goes better. Thank you for all you do!

Sent from my iPad

On Sep 25, 2015, at 9:34 AM, Scott, Robert L. (DCH) <ScottR9@michigan.gov> wrote:

> Angela or Jennifer,
>
> Please see Dr. Edwards email below, and my draft response to him. I'm not very happy with him right now, but tried to respond appropriately. Given the sensitive nature of the situation, I'm checking with you first. Nancy is on annual leave, but I've CC'd her here.
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Thanks,
Bob

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Attisha are requesting are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public. In addition, my Department has policies on how to determine what can be shared.

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<Flint Testing and EBLLs_updated 092315_with notes.pdf>

<HIPAA Waiver Request Template.doc>

<DCH-1277 IRB Initial Review Application.doc>

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 1:02 PM
To: 'Mona Hanna-Attisha'; Marc Edwards; Jenny LaChance
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Mona,

There's generally a lag of about two weeks from the date of the test to its being fully processed in our system. A few results take longer, for a variety of reasons. 99% of all results through August should be reflected in those numbers. Not sure why the last few months were so low.

Thanks,
Bob

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, September 25, 2015 12:51 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Marc Edwards <edwardsm@vt.edu>; Jenny LaChance <JLachan1@hurleymc.com>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Thanks Bob. We greatly appreciate all your assistance and your hard work!

It's interesting to note that the number of children tested in July and August of 2015 is so small as compared to the same months in previous years? Do you think those numbers capture all the tests that were done – is there a lag time in reporting to your system?

Thanks! Mona

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Friday, September 25, 2015 12:44 PM
To: Marc Edwards
Cc: Mona Hanna-Attisha; Peeler, Nancy (DCH); Minicuci, Angela (DCH)
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Marc,

As you well know, the data you and Dr. Hanna-Attisha have requested are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public.

I worked with you earlier this month to get data to you relatively quickly, but we did not manage to complete the process before I went on annual leave for several days. I neglected to inform you that I'd be away. I returned on Wednesday and corresponded that day with Dr. Hanna-Attisha, providing her with the forms she'll need for her request.

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In short, both your request and Dr. Hanna-Attisha's are in process in accordance with departmental policies.

I've attached a PDF that includes the numbers behind the graphs you referred to, and I'm CC'ing Dr. Hanna-Attisha so that she has it as well.

Please keep in mind that I work for a very small program responsible for processing several thousand blood lead results every week--in order to get them out to the professionals working directly with children and families, which is the primary purpose and highest priority of our program.

Bob

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From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 1:56 PM
To: Peeler, Nancy (DCH)
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Thanks--he sent a couple of responses that I'll share on Monday. ☺

I did talk with the reporting, with Angela on the line. Answered some basic questions and didn't go out on any shaky limbs. The reporter wants to speak with Cristin Larder (maybe Monday—Angela said she knows Cristin), and I'm going to prepare a table of EBLLs by year going as far back as possible, for Flint, plus Detroit and the state for comparison.

From: Peeler, Nancy (DCH)
Sent: Friday, September 25, 2015 1:50 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Re: Automatic reply: New DCH-1294, time-sensitive

Really nice email, thanks!

Sent from my iPad

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Sent: Friday, September 25, 2015 2:15 PM
To: 'Mona Hanna-Attisha'
Subject: RE: Automatic reply: New DCH-1294, time-sensitive
Attachments: HIPAA Waiver Request Template.doc

Sorry, here's one more (short) form to fill out and send back to me.

Thanks,
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From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, September 25, 2015 12:51 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Marc Edwards <edwardsm@vt.edu>; Jenny LaChance <JLachan1@hurleymc.com>
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Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 29, 2015 8:45 AM
To: Peeler, Nancy (DCH)
Subject: RE: State data confirms higher blood-lead levels in Flint kids

It seems reasonable to me. The "remove subsequent tests for that child" is a toughy, I'm sure. I don't have any suggestions for making the process any simpler.

I expressed my concern yesterday to Cristin that they are counting EBLL kids again if they show up in a subsequent year. If I understood correctly, it's because they want to avoid any suggestion of undercounting. I'm certainly willing to go with their judgment.

From: Peeler, Nancy (DCH)
Sent: Monday, September 28, 2015 10:26 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Fwd: State data confirms higher blood-lead levels in Flint kids

Does this sound like the process you use, or any tips on how you approach this most effectively?

Sent from my iPhone

Begin forwarded message:

> **From:** "LyonCallo, Sarah (DCH)" <lyoncallos@michigan.gov>
> **Date:** September 28, 2015 at 7:16:48 PM EDT
> **To:** "Peeler, Nancy (DCH)" <PeelerN@michigan.gov>
> **Cc:** "McKane, Patricia (DCH)" <McKaneP@michigan.gov>, "Fink, Brenda (DCH)" <FinkB@michigan.gov>, "Scott, Robert L. (DCH)" <ScottR9@michigan.gov>
> **Subject: RE: State data confirms higher blood-lead levels in Flint kids**
>
> Nancy
> Cristin has been working all day on this. We are working together right now and expect to be doing so for a while this evening. We are committed to getting monthly proportion of tested positive graphic for each region (high risk, other flint, other Genesee) for 0-6 year olds for tomorrow am review by Corinne – we will forward when comfortable it is correct.
> To do this, we are having to identify tests on a monthly basis for the denominator, up until (and including) the first incidence of high EBLL in the year. Then remove subsequent tests for that child in the rest of the calendar year. The whole thing starts over the next calendar year. We are in a maze of do-loops right now.
> Sarah
>
> ---
>
> **From:** Peeler, Nancy (DCH)
> **Sent:** Monday, September 28, 2015 5:24 PM
> **To:** LyonCallo, Sarah (DCH)
> **Cc:** McKane, Patricia (DCH); Fink, Brenda (DCH); Scott, Robert L. (DCH)
> **Subject:** RE: State data confirms higher blood-lead levels in Flint kids
>
> Thanks, everyone, I understand that Bob and Cristin connected and the work is moving forward.

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 2:42 PM
To: 'Mona Hanna-Attisha'
Subject: need additional info for DCH-1294
Attachments: DCH-1294 Hanna-Attisha.doc

Please see attached. I made a couple of changes:
In 1.3.a. I changed Medicaid record number to "Child ID number," which will serve the same purpose I think—multiple tests for one child will all have the same Child ID number. I removed "primary medical doctor," as I don't have that information. I added "specimen type" (venous or capillary).
In 1.3.b. I changed it to "limited data set" as I think this request falls in that category.

If you don't like those changes, let me know and we can discuss it.

In Section 2.3 ("Use appropriate safeguards...") please describe in detail how you'll keep this data secure.

Then return to me and I'll submit it to our Legal contact. He may still ask for more changes—that's just how this process works.

Thanks,
Bob

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, September 25, 2015 2:24 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Thanks Bob! We will complete and get back to you soon! Mona

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Friday, September 25, 2015 2:15 PM
To: Mona Hanna-Attisha
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Sorry, here's one more (short) form to fill out and send back to me.

Thanks,
Bob

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, September 25, 2015 12:51 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Marc Edwards <edwardsm@vt.edu>; Jenny LaChance <JLachan1@hurleymc.com>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Thanks Bob. We greatly appreciate all your assistance and your hard work!

It's interesting to note that the number of children tested in July and August of 2015 is so small as compared to the same months in previous years? Do you think those numbers capture all the tests that were done – is there a lag time in reporting to your system?

Thanks! Mona

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Friday, September 25, 2015 12:44 PM
To: Marc Edwards
Cc: Mona Hanna-Attisha; Peeler, Nancy (DCH); Minicuci, Angela (DCH)
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Marc,

As you well know, the data you and Dr. Hanna-Attisha have requested are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public.

I worked with you earlier this month to get data to you relatively quickly, but we did not manage to complete the process before I went on annual leave for several days. I neglected to inform you that I'd be away. I returned on Wednesday and corresponded that day with Dr. Hanna-Attisha, providing her with the forms she'll need for her request.

Regarding your email from Monday, I think you'll be able to get approval for data with zip code identified. I'll edit your data use agreement accordingly, will adjust it to say "limited data set" instead of "de-identified," and will re-submit it to our Legal office. You will need to submit an MDHHS IRB review application (attached) because this is considered research. You should also submit a "HIPAA Waiver Request" (attached). (I wasn't aware of the Waiver Request when we talked earlier this month.) Send those documents to me, and I'll pass them on to our IRB contact. I don't know whether you'll need to go through an IRB review with your institution.

In short, both your request and Dr. Hanna-Attisha's are in process in accordance with departmental policies.

I've attached a PDF that includes the numbers behind the graphs you referred to, and I'm CC'ing Dr. Hanna-Attisha so that she has it as well.

Please keep in mind that I work for a very small program responsible for processing several thousand blood lead results every week--in order to get them out to the professionals working directly with children and families, which is the primary purpose and highest priority of our program.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 24, 2015 8:14 PM

To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Dear Robert,

I just spoke to this young researcher at Hurley, and apparently, she has been unable to get access to the state blood lead records.
I have to say, it is very disturbing that the state keeps issuing these blood lead reports and statements in their press releases, and refuses to share the data backing them up with outside researchers.
Even worse, state reps are running around claiming that these reports are proof that Flint water is safe to drink.

Can you tell me why it is so difficult to get this data, and why your agency is raising so many obstacles to sharing it with everyone who asks? I note that I have been asking to see your data since MDEQ first sent it to reporters back in August, and I count 10 e-mails that I sent responding to all your questions. As of yet, you have given me nothing in response. Yet you have been sending reporters one report after another. It seems your agency is more interested in public relations than sound science.

In the meantime, can I at least be given the numbers of EBL cases and number of tests each month, that are the basis for the latest graph your agency is sending to the press...or is that top secret as well?

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Monday, September 21, 2015 1:21 PM
To: Marc Edwards
Subject: Automatic reply: New DCH-1294, time-sensitive

I'll be out of the office until Wednesday, Sept 23. I'll respond to your message when I return.

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 3:45 PM
To: 'Mona Hanna-Attisha'
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

No, I didn't run the data for kids 0-5. We normally would use that age range, and I don't completely recall the conversation that led to using 0-15—possibly trying to cast as wide a net as possible? Of tests for kids 0-15, approximately 10% are for the 6-15 age range.

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, September 25, 2015 3:12 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Bob, did you ever look at your data that was released for kids less than 5, rather than 16? 16 seems so strange – we rarely do lead levels in kids over the age of 5. Is that what other states do?

Thanks!

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Friday, September 25, 2015 1:02 PM
To: Mona Hanna-Attisha; Marc Edwards; Jenny LaChance
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Mona,

There's generally a lag of about two weeks from the date of the test to its being fully processed in our system. A few results take longer, for a variety of reasons. 99% of all results through August should be reflected in those numbers. Not sure why the last few months were so low.

Thanks,
Bob

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, September 25, 2015 12:51 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Marc Edwards <edwardsm@vt.edu>; Jenny LaChance <JLachan1@hurleymc.com>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Thanks Bob. We greatly appreciate all your assistance and your hard work!

It's interesting to note that the number of children tested in July and August of 2015 is so small as compared to the same months in previous years? Do you think those numbers capture all the tests that were done – is there a lag time in reporting to your system?

Thanks! Mona

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Friday, September 25, 2015 12:44 PM
To: Marc Edwards
Cc: Mona Hanna-Attisha; Peeler, Nancy (DCH); Minicuci, Angela (DCH)
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Marc,

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In short, both your request and Dr. Hanna-Attisha's are in process in accordance with departmental policies.

I've attached a PDF that includes the numbers behind the graphs you referred to, and I'm CC'ing Dr. Hanna-Attisha so that she has it as well.

Please keep in mind that I work for a very small program responsible for processing several thousand blood lead results every week--in order to get them out to the professionals working directly with children and families, which is the primary purpose and highest priority of our program.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 24, 2015 8:14 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Dear Robert,

I just spoke to this young researcher at Hurley, and apparently, she has been unable to get access to the state blood lead records.

I have to say, it is very disturbing that the state keeps issuing these blood lead reports and statements in their press releases, and refuses to share the data backing them up with outside researchers.
Even worse, state reps are running around claiming that these reports are proof that Flint water is safe to drink.

Can you tell me why it is so difficult to get this data, and why your agency is raising so many obstacles to sharing it with everyone who asks? I note that I have been asking to see your data since MDEQ first sent it to reporters back in August, and I count 10 e-mails that I sent responding to all your questions. As of yet, you have given me nothing in response. Yet you have been sending reporters one report after another. It seems your agency is more interested in public relations than sound science.

In the meantime, can I at least be given the numbers of EBL cases and number of tests each month, that are the basis for the latest graph your agency is sending to the press...or is that top secret as well?

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Monday, September 21, 2015 1:21 PM
To: Marc Edwards
Subject: Automatic reply: New DCH-1294, time-sensitive

I'll be out of the office until Wednesday, Sept 23. I'll respond to your message when I return.

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Monday, September 28, 2015 11:05 AM
To: Larder, Cristin (DCH)
Subject: RE: file

Yes, all tests for each child in Genesee County between those dates.

From: Larder, Cristin (DCH)
Sent: Monday, September 28, 2015 11:04 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: file

No problem, Bob. Thanks for the data. Just to confirm, ALL tests for each child between January 1, 2010 and August 31, 2015 are in this dataset, correct?

I just spoke with Sarah, who met with Corrine Miller, Linda Dykema, and Wes Priem immediately prior. We have an analysis plan, and I will get to work on prepping the data immediately. Sarah will field questions while I'm working. I'll keep you updated, but it will be at least a couple of hours before I have the data ready for analysis.

I'm so sorry you got stuck in the middle of this.

-Cristin

From: Scott, Robert L. (DCH)
Sent: Monday, September 28, 2015 10:35 AM
To: Larder, Cristin (DCH)
Subject: file

LeadFLINT

Please let me know what I can do to help. Please also keep me in the loop on any communications about this, thanks.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Monday, September 28, 2015 8:22 AM
To: Larder, Cristin (DCH)
Subject: Flint water issue

Cristin,

I don't know if anyone has said anything to you yet, but you may get pulled in to do some more analysis of Flint lead data—today, I imagine. Nancy has talked with Patty, so maybe you've already heard. I'm going to leave you a phone message as well.

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Elevated Blood Lead Levels Among Children <16 Years of Age

City of Flint, May 2011— April 2015

QUESTION:

Were positive tests for elevated blood lead levels (EBLL) higher than usual for children under age 16 living in the City of Flint during the months of July, August, and September, 2014?

METHODS:

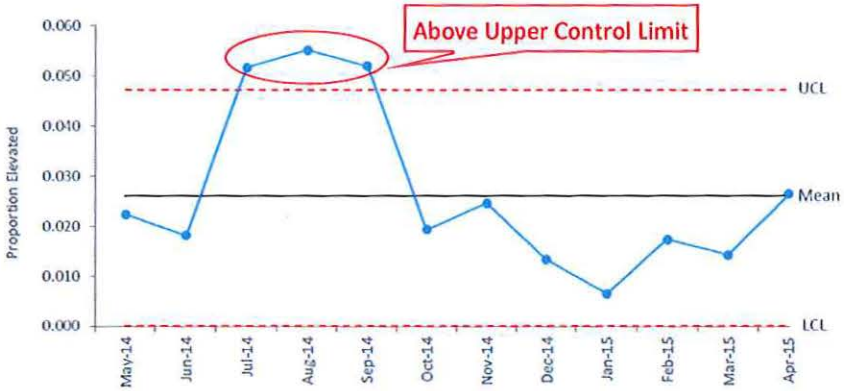
- The number of children tested for lead poisoning varies from month to month, so the proportion of children with a first-time blood lead level ≥5 µg/dL was calculated for each month (Figure 1).
- To determine whether or not the difference between the summer of 2014 and the previous three years warrants further investigation, a control chart for proportions (Figure 3) was constructed.
- Monthly data from May 2011 to April 2014 were used to construct upper and lower control limits (UCL and LCL) representing the amount of expected variation in EBLL (Figure 3).
- Finally, proportions of EBLL from May 2014 to April 2015 were plotted in Figure 3.

Figure 1. Formula for Calculating Monthly Proportion of Children with Elevated Blood Lead Levels

$$\frac{\text{Number of Children with Blood Lead Level} \geq 5\ \mu g/dL}{\text{Total Number of Children Tested}} = \text{Proportion with EBLL}$$

Figure 2. Proportion of Children Tested for Lead Poisoning with Elevated Blood Lead Levels, May 2011—April 2015

Figure 3. Control Chart of Proportion of Children Tested for Lead Poisoning with Elevated Blood Lead Levels, May 2014—April 2015



RESULTS:

- Figure 2 shows that—on average—there appears to be a higher proportion of first-time EBLL during the summer months of July, August, and September.
- However, even compared to the previous three years, the proportion of first-time EBLL is highest during summer 2014 (Figure 2).
- Based on the control chart for proportions (Figure 3), only the summer months of July, August, and September had proportions of EBLL higher than that expected from random variation over time.
- Further, the summer months of 2014 were the only data points between May 2014 and April 2015 with EBLL proportions above the average (mean) of the previous three years (Figure 3).

CONCLUSION:

- Based on the results depicted in Figure 3, positive tests for EBLL were higher than usual for children under age 16 living in the City of Flint during the months of July, August, and September, 2014.
- However, it's important to note that the purpose of control charts is to monitor data for the quick detection of abnormal variation—not to construct a case for causality.

SOURCES:

- Data for the City of Flint was provided by the Childhood Lead Poisoning Prevention Program at the Michigan Department of Health and Human Services (MDHHS). Information is current as of July 27, 2015.
- Control chart methods are based on The Six Sigma Way Team Fieldbook: An Implementation Guide for Process Improvement Teams, by Peter Pande, Robert Neuman, and Roland Cavanagh.

Scott, Robert L. (DHHS)

From:	Jenny LaChance <JLachan1@hurleymc.com>
Sent:	Tuesday, September 29, 2015 4:32 PM
To:	Scott, Robert L. (DCH)
Cc:	Mona Hanna-Attisha
Subject:	RE: State data - Dr. Mona Hanna-Attisha
Attachments:	HIPAA Waiver Request Hanna-Attisha 9 29 15-1.pdf; Study Proposal IRB BLL MHA revised 9 25 15.docx

Hi Bob,

Please see attached the HIPAA waiver form signed by Mona (PI) and the most recent IRB proposal (note the highlighted areas are based on a requirement from our IRB). If anything else is needed, please just let me know.

Kind regards,
Jenny

From: Scott, Robert L. (DCH) [ScottR9@michigan.gov]
Sent: Tuesday, September 29, 2015 4:06 PM
To: Jenny LaChance
Cc: Mona Hanna-Attisha
Subject: RE: State data - Dr. Mona Hanna-Attisha

Jenny,

Please send the study protocol that you submitted to the Hurley IRB. I have your approval letter, thanks, but the MDHHS IRB will want to see the protocol as well.

While you're at it, might as well, sign, scan and resend the HIPAA Waiver form (attached)—I assume it won't need any edits.

Thanks,
Bob

From: Jenny LaChance [mailto:JLachan1@hurleymc.com]
Sent: Friday, September 25, 2015 5:03 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Mona Hanna-Attisha <MHanna1@hurleymc.com>
Subject: RE: State data - Dr. Mona Hanna-Attisha

Hi Bob,

Please see attached the revised application and draft HIPAA waiver form. Please let me know if any changes are needed. (Does Mona need to sign the Waiver now or would that be after it is reviewed?) I'm happy to make any changes.

Thanks!
Jenny

From: Jenny LaChance
Sent: Friday, September 25, 2015 4:29 PM

To: Scott, Robert L. (DCH); Mona Hanna-Attisha
Subject: RE: State data - Dr. Mona Hanna-Attisha

Hi Bob,

Thank you! I am revising the original application and completing the HIPAA waiver form now. I will send to you soon.

Thanks again,
Jenny

From: Scott, Robert L. (DCH) [ScottR9@michigan.gov]
Sent: Friday, September 25, 2015 4:09 PM
To: Jenny LaChance; Mona Hanna-Attisha
Subject: RE: State data - Dr. Mona Hanna-Attisha

Jenny,

As long as this request is for "research," then I don't think it will be a problem to provide addresses. You're correct, it would then be considered "identifiable." One thing that might slow it down—I believe you'd have to go back to Hurley's IRB and get approval for the change.

Bob

From: Jenny LaChance [mailto:JLachan1@hurleymc.com]
Sent: Friday, September 25, 2015 4:05 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Mona Hanna-Attisha <MHanna1@hurleymc.com>
Subject: State data - Dr. Mona Hanna-Attisha

Hi Bob,

My name is Jenny LaChance, and I have been working with Mona on the data. We are now doing in depth GIS analysis, which involves actual address (beyond zipcode). Would adding actual address slow down the request for the State data? I believe this would not longer be a limited data set. Any advice or guidance would be truly appreciated.

Thank you so much!
Jenny

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 29, 2015 4:42 PM
To: MDHHS-IRB
Subject: IRB application and related documents
Attachments: Abbreviated IRB app Hanna-Attisha.doc; Study Proposal IRB BLL MHA revised 9 29 15.docx; HIPAA Waiver Request Hanna-Attisha 9 29 15-1.pdf; IRBNetDocument 92515.pdf

Please see four attachments: Abbreviated IRB app; signed HIPAA Waiver Request; Hurley IRB approval; and Study Proposal that was submitted to Hurley IRB.

A related Data Use Agreement has been sent to Colin Boes for his review.

Please let me know if you need anything else.

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Scott, Robert L. (DHHS)

From: Jenny LaChance <JLachan1@hurleymc.com>
Sent: Thursday, October 01, 2015 2:55 PM
To: Scott, Robert L. (DHHS)
Cc: Mona Hanna-Attisha
Subject: RE: IRB application and related documents
Attachments: IRBNetDocument approval amendment 4.pdf; Study Proposal IRB BLL MHA revised 10 1 15.docx; HIPAA waiver.pdf

Hi Bob,

Please see attached our revised proposal and Waiver of HIPAA authorization. I am also including the newest IRB approval letter.

If anything else is needed or if I should send these documents to someone else, please let me know.

Thanks,
Jenny

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Wednesday, September 30, 2015 12:59 PM
To: Jenny LaChance <JLachan1@hurleymc.com>
Cc: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Subject: FW: IRB application and related documents

Please see MDHHS IRB's comments below. Regarding the first #1 below, that's partly my fault for missing the reference to MCIR in your protocol. Did I ever explain that MCIR does not store any blood lead results? They are stored in the MDHHS Data Warehouse. MCIR then links to the Warehouse and *displays* any records found for a given child. Along that line, I changed your reference to MCIR in the DUA to read "MDHHS Childhood Lead Poisoning Prevention Program database" (which feeds data to the Warehouse), but I didn't catch it in your protocol. So, please make that change in your protocol—and while you're at it, you might as well change the list of attributes requested to match the DUA: "Child ID number, date of birth, date of blood draw, address with zip code, blood lead level, and specimen type." I assume this means you'll have to loop back through Hurley's IRB.

Regarding the first #2 below, please note that I had copied and pasted from your HIPAA Waiver to your DUA Section 2: Agreement Conditions, #3. (I had asked for this info in one of my emails, but you must have missed it—the request was sort of buried among other comments.)

Regarding that first #2 and the second #1,2,3, please make whatever changes you think appropriate to address Ian's concerns. It's probably best if I get out of the way, and not try to interpret for you. If you have questions about Ian's concerns, please feel free to correspond with him directly and CC me.

Bob

From: MDHHS-IRB
Sent: Wednesday, September 30, 2015 11:41 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Boes, Colin (DCH) <BoesC1@michigan.gov>
Subject: RE: IRB application and related documents

Hello Bob,

Thank you for your work in coordinating submission of these IRB application documents, as well as the draft Data Use Agreement which Colin has shared with me. Colin and I have touched base and we have some questions related to the application generally and the request for a Waiver of the Requirements for Authorization.

There is some confusion in the IRB application to Hurley, and I'm guessing this is likely due to the IRB application having been written before the specifics of data sharing (as appear addressed thoroughly in the DUA) were worked out. To make sure we understand what is proposed, however, I'm hopeful you/the researchers can speak to the following:

1. The IRB application speaks to data being obtained from MCIR while the DUA speaks to data being obtained from the Childhood Lead Poisoning Prevention Program database. Please clarify the source and form of the data to be provided from MDHHS. Notably, will records be obtained via provider access to MCIR? Or will data originating from MDHHS sources be prepared for disclosure exclusively by MDHHS staff?
2. Although both the IRB application and DUA speak to the Child ID number being destroyed at the earliest possible time point (once duplicate entries have been removed), it is unclear whether the same is true for other potentially identifying information (address, birth date, testing date, etc.). The IRB application appears to suggest these identifying fields will be maintained, where the data use agreement appears to indicate that masking of these fields (removing dates and replacing with age and pre/post conversion field and masking address by geocoding to affected vs. not affected geography) is possible and will be conducted as early as possible. Please clarify the actual plan for the handling of identifiable information.

With respect to the requested Waiver of Authorization, the following clarifications would be helpful:

1. Please justify why address should remain associated with the testing data through dissemination and peer review (rather than a less specific affected area vs. non-affected area field). If it is necessary to maintain address (or any other personally identifiable information) please clarify how that information might be used.
2. Is only the minimum necessary PHI being requested for disclosure? Might some of the masking (dates and or address) be performed prior to disclosure? The item asking: "Describe why the study could not practicably be conducted without access to and use of the protected health information (PHI) requested" should address this. It appears that the researchers (as the only entity with access to data from all of the sources) will need a mechanisms to remove duplicate entries, but it is not clear why some of the other identifying information needs to be disclosed to the researchers; please clarify.
3. The item asking "Describe why the study could not practicably be conducted without this Waiver of Authorization" is not properly addressed. In essence this item is asking why it is not possible to obtain authorization from subjects of this research for the disclosure of their protected health information to the researchers. Because many of the subjects will be Hurley Medical Center patients, it appears there may be an opportunity for outreach to obtain authorization. The waiver request should document if there might be problems obtaining accurate contact information, or if anticipated response rate might lead to a sample size without adequate power, or if there are other barriers to asking permission for the use of the data requested before it is disclosed. Additional information will be appreciated.

If you or the researchers have concerns on any of these questions, please do not hesitate to let me know. Regards,
-Ian

Ian A. Horste, MPH
Institutional Review Board Administrator/Chair
Michigan Department of Health and Human Services
517-241-0806
www.michigan.gov/irb

This message, including any attachments is intended solely for the use of the named recipient(s) and may contain confidential and/or privileged information. Any unauthorized review, use, disclosure, or distribution of any confidential and/or privileged information contained in this e-mail is expressly prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy any and all copies of the original message.

From: Scott, Robert L. (DCH)
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Please let me know if you need anything else.

Thanks,
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Sent: Thursday, October 01, 2015 3:06 PM
To: MDHHS-IRB
Subject: Hurley revised documents
Attachments: Study Proposal IRB BLL MHA revised 10 1 15.docx; IRBNetDocument approval amendment 4.pdf; HIPAA waiver Hanna-Attisha 100115.pdf

Please see three attached documents. You should already have their Abbreviated IRB app—they did not send a revision of that one.

Let me know if you need anything more.

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Scott, Robert L. (DHHS)

From: Peeler, Nancy (DHHS)
Sent: Monday, October 12, 2015 1:03 PM
To: Scott, Robert L. (DHHS); Lishinski, Karen (DHHS)
Subject: FW: Daily Flint Water Briefing Document
Attachments: Briefing_Action Plan_Flint Water_Oct 12 2015.docx

Importance: High

I need to get with you about this – some specific things coming our way probably...

Nancy

From: Anderson, Paula (DHHS)
Sent: Monday, October 12, 2015 12:08 PM
To: Moran, Susan (DHHS); Robinson, Mikelle (DHHS); Wells, Eden (DHHS); Miller, Corinne (DHHS); Dykema, Linda D. (DHHS); Peeler, Nancy (DHHS); Priem, Wesley F. (DHHS); Miller, Mark (DHHS); Scott, Linda (DHHS); Thelen, Richard (DHHS); Shah, Sandip (DHHS)
Cc: Fink, Brenda (DHHS); Travis, Rashmi (DHHS); Colston, Leslie (DHHS); Rockefeller, Cheryl (DHHS); Bouters, Janese (DHHS); Mayes, Nanette (DHHS); Taylor, Kerri (DHHS); Lixey-Terrill, Jennifer (DHHS); DeMyers, Deborah (DHHS); Lounds, Elizabeth (DHHS)
Subject: Daily Flint Water Briefing Document
Importance: High

Attached briefing document relative to the meeting at noon. Thanks.

Scott, Robert L. (DHHS)

From: Peeler, Nancy (DHHS)
Sent: Monday, October 12, 2015 2:03 PM
To: Scott, Robert L. (DHHS); Lishinski, Karen (DHHS)
Subject: RE: lead information

Importance: High

OK, next steps on lead and Flint: **DUE ON TUESDAY, 10/13/15, IF AT ALL POSSIBLE**

Bob, welcome back! I need to ask if you can dedicate your Tuesday to pulling some data that has been requested, to support providing lead follow-up services to all children with EBLs about 5 in Flint.

1. We have been asked to pull data/list of all follow up testing needed for
    a. All children living in zip codes 48501-48507
    b. Time period of April 2014 – present

2. All Capillary samples that have not had a confirmatory Venous -please assemble a list that includes:
    a. Date of sample, capillary level, where done (if we know that), child's name, DOB, parent name, address, city, zip code
        i. We will want to have both the list, and summary statistics (for example, total # of capillaries done, % that were elevated, average capillary level and range of levels, age range of children, # by zip code)

3. All Venous samples due for follow-up testing (per the AAP protocol) – please assemble a list that includes:
    a. Date of samples, Venous levels (in case there is more than 1 per child), where done, when the follow-up test was due, child's name, DOB, parent name, address, city, zip code
    b. Again, both the list as well as summary statistics (similar to above)

We need to generate this info ASAP, by the time we leave on Tuesday if at all possible!!! We will be getting new/additional $$ to fund Case Management for every child in Flint with an EBL above 5 venous. So we need to know how many children this may be, and since CM is based on confirmed venous tests, we need to start with a focus on getting the capillaries confirmed, and getting the follow-up testing done per AAP schedule, etc.

Nancy

From: Scott, Robert L. (DHHS)
Sent: Wednesday, October 07, 2015 2:24 PM
To: Lishinski, Karen (DHHS)
Cc: Peeler, Nancy (DHHS)
Subject: FW: lead information

FYI, see attached.

From: Taylor, Sherry [mailto:STAYLOR@gchd.us]
Sent: Wednesday, October 07, 2015 2:21 PM
To: Scott, Robert L. (DHHS) <ScottR9@michigan.gov>
Subject: FW: lead information

Sherry Taylor, RN, BSN
Public Health Nurse Coordinator
Genesee County Health Department
G-3373 S. Saginaw Street
Flint, MI 48529
Telephone: 810- 257-3833
Fax: 810- 237-4612

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From: Taylor, Sherry
Sent: Wednesday, October 07, 2015 1:10 PM
To: 'behringerd@michigan.gov'
Subject: lead information

Thank you for your help Debbie!

Sherry Taylor, RN, BSN
Public Health Nurse Coordinator
Genesee County Health Department
G-3373 S. Saginaw Street
Flint, MI 48529
Telephone: 810- 257-3833
Fax: 810- 237-4612

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Scott, Robert L. (DHHS)

From:	LyonCallo, Sarah (DHHS)
Sent:	Thursday, October 15, 2015 9:29 AM
To:	Peeler, Nancy (DHHS); Scott, Robert L. (DHHS)
Cc:	McKane, Patricia (DHHS); Miller, Corinne (DHHS)
Subject:	FW: Response to Kristi Tanner Request
Attachments:	Flint Lead by zip supressed submit 100715.xlsx; 150930Poisson Results 3 LT6Y Submit 100715.docx; 2015 30 15 Shewart_zip_onlyPM Figure.pub

Dear Nancy
Here are the bullets I promised Tuesday – I am very sorry for the delay, it is completely my fault for not getting this out.

A data set was created out of the raw test file for January 2010-August 2015, for tests to children less than 6 years of age. Two products were created out of this data set, a Shewart chart for percent of tests with elevated blood lead levels on a quarterly basis (numerator and denominator counts attached) and a poisson regression to assess differences in the prevalence of elevated blood lead level prior to and after the change to Flint River water in April 2014 (results attached).

Inclusions and exclusions in the data set

- All tests were included (venous and capillary)
- All tests were included for each child in a calendar year up until and including the first elevated blood lead level (greater than or equal to 5 ug/dl). Future tests in that calendar year were excluded for that child.

Geographic areas

- City of flint was defined by zip code (48501-48507) in two groupings to be consistent with work of the Hurley researchers.
    - "High Risk" area with in flint were two zip codes (48503 and 48504) where tap water was found to more frequently have higher lead levels
    - "Other Flint" zip codes
- Other Genesee county zip codes

1) Shewart Chart: The attached file (Figure and Flint Lead by zip suppressed submit 100715.xls) provides the numerators and denominators for the percent positive tests each quarter for Genesee County areas. has had cells with fewer than five events suppressed to protect confidentiality. The mean proportion for the county during the entire time period was used to set upper and lower control limits.

2) Poisson Regression: Attached should be the raw SAS output from the Poisson regression model for events occurring among children less than six years of age. The counts of positive tests each month (EBLL5) are modeled, with the predictor of interest being "PlaceTime5" which is defined on page 1 of the output. Season and age were included in the model as well (Child's age at testing date and QY or quarter-year). The log of the monthly counts of tests was used as the offset. Child ID was used to subject effect, with an exchangeable correlation structure.

We are available to answer questions about this work or further explain our methods and assumptions.

Sarah Lyon-Callo, MA, MS
Director, Lifecourse Epidemiology and Genomics Division
Bureau of Disease Control, Prevention and Epidemiology
Population Health and Commmunity Services Administration
Michigan Department of Health and Human Services

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Positive tests among All Tests in Children < 6 years old

	48503			48504			48505			48506			48507			Non-Flint			All Genesse		
	N	Total	Percent	N	Total	Percent	N	Total	Percent	N	Total	Percent	N	Total	Percent	N	Total	Percent	N	Total	Percent
2010 Q1	12	175	6.9%	18	282	6.4%	20	327	6.1%	7	192	3.6%	DNS	DNS	1.5%	26	888	2.9%	86	2064	4.2%
2010 Q2	17	186	9.1%	17	252	6.7%	18	225	8.0%	15	200	7.5%	8	167	4.8%	25	991	2.5%	100	2023	4.9%
2010 Q3	14	154	9.1%	18	246	7.3%	18	206	8.7%	16	185	8.6%	6	204	2.9%	16	1036	1.5%	88	2038	4.3%
2010 Q4	DNS	DNS	2.7%	11	151	7.3%	7	133	5.3%	DNS	DNS	2.3%	5	115	4.3%	15	652	2.3%	45	1295	3.5%
2011 Q1	7	108	6.5%	10	151	6.6%	13	136	9.6%	7	102	6.9%	DNS	DNS	2.6%	12	735	1.6%	54	1391	3.9%
2011 Q2	6	141	4.3%	7	182	3.8%	8	168	4.8%	10	178	5.6%	6	172	3.5%	19	966	2.0%	56	1813	3.1%
2011 Q3	10	132	7.6%	18	227	7.9%	16	230	7.0%	13	213	6.1%	12	230	5.2%	32	1154	2.8%	101	2187	4.6%
2011 Q4	11	130	8.5%	10	179	5.6%	6	170	3.5%	DNS	DNS	2.3%	8	182	4.4%	12	899	1.3%	50	1689	3.0%
2012 Q1	DNS	DNS	3.3%	9	167	5.4%	6	143	4.2%	7	156	4.5%	DNS	DNS	2.3%	26	973	2.7%	56	1736	3.2%
2012 Q2	6	131	4.6%	7	183	3.8%	DNS	DNS	2.5%	5	120	4.2%	DNS	DNS	1.6%	23	1051	2.2%	48	1831	2.6%
2012 Q3	9	156	5.8%	11	248	4.4%	7	200	3.5%	13	148	8.8%	10	270	3.7%	35	1183	3.0%	85	2211	3.8%
2012 Q4	6	119	5.0%	7	162	4.3%	6	140	4.3%	6	119	5.0%	DNS	DNS	1.5%	12	880	1.4%	40	1618	2.5%
2013 Q1	6	116	5.2%	DNS	DNS	1.8%	DNS	DNS	1.6%	DNS	DNS	3.2%	DNS	DNS	2.4%	16	936	1.7%	35	1640	2.1%
2013 Q2	6	137	4.4%	10	187	5.3%	DNS	DNS	2.4%	5	151	3.3%	7	210	3.3%	19	1148	1.7%	52	2004	2.6%
2013 Q3	8	146	5.5%	10	207	4.8%	DNS	DNS	2.1%	DNS	DNS	2.3%	7	222	3.2%	23	1147	2.0%	56	2089	2.7%
2013 Q4	DNS	DNS	0.0%	5	197	2.5%	5	122	4.1%	DNS	DNS	2.1%	6	216	2.8%	14	905	1.5%	33	1706	1.9%
2014 Q1	7	118	5.9%	DNS	DNS	1.2%	DNS	DNS	0.6%	DNS	DNS	2.0%	DNS	DNS	2.1%	10	966	1.0%	27	1756	1.5%
2014 Q2	6	118	5.1%	5	184	2.7%	DNS	DNS	1.9%	DNS	DNS	1.4%	5	189	2.6%	16	949	1.7%	37	1742	2.1%
2014 Q3	12	176	6.8%	19	233	8.2%	20	198	10.1%	13	162	8.0%	7	238	2.9%	22	1142	1.9%	93	2156	4.3%
2014 Q4	DNS	DNS	1.8%	6	145	4.1%	DNS	DNS	3.3%	DNS	DNS	1.7%	DNS	DNS	1.6%	12	773	1.6%	29	1459	2.0%
2015 Q1	5	124	4.0%	DNS	DNS	1.9%	6	134	4.5%	DNS	DNS	0.0%	DNS	DNS	1.7%	7	870	0.8%	24	1604	1.5%
2015 Q2	10	143	7.0%	7	129	5.4%	DNS	DNS	2.4%	DNS	DNS	3.2%	DNS	DNS	0.9%	19	937	2.0%	46	1680	2.7%
2015 Q3	9	72	12.5%	8	84	9.5%	DNS	DNS	1.4%	DNS	DNS	4.2%	DNS	DNS	1.1%	14	583	2.4%	36	979	3.7%
Total	176	3046	5.8%	221	4286	5.2%	182	3809	4.8%	148	3367	4.4%	121	4363	2.8%	425	21764	2.0%	1277	40711	3.1%
Pre	132	2302	5.7%	173	3355	5.2%	145	2998	4.8%	124	2615	4.7%	100	3254	3.1%	335	16510	2.0%	1012	31091	3.3%
Post	44	744	5.9%	48	931	5.2%	37	811	4.6%	24	752	3.2%	21	1109	1.9%	90	5254	1.7%	265	9620	2.8%

DNS = Less than five observations. 48501 and 48502 suppressed due to small numbers of observations, but are included in the All Genesse totals.

The SAS System

The GENMOD Procedure

Model Information	
Data Set	WORK.LEAD
Distribution	Poisson
Link Function	Log
Dependent Variable	EBLL5

Children Under 6 Years Old

Number of Observations Read	40711
Number of Observations Used	40711

Class Level Information		
Class	Levels	Values
PlaceTime5	5	1 2 3 4 5 1 = "High Risk Flint Post" 2 = "High Risk Flint Pre" 3 = "Other Flint Post" 4 = "Other Flint Pre" 5 = 'Non-Flint'
CHILD_ID	[redacted]	[redacted] ...
QY	23	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

PlaceTime5	Frequency	Percent	Cumulative Frequency	Cumulative Percent
High Risk Flint Post	1675	4.11	1675	4.11
High Risk Flint Pre	5657	13.90	7332	18.01
Other Flint Post	2691	6.61	10023	24.62
Other Flint Pre	8924	21.92	18947	46.54
Non-Flint	21764	53.46	40711	100.00

Parameter Information			
Parameter	Effect	PlaceTime5	QY
Prm1	Intercept		
Prm2	PlaceTime5	1	
Prm3	PlaceTime5	2	
Prm4	PlaceTime5	3	

The SAS System

The GENMOD Procedure

Parameter Information			
Parameter	**Effect**	**PlaceTime5**	**QY**
Prm5	PlaceTime5	4	
Prm6	PlaceTime5	5	
Prm7	QY		1
Prm8	QY		2
Prm9	QY		3
Prm10	QY		4
Prm11	QY		5
Prm12	QY		6
Prm13	QY		7
Prm14	QY		8
Prm15	QY		9
Prm16	QY		10
Prm17	QY		11
Prm18	QY		12
Prm19	QY		13
Prm20	QY		14
Prm21	QY		15
Prm22	QY		16
Prm23	QY		17
Prm24	QY		18
Prm25	QY		19
Prm26	QY		20
Prm27	QY		21
Prm28	QY		22
Prm29	QY		23
Prm30	AGE		

Algorithm converged.

The SAS System

The GENMOD Procedure

GEE Model Information	
Correlation Structure	Exchangeable
Subject Effect	CHILD_ID (30301 levels)
Number of Clusters	30301
Correlation Matrix Dimension	8
Maximum Cluster Size	8
Minimum Cluster Size	1 (n=28855)

Algorithm converged.

Exchangeable Working Correlation	
Correlation	0.2505676063

GEE Fit Criteria	
QIC	11081.1598
QICu	11082.9899

Analysis Of GEE Parameter Estimates							
Empirical Standard Error Estimates							
Parameter		Estimate	Standard Error	95% Confidence Limits		Z	Pr > |Z|
Intercept		-3.7232	0.1976	-4.1105	-3.3358	-18.84	<.0001
PlaceTime5	1	1.1531	0.1518	0.8556	1.4507	7.60	<.0001
PlaceTime5	2	0.9793	0.0802	0.8221	1.1365	12.21	<.0001
PlaceTime5	3	0.6164	0.1544	0.3137	0.9190	3.99	<.0001
PlaceTime5	4	0.6967	0.0775	0.5448	0.8486	8.99	<.0001
PlaceTime5	5	0.0000	0.0000	0.0000	0.0000	.	.
QY	1	0.0918	0.2274	-0.3539	0.5375	0.40	0.6864
QY	2	0.3201	0.2207	-0.1124	0.7525	1.45	0.1469
QY	3	0.2000	0.2215	-0.2342	0.6342	0.90	0.3666
QY	4	0.0230	0.2416	-0.4505	0.4965	0.10	0.9241
QY	5	0.0218	0.2416	-0.4517	0.4952	0.09	0.9282

The SAS System

The GENMOD Procedure

Analysis Of GEE Parameter Estimates							
Empirical Standard Error Estimates							
Parameter		Estimate	Standard Error	95% Confidence Limits		Z	Pr > |Z|
QY	6	-0.1711	0.2391	-0.6398	0.2975	-0.72	0.4742
QY	7	0.2834	0.2215	-0.1507	0.7175	1.28	0.2007
QY	8	-0.2364	0.2465	-0.7195	0.2467	-0.96	0.3375
QY	9	-0.1407	0.2438	-0.6185	0.3371	-0.58	0.5638
QY	10	-0.2593	0.2457	-0.7409	0.2223	-1.06	0.2913
QY	11	0.1075	0.2268	-0.3370	0.5520	0.47	0.6354
QY	12	-0.3110	0.2482	-0.7974	0.1754	-1.25	0.2102
QY	13	-0.5082	0.2634	-1.0245	0.0080	-1.93	0.0537
QY	14	-0.3390	0.2439	-0.8171	0.1391	-1.39	0.1646
QY	15	-0.2712	0.2424	-0.7462	0.2038	-1.12	0.2631
QY	16	-0.5777	0.2637	-1.0944	-0.0609	-2.19	0.0285
QY	17	-0.8700	0.2848	-1.4281	-0.3119	-3.06	0.0022
QY	18	-0.5331	0.2339	-0.9915	-0.0747	-2.28	0.0226
QY	19	0.1023	0.2010	-0.2917	0.4963	0.51	0.6109
QY	20	-0.6048	0.2500	-1.0948	-0.1147	-2.42	0.0156
QY	21	-0.9447	0.2732	-1.4802	-0.4093	-3.46	0.0005
QY	22	-0.2789	0.2241	-0.7182	0.1604	-1.24	0.2133
QY	23	0.0000	0.0000	0.0000	0.0000	.	.
AGE		-0.0408	0.0203	-0.0807	-0.0009	-2.00	0.0450

Wald Statistics For Type 3 GEE Analysis			
Source	DF	Chi-Square	Pr > ChiSq
PlaceTime5	4	216.21	<.0001
QY	22	118.49	<.0001
AGE	1	4.02	0.0450

The SAS System

The GENMOD Procedure

Contrast Estimate Results										
		Mean					L'Beta			
Label	Mean Estimate	Confidence Limits		L'Beta Estimate	Standard Error	Alpha	Confidence Limits		Chi-Square	Pr > ChiSq
Placetime5: 1 vs 5	3.1681	2.3528	4.2660	1.1531	0.1518	0.05	0.8556	1.4507	57.70	<.0001
Exp(Placetime5: 1 vs 5)				**3.1681**	**0.4809**	**0.05**	**2.3528**	**4.2660**		
Placetime5: 2 vs 5	2.6626	2.2754	3.1158	0.9793	0.0802	0.05	0.8221	1.1365	149.15	<.0001
Exp(Placetime5: 2 vs 5)				**2.6626**	**0.2135**	**0.05**	**2.2754**	**3.1158**		
Placetime5: 3 vs 5	1.8522	1.3685	2.5068	0.6164	0.1544	0.05	0.3137	0.9190	15.93	<.0001
Exp(Placetime5: 3 vs 5)				**1.8522**	**0.2860**	**0.05**	**1.3685**	**2.5068**		
Placetime5: 4 vs 5	2.0071	1.7242	2.3363	0.6967	0.0775	0.05	0.5448	0.8486	80.82	<.0001
Exp(Placetime5: 4 vs 5)				**2.0071**	**0.1555**	**0.05**	**1.7242**	**2.3363**		
Placetime5: 1 vs 2	1.1898	0.8510	1.6636	0.1738	0.1710	0.05	-0.1613	0.5090	1.03	0.3094
Exp(Placetime5: 1 vs 2)				1.1898	0.2035	0.05	0.8510	1.6636		
Placetime5: 3 vs 4	0.9228	0.6577	1.2949	-0.0803	0.1728	0.05	-0.4191	0.2585	0.22	0.6422
Exp(Placetime5: 3 vs 4)				0.9228	0.1595	0.05	0.6577	1.2949		

>>
>>
>> Angela or Jennifer- can we out a copy of the pregnant and nursing moms info from the CLPP site to that of the Gov?
>> Sent from my iPhone
>>
>>> On Oct 14, 2015, at 3:40 PM, Peeler, Nancy (DHHS) <PeelerN@michigan.gov> wrote:
>>>
>>> Under 'Flint Drinking Water Resources' (left column), the only thing that I think we (we as in CLPPP) could also contribute to be added there is the resource we have on our website about Pregnant and Nursing Mothers (addresses breastfeeding).
>>>
>>> If there is something new from the GCHD/Environmental health about lead in water, it will be good to see that there as well. We are also using the fact sheet about lead in water that GCHD has on their website - in case that could be posted there - someone else would need to review and decide if that is indeed a good document to include.
>>>
>>> We're talking here with CDC staff/other states that have dealt with similar water situations - interesting conversations. Some helpful reframing that we can share - similar to what Mona said today but not exactly the same. I'll try to assemble some notes to share with you tonight. And I promise that we'll move that video you did along!
>>>
>>> Sent from my iPad
>>>
>>>> On Oct 14, 2015, at 1:12 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:
>>>>
>>>> So... You like what is on there?
>>>>
>>>> Sent from my iPhone

Scott, Robert L. (DHHS)

From: Wells, Eden (DHHS)
Sent: Thursday, October 15, 2015 10:52 AM
To: Minicuci, Angela (DHHS)
Cc: Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Eisner, Jennifer (DHHS); Dykema, Linda D. (DHHS)
Subject: Re: Gov lead site

Ok/ clear! Yes- the lead water sheet that Hilda sent out last eve attached to her update. We should send that out to our/ MDHHS human services folks, WIC clinics etc in Flint- along with the interagency link

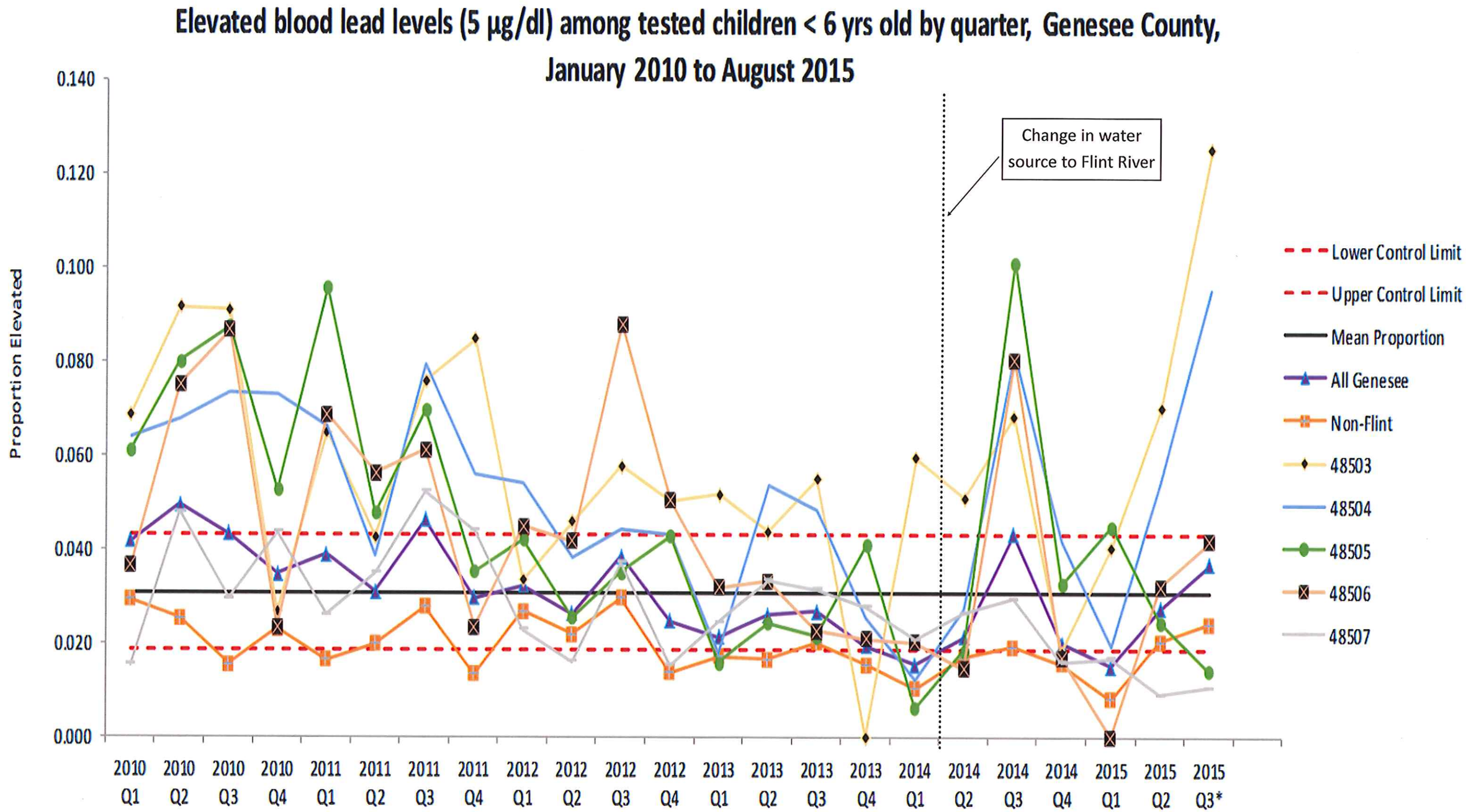
Sent from my iPhone

> On Oct 15, 2015, at 8:43 AM, Minicuci, Angela (DHHS) <MinicuciA@michigan.gov> wrote:
>
> I'm a bit lost so I'm going to clarify. I have asked the Gov's office to post the breastfeeding PDF to the interagency website about Flint Water, Michigan.gov/flintwater.
>
> Are there any other resources that are supposed to be posted but are not?
>
> Angela
>
> -----Original Message-----
> From: Wells, Eden (DHHS)
> Sent: Thursday, October 15, 2015 8:26 AM
> To: Minicuci, Angela (DHHS) <MinicuciA@michigan.gov>
> Cc: Peeler, Nancy (DHHS) <PeelerN@michigan.gov>; Scott, Robert L. (DHHS) <ScottR9@michigan.gov>; Eisner, Jennifer (DHHS) <EisnerJ@michigan.gov>; Dykema, Linda D. (DHHS) <DykemaL@michigan.gov>
> Subject: Re: Gov lead site
>
> Linda CCd here- have we not gotten LHD approval to post the water lead info? Linda- Mark V had not seen it after you sent it to Jim- can you send me the very last version (so I can be sure) so that I can be able to send to Mark V and push this approval process along? This needs posted and disseminated
>
> Sent from my iPhone
>
>> On Oct 14, 2015, at 10:12 PM, Minicuci, Angela (DHHS) <MinicuciA@michigan.gov> wrote:
>>
>> To put on the Flint water website? Yes, I can do that.
>>
>> Angela
>>
>> -----Original Message-----
>> From: Wells, Eden (DHHS)
>> Sent: Wednesday, October 14, 2015 3:45 PM
>> To: Peeler, Nancy (DHHS) <PeelerN@michigan.gov>
>> Cc: Scott, Robert L. (DHHS) <ScottR9@michigan.gov>; Minicuci, Angela (DHHS) <MinicuciA@michigan.gov>; Eisner, Jennifer (DHHS) <EisnerJ@michigan.gov>
>> Subject: Re: Gov lead site

Elevated blood lead levels (5 µg/dl) among tested children < 6 years old by quarter							
Date	All Genesee	Non-Flint	Zip Code 48503 only	Zip Code 48504 only	Zip code 48505 only	Zip code 48506 only	Zip code 48507 only
2010 Q1	4.2%	2.9%	6.9%	6.4%	6.1%	3.6%	1.5%
2010 Q2	4.9%	2.5%	9.1%	6.7%	8.0%	7.5%	4.8%
2010 Q3	4.3%	1.5%	9.1%	7.3%	8.7%	8.6%	2.9%
2010 Q4	3.5%	2.3%	2.7%	7.3%	5.3%	2.3%	4.3%
2011 Q1	3.9%	1.6%	6.5%	6.6%	9.6%	6.9%	2.6%
2011 Q2	3.1%	2.0%	4.3%	3.8%	4.8%	5.6%	3.5%
2011 Q3	4.6%	2.8%	7.6%	7.9%	7.0%	6.1%	5.2%
2011 Q4	3.0%	1.3%	8.5%	5.6%	3.5%	2.3%	4.4%
2012 Q1	3.2%	2.7%	3.3%	5.4%	4.2%	4.5%	2.3%
2012 Q2	2.6%	2.2%	4.6%	3.8%	2.5%	4.2%	1.6%
2012 Q3	3.8%	3.0%	5.8%	4.4%	3.5%	8.8%	3.7%
2012 Q4	2.5%	1.4%	5.0%	4.3%	4.3%	5.0%	1.5%
2013 Q1	2.1%	1.7%	5.2%	1.8%	1.6%	3.2%	2.4%
2013 Q2	2.6%	1.7%	4.4%	5.3%	2.4%	3.3%	3.3%
2013 Q3	2.7%	2.0%	5.5%	4.8%	2.1%	2.3%	3.2%
2013 Q4	1.9%	1.5%	0.0%	2.5%	4.1%	2.1%	2.8%
2014 Q1	1.5%	1.0%	5.9%	1.2%	0.6%	2.0%	2.1%
2014 Q2	2.1%	1.7%	5.1%	2.7%	1.9%	1.4%	2.6%
2014 Q3	4.3%	1.9%	6.8%	8.2%	10.1%	8.0%	2.9%
2014 Q4	2.0%	1.6%	1.8%	4.1%	3.3%	1.7%	1.6%
2015 Q1	1.5%	0.8%	4.0%	1.9%	4.5%	0.0%	1.7%
2015 Q2	2.7%	2.0%	7.0%	5.4%	2.4%	3.2%	0.9%
2015 Q3*	3.7%	2.4%	12.5%	9.5%	1.4%	4.2%	1.1%

Non Flint = Patient residence zip codes all other in Genesee County

*Q3 2015 includes test reports received through August 30th. Zip codes 48501 and 48502 were suppressed due to fewer than 5 positive tests for entire time period.



*Q3 2015 includes test reports received through August 30th. Zip codes 48501 and 48502 were suppressed due to fewer than 5 positive tests for entire time period.

Population Health and Community Services Administration
Flint Water Daily Briefing Summary

Daily Briefing
[redacted]
Access Code: [redacted]

Date: *10-15-15*
Attendees: Sue Moran, Mikelle Robinson, Linda Dykema, Mark Miller, Corinne Miller, Rashmi Travis, Nancy Peeler, Linda Scott, Kris Schoenow, Eden Wells, Jennifer Lixey, Richard Thelen, Bob Scott, and Jon Gonzalez

Daily Activity Summary

Filter/Water Distribution

- Kris Shoenow (MDHHS) has been in discussions with Tamara Brickey (GCHD) to enhance the cloud-based database to track the type of filter distributed and client type.

Blood Testing

- The draft of the protocol has been completed; however, revisions are expected.
- There will be a meeting on Oct 19 to finalize the testing protocol and discuss case management protocols.
- Politicians are inquiring about the locations of testing sites. There will be testing sites in the City of Flint.
- Toni LaRocco (GCHD) is in discussions with UM-Flint to provide nurses to increase testing capacity.

EBL Investigations

- Wes Priem (MDHSS) developed a data collection document that he referenced on Oct 14.
- There are reporting requirements per administrative rule; however, there is no enforcement mechanism. Currently, the following are collected for each client: child's name, child's date of birth, and child's address. Other data elements are not currently collected as effectively.
- There are concerns with being able to conduct quality assurance on record entries into this database.
- There are also data privacy concerns pertaining to CLPPP surveillance data and who we easily share this data with.
- Guidance on the data collection changes will be sent out to the provider list, including laboratories across the state.

Funding

- House and Senate approved $9.3m supplemental bill on Oct 15. Bill is awaiting Governor's signature.
- Currently, this is a one-time appropriation and the funding is not currently allocated for testing.
- It was estimated that four nurses would be needed for in-home visit aspect of case management.
- The best option may be to send the nurse funding to GCHD; however, alternative approaches could be to send it to the Children's Healthcare Access Project or Hurley.
- The entity responsible for the training and supervision of the nurses providing case management needs to be addressed.

Communications

- Guidance about data reporting will be created and disseminated to providers.
- The water FAQ was approved by MDHHS and GCHD and has publicly disseminated.
- Some minor changes will be made to the infographic before it is sent for GCHD review.

Action Item	Date Initiated	Due Date	Party Responsible	Pending Activities	Additional Notes
Create Testing and Case Management Protocol	October 13	October 14	Eden Wells, Rashmi Travis, Eden Wells, Toni LaRocco (GCHD), and Dr. Gary Johnson (GCHD)	Case management protocol creation.	Testing protocol draft is complete and being vetted.
Send FAQ to Mark Valacak once it's approved by MDHHS Communications	October 13	TBD	Mark Miller	None	Complete
Add fields to cloud-based filter distribution database	October 13	TBD	Kris Schoenow & Mark Valacak (GCHD)		Discussions are on-going and there are no substantial known barriers to completion.
Determine what additional data should be collected for case management and abatement efforts	October 14	October 15	Wes Priem	Draft submitted on 10/15. Revisions forthcoming.	
Create message to Medicaid (billing)	October 14	October 14	TBD	None	Complete

Obtain list of primary care providers from GCHD	October 14	October 15	Mark Miller	None	Complete
Action Item	**Date Initiated**	**Due Date**	**Party Responsible**	**Pending Activities**	**Additional Notes**
Develop outreach to lab providers re: reporting requirements	October 15	TBD	Bob Scott		
Develop plan for hiring/training of 4.0 FTE nurses to support case management efforts.	October 15	TBD	Nancy		

Scott, Robert L. (DHHS)

From: Rockefeller, Cheryl (DHHS)
Sent: Thursday, October 15, 2015 4:28 PM
To: Lixey-Terrill, Jennifer (DHHS); Thelen, Richard (DHHS); Scott, Robert L. (DHHS)
Subject: FW: Notes from 12:30 Thur. 10/15 Daily Call.
Attachments: 12.30 pm 10-15-15_Daily Activity Summary.docx

After printing and reading the notes I found your names listed so I'm sending to you also. I'll make sure you get them the first round tomorrow. I apologize.

From: Rockefeller, Cheryl (DHHS)
Sent: Thursday, October 15, 2015 4:18 PM
To: Moran, Susan (DHHS) <MoranS@michigan.gov>; Robinson, Mikelle (DHHS) <RobinsonM18@michigan.gov>; Wells, Eden (DHHS) <WellsE3@michigan.gov>; Miller, Mark (DHHS) <millerm1@michigan.gov>; Miller, Corinne (DHHS) <MillerC39@michigan.gov>; Dykema, Linda D. (DHHS) <DykemaL@michigan.gov>; Peeler, Nancy (DHHS) <PeelerN@michigan.gov>; Priem, Wesley F. (DHHS) <priemw@michigan.gov>; Fink, Brenda (DHHS) <FinkB@michigan.gov>; Travis, Rashmi <TravisR@michigan.gov>; Gonzalez, Jonathan (DHHS) <GonzalezJ6@michigan.gov>
Cc: Anderson, Paula (DHHS) <AndersonP3@michigan.gov>; Bouters, Janese (DHHS) <BoutersJ@michigan.gov>; Barr, Jacqui (DHHS) <BarrJ3@michigan.gov>; Mayes, Nanette (DHHS) <MayesN@michigan.gov>; Colston, Leslie (DHHS) <ColstonL@michigan.gov>
Subject: Notes from 12:30 Thur. 10/15 Daily Call.

Good Afternoon,

Attached are the notes from the Thursday, 10/15, 12:30 pm Daily Flint Water Call.

Thank you,
Cheryl

Population Health and Community Services Administration
Flint Water Daily Briefing Summary

Daily Briefing

[redacted]

Access Code: [redacted]

Date: *10-16-15 (Friday) 12:30 to 1 PM Updates in **BOLD***

Attendees: Mark Miller, Rashmi Travis, Nancy Peeler, Linda Scott, Kris Schoenow, Eden Wells, Jennifer Lixey, Richard Thelen, Bob Scott

Daily Activity Summary

Filter/Water Distribution

- Kris Shoenow (MDHHS) has continued discussions with Tamara Brickey (GCHD) to enhance the cloud-based database to track the type of filter distributed and client type. **Integration of the data from Kris's area into the database is going smoothly.**

Blood Testing

- The draft of the protocol has been completed; however, revisions are expected. **There will be a meeting on Oct 19 to finalize the testing protocol and discuss case management protocols.**
- Politicians are inquiring about the locations of testing sites. **McLaren will be testing on Nov. 5th. At our 3 PM call on Friday, we'll ask if GCHD can put together a comprehensive schedule.** There will be testing sites in the City of Flint.
- Toni LaRocco (GCHD) is in discussions with UM-Flint to provide nurses to increase testing capacity.
- **Rashmi will check with Medicaid on whether adults would be covered for testing.**
- **MDHHS will work with GCHD to cover testing for folks uninsured or who can't pay.**

EBL Investigations

- Wes Priem (MDHSS) developed a data collection document that he referenced on Oct 14. **This will be in the testing protocol.**
- There are reporting requirements per administrative rule; however, there is no enforcement mechanism. Currently, the following are collected for each client: child's name, child's date of birth, and child's address. Other data elements are not currently collected as effectively.
- There are concerns with being able to conduct quality assurance on record entries into this database.
- There are also data privacy concerns pertaining to CLPPP surveillance data and who we easily share this data with.
- Guidance on the data collection changes will be sent out to the provider list, including laboratories across the state.
- **Budget and contracts are anxious to assist on the arrangements for the follow-up nurses and environmental personnel.**

Funding

- House and Senate approved $9.3m supplemental bill on Oct 15. **Bill was signed by Governor.**
- Currently, this is a one-time appropriation and the funding is not currently allocated for testing.
- It was estimated that four nurses would be needed for in-home visit aspect of case management.
- The best option may be to send the nurse funding to GCHD; however, alternative approaches could be to send it to the Children's Healthcare Access Project or Hurley.
- The entity responsible for the training and supervision of the nurses providing case management needs to be addressed. **The GCHD feels that "Sherry Taylor" might be up to the task.**

Communications

- Guidance about data reporting will be created and disseminated to providers.
- The water FAQ was approved by MDHHS and GCHD and has been publicly disseminated.
- Some minor changes will be made to the infographic before it is sent for GCHD review.
- **Mark Miller will inquire as to the status of the MDARD Restaurant information document.**

Action Item	Date Initiated	Due Date	Party Responsible	Pending Activities	Additional Notes
Create Testing and Case Management Protocol	October 13	October 14	Eden Wells, Rashmi Travis, Eden Wells, Toni LaRocco (GCHD), and Dr. Gary Johnson (GCHD)	Case management protocol creation.	Testing protocol draft is complete and being vetted. **Probably finalized on Oct. 19th.**
Send FAQ to Mark Valacak once it's approved by MDHHS Communications	October 13	TBD	Mark Miller	None	Complete
Add fields to cloud-based filter distribution database	October 13	TBD	Kris Schoenow & Mark Valacak (GCHD)		Discussions are on-going and there are no substantial known barriers to completion. **Integration of the data is**

					going well.
Determine what additional data should be collected for case management and abatement efforts	October 14	October 15	Wes Priem	Draft submitted on 10/15. Revisions forthcoming.	
Create message to Medicaid (billing)	October 14	October 14	TBD	None	Complete
Obtain list of primary care providers from GCHD	October 14	October 15	Mark Miller	None	Complete. **GCHD has a complete list and can use that as vehicle for anything needing to go to providers.**
Action Item	**Date Initiated**	**Due Date**	**Party Responsible**	**Pending Activities**	**Additional Notes**
Develop outreach to lab providers re: reporting requirements	October 15	TBD	Bob Scott		**Sandip has a vehicle for distribution of information to the labs.**
Develop plan for hiring/training of 4.0 FTE nurses to support case management efforts.	October 15	TBD	Nancy		

Scott, Robert L. (DHHS)

From: Minicuci, Angela (DHHS)
Sent: Wednesday, October 21, 2015 1:05 PM
To: Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Wells, Eden (DHHS)
Subject: BLLs Latest

Hi Nancy and Bob,

Out of curiosity, could we begin looking at pulling some data about recent Flint BLL data? I think all results have to be reported to us within 5 days of the test result, correct?

If so, is there any chance we can begin taking a look at what that data is telling us? Not wanting to do anything with it yet, but just trying to think a little more proactively.

Thanks,

Angela Minicuci
Office of External Relations and Communications
Michigan Department of Health and Human Services
Office: (517) 241-2112
Mobile: (517) 763-3609
minicucia@michigan.gov
www.michigan.gov/mdhhs

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Scott, Robert L. (DHHS)

From: Peeler, Nancy (DHHS)
Sent: Friday, October 23, 2015 8:46 AM
To: Scott, Robert L. (DHHS); Lishinski, Karen (DHHS); Cooper, Jessica (DHHS)
Subject: Flint Water Talking Points 100215
Attachments: Flint Water Talking Points 100215.docx

FYI – at one point we discussed needing for all of us to have the talking points about Flint water that MDHHS released at the beginning of October – boy, that feels like a long time ago. Interesting, in that it shows what the Epi study (using CLPPP data) showed about the situation. Happy reading!

Nancy

Blood Lead Levels in Flint Talking Points
October 1, 2015

- Initial analysis of MDHHS data found that blood lead levels (BLLs) of children in Flint have followed an expected seasonal trend; due to small numbers further analysis was initiated.
- While this analysis of blood lead levels in Flint as a whole remains true, after a comprehensive and detailed review down to the zip code level, we have found that the state analysis is consistent with that presented by Hurley.
- Director Lyon is working closely with DEQ and the administration to take active steps to reduce all potential lead exposures in Flint, and across the state.
- Our Chief Medical Executive has been in communication with the lead investigator at Hurley Children's Hospital, and we continue to work with Hurley, the city of Flint, local and state leaders to verify and analyze data trends.
- Zip code-level data does show that there has been an increase in elevated childhood blood lead levels in specific communities.
    - This does not conclusively mean that the water source change is the sole cause of the increase, but data does show an association.
    - There is an increased proportion of children with elevated Blood Levels (ELBs) in several zip codes, particularly 03 and 04. These appear to have increased over the last 1.5 years.
    - Lead exposure can occur from a number of different sources (such as paint, gasoline, solder, and consumer products) and through different pathways (such as air, food, water, dust, and soil).
    - Although there are several exposure sources, lead-based paint is still the most widespread and dangerous high-dose source of lead exposure for young children in the US and Michigan.
- We reviewed MDHHS statewide data using the same methodology used by Hurley, looking at our numbers by zip code and age ranges, and filtering out non-Flint children.
- Routine surveillance of blood lead levels does not analyze data down to the zip code level. Detailed analysis like this occurs when there is reason to focus in on precise locations or populations.
- MDHHS will be working closely with the Michigan Department of Environmental Quality, Hurley Children's Hospital, the Genesee County Health Department, and community organizations to initiate further action steps.
- We understand that cost may be a barrier to following the recommendations of the local health department. We are actively working with public and private partners to make resources available to those who may need assistance.

- MDHHS is recommending that residents follow the Public Health Advisory issued by the Genesee County Health Department, as well as take further steps to reduce exposures to all forms of lead in and around their homes.

MDHHS Stats and Facts

- 'High Risk' Zip codes (48503 and 48504)
    - Blood lead level rates among children under six years of age in the high risk zip codes (48503, 48504) were 2.7 times higher than the rest of Genesee County before the switch to Flint River Water.
    - After the switch to Flint River Water, rates in the high risk Zip codes were 3.2 times that of the rest of Genesee County.
- Other Zip codes in Flint
    - Rates of elevated blood lead levels among children under six years of age in other parts of the city of Flint were 2 times that of the rest of Genesee County before the switch to Flint River Water.
    - The magnitude of the elevated rate remained roughly the same during the period after the water source switch.
- Lead abatement through MDHHS was federally funded up until FY14 when Michigan began providing additional funds to abate homes.
- In FY14, $1.25M General Fund was added. In FY15, General Fund was bumped up to $1.75M and FY16, General Fund remains at $1.75M.

Water Filters

- Our first action item is to work closely with our public and private partners to provide water filters to Flint residents and MDHHS clients.
- To meet this priority, the governor has identified one million dollars in state funding to purchase water filters for Flint residents.
- Given the questions and concerns regarding the change in water source in Flint, MDHHS has authorized the use of emergency services funding to provide water filters for MDHHS clients receiving assistance in the city of Flint.
- We are pursuing a plan for clients who are active Family Independence Program (FIP), Food Assistance Program (FAP), Child Development and Care (CDC), State Disability Assistance (SDA), State Disability Assistance (SDA), or Social Security Insurance (SSI) to that they can obtain filters that are National Sanitation Foundation (NSF) certified to remove lead and ANSI Standard 53.
- We are in discussions with local retailers and will share additional information about where residents can go to purchase filters as soon as those details have been finalized.

- MDHHS currently serves approximately 25,000 households in Flint.

Reducing and Removing Lead Exposure

- In housing built before 1978, it can be assumed that the paint has lead unless tests show otherwise.
- Make sure your child does not have access to peeling paint or chewable surfaces painted with lead-based paint.
- Children and pregnant women should not be present in housing built before 1978 that is undergoing renovation. They should not participate in activities that disturb old paint or in cleaning up paint debris after work is completed.
- Create barriers between living/play areas and lead sources. Until environmental clean-up is completed, you should clean and isolate all sources of lead.
    - Close and lock doors to keep children away from chipping or peeling paint on walls. You can also apply temporary barriers such as contact paper or duct tape, to cover holes in walls or to block children's access to other sources of lead.
- Regularly wash children's hands and toys. Hands and toys can become contaminated from household dust or exterior soil. Both are known lead sources.
- Regularly wet-mop floors and wet-wipe window components. Because household dust is a major source of lead, you should wet-mop floors and wet-wipe horizontal surfaces every 2-3 weeks.
    - Windowsills and wells can contain high levels of leaded dust. They should be kept clean. If feasible, windows should be shut to prevent abrasion of painted surfaces or opened from the top sash.
- Take off shoes when entering the house to prevent bringing lead-contaminated soil in from outside.
- Prevent children from playing in bare soil; if possible, provide them with sandboxes. Plant grass on areas of bare soil or cover the soil with grass seed, mulch, or wood chips, if possible.
    - Until the bare soil is covered, move play areas away from bare soil and away from the sides of the house. If you have a sandbox, cover the box when not in use to prevent cats from using it as a litter box. That will help protect children from exposure to animal waste.
- Avoid using makeup, containers, cookware, or tableware to store or cook foods or liquids that are not shown to be lead free.
- Remove recalled toys and toy jewelry immediately from children.
- Use only cold water from the tap for drinking, cooking, and making baby formula. Hot water is more likely to contain higher levels of lead. Most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.

- Shower and change clothes after finishing a task that involves working with lead-based products such as stained glass, making bullets, or using a firing range.

WIC Children

- There are 855 infants participating in WIC in Flint.
- We are working with partners at the United Way to ensure that WIC families have access to water filters and bottled water.
- In homes with infants on WIC, if the household has documentation from an official source of unsanitary water supply issues, that family may be eligible to receive ready-to-feed formula. Families should contact WIC to see if they are eligible.
- Each household would have to be looked at on an individual basis.
- WIC cannot cover bottled water.

Background

- The results of the Hurley Children's Hospital were reviewed by MDHHS after the study was released last week.
- The analysis that Hurley conducted was different from the initial MDHHS data regarding blood lead levels in Flint.
- MDHHS initial data looked at the entire blood lead levels for the Flint area for the past five years and showed the annual seasonal trends in the area.
- Seasonal exposure is higher in the summer for a variety of reasons including children playing outside in the soil, and when windows are open and lead paint is more likely to be in the air. Further, seasonal variations in water can occur due to changes in temperature, pH , and other factors

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 8:06 AM
To: Peeler, Nancy (DHHS)
Cc: 'Lishinski Karen (LishinskiK@michigan.gov)'
Subject: RE: Hurley -- follow up about the question on Hurley lab results

We report on testing and elevated levels annually by fiscal year for the legislature--by county/Detroit and the state. We report annually by calendar year for stakeholders and the public--by county, by several funded communities, and by ZIP code; also the Medicaid population by county. These annual reports include tables, graphs and maps to provide detailed information about the past year, as well as trends over several years. We produce other reports by request.

We used to produce similar reports by quarter, and even a special monthly report for funded health departments. But as we have lost funding and staff, and as my own time has been pulled in other directions, these other more-frequent reports have fallen away.

Child- and address-specific data continues to be provided to every local health department every week—via HHLPSS on-line system, and via securely-transmitted Excel files--so that they have information on lead levels for children in their jurisdictions.

BLLs >= 20 are faxed to local health departments the same day we receive them. Starting a few months ago, copies of all BLLs >= 5 are provided to our Nurse Consultant weely, to help her monitor elevated levels in each local jurisdiction.

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 30, 2015 6:50 PM
To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; Miller, Corinne (DHHS) <MillerC39@michigan.gov>; Miller, Mark (DHHS) <millerm1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>; Dykema, Linda D. (DHHS) <DykemaL@michigan.gov>; Priem, Wesley F. (DHHS) <priemw@michigan.gov>; Travis, Rashmi (DHHS) <TravisR@michigan.gov>
Cc: Fink, Brenda (DHHS) <FinkB@michigan.gov>; Scott, Robert L. (DHHS) <ScottR9@michigan.gov>
Subject: RE: Hurley -- follow up about the question on Hurley lab results

I can partially answer your question now, will get additional info from Bob and send more later.

The data flows in daily, year-round. We process several thousand test results every week. We monitor the results daily, and have an algorithm for our follow-up response, based on the blood lead level.

Because we are processing results every day, we do see some patterns if they begin to emerge, especially with the higher lead levels. We normally track and report data at health department level, county level/Detroit. We are still building our capacity and putting new procedures in place via our CDC Surveillance grant to crank out more reports/report cards, and more frequent data reports, especially with the switch in focus to levels of 5 and above (which means we are focusing on a larger number of results than just 10 and above). We develop and share out many maps, charts, graphs, and yes, do publish an annual legislative report.

We have .2 FTE Epi support (Cristin Larder), mostly for special projects and/or reports, for example, Cristin is working with us and Dr. Stan Kaplowitz from MSU to use his research to help pinpoint smaller geographic areas with higher risk, so we can better direct resources toward those areas.

Bob, can you please add more information about frequency of your analysis, and how we detect issues?

From: Wells, Eden (DCH)
Sent: Wednesday, September 30, 2015 6:24 PM
To: Peeler, Nancy (DCH); Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH)
Subject: RE: Hurley -- follow up about the question on Hurley lab results

That sounds about right.

May I ask,, is it CLPP's usual process to collect the lead data on an ongoing basis...if so, at what level is the data usually analyzed (by Epi?) IS it daily,nmonthly? Quarterly? Annually? How would we normally detect/know if there is an issue in a particular locality---do you look at it at county level or smaller when you peruse your data? This question may arise...

E

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 30, 2015 5:22 PM
To: Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH); Wells, Eden (DCH)
Subject: FW: Hurley -- follow up about the question on Hurley lab results

Hi all – I talked to Bob to confirm the information I had shared about the Hurley lab results. It is a little more nuanced than I had explained, forwarding Bob's explanation, FYI.

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 5:05 PM
To: Peeler, Nancy (DCH)
Subject: Hurley

Hurley Medical Center is listed as the "Provider" on approximately half of the blood lead results we received for Flint children in 2014—I assume that pattern holds in 2015 and in recent years. Warde Medical Lab is listed as the "Laboratory" on those results. Warde reported the results to CLPPP in accordance with State law.

I can't say whether the blood specimens were a) drawn at Hurley's lab, or b) simply passed through Hurley's lab—from physician office to Hurley to Warde for analysis. As I understand it, both scenarios are common at various hospital labs.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Scott, Robert L. (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 29, 2015 4:25 PM
To: Peeler, Nancy (DCH)
Subject: RE: Public Health Advisory

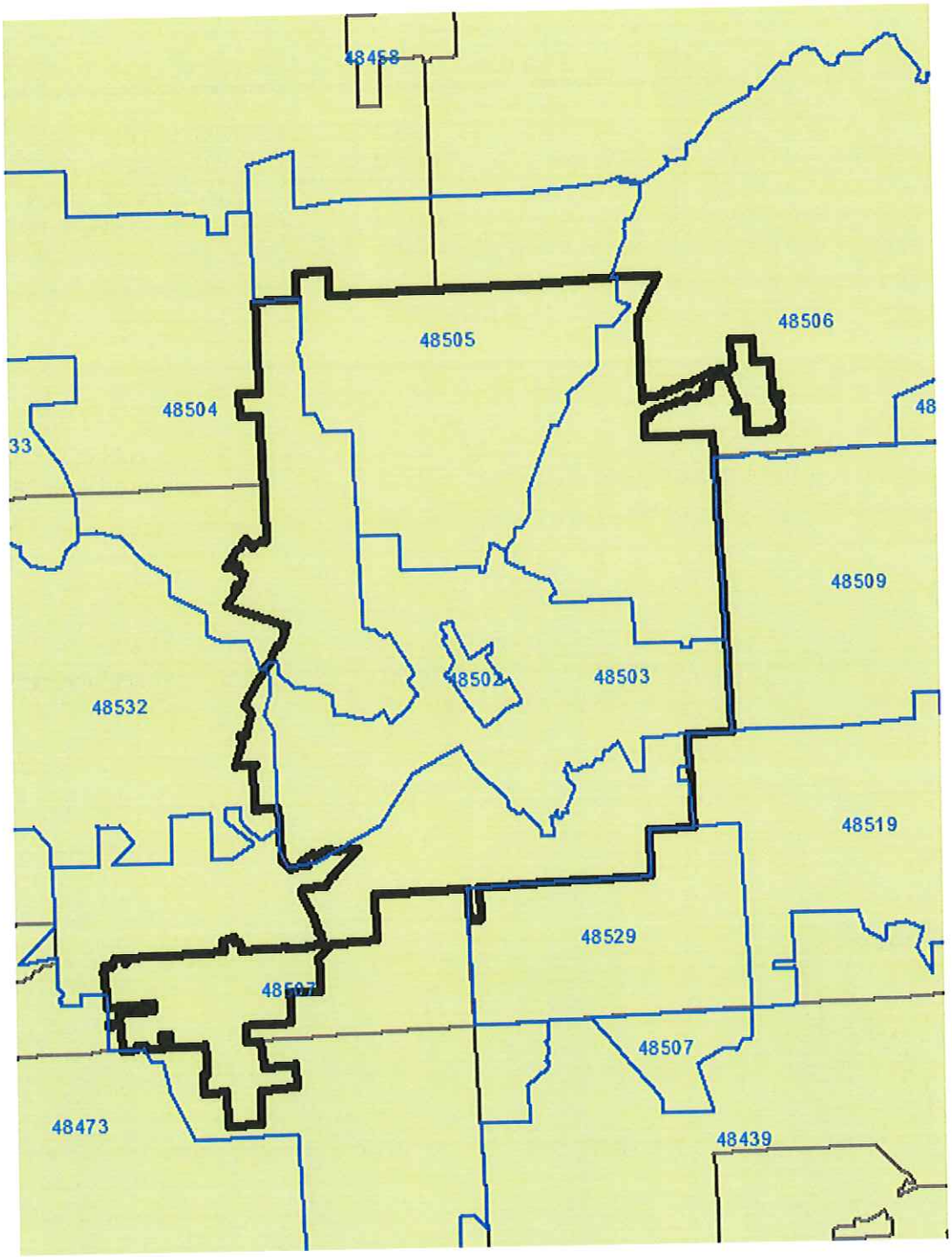
Flint Twp is directly to the west of the city (the number 48532 is in the heart of it). Mundy Twp is directly to the south of Flint Twp. Boundaries are the thin black lines.

From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 4:20 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Public Health Advisory

Can we tell where Mundy Township and Flint Township are on this map?

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 29, 2015 4:17 PM
To: Peeler, Nancy (DCH)
Cc: Fink, Brenda (DCH)
Subject: RE: Public Health Advisory

Hurley said they used zips 48501 through 48507. Yes, 48504 through 48507 all cross the city/township lines. Not sure how well this screenshot shows it (black outline is Flint; blue lines are zips). Cristin was going to geocode to the census block group—those will not cross city/township lines.



From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 4:04 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Fink, Brenda (DCH) <FinkB@michigan.gov>
Subject: FW: Public Health Advisory
Importance: High

Forwarding, FYI. The analysis is now in the hands of Epi, so out of our realm.

Just curious – Bob, what were the zip codes Hurley used, and do they cross over into the townships, or are they completely within city boundaries?

From: Lasher, Geralyn (DCH)
Sent: Tuesday, September 29, 2015 12:06 PM
To: Wells, Eden (DCH); Miller, Corinne (DCH); Moran, Susan (DCH); Robinson, Mikelle (DCH); Dykema, Linda D. (DCH); LyonCallo, Sarah (DCH); Hertel, Elizabeth (DCH); Peeler, Nancy (DCH); Travis, Rashmi (DCH); Miller, Mark (DCH)
Cc: Minicuci, Angela (DCH); Eisner, Jennifer (DCH); Grijalva, Nancy (DCH)
Subject: FW: Public Health Advisory
Importance: High

And Genesee County and the Genesee County Health Department, have just issued the attached public health advisory and on the final paragraph it says:

> Recent data provided by Hurley Hospital researchers has indicated that a significant increase in blood lead levels has occurred in children since the switch to Flnt River water. The county Health Officer has requested that the Michigan Department of Health and Human Services (MDHHS) provide to the County specific data to support its claim that state data is more comprehensive and does not show a significant increase. To date, the MDHHS has failed to confirm the geographic area included in their findings. We want to assure the state data is specific to the boundaries of the City of Flint, and not Flint addresses which would include addresses in areas outside of the City of Flint. These areas,such as Flint Township,that obtain their water from the Detroit Water Authority and would,therefore,not be representative of Flint River water as the water source. The County is prepared to take further action if the State fails to provide the requested data by September 30, 2015. Further action could include a request for outside independent evaluation of the data and to declare a Public Health Emergency in Flint.

I understand that we are still reviewing the data—but the county has basically issued a ransom date that they want this information by tomorrow.

Eden—please coordinate an answer so Nick can walk into the 1:00 p.m. meeting prepared on this.

From: Minicuci, Angela (DCH)
Sent: Tuesday, September 29, 2015 11:59 AM
To: Lasher, Geralyn (DCH) <lasherg@michigan.gov>
Subject: FW: Public Health Advisory
Importance: High

Last paragraph, last page.

Angela

From: Sandlin, Mary [mailto:MSANDLIN@gchd.us]
Sent: Tuesday, September 29, 2015 11:55 AM
Subject: Public Health Advisory
Importance: High

Mary E. Sandlin
Clerical Coordinator
Genesee County Health Department
630 S. Saginaw Street, Suite 4
Flint, MI 48502-1540
(810) 257-3812 FAX: (810) 257-3147
msandlin@gchd.us

Genesee County
Health Department

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For a copy of the Health Department's Notice of Information Practices, contact the Health Department or visit the Health Department's website at http://www.gchd.us

Scott, Robert L. (DHHS)

From: Marc Edwards <edwardsm@vt.edu>
Sent: Sunday, November 01, 2015 1:00 PM
To: MDHHS-FOIA
Subject: FOIA Request records on blood lead studies and associated discussion in Flint

I am requesting documents (e-mails, notes, reports, etc) related to blood lead studies on children in Flint Michigan 2014-present.

Robert Scott and Karen Lishinski of DCH would know about these documents, and who else might know about them. In particular, I am interested in:

1) all documents and e-mails related to a "study" done by DCH that was repeatedly cited by MDEQ, as showing there was no problem with Flint's children, but acknowledging that there was a "spike" in blood lead in 2014 summer
Karen 2) communications between MDEQ and DCH and others about this original study and presentations thereof
3) all documents about the study of Mona Hanna-Attisha, including the extensive attempts by the State to discredit her work. Again, MDEQ and others were involved in those discussions.
4) all documents about finally verifying Ms. Hanna-Attisha's study
5) all documents about Ms. Hanna-Attisha's study to the present day, including any e-mails to the U.S. CDC or ATSDR about the work.
6) all documents about my work, and my attempt to get the blood lead data from DCH

I would submit the FOIA through the DCH web-link, but that link does not work.

Marc Edwards

3604

Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Friday, September 11, 2015 4:05 PM
To: Peeler, Nancy (DCH)
Subject: RE: childhood lead, question

Hi Nancy,

I don't see an issue with this. Seems pretty straightforward to me.

Angela

From: Peeler, Nancy (DCH)
Sent: Friday, September 11, 2015 2:43 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: childhood lead, question
Importance: High

Hi Angela – we had a call from a pediatrician in Flint, who we know because he sits on our Provider Work Group. He asked for some childhood lead data, of the type that we had sent over to the Director, that was forwarded to the Governor's office. Erring on the side of caution, I wanted to check whether you are good with us sharing that same information with him. See attached. I realize that the Gov's office shared it with the group of Pastors they were meeting with, so it may be out in the public already. Anyway – if you see this and can give an opinion, I appreciate it.

Nancy

Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 1:16 PM
To: Peeler, Nancy (DCH); Bien, Stan (DCH); Scott, Robert L. (DCH)
Cc: Eisner, Jennifer (DCH); Lasher, Geralyn (DCH)
Subject: Flint Talking Points
Attachments: Flint Lead TP 092415.docx

Hi everyone,

With the Hurley press event at 3pm, can you please take a look at the following/attached talking points to make sure these are accurate and send me your edits?

Thank you.

- The results of the Hurley Children's Hospital are under review by the Michigan Department of Health and Human Services.
- The analysis that Hurley conducted is different than the way MDHHS collects data regarding blood lead levels.
- MDHHS is looking to see if we can replicate the results of the Hurley study to see how they achieved their results.

Differences in Analysis

- MDHHS data provides a much more robust picture of the entire blood lead levels for the Flint area, and specifically, accounts for data over the full course of the past five years.
- Looking at the past five years as a whole provides a much more accurate look at the seasonal trends of lead in the area.
- Seasonal exposure is higher in the summer for a variety of reasons including children playing outside in the soil, and when windows are open and lead paint is more likely to be in the air. This seasonal increase would be unrelated to the water system.
- Our data includes children from the entire city, including all medical facilities, rather than just Hurley, has a larger age group of children, and includes a much larger sample size.
- MDHHS data also looks specifically at the first test with elevated blood lead levels which provides a much more accurate picture of when and how first exposure occurred.
- The Hurley data includes a smaller sample size, much more limited time period (January-September of 2013 and 2015 only), and a smaller age group of children.

WIC Children

- For children with elevated blood lead levels that receive WIC benefits, they may be eligible to receive ready made formula with a test result that indicates that the child has an elevated blood lead level.
- WIC cannot cover bottled water.

Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 1:47 PM
To: Scott, Robert L. (DCH); Peeler, Nancy (DCH); Bien, Stan (DCH)
Cc: Eisner, Jennifer (DCH); Lasher, Geralyn (DCH)
Subject: RE: Flint Talking Points
Attachments: Flint Lead TP 092415.docx

Excellent. Thank you, Bob. I also spoke with Stan. The updated talking points are attached.

Angela

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 1:35 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>; Bien, Stan (DCH) <biens@michigan.gov>
Cc: Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>
Subject: RE: Flint Talking Points

Angela,

One suggested change to the second bullet:
"The analysis that Hurley conducted is different from the way MDHHS has analyzed data regarding blood lead levels in Flint."

Another suggestion for the 5th bullet under Differences in Analysis:
"The MDHHS analysis looks specifically at the first elevated blood lead level for each child, which provides an accurate picture of when first exposure occurred."

Thanks,
Bob

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 1:16 PM
To: Peeler, Nancy (DCH) <PeelerN@michigan.gov>; Bien, Stan (DCH) <biens@michigan.gov>; Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>
Subject: Flint Talking Points

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Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 1:57 PM
To: Peeler, Nancy (DCH)
Cc: Scott, Robert L. (DCH); Bien, Stan (DCH); Eisner, Jennifer (DCH); Lasher, Geralyn (DCH)
Subject: RE: Flint Talking Points

I personally think that's more inside baseball but if G or Jen thinks it would help to say, I'm fine adding it in.

Angela

From: Peeler, Nancy (DCH)
Sent: Thursday, September 24, 2015 1:54 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Cc: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Bien, Stan (DCH) <biens@michigan.gov>; Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>
Subject: Re: Flint Talking Points

Do we want to add, in the first section, that MDHHS is working with Hurley to obtain approval for sharing a broader data set with Hurley for their review.

Sent from my iPad

On Sep 24, 2015, at 1:46 PM, Minicuci, Angela (DCH) <MinicuciA@michigan.gov> wrote:

> Excellent. Thank you, Bob. I also spoke with Stan. The updated talking points are attached.
>
> Angela
>
> **From:** Scott, Robert L. (DCH)
> **Sent:** Thursday, September 24, 2015 1:35 PM
> **To:** Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>; Bien, Stan (DCH) <biens@michigan.gov>
> **Cc:** Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>
> **Subject:** RE: Flint Talking Points
>
> Angela,
>
> One suggested change to the second bullet:
> "The analysis that Hurley conducted is different from the way MDHHS has analyzed data regarding blood lead levels in Flint."
>
> Another suggestion for the 5th bullet under Differences in Analysis:
> "The MDHHS analysis looks specifically at the first elevated blood lead level for each child, which provides an accurate picture of when first exposure occurred."
>
> Thanks,
> Bob

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 1:16 PM
To: Peeler, Nancy (DCH) <PeelerN@michigan.gov>; Bien, Stan (DCH) <biens@michigan.gov>; Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>
Subject: Flint Talking Points

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Thank you.

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- WIC cannot cover bottled water.

<Flint Lead TP 092415.docx>

Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 2:07 PM
To: Peeler, Nancy (DCH); Scott, Robert L. (DCH); Lasher, Geralyn (DCH); Eisner, Jennifer (DCH); Robinson, Mikelle (DCH); Moran, Susan (DCH); Hertel, Elizabeth (DCH)
Subject: FW: Flint lead data
Attachments: Pediatric Lead Exposure Flint Water 092415 FINAL.pdf

The Next Steps slide no longer recommends that the city declare a health advisory. It now says 'support city's health advisory'. If Flint will be issuing a health advisory, will Genesee County support this?

Angela

From: Murray, David (GOV)
Sent: Thursday, September 24, 2015 1:56 PM
To: Hollins, Harvey (GOV) <hollinsh@michigan.gov>; Lasher, Geralyn (DCH) <lasherg@michigan.gov>; Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>; Clement, Elizabeth (GOV) <clemente@michigan.gov>; Muchmore, Dennis (GOV) <muchmored@michigan.gov>; Agen, Jarrod (GOV) <AgenJ@michigan.gov>; Wurfel, Sara (GOV) <Wurfels@michigan.gov>; Wurfel, Brad (DEQ) <WurfelB@michigan.gov>; Tommasulo, Karen (DEQ) <TommasuloK@michigan.gov>
Cc: Biehl, Laura (GOV) <BiehlL@michigan.gov>; Brown, Jessica (GOV) <BrownJ53@michigan.gov>; Heaton, Anna (GOV) <HeatonA@michigan.gov>
Subject: Flint lead data

Team,

Here's the data that will be presented at the Hurley Hospital press conference at 3 p.m. As you'll see, they are pointing to individual children, a very emotional approach. Our challenge will be to show how our state data is different from what the hospital and the coalition members are presenting today.

Dave

---------- Forwarded message ----------
From: **Andy Leavitt** <aleavitt@senatedems.org>
Date: Thu, Sep 24, 2015 at 1:41 PM
Subject: Data
To: Angela Wittrock <awittrock@senatedems.org>

Hey Angela,

Sorry for the delay. Dr. Mona Hanna-Attisha wanted to make a few changes to one of her slides.

Andy

Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Thursday, September 24, 2015 2:49 PM
To: Peeler, Nancy (DCH)
Cc: Eisner, Jennifer (DCH)
Subject: Can you call us?

We're not clear about what data we can give out. Can you call us? 517-373-0860.

Angela Minicuci
Office of External Relations and Communications
Michigan Department of Health and Human Services
Office: (517) 241-2112
Mobile: (517) 763-3609
minicucia@michigan.gov
www.michigan.gov/mdhhs

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Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Friday, September 25, 2015 1:13 PM
To: Scott, Robert L. (DCH); Peeler, Nancy (DCH)
Subject: FW: Flint follow-up

Importance: High

Hi Nancy and Bob,

The Detroit Free Press wants to do a bigger story about the issue of lead in Flint. I made it clear to her yesterday that we could not say the lead poisonings are related to the water, but she instead wants to do a story about the increase of overall lead poisonings in Flint between 12/13 and 14/15. Are either of you available to speak with her today?

Thank you,

Angela

From: Tanner, Kristi [mailto:ktanner@freepress.com]
Sent: Friday, September 25, 2015 12:16 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: Flint follow-up

Hi Angela,
Thanks for the feedback yesterday. I took a look at the numbers last night that you sent over and the year over year increase between 13/14 and 14/15 is statistically significant $p<.05$
Can you ask you epidemiologist to confirm? Also, is this the first significant increase that Flint has seen for this cohort?
Thanks!
Kristi
(313) 222-8877 office
(586) 322-2094 cell

Children in Flint, less than 16 years of age, tested for lead

Children with Elevated BLL*			Children Tested**	
May 2010 - April 2011	168	0.043796	May 2010 - April 2011	3,836
2011-2012	153	0.036085	2011-2012	4,240
2012-2013	118	0.028379	2012-2013	4,158
2013-2014	95	0.023691	2013-2014	4,010
2014-2015	123	0.032106	2014-2015	3,831
May - August 2015	34	0.029746	May - August 2015	1,143

*Each child counted only once.

**Some children counted in more than one year.

September 24, 2015
Source: MDHHS Data Warehouse

Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Friday, September 25, 2015 1:36 PM
To: Peeler, Nancy (DCH)
Cc: Scott, Robert L. (DCH)
Subject: RE: Flint follow-up

Bob, I like what you had to say. That's basically what I told her, but she wants to hear it from someone other than a spokesperson ☺ Are you available for a call with her?

Angela

From: Peeler, Nancy (DCH)
Sent: Friday, September 25, 2015 1:20 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Cc: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Re: Flint follow-up

I think Bob is the best person to speak to them about the lead data, if you are comfortable with that, Bob. My secret hope is that we can work in the fact that this pattern is similar to recent past. :)

Sent from my iPad

On Sep 25, 2015, at 1:12 PM, Minicuci, Angela (DCH) <MinicuciA@michigan.gov> wrote:

> Hi Nancy and Bob,
>
> The Detroit Free Press wants to do a bigger story about the issue of lead in Flint. I made it clear to her yesterday that we could not say the lead poisonings are related to the water, but she instead wants to do a story about the increase of overall lead poisonings in Flint between 12/13 and 14/15. Are either of you available to speak with her today?
>
> Thank you,
>
> Angela
>
> **From:** Tanner, Kristi [mailto:ktanner@freepress.com]
> **Sent:** Friday, September 25, 2015 12:16 PM
> **To:** Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
> **Subject:** Flint follow-up
>
> Hi Angela,
> Thanks for the feedback yesterday. I took a look at the numbers last night that you sent over and the year over year increase between 13/14 and 14/15 is statistically significant $p<.05$
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*Each child counted only once.

**Some children counted in more than one year.

September 24, 2015
Source: MDHHS Data Warehouse

Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Sunday, September 27, 2015 9:30 PM
To: Wells, Eden (DCH)
Cc: Lasher, Geralyn (DCH); Moran, Susan (DCH); Peeler, Nancy (DCH); Robinson, Mikelle (DCH); Hertel, Elizabeth (DCH); Eisner, Jennifer (DCH)
Subject: Re: State data confirms higher blood-lead levels in Flint kids

I've asked our lead epidemiologist to look at the data closer than what was in the charts to get a handle on this. The epi is Cristin Larder.

Sent from my iPhone

> On Sep 27, 2015, at 5:39 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>
> Given not sure what % children tested, etc.
>
> Sent from my iPhone
>
>> On Sep 27, 2015, at 5:34 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>>
>> Thanks--DFP is looking at tests positive/number of tests done-- not sure that this is a reliable measure used by our program. Await input from Nancy or Linda.
>>
>> Sent from my iPhone
>>
>>> On Sep 27, 2015, at 5:26 PM, Lasher, Geralyn (DCH) <lasherg@michigan.gov> wrote:
>>>
>>> Yes. We provided the graphs with the narrative bullet points.
>>>
>>> Sent from my iPad
>>>
>>>> On Sep 27, 2015, at 5:20 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:
>>>>
>>>> Geralyn- were the graphs shown outside of MDHHS?
>>>>
>>>> Sent from my iPhone
>>>>
>>>>> On Sep 27, 2015, at 5:06 PM, Moran, Susan (DCH) <MoranS@michigan.gov> wrote:
>>>>>
>>>>> Sorry - hit send too soon.
>>>>> Copying Lynda and Corrine- not sure who in Epi or CLPPP has been point person on state's data.
>>>>>
>>>>> Sent from my iPhone
>>>>>
>>>>>> On Sep 27, 2015, at 2:11 PM, Lasher, Geralyn (DCH) <lasherg@michigan.gov> wrote:
>>>>>>
>>>>>> We will need help responding to what the Free Press is claiming in this article.
>>>>>>

>>>>>> Sue--let us know who can get us this as early Monday as possible.
>>>>>>
>>>>>> State data confirms higher blood-lead levels in Flint kids
>>>>>>
>>>>>> http://www.freep.com/story/opinion/columnists/nancy-kaffer/2015/09/26/state-data-flint-lead/72820798/
>>>>>>
>>>>>>
>>>>>> Sent from my iPad

Peeler, Nancy (DHHS)

From: Minicuci, Angela (DCH)
Sent: Wednesday, September 30, 2015 8:48 AM
To: Fink, Brenda (DCH)
Cc: Moran, Susan (DCH); Wells, Eden (DCH); Travis, Rashmi (DCH); Peeler, Nancy (DCH); Said, Manal (DCH); Dunbar, Paulette Dobynes (DCH); Kostelec, Tiffany (DCH); Bien, Stan (DCH)
Subject: RE: Flint Water Situation
Attachments: Flint Lead TP 092415.docx

Hi Brenda,

Yes, our messaging is to support the recommendations from the local health department. We also have guidance related to WIC. Please see the attached talking points.

Thank you,

Angela

From: Wells, Eden (DCH)
Sent: Wednesday, September 30, 2015 8:43 AM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: Fwd: Flint Water Situation

Sent from my iPhone

Begin forwarded message:

> **From:** "Fink, Brenda (DCH)" <FinkB@michigan.gov>
> **Date:** September 30, 2015 at 8:20:48 AM EDT
> **To:** "Moran, Susan (DCH)" <MoranS@michigan.gov>, "Wells, Eden (DCH)" <WellsE3@michigan.gov>, "Travis, Rashmi (DCH)" <TravisR@michigan.gov>
> **Cc:** "Peeler, Nancy (DCH)" <PeelerN@michigan.gov>, "Said, Manal (DCH)" <SaidM@michigan.gov>, "Dunbar, Paulette Dobynes (DCH)" <dunbarp@michigan.gov>, "Kostelec, Tiffany (DCH)" <KostelecT@michigan.gov>, "Bien, Stan (DCH)" <biens@michigan.gov>
> **Subject: RE: Flint Water Situation**
>
> I'm including Stan this time, as likely we'd want to be sure we're in sync w/WIC as well, given most of our moms/infants are in both programs.
>
> Brenda Fink, A.C.S.W.
> Director, Division of Family and Community Health
> Michigan Department of Health and Human Services
> 109 W. Michigan Ave.
> Lansing, MI 48933
> 517-335-8863
> Fax: 517-335-8697
> finkb@michigan.gov

From: Fink, Brenda (DCH)
Sent: Wednesday, September 30, 2015 8:17 AM
To: Moran, Susan (DCH); Wells, Eden (DCH); Travis, Rashmi (DCH)
Cc: Peeler, Nancy (DCH); Said, Manal (DCH); Dunbar, Paulette Dobynes (DCH)
Subject: FW: Flint Water Situation
Importance: High

We are getting lots of questions here from our NFP and MIHP provders. We are thinking to ask all providers for those, and our other evidenced base HV provders that cover that geographic area to be sure to share the advisory the Mark V from the HD shared, and help the moms to understand what flushing the water means etc (remembering that written notices are not some moms primary way of understanding info). Any reason we should not go ahead and do so?

Brenda Fink, A.C.S.W.
Director, Division of Family and Community Health
Michigan Department of Health and Human Services
109 W. Michigan Ave.
Lansing, MI 48933
517-335-8863
Fax: 517-335-8697
finkb@michigan.gov

From: Moran, Susan (DCH)
Sent: Tuesday, September 29, 2015 8:14 PM
To: Miller, Corinne (DCH); Peeler, Nancy (DCH); Fink, Brenda (DCH); Scott, Robert L. (DCH); Miller, Corinne (DCH); Dykema, Linda D. (DCH); LyonCallo, Sarah (DCH); Scott, Jackie (DCH); Robinson, Mikelle (DCH); Miller, Mark (DCH); Priem, Wesley F. (DCH)
Cc: Grijalva, Nancy (DCH); Anderson, Paula (DCH); Rockefeller, Cheryl (DCH)
Subject: Flint Water Situation
Importance: High

Hi all- we have had a lot of communication coming from different sources and staff on Flint water situation- I would like to centralize all communication through Eden. I have asked Geralyn to communicate directly with Eden on any question/issues related to Flint water situation. Any e mail communication re: Flint water to Geralyn (or Nick/Nancy, communications office) should include cc to me and Eden. Thank you for your cooperation.

Please share with other staff that need to know.

Susan Moran MPH, Senior Deputy Director
Population Health and Community Services Administration
Capitol View Building
201 Townsend St 6th Floor
Lansing, MI
48913
Phone: 517 335 8024
Fax: 517 335 9032
morans@michigan.gov

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, July 28, 2015 1:48 PM
To: Peeler, Nancy (DCH)
Subject: FW: Flint Testing and EBLLs.xlsx

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From: Scott, Robert L. (DCH)
Sent: Tuesday, July 28, 2015 10:15 AM
To: Larder, Cristin (DCH); Peeler, Nancy (DCH); McKane, Patricia (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

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To: McKane, Patricia (DCH)
Cc: Larder, Cristin (DCH); Scott, Robert L. (DCH)
Subject: Re: Flint Testing and EBLLs.xlsx

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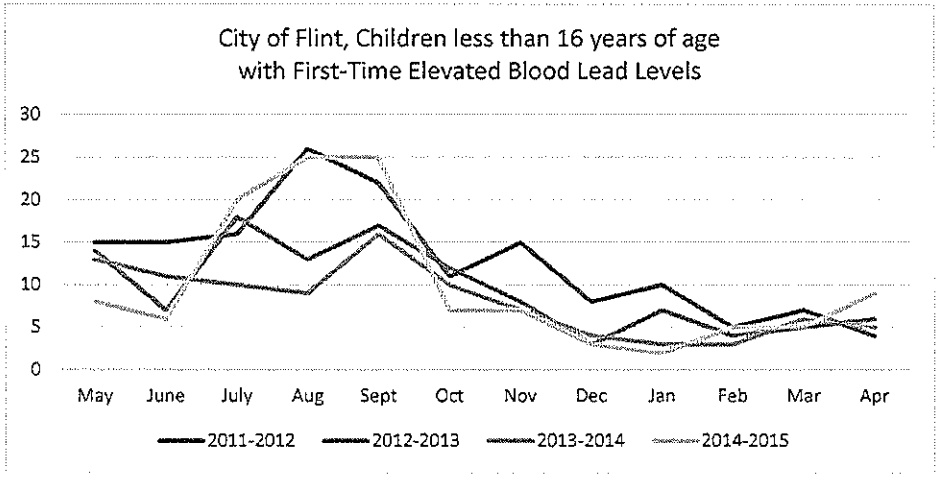
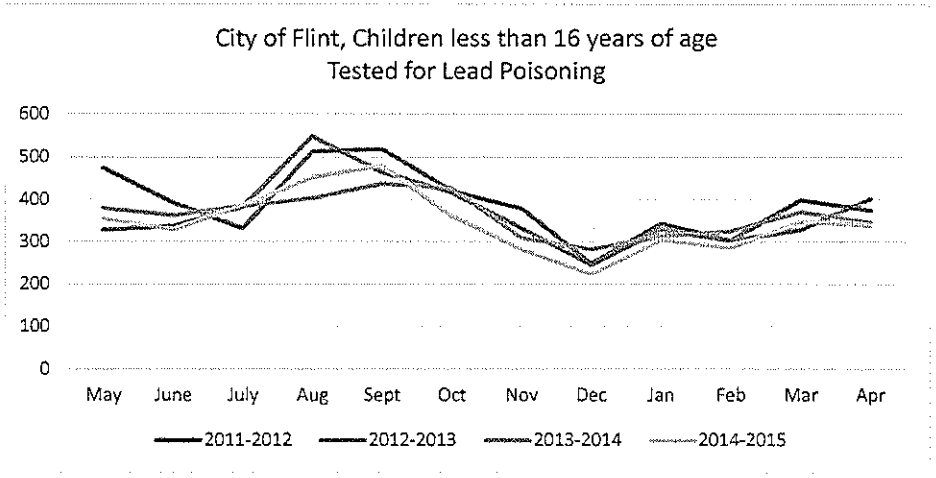


	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2011-2012	15	15	16	26	22	11	15	8	10	5	7	4
2012-2013	14	7	18	13	17	12	8	3	7	4	5	6
2013-2014	13	11	10	9	16	10	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	3	2	5	5	9



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
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2012-2013	328	338	383	550	464	417	332	246	328	303	328	402
2013-2014	380	363	385	404	438	427	310	283	313	325	371	346
2014-2015	356	329	386	452	480	361	283	224	305	287	348	339

Peeler, Nancy (DHHS)

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Sent: Tuesday, July 28, 2015 10:15 AM
To: Larder, Cristin (DCH); Peeler, Nancy (DCH); McKane, Patricia (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx
Attachments: Flint Testing and EBLLs_2.xlsx

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Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, July 28, 2015 2:28 PM
To: Peeler, Nancy (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

No, sorry, I mislabeled the top one. Should say "July-September 2014."

From: Peeler, Nancy (DCH)
Sent: Tuesday, July 28, 2015 2:26 PM
To: Scott, Robert L. (DCH)
Subject: RE: Flint Testing and EBLLs.xlsx

So this is 2010 data, rather than 2014 data?

From: Scott, Robert L. (DCH)
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Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:09 PM
To: Peeler, Nancy (DCH); Lishinski, Karen (DCH); Priem, Wesley F. (DCH)
Subject: Flint water study
Attachments: Rapid Proposal Final.pdf

Nancy, Karen and Wes,

I'm passing this along as follow-up to our previous attention to the Flint water changeover situation. The attached was submitted to me along with a request for de-identified data, which should be no problem.

When you have a few minutes you might want to take a look at it. Sounds like there might be more to this than what we learned previously. Yikes!

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Overview: Flint, MI, is currently suffering from a "perfect storm" attributable to out-of-control corrosion of its potable water distribution system. The corrosion is undermining water affordability for residents, financial viability of city government, water aesthetics, and hygiene/sanitation as revealed in local and national news reporting. We ***hypothesize*** that these circumstances will also create severe chemical/biological health risks for Flint residents, including elevated levels of lead and opportunistic premise plumbing pathogens (OPPPs) in drinking water. Preliminary data collected from a home of a lead poisoned child in Flint has revealed extraordinarily high levels of lead, with average concentrations over 20 minutes of water use exceeding 2,000 ppb (> 200 times the World Health Organization allowable levels for lead in potable water).

The main ***objectives*** of this research are to: 1) compare levels of chlorine, iron, fecal indicator bacteria, OPPPs, and corrosion-inducing bacteria present in water mains of a distribution system with uncontrolled corrosion (Flint) versus surrounding cities/counties still using non-corrosive water, 2) profile OPPPs occurrence in hot and cold potable water systems at these same locations, and 3) determine if there is evidence of elevated lead in Flint homes, and, if so, forensically determine the links to iron corrosion. Our team is uniquely qualified to do this work given our just published peer reviewed research on this subject and our extensive collaborations with key stakeholders in Flint.

Intellectual Merit: The four elements of the "perfect storm" currently undermining water quality (and possibly public health) in Flint include: a) chronic underinvestment in water infrastructure, b) under-appreciation of the role of corrosion control in sustaining urban potable water systems, c) increased corrosion due to higher chloride in Flint's new source water, and d) failure to appropriately monitor for lead and OPPPs. The latter two factors are amongst the most important health problems arising in modern potable water systems. The high rates of corrosion occurring in Flint are releasing high levels of iron to water and consuming chlorine disinfectant, which our most recent laboratory testing has indicated will increase lead release to water and growth of OPPPs in cold and hot water plumbing systems. The unfortunate but unique opportunity offered by Flint's current situation, provides an ideal opportunity to field test our recent discoveries regarding potentially adverse consequences of iron corrosion on chemical/microbiological water quality at field rather than laboratory scale.

Broader Impacts: This RAPID grant will directly assist residents of Flint in assessing the current safety of their potable water supply. If the results support recently issued public assurances regarding safety of water, the current problems in Flint can be considered mainly of aesthetics and perception due to very distasteful or discolored water. However, if sampling reveals widespread problems, the public will learn of the potential health threat. Since elements of the "perfect storm" afflicting Flint are occurring at some level in many other financially stressed U.S. urban centers with decaying drinking water infrastructure, this Rapid Response Research (RAPID) grant also provides an unprecedented opportunity to advance fundamental scientific and practical understanding at this emerging nexus of infrastructure-environmental engineering-public health. The general results and approach used herein can inform residents and managers of other U.S. cities, who will soon be dealing with similar problems associated with failing potable water infrastructure exacerbated by increased chloride in water due to excessive use of road salt and rising sea levels. The research also provides a compelling case study in *Citizen Science*, since the experiences of Flint parents in monitoring their children's health and environmental exposures was a trigger for our preliminary testing, and Flint consumers will be scientifically empowered by participating in fundamental research relying on collection of samples from their homes and residences. There is also a social justice implication of the research, in that these results can help inform the current policy debate regarding strategies for dealing with cites that have gone bankrupt, as well as the discussion of access to safe and affordable drinking water as a basic human right.

RAPID: Synergistic Impacts of Corrosive Water and Interrupted Corrosion Control on Chemical/Microbiological Water Quality: Flint, MI

1. Problem Statement and Objectives

Flint, MI, is currently suffering from a "perfect storm" due to out-of-control corrosion of its potable water distribution system, undermining the well-being of the community including water affordability for residents, financial viability of city government, water aesthetics, and hygiene/sanitation.[1-13] Flint's problems began in April 2014, when emergency managers hired to deal with the city's fiscal crisis determined they could save money by switching to a local river water source as opposed to purchasing water from Detroit (Table 1). As a result of the change in source water, the Larson Iron Corrosion Index was raised from 0.54 (low corrosion) to 2.3 (very high corrosion) and the chloride to sulfate mass ratio (CSMR) index for lead corrosion increased from 0.45 (low corrosion) to 1.6 (very high corrosion). Concurrently, the managers and state primacy agency attempted to save even more money by not feeding an orthophosphate corrosion inhibitor to the water supply (Table 1).

Table 1. Water quality parameters for drinking water supplied in Flint, MI before and after the April 2014 switch

Parameter	Before[1]	After[2]
pH	7.38	7.61
Hardness (mg/L as $CaCO_3$)	101	183
Alkalinity (mg/L as $CaCO_3$)	78	77
Chloride (mg/L)	**11.4**	**92**
Sulfate (mg/L)	25.2	41
CSMR[3]	0.45	**1.6**
Inhibitor (mg/L as P)	0.35	**NONE**
Larson Ratio[4]	0.5	**2.3**

[1]Source: City of Flint Monthly Operation Report, June 2015. Available from www.cityofflint.com
[2]Source: DWSD 2014 Water Quality Report. Available from www.dwsd.org
[3]A measure of corrosivity to lead; a value > 0.5 is a critical trigger [10]
[4]A measure of corrosivity to mild steel and iron; corrosion rate increases linearly with Larson Ratio [8]

Not surprisingly, the combined effect of more corrosive water and removal of the corrosion inhibitor unleashed unprecedented corrosion in the water main distribution system with cascading personal, economic, and public health consequences to Flint as tracked by news reports and mandatory chemical/biological monitoring of water in the distribution system mains.[1-14] ***Our recent research also predicts that these circumstances will potentially create severe chemical/biological health risks for residents, due to impacts on water within building (premise) plumbing systems that include elevated levels of lead and opportunistic premise plumbing pathogens (OPPPs).***[15-18] Because the factors impacting Flint are also occurring at some level in many other financially-stressed U.S. urban centers with decaying drinking water infrastructure, this ***Rapid Response Research (RAPID) grant provides an unprecedented opportunity to advance fundamental scientific and practical understanding at this emerging nexus of infrastructure-environmental engineering-public health.*** We view August-September 2015 as the ideal time to first sample in Flint, as more than 16 months of uncontrolled corrosion have occurred and the water remains near its seasonal peak temperature, maximizing the likelihood of serious problems with lead and OPPPs if they exist.

Our <u>key hypothesis</u> is that the rapid corrosion of iron water mains will dramatically increase lead release to water and growth of OPPPs as measured in consumers' homes. Mechanistically, higher iron corrosion produces both higher iron in water and lower levels of free chlorine, both of which dramatically increased lead release and OPPPs regrowth in our just published laboratory research utilizing simulated distribution systems.[15-19] The ***<u>main objectives</u> of this research*** are to: *1) compare levels of chlorine, iron, fecal indicator bacteria, OPPPs, and corrosion-inducing bacteria present in water mains of a distribution system with uncontrolled corrosion (Flint) versus controlled corrosion in surrounding cities/counties still using non-corrosive Detroit water, 2) profile hot and cold potable water systems at the same sampling locations in #1 for OPPPs, and 3) determine if there is evidence of elevated lead in Flint homes, and, if so, forensically determine the links to iron corrosion.*[15,17-20] The unfortunate but unique opportunity offered by Flint's current situation provides an ideal opportunity to field test our recent discoveries regarding adverse consequences of iron corrosion on OPPPs and lead concentration at the tap.

2. Review of Local Events and Intellectual Merit

Local Impacts. After the switch of water sources, residents of Flint were immediately subject to an outbreak of corrosion-related drinking water problems including flooding from large water main breaks and reported health ailments.[1-6] General Motors, a prime customer of the water system, reported that the new water was severely corroding auto parts on its assembly line and had to begin importing water, costing the city $400,000 in lost revenue.[9] The PI was also alerted by an Environmental Protection Agency volunteer to a case of childhood lead poisoning in a Flint home that was certified as "lead free."[4] Samples collected from the home exhibited classic "red water" that is occurring throughout the city (Figure 1), along with the highest sustained levels of lead in drinking water that we have encountered in over 25 years of research on the subject. Specifically, in 30 samples collected over a period of 25 minutes flushing at the kitchen faucet, lead concentrations averaged over 2,000 ppb and were as high as 13,000 ppb. For perspective, these levels are more than 200-1,300 times higher than World Health Organization standards (10 ppb) and several even exceeded the EPA criterion for "hazardous waste" of 5,000 ppb Pb. The city has also reported unspecified economic losses due to water main breaks and water losses through leaks.[3,7,11-12]

Figure 1. Drinking water samples collected from home of a child who was lead poisoned by Flint water.

The corrosion problems have also had cascading impacts on health parameters monitored under federal regulations. Because the corrosion is rapidly consuming chlorine disinfectant in the water, the city violated EPA limits for *E. coli*.[5-6] The detaching iron rust also has the potential to expose consumers to other contaminants that pose a serious public health risk, including arsenic[14] and lead that have accumulated in pipes or sorbed to iron surfaces.[15-16] Health effects reported by residents since the switch include skin rashes, hair loss, vomiting, copper poisoning, and the one confirmed case of lead poisoning.[2-4,7,13] However, the relatively small number of cases reported to date almost certainly underestimates the full extent of the problem. In response to the sampling showing high lead, the authorities who made the decision to switch water sources and stop adding corrosion inhibitor publicly stated that "anyone who is concerned about lead in the drinking water in Flint can relax" and that the water is safe,[44] but refuse to sample consumers' water without pre-flushing the plumbing for at least 5 minutes the night before sampling. The latter practice is known to miss lead in water problems.

We are also concerned about possible health effects that have not yet been investigated. For example, in March 2015 Region 5 EPA was provided reports of higher incidence of Legionnaires' disease associated with bacteria growth in premise plumbing in the Flint area.[21] Legionnaires' disease has recently been acknowledged to be the primary source of waterborne disease outbreaks (and associated deaths) in the U.S.[22] Despite that acknowledged risk, there is currently no required monitoring for this important pathogen in consumers' homes, where it proliferates and can lead to human exposure and infection in showers.[22]

Intellectual Merit. The four elements of the "perfect storm" currently undermining water quality (and possibly public health) in Flint include: a) chronic underinvestment in water infrastructure, b) under-appreciation of the role of corrosion control in sustaining urban potable water systems, c) increased corrosivity of water sources nationally due to rising chloride levels from anthropogenic pollution and/or rising sea levels, and d) failure to appropriately monitor for lead and OPPPs, which are two of the most important modern-day public health problems arising in building plumbing systems.

a) **Chronic Underinvestment in Water Infrastructure.** A large fraction of the nation's potable water infrastructure is on the verge of failure, and this problem has been repeatedly voted by

members of the American Society of Civil Engineers (ASCE) as the most urgent societal infrastructure challenge with an overall condition grade of "D".[23,24] Many water main distribution systems are reaching the end of their design lifetime (60-95 years), with water main breaks currently at a rate of 240,000 per year nationally and rising.[25,26] Aside from obvious public health implications associated with compromised delivery of uncontaminated drinking water to the tap, failure events can cause property damage and water loss through leaks.[27] Like many post-industrial manufacturing centers, Flint has a very large potable distribution system constructed to sustain a large consumer and industrial base that no longer exists. The projected cost to upgrade the distribution system is $1.5 billion dollars,[28] which would translate to an unbearable cost of $50,000 per existing customer in Flint.[28]

b) **Under-appreciation of the role of corrosion control in sustaining potable water systems.** Estimates by ASCE, the American Water Works Association (AWWA), the Environmental Protection Agency (EPA), the Water Infrastructure Network (WIN), and the National Academy of Corrosion Engineers (NACE) suggest that direct costs of water pipeline corrosion range between $8 billion - $36 billion annually and indirect costs are much higher.[27] Leaks result in 7 billion gallons of lost water each day with associated revenue losses of ≈ $3 billion per year for U.S. utilities.[29] Problems with leaking potable water plumbing systems in buildings (i.e. premise plumbing) also cost consumers billions of dollars each year.[30,31] Water utilities can reduce costs of potable water system corrosion and extend the lifetime of these invaluable assets by adding corrosion inhibitors, such as orthophosphate, to the water. Prior research using a relatively low corrosivity source water determined that each dollar invested in corrosion control produced more than $5 dollars in financial savings due to reduced corrosion damage and extended lifetime of pipeline infrastructure.[32] In Flint, the short-sighted decision to reduce chemical costs by removing the corrosion inhibitor and introducing corrosive water to the system may have produced tens if not hundreds of millions of dollars in corrosion damages to its existing potable water distribution system. We are also aware of many other utilities that are cutting back on their corrosion inhibitor doses due to cost-cutting pressures.

c) ***Increased corrosivity of water sources nationally due to rising chloride levels from anthropogenic pollution and/or rising sea levels.*** Chloride levels in drinking water are rising nationally in surface water due to use of road salt and seawater intrusion in coastal regions. Road salt use in winter has risen to 137 lbs per year for every American, with a doubling of salt application from 1990 to 2014 (10 vs. 22 million tons) associated with a doubling of chloride levels in northern U.S. waters as monitored by the USGS.[33,34] There is documented concern about the damage of salt application to infrastructure such as roads and bridges,[35] but rising salt levels in the Potomac (due to road salt) in 2015 also have triggered a spike in consumer complaints of red or brown water from their main distribution system.[36,37] and we are currently working with a utility in Brick, NJ that is reporting high lead in consumers' water due to higher chloride from rising sea levels near their intake as well as road salt use.[38-40] The higher corrosivity of water in Flint due to higher chloride (Table 1), therefore provides an interesting "acute" case study of higher chloride impacts that can shed light on these important national trends.

d) ***Failure of utilities and regulatory agencies to take responsibility for the two most important modern day public health problems arising in building plumbing systems (i.e., lead and OPPPs).*** For ten years EPA has acknowledged that utilities are collecting samples in a manner that "misses" worst case lead in water,[41-43] and to date they have not required utilities to change monitoring practices to better reveal problems. The EPA LCR sampling protocols have been under review since 2008 and the EPA is expected to issue new requirements sometime in 2016. Hence, sampling in Flint without "pre-flushing" to reduce lead, as revealed by the EPA

volunteer,[4] could inform modifications to the EPA LCR. Likewise, EPA's current regulations on Legionella consider only levels that might be present in water leaving the treatment plant, where it is least likely to be present, and do not yet require monitoring at the point of entry into homes or within buildings where Legionella is most likely to be present and cause disease.[21] Our proposed sampling for Legionella at these locations can therefore inform future regulation and distribution system management policies for dealing with this emerging public health risk.[19,22]

In summary, this proposed RAPID grant characterizing the occurrence of chemical/biological problems in Flint, MI homes explores a newly emerging nexus between degrading infrastructure-environmental engineering-public health that can provide insight into problems facing many cities all over the United States.

3. Approach

The ***RAPID grant objectives*** will be achieved through three phases of sampling, using analytical methods in routine use by the project team, as follows:

Phase 1. Compare levels of chlorine, iron, fecal indicator bacteria, OPPPs, and corrosion-inducing bacteria present in water mains of a distribution system with uncontrolled corrosion (Flint) versus controlled corrosion in surrounding cities/counties still using non-corrosive Detroit water. A team including the PI and at least 3 graduate students will travel to Flint and stay 3-7 days in mid-August 2015, to collect 8 distribution system samples from surrounding cities still using Detroit water, and to also sample Flint's 8 distribution system monitoring locations (Figure 1). We will stay in two hotel rooms, one located in Flint and one in a surrounding location on Detroit water, to conveniently collect samples for free chlorine at 2 hour intervals expected to correspond to lowest and highest daily demand. All of these analyses will be conducted using standard methods with the exception of testing for corrosion-inducing bacteria which will be conducted with Biological Activity Reaction Test (BART) kits. BARTs are standardized colorimetric culture kits that are semi-quantitative and include testing for Sulfate-Reducing Bacteria (SRB), Heterotrophic Aerobic Bacteria, Heterotrophic Anaerobic Bacteria, Denitrifiers, Slime Forming Bacteria, and Acid Producing Bacteria (APB). It is hypothesized that the Flint waters will have much lower levels of free chlorine, higher levels of iron, corrosion-inducing bacteria, and fecal indicator bacteria than samples collected from locations still on Detroit water.

Phase 2. Profile building hot and cold water plumbing systems for OPPPs at the same sampling locations used in Phase 1. Protocols used previously to sample for a suite of OPPPs and two host protozoa[18,20] in hot and cold water from taps and biofilms of buildings using quantitative Polymerase Chain Reaction (q-PCR) analysis, will be used to profile the hot and cold water systems for human pathogens at the same locations tested in Phase 1. Specifically, target microbes including *Legionella pneumophila, M. avium, P. aeruginosa, Acanthamoeba and Vermamoeba vermiformis* will be quantified by qPCR, and hot water samples will be cultured for *Legionella* and

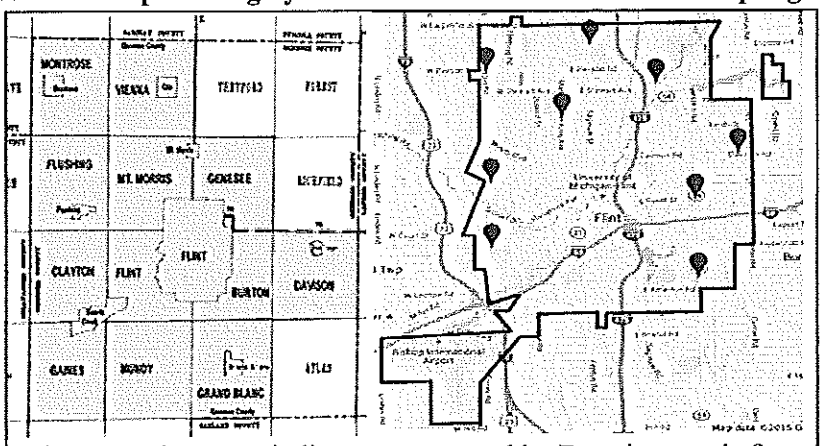

Figure 2. Blue areas indicate areas served by Detroit water before the city of Flint switched (left) and distribution of Flint monitoring stations (right).

Mycobacteria from each location. Samples collected for microbial analysis and fecal indicator bacteria (Phase 1) will be overnight shipped from Michigan via cold-pack using protocols developed by the project team on NSF Project CBET-1438328. In Flint, for comparison, at least three additional privately owned homes will be sampled for OPPPs using the same protocols as for the public buildings.

Phase 3. Determine if there is evidence of elevated lead in Flint homes. We will coordinate with several local citizen groups including the American Civil Liberties Union (ACLU), **Concerned Pastors for Social Action,** and others to sample homes in Flint for lead in water. We will prepare 300 sampling kits with instructions, to collect water samples according to standard EPA LCR protocols for shipment to community groups. Each kit will contain three bottles to sample water after standard water stagnation (> 6 hours) at typical-use flow rates, including 1) first draw standard LCR (1 liter), 2) 45 second flushing 0.5 liter sample (targeting the lead service line, if present), and 3) 5 minutes of flushing 0.25 liter sample. Each kit will have a sample form to fill out information including 1) name of person collecting sample, 2) age of home (if known), 3) mailing address of home sampled, and 4) date of sample collection. A phone number will be provided of a member of the Virginia Tech team, who can answer questions that residents have about the instructions (if any). Residents will be instructed to return the sampling kits to a centralized location according to procedures that best suit each citizen group. The sample kits will then be put into boxes provided by the project team, and shipped back to Virginia Tech with the postage paid by the RAPID grant. Assuming a response rate of 33%, 300 samples (= 0.33 X 300 X 3 bottles per kit) will be analyzed for lead, iron, copper and other constituents using the PI's Inductively Coupled Plasma Mass Spectrometer (ICP-MS). All returned kits will be analyzed, and results will be summarized in a letter to each consumer to be sent out within 1 month of receiving the samples. We will provide a phone number of a senior research scientist (Dr. Jeff Parks) that the residents can call to ask questions about their results if they have them and compile the results in a summary form for research publications and public outreach.

4. Project Management and Prior NSF Support

The senior project team (Edwards, Pruden, Falkinham) has collaborated together extensively and has a strong record of success. They will be assisted in leading the project by Dr. Brandi Clark (former NSF graduate fellow) who is a recent graduate of Virginia Tech (2015). Edwards and Clark will coordinate the Flint site visit and the lead survey. Another NSF graduate fellow (Emily Garner, formerly Emily Lipscomb) who is currently co-advised by Pruden/Edwards will assist the Flint site visit team and coordinate biological sample analysis and shipments. Pruden and Falkinham will assist in the data analysis, interpretation and write-up of the results.

5. Broader Impacts

In addition to improving practical and scientific understanding related to two of the most important problems associated with potable water and health in consumer homes (i.e., lead and OPPPs), this RAPID grant will directly assist residents of Flint in assessing the safety of their potable water supply. The results and approach used herein can inform residents and managers of other U.S. cities who will soon be dealing with similar problems associated with failing potable water infrastructure and increased corrosivity of potable water. Phase 3 of this research also provides an interesting case study in *Citizen Science* as a tool to advance scientific understanding, policy, and public health, because consumers are actively collecting samples from their homes and will be participating in National Science Foundation research. The work also has social justice implications, as the plight of Flint residents has already received national attention, and results can inform the current debate regarding access to safe, affordable water as a "right" for Americans in U.S. cities.

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Peeler, Nancy (DHHS)

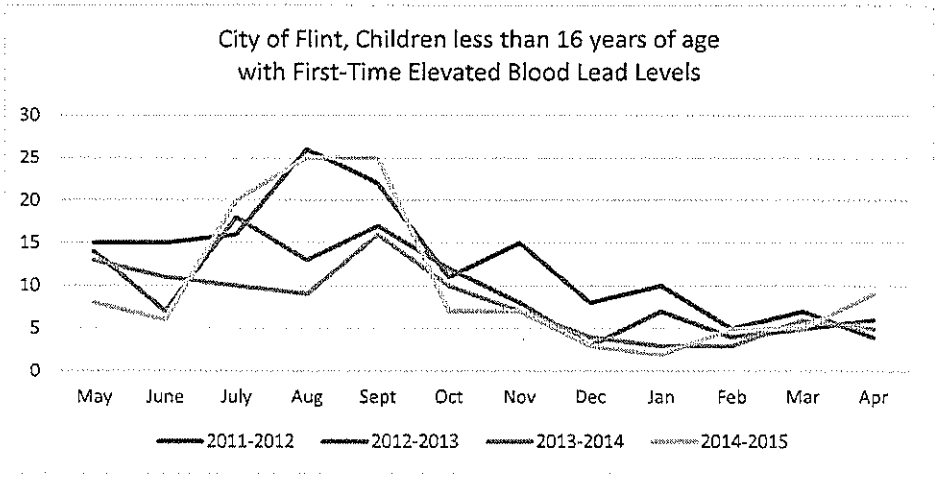
From: Scott, Robert L. (DCH)
Sent: Tuesday, September 15, 2015 1:17 PM
To: reynolds@mottchc.org
Cc: Peeler, Nancy (DCH); Lishinski, Karen (DCH)
Subject: Lead graphs
Attachments: Flint Testing and EBLLs.pdf

Dr. Reynolds,

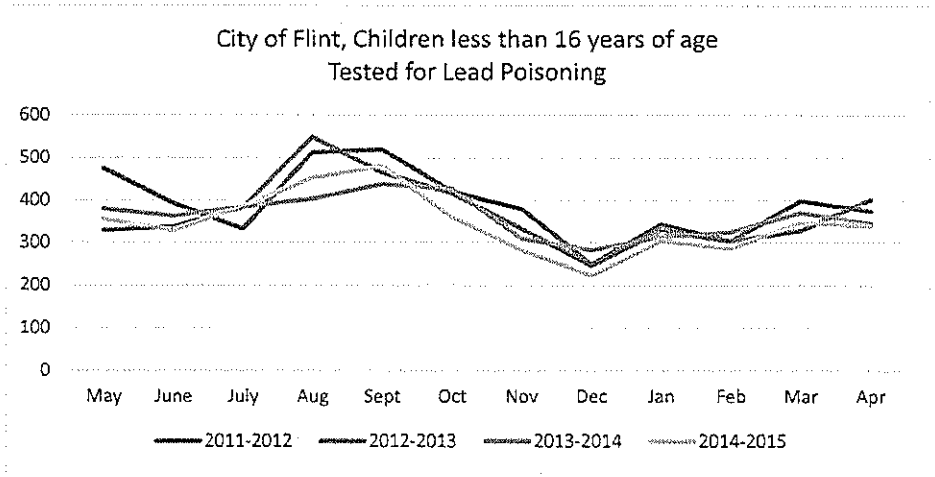
Per your conversation with Nancy Peeler, please see attached. Let me know if you have any questions about the data.

Thanks,
Bob Scott

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2011-2012	15	15	16	26	22	11	15	8	10	5	7	4
2012-2013	14	7	18	13	17	12	8	3	7	4	5	6
2013-2014	13	11	10	9	16	10	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	3	2	5	5	9



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2011-2012	474	393	332	513	520	420	379	249	343	303	399	375
2012-2013	328	338	383	550	464	417	332	246	328	303	328	402
2013-2014	380	363	385	404	438	427	310	283	313	325	371	346
2014-2015	356	329	386	452	480	361	283	224	305	287	348	339

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 3:28 PM
To: CDC/ONDIEH/NCEH (kfc2@cdc.gov)
Cc: Peeler, Nancy (DCH)
Subject: FW: Flint water study
Attachments: Rapid Proposal Final.pdf

Kimball,

Nancy asked me to forward this to you (please see attached).

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Scott, Robert L. (DCH)
Sent: Friday, September 11, 2015 1:09 PM
To: Peeler, Nancy (DCH) <PeelerN@michigan.gov>; 'Lishinski Karen (LishinskiK@michigan.gov)' <LishinskiK@michigan.gov>; Priem, Wesley F. (DCH) <priemw@michigan.gov>
Subject: Flint water study

Nancy, Karen and Wes,

I'm passing this along as follow-up to our previous attention to the Flint water changeover situation. The attached was submitted to me along with a request for de-identified data, which should be no problem.

When you have a few minutes you might want to take a look at it. Sounds like there might be more to this than what we learned previously. Yikes!

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 16, 2015 10:48 AM
To: Lawrence Reynolds; Mona Hanna-Attisha; Laura Carravallah; Dr. Lawrence Reynolds, M.D.
Cc: Peeler, Nancy (DCH); Lishinski, Karen (DCH); Emily Houk (emily@r2pconsultants.com); Scott, Robert L. (DCH)
Subject: RE: Lead level data

Dr. Reynolds,

I'll be happy to slice up the data in that way, including the most recent months available. I'll be out of the office for the next few days, but will work on it when I get back.

It's my understanding that the State will develop a fact sheet as well as a tip sheet on lead-safe water use for parents. I'm not sure how they'll be made public.

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Lawrence Reynolds [mailto:lrey52@gmail.com]
Sent: Wednesday, September 16, 2015 10:31 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Mona Hanna-Attisha <MHanna1@hurleymc.com>; Laura Carravallah <lcarrav1@yahoo.com>; Dr. Lawrence Reynolds, M.D. <reynolds@mottchc.org>
Subject: Lead level data

Good morning Mr. Scott .
Thank you for your timely response.I have reviewed the graphs with our GCHD and Dr. Mona Hanna-Attisha of Hurley.Is it possible to stratify the data by age -under 15 months, 16 months to under 6 years of age , over 6 years.Also can we get the most recent data for 2015.
At this point we will work with our patients to educate them.
Breast feeding is first choice .
I understand different filters do different things for lead , and not all get lead clumps from leaching pipes so we will not emphasize them.
We will try to get WIC to cover bottled water and encourage using water from outside the city system
Our goal is to give the most consistent correct information.
Are there any plans for public service announcements from the state ?

I am asking you to cc my reynolds@mottchc.org email along with lrey52@ gmail so I can access from anywhere.

--

Lawrence Reynolds

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 16, 2015 10:50 AM
To: Lawrence Reynolds; Mona Hanna-Attisha; Laura Carravallah; Dr. Lawrence Reynolds, M.D.
Cc: Peeler, Nancy (DCH)
Subject: RE: Lead level data

The CDC's and Michigan's "reference level" for blood lead is 5 ug/dL—with the understanding that there is no safe level of lead.

From: Lawrence Reynolds [mailto:lrey52@gmail.com]
Sent: Wednesday, September 16, 2015 10:35 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Mona Hanna-Attisha <MHanna1@hurleymc.com>; Laura Carravallah <lcarrav1@yahoo.com>; Dr. Lawrence Reynolds, M.D. <reynolds@mottchc.org>
Subject: Re: Lead level data

Ps- Is 5 or 10 the cut off lead ?

On Wed, Sep 16, 2015 at 10:30 AM, Lawrence Reynolds <lrey52@gmail.com> wrote:

Good morning Mr. Scott .
Thank you for your timely response.I have reviewed the graphs with our GCHD and Dr. Mona Hanna-Attisha of Hurley.Is it possible to stratify the data by age -under 15 months, 16 months to under 6 years of age , over 6 years.Also can we get the most recent data for 2015.
At this point we will work with our patients to educate them.
Breast feeding is first choice .
I understand different filters do different things for lead , and not all get lead clumps from leaching pipes so we will not emphasize them.
We will try to get WIC to cover bottled water and encourage using water from outside the city system
Our goal is to give the most consistent correct information.
Are there any plans for public service announcements from the state ?
I am asking you to cc my reynolds@mottchc.org email along with lrey52@ gmail so I can access from anywhere.
--
Lawrence Reynolds

--
Lawrence Reynolds

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 23, 2015 10:53 AM
To: Mona Hanna-Attisha
Cc: Lawrence Reynolds; Peeler, Nancy (DCH)
Subject: RE: IRBNet Board Action
Attachments: DCH-1294 Data Use and Non-Disclosure Agreement 5-2015.doc

Mona,

I'll be happy to help with this. We'll need you to submit a DCH-1294 Data Use Agreement (attached) and an IRB Initial Review Application - Abbreviated for review by the MDHHS IRB. The latter is available at Michigan.gov/irb under "Information for New Applications." (The "Abbreviated" application is used whenever another IRB has already approved the project.) Please complete each of the two documents as far as you can, and send to me unsigned, as Word documents. I'll fill in the rest, and will send the DUA to our Legal department and the IRB app to our IRB contact. I'll ask each of them for as quick a review as possible.

Please let me know if you have questions.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

-----Original Message-----
From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Wednesday, September 16, 2015 3:10 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Lawrence Reynolds <lrey52@gmail.com>
Subject: FW: IRBNet Board Action

Bob, I just received IRB approval to look at the City of Flint blood lead levels. I would love to get the raw data if that is possible. Attached is my study proposal and the IRB approval.

Specific fields that we are looking for include:
MCIR ID or some sort of identifier to ensure first time lead level only Zip code Date of Birth Date of Blood lead level Lead level

Would greatly appreciate your assistance! Thanks!

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency

Hurley Children's Hospital at Hurley Medical Center Michigan State University College of Human Medicine Department of Pediatrics and Human Development Mhanna1@hurleymc.com

-----Original Message-----
From: Nicolas Lecea [mailto:no-reply@irbnet.org]
Sent: Wednesday, September 16, 2015 2:09 PM
To: Jenny LaChance; Mona Hanna-Attisha
Subject: IRBNet Board Action

Please note that Hurley Medical Center Institutional Review Board has taken the following action on IRBNet:

Project Title: [807433-1] Analysis of Pediatric Blood Lead Levels Principal Investigator: Mona Hanna-Attisha, MD MPH

Submission Type: New Project
Date Submitted: September 15, 2015

Action: APPROVED
Effective Date: September 16, 2015
Review Type: Expedited Review

Should you have any questions you may contact Nicolas Lecea at nlecea1@hurleymc.com.

Thank you,
The IRBNet Support Team

www.irbnet.org

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 23, 2015 10:57 AM
To: Mona Hanna-Attisha
Cc: Lawrence Reynolds; Peeler, Nancy (DCH)
Subject: RE: IRBNet Board Action

I will ASAP, but still trying to get caught up after being away.

-----Original Message-----
From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Wednesday, September 23, 2015 10:55 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Lawrence Reynolds <lrey52@gmail.com>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>
Subject: RE: IRBNet Board Action

Thanks. Will do today.

Are you able to look at EBL % as was previously done for the more recent months and for kids less than 5yr?

Mona Hanna-Attisha MD MPH

Director, Pediatric Residency Program

Hurley Children's Hospital at Hurley Medical Center

Assistant Professor, Department of Pediatrics and Human Development

Michigan State University College of Human Medicine

Office: 810-262-7257

mhanna1@hurleymc.com

From: Scott, Robert L. (DCH) [ScottR9@michigan.gov]
Sent: Wednesday, September 23, 2015 10:53 AM
To: Mona Hanna-Attisha
Cc: Lawrence Reynolds; Peeler, Nancy (DCH)
Subject: RE: IRBNet Board Action

Mona,

I'll be happy to help with this. We'll need you to submit a DCH-1294 Data Use Agreement (attached) and an IRB Initial Review Application - Abbreviated for review by the MDHHS IRB. The latter is available at Michigan.gov/irb under "Information for New Applications." (The "Abbreviated" application is used whenever another IRB has already approved

the project.) Please complete each of the two documents as far as you can, and send to me unsigned, as Word documents. I'll fill in the rest, and will send the DUA to our Legal department and the IRB app to our IRB contact. I'll ask each of them for as quick a review as possible.

Please let me know if you have questions.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

-----Original Message-----
From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Wednesday, September 16, 2015 3:10 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Lawrence Reynolds <lrey52@gmail.com>
Subject: FW: IRBNet Board Action

Bob, I just received IRB approval to look at the City of Flint blood lead levels. I would love to get the raw data if that is possible. Attached is my study proposal and the IRB approval.

Specific fields that we are looking for include:
MCIR ID or some sort of identifier to ensure first time lead level only Zip code Date of Birth Date of Blood lead level Lead level

Would greatly appreciate your assistance! Thanks!

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center Michigan State University College of Human Medicine Department of Pediatrics and Human Development Mhanna1@hurleymc.com

-----Original Message-----
From: Nicolas Lecea [mailto:no-reply@irbnet.org]
Sent: Wednesday, September 16, 2015 2:09 PM
To: Jenny LaChance; Mona Hanna-Attisha
Subject: IRBNet Board Action

Please note that Hurley Medical Center Institutional Review Board has taken the following action on IRBNet:

Project Title: [807433-1] Analysis of Pediatric Blood Lead Levels Principal Investigator: Mona Hanna-Attisha, MD MPH

Submission Type: New Project
Date Submitted: September 15, 2015

Action: APPROVED
Effective Date: September 16, 2015
Review Type: Expedited Review

Should you have any questions you may contact Nicolas Lecea at nlecea1@hurleymc.com.

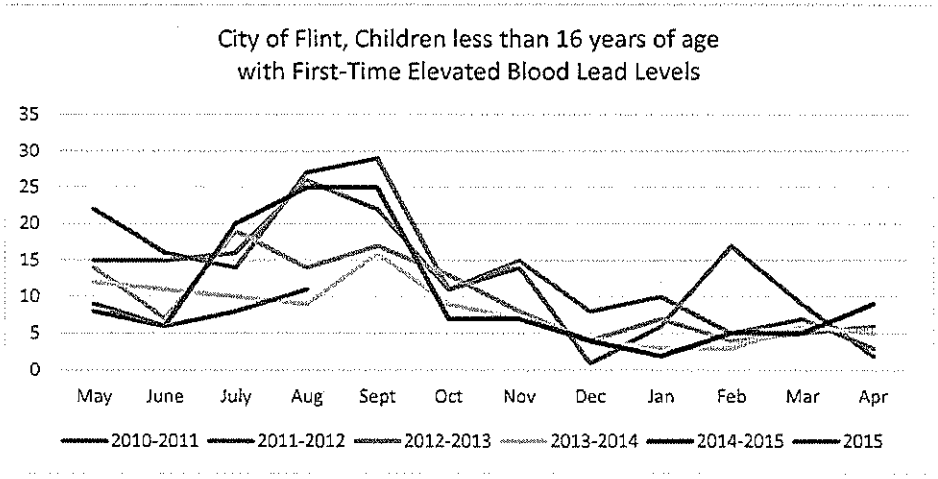
Thank you,
The IRBNet Support Team

www.irbnet.org

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 23, 2015 4:41 PM
To: Peeler, Nancy (DCH)
Subject: pdf version
Attachments: Flint Testing and EBLLs_updated 092315.pdf

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509



	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3
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2013-2014	12	11	10	9	16	9	7	4	3	3	6	5
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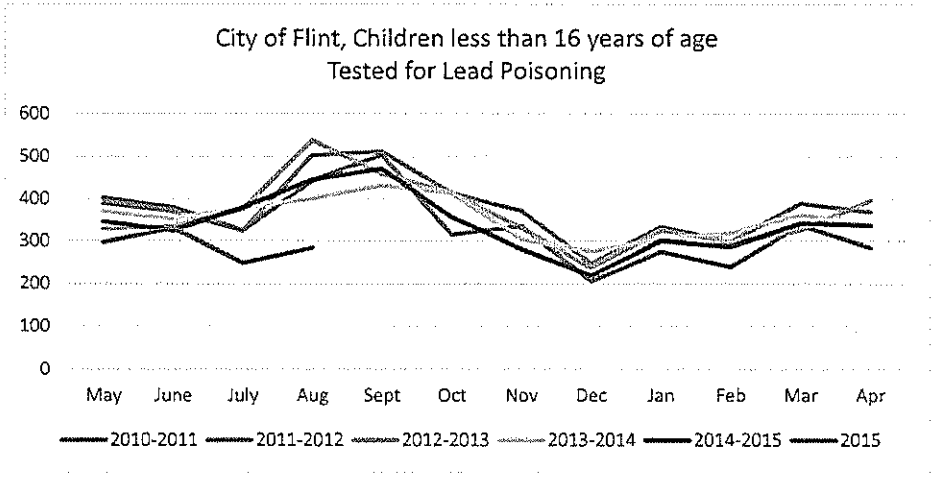
2015	9	6	8	11								



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2010-2011	402	379	325	442	504	315	335	206	276	240	338	285
2011-2012	390	370	324	503	512	413	372	248	333	298	389	370
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337
2015	297	330	249	284								

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 23, 2015 4:48 PM
To: Peeler, Nancy (DCH)
Subject: pdf with notes
Attachments: Flint Testing and EBLLs_updated 092315_with notes.pdf

We can easily modify those notes if you want them to read differently.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 8:09 AM
To: Peeler, Nancy (DCH)
Subject: RE: Flint

Nancy,

Dr. Hanna-Attisha poked me again this morning about getting the updated charts. Can I send her what I gave you late yesterday, or do you want me to hold off?

Bob

-----Original Message-----
From: Peeler, Nancy (DCH)
Sent: Wednesday, September 23, 2015 9:48 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Flint

Based on questions coming through, I do think we need to run our Flint charts for the same population group that the Flint docs ran (as close as we can approximate the sample) but I'd look at it across the 5 years again.

Depending on what our charts show, we may want to consider having Epi help us run an analysis more like the docs ran - but let's look at the revised charts as a starting point.

Sent from my iPad

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 11:45 AM
To: Peeler, Nancy (DCH)
Subject: RE: what % of the sample we used for our charts were 0-5, vs. 6-16 year olds?

I just checked, about 10% of our "<16" were 6-16 year olds. That's been pretty consistent over the years, in all areas.

Yes, I'll be happy to join the call.

Robert L. Scott
Childhood Lead Poisoning Prevention Program Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

-----Original Message-----
From: Peeler, Nancy (DCH)
Sent: Thursday, September 24, 2015 11:43 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: what % of the sample we used for our charts were 0-5, vs. 6-16 year olds?

And, do you want to join this next call? If so, I can add you in from my phone, not sure when they will call.

Sent from my iPad

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 11:50 AM
To: Peeler, Nancy (DCH)
Subject: RE: what % of the sample we used for our charts were 0-5, vs. 6-16 year olds?

Not sure what you mean.

I'll start running our data along the lines of Hurley's--children 0-5, the same zip codes they used. I'll also try to reproduce their results with the Hurley records, etc.

-----Original Message-----
From: Peeler, Nancy (DCH)
Sent: Thursday, September 24, 2015 11:46 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Re: what % of the sample we used for our charts were 0-5, vs. 6-16 year olds?

What is the next call?

Sent from my iPad

> On Sep 24, 2015, at 11:42 AM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:
>
> And, do you want to join this next call? If so, I can add you in from my phone, not sure when they will call.
>
> Sent from my iPad

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 2:09 PM
To: Eisner, Jennifer (DCH)
Cc: Peeler, Nancy (DCH); Lounds, Elizabeth (DCH)
Subject: RE: blood lead levels for children by ZIP
Attachments: CLPPP 2013 Data Report.pdf

Jennifer,

Here is the 2013 data report on Lead in Michigan, the most recent we have with data by zip code.

From: Eisner, Jennifer (DCH)
Sent: Thursday, September 24, 2015 2:05 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: FW: blood lead levels for children by ZIP
Importance: High

Hi Bob:

Can you please assist with this request for more recent blood lead levels for children by ZIP (or statewide – whatever we have) after 2012?

Thank you,
Jennifer

Jennifer Eisner
(Formerly Jennifer Smith)
Public Information Officer
Michigan Department of Health and Human Services
517-241-2112

From: Eisner, Jennifer (DCH)
Sent: Thursday, September 24, 2015 1:15 PM
To: Peeler, Nancy (DCH) <PeelerN@michigan.gov>; Lounds, Elizabeth (DCH) <LoundsE@michigan.gov>
Subject: FW: blood lead levels for children by ZIP
Importance: High

Hi Nancy:

Do we have more recent data than the link below? Please advise – thank you! Deadline asap.

Thanks!
Jennifer

From: Tanner, Kristi [mailto:ktanner@freepress.com]
Sent: Thursday, September 24, 2015 11:17 AM
To: Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>

Cc: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: blood lead levels for children by ZIP

I found this report with ZIP data online that lists info for 2012.
Do you have the most recent complete listing of the % and number of children with elevated blood lead levels by ZIP?
Thanks!

http://www.michigan.gov/documents/mdch/2012AnnualDataReportOnBloodLeadLevels_419508_7.pdf

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 2:50 PM
To: Peeler, Nancy (DCH)
Subject: flint lead powerpoint
Attachments: BLLs in Flint.pptx

Nancy,

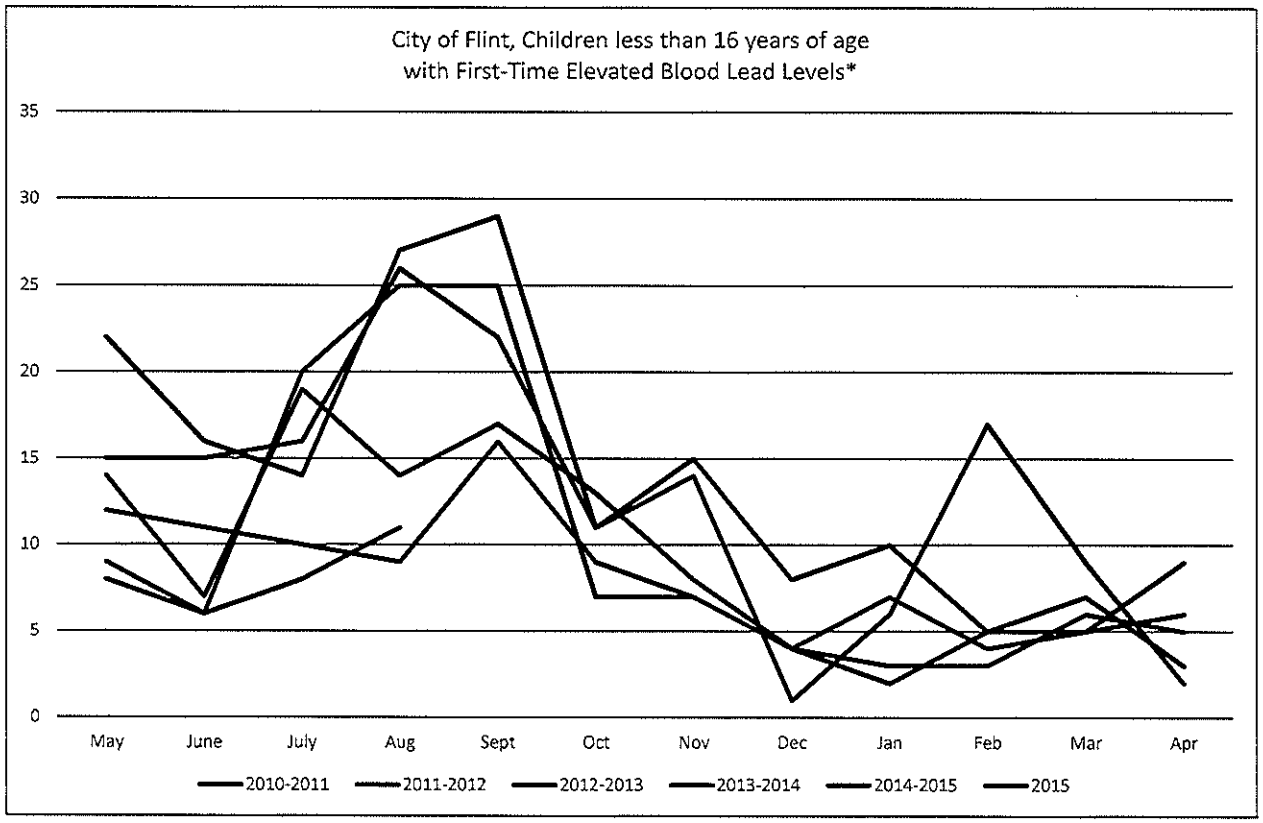
Please see attached. If for some reason you can't read/open it, let me know and I'll try it as a PDF.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Blood Lead Testing of Children in Flint, Before and After the Change in Flint's Water

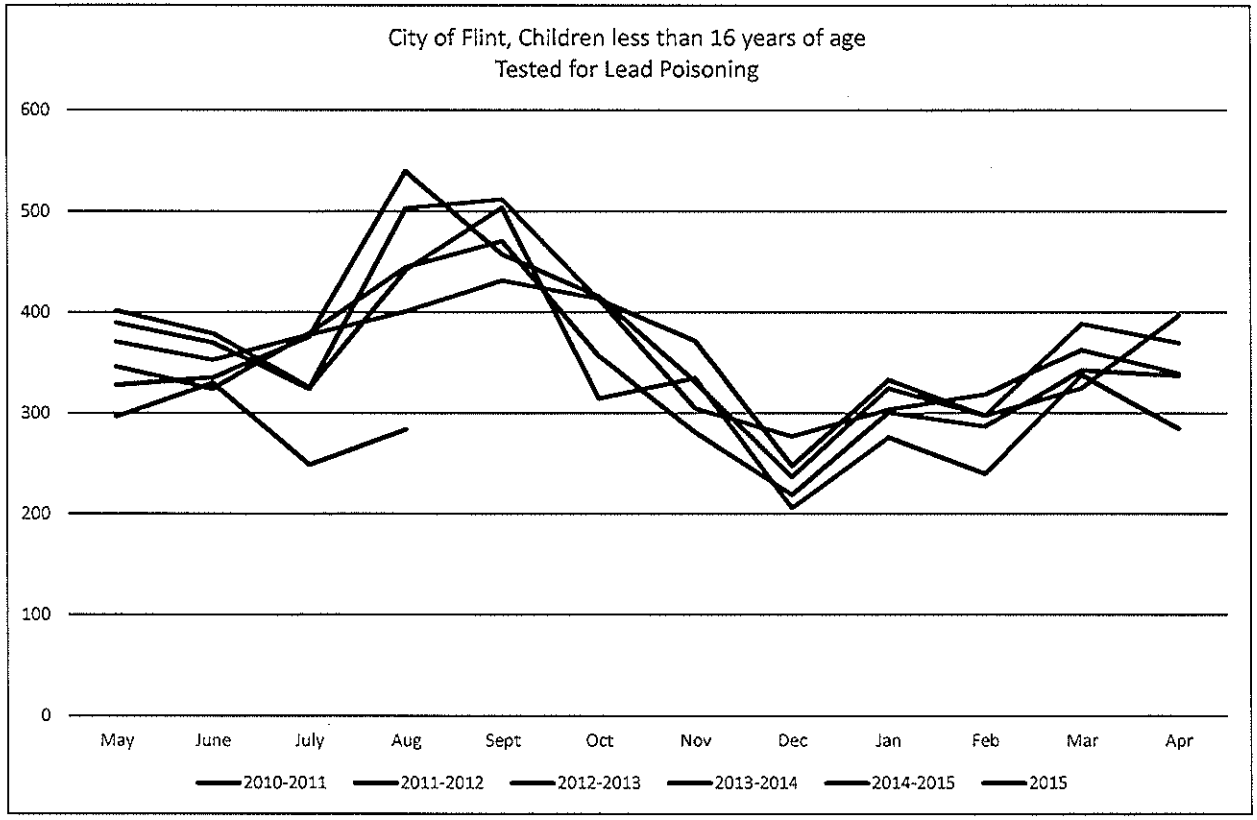
- The change in Flint's water source occurred in April 2014. MDHHS looked at children's blood lead levels (BLL) before and after this event.
- The dark blue line (May 2014 – April 2015) and the green line (May-August 2015) reflect children's blood lead tests after the change. All other lines reflect tests before the change.
- An increase in childhood lead poisoning in summer (July, August, September) is typical throughout Michigan every year.
- While there is a dramatic difference between the numbers of elevated BLL in the summer before and after the event, a wider look that includes data back to 2010 shows that the year BEFORE the event (the yellow line) was more of an anomaly than the year after (the dark blue line).



*This graph includes:
Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Children less than 16 years of age at time of test
Only first-time blood lead levels >= 5 ug/dL
All first-time elevated levels, regardless of sample type (venous, capillary or unknown)

Blood Lead Testing of Children in Flint, Before and After the Change in Flint's Water

- Blood lead testing (regardless of elevated levels) also tends to rise during late summer (August, September, October).
- This graph shows that testing in Flint has remained fairly steady over the last five years, except for a recent decline(May – August 2015).



*This graph includes:

Children whose address is listed as "Flint"--may not conform exactly to Flint city limits

Children less than 16 years of age at time of test

The number of children tested within each month.

Some children are tested more than once, and may be included in more than one month or year.

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 3:15 PM
To: Peeler, Nancy (DCH)
Subject: RE: flint lead powerpoint

Yes to both, will do & copy you, thanks.

From: Peeler, Nancy (DCH)
Sent: Thursday, September 24, 2015 3:14 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Re: flint lead powerpoint

Only thought - should we way that if results were being driven by the water supply, we would expect the rate to remain at a higher rate?

Also, I forgot this earlier, probably too in the weeds - Larry Reynolds kept mentioning MCIR data - I don't think they know what our data source is that we use. Should we add any kind of a talking point that says all data included in this analysis is reported directly from labs to MDHHS, in accordance with state law?

If you think it worth adding those, go ahead, and send on to Jennifer. Thanks!

Sent from my iPad

On Sep 24, 2015, at 2:49 PM, Scott, Robert L. (DCH) <ScottR9@michigan.gov> wrote:

> Nancy,
>
> Please see attached. If for some reason you can't read/open it, let me know and I'll try it as a PDF.
>
> Bob
>
> Robert L. Scott
> Childhood Lead Poisoning Prevention Program
> Michigan Department of Health & Human Services
> (517) 335-8178
> fax (517) 335-8509
>
> <BLLs in Flint.pptx>

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 3:27 PM
To: Eisner, Jennifer (DCH)
Cc: Minicuci, Angela (DCH); Peeler, Nancy (DCH)
Subject: Flint lead powerpoint slides
Attachments: BLLs in Flint v2.pptx

Jennifer,

Nancy asked me to put this together, in case it's helpful. Please see attached.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 3:31 PM
To: Eisner, Jennifer (DCH)
Cc: Minicuci, Angela (DCH); Peeler, Nancy (DCH)
Subject: RE: Flint lead powerpoint slides

OK with me if it's OK with Nancy.

From: Eisner, Jennifer (DCH)
Sent: Thursday, September 24, 2015 3:29 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>
Subject: RE: Flint lead powerpoint slides

Great, thanks Bob – can we make this available to the public?

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 3:27 PM
To: Eisner, Jennifer (DCH) <EisnerJ@michigan.gov>
Cc: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>
Subject: Flint lead powerpoint slides

Jennifer,

Nancy asked me to put this together, in case it's helpful. Please see attached.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 3:45 PM
To: Peeler, Nancy (DCH)
Subject: one more document, attempt to recreate Hurley
Attachments: Attempt to replicate Hurley.xlsx

Nancy,

Thought I'd pester you one more time. I'm sure this one is not for the public. It's my attempt to recreate Hurley #s. I included EBLL @ 5 & 6 just for comparison, but also looked at Venous-only vs. All types. I used children 0-5 and zip codes 48501–48507 just as Hurley did. I found a difference between the two years, but not as much difference as they did. For some reason I found more children tested than they did.

Let me know if you think it's worth pursuing any farther.

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Children Tested for Blood Lead Before and After the Change in Flint's Water Supply

Hurley tests only
(Provider ID = 00000252)

	Children Tested			Children with elevated blood lead levels							
		(Hurley analysis)		Venous only				All (V, C, unknown)			
		Children Tested	Pct >= 6	BLL >= 5	Pct >= 5	BLL >= 6	Pct >= 6	BLL >= 5	Pct >= 5	BLL >= 6	Pct >= 6
January 1 - September 15, 2013	1177	906	2.1	24	2.0	8	0.7	41	3.5	19	1.6
January 1 - September 15, 2015*	966	840	4.0	29	3.0	21	2.2	39	4	28	2.9

All Providers

	Children Tested	Children with elevated blood lead levels							
		Venous only				All (V, C, unknown)			
		BLL >= 5	Pct >= 5	BLL >= 6	Pct >= 6	BLL >= 5	Pct >= 5	BLL >= 6	Pct >= 6
January 1 - September 15, 2013	2380	33	2.8	16	1.4	86	7.3	44	3.7
January 1 - September 15, 2015*	1928	40	4.1	28	2.9	80	8.3	54	5.6

Notes:
Children 0 - 5 years of age
Children living in zip codes 48501 -48507

Source: MDHHS Data Warehouse
September 24, 2015

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Thursday, September 24, 2015 5:05 PM
To: Minicuci, Angela (DCH)
Cc: Peeler, Nancy (DCH)
Subject: flint lead by year
Attachments: Flint lead testing and ebll by year.xlsx

Angela,

Per your request, please see attached.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From:	Scott, Robert L. (DCH)
Sent:	Friday, September 25, 2015 9:35 AM
To:	Minicuci, Angela (DCH); Eisner, Jennifer (DCH)
Cc:	Peeler, Nancy (DCH)
Subject:	question on email response regarding Flint blood lead data
Attachments:	Flint Testing and EBLLs_updated 092315_with notes.pdf; HIPAA Waiver Request Template.doc; DCH-1277 IRB Initial Review Application.doc

Angela or Jennifer,

Please see Dr. Edwards email below, and my draft response to him. I'm not very happy with him right now, but tried to respond appropriately. Given the sensitive nature of the situation, I'm checking with you first. Nancy is on annual leave, but I've CC'd her here.

Is it OK to send this? Please feel free to make changes as appropriate. I'm also asking if it's OK now to share the attached PDF with Dr. Edwards and Dr. Hanna-Attisha.

Thanks,
Bob

Marc,

As you well know, the data you and Dr. Hanna-Attisha are requesting are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public. In addition, my Department has policies on how to determine what can be shared.

I worked with you earlier this month to get data to you relatively quickly, but did not manage to complete the process before I went on annual leave for several days. I neglected to inform you that I'd be away, and I apologize for not informing you. Unfortunately we are a very small program, and there's no one else here to process your request—or Dr. Hanna-Attisha's.

Since I returned on Wednesday, my time has been largely taken up with my Department's response to the current situation in Flint. I did manage to correspond to Dr. Hanna-Attisha, and provided her with the forms she'll need for her request. I hope to submit her request to our Legal office and to our IRB contact today.

Sorry I haven't responded to your email from Monday—as I mentioned above, I was away, and then have been juggling many tasks since I returned. I think you'll be able to get approval for data with zip code identified. I'll edit your data use agreement accordingly, and will adjust it to say "limited data set" instead of "de-identified." I'll re-submit your DUA to Legal today. You will need to submit an MDHHS IRB review application (attached) because this is considered research. You should also submit a "HIPAA Waiver Request" (attached). (I wasn't aware of that when we talked earlier this month.) I don't know whether you'll need to go through an IRB review with your institution.

I've also attached a PDF that includes the numbers behind the graphs you referred to, and I'm CC'ing Dr. Hanna-Attisha so that she has it as well.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 24, 2015 8:14 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Dear Robert,

I just spoke to this young researcher at Hurley, and apparently, she has been unable to get access to the state blood lead records.
I have to say, it is very disturbing that the state keeps issuing these blood lead reports and statements in their press releases, and refuses to share the data backing them up with outside researchers.
Even worse, state reps are running around claiming that these reports are proof that Flint water is safe to drink.

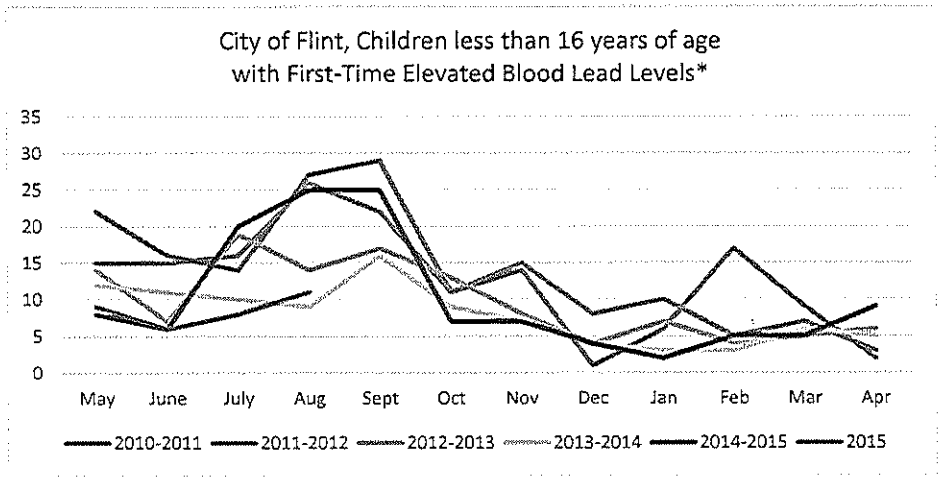
Can you tell me why it is so difficult to get this data, and why your agency is raising so many obstacles to sharing it with everyone who asks? I note that I have been asking to see your data since MDEQ first sent it to reporters back in August, and I count 10 e-mails that I sent responding to all your questions. As of yet, you have given me nothing in response. Yet you have been sending reporters one report after another. It seems your agency is more interested in public relations than sound science.

In the meantime, can I at least be given the numbers of EBL cases and number of tests each month, that are the basis for the latest graph your agency is sending to the press...or is that top secret as well?

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Monday, September 21, 2015 1:21 PM
To: Marc Edwards
Subject: Automatic reply: New DCH-1294, time-sensitive

I'll be out of the office until Wednesday, Sept 23. I'll respond to your message when I return.



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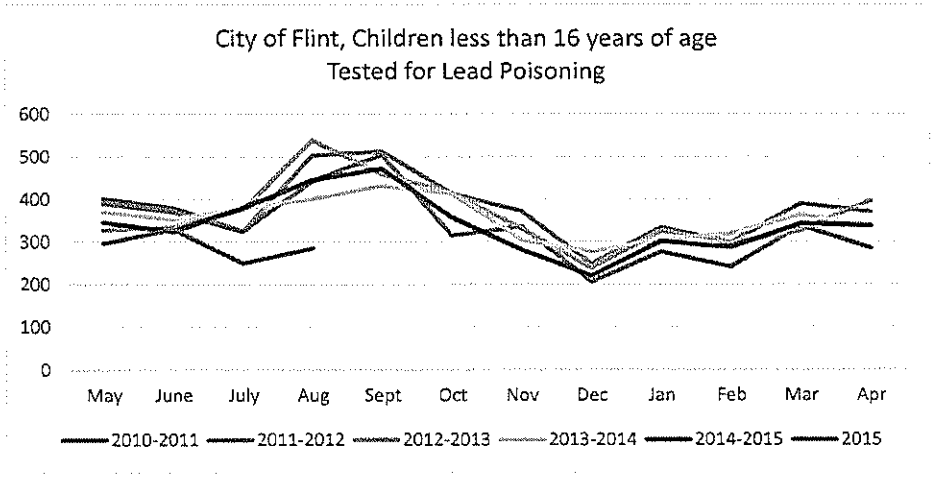

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2011-2012	390	370	324	503	512	413	372	248	333	298	389	370
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337
2015	297	330	249	284								

*Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Less than 16 years of age at time of test
Includes only first-time blood lead levels >= 5 ug/dL
Includes sample type of venous, capillary or unknown

September 23, 2015
Source: MDHHS Data Warehouse, Lead Specimen table

Study Title: (please enter study title here)

Responsible Department Employee: (please enter Responsible Department Employee's name here)

Primary Investigator: (please enter Primary Investigator's name here)

Research Staff Requiring Access to Protected Health Information (PHI):
(please list all staff who will access PHI here)

Name(s) of Covered Entity(ies) and Location(s) Where PHI Will Be Reviewed:
(please list entities and associated addresses here)

PHI Required and Intended Use:
(please describe PHI here)

Does the use or disclosure of the PHI involve more than minimal risk to the privacy of the potential subjects? (please select one answer) __ YES __ NO
(please explain your response here)

Describe your plan to destroy identifiers at the earliest opportunity consistent with conducting the research. (All identifier links must be destroyed for minimal risk research. For other research, unless there is a health or research justification for retaining the identifiers or such retention is otherwise required by law. If retention of identifiers is required, explain the reason and indicate that the identifiers will be stored and retained.)
(please describe destruction or required retention of identifiers here)

Describe your plan to adequately protect the identifiers from improper use and disclosure (Check all that apply and explain other protective measures you will use):

__ Names and other direct identifiers of individuals will be removed at the earliest possible time if consistent with research design
__ Protected health information (PHI) will be kept in locked storage when not in use
__ Records of research subjects or potential subjects will be kept separate from other patient records
__ Access to records will be restricted to those persons directly involved in the research
__ Records of individuals not selected to participate in research will be destroyed as soon as possible
__ If researcher discloses PHI to a third party (e.g. a research sponsor, data analyst, centralized database, etc.) researcher has received written assurances that the third party will maintain confidentiality of the PHI

(please describe additional protections to be employed here)

Describe why the study could not practicably be conducted without access to and use of the protected health information (PHI) requested:
(please provide a detailed description here)

Describe why the study could not practicably be conducted without this Waiver of Authorization:
(please provide a detailed description here)

Statement of the Primary Investigator:
I affirm that:

- *The requested access, use or disclosure of PHI is necessary for the purposes of the proposed research;*
- *The requested access, use or disclosure of PHI is solely for the purpose for which waiver is being requested;*
- *The waiver of authorization will not adversely affect the welfare or privacy rights of the research subjects;*
- *The benefits of research outweigh the risks to the privacy rights of the research subjects;*
- *The requested information constitutes the minimum necessary data to accomplish the goals of the research; and,*
- *The protected health information will not be re-used or disclosed to any other person or entity, except as required by law, for the authorized oversight of the research study, or for other research for which the use or disclosure of protected health information would be permitted by the HIPAA Privacy Rule.*

_____ _____

Primary Investigator's Signature **Date**

The Michigan Department of Community Health
Institutional Review Board for the Protection of Human Research Subjects
Capitol View Building, 7th Floor, 201 Townsend Street, Lansing, MI 48913
E-mail: MDCH-IRB@michigan.gov Phone: (517) 241-1928 Fax: (517) 241-1200

MDCH IRB INITIAL REVIEW APPLICATION

SECTION 1 – PROJECT IDENTIFICATION (*REQUIRED*)

1.1

Project Title:	

Note: The project title provided above should appear on each document submitted to the MDCH IRB for this study review.

1.2

Responsible MDCH Employee Name:	
Phone:	
E-mail:	
ID Mail Address:	

Note: The Responsible MDCH Employee must be a Civil Service employee of MDCH and should be the employee most responsible for the Department's role in this project. To serve as the responsible MDCH employee you must have completed CITI human research protections training within the past 3 years.

1.3

Responsible MDCH Employee's Signature:	

Note: If this document is submitted from the e-mail address of the Responsible MDCH Employee, a hard copy with signature is not required.

1.4

Responsible MDCH Employee's Administration:	
Bureau or Office:	
Bureau or Office Director/Supervisor:	
E-mail for this supervisory contact:	
ID Mail Address for this supervisory contact:	

The Bureau Director (or equivalent supervisor) listed above will receive copies of IRB determinations.

1.5

Principle Investigator:	
Organization:	
Phone:	
E-mail:	

Note: Contact information is requested for use if the Responsible MDCH Employee is not available.

1.6

Is this project federally funded?	☐ Yes ☐ No
If "Yes", specify the federal agency:	

1.7

Non-Federal funding source(s) if applicable:	

1.8

Is this project subject to FDA regulations?	☐ Yes ☐ No	
If "Yes", please specify below which FDA-regulated test articles will be used:		
☐ No test article used		
☐ Drug or biologic used	IND#:	Trial Phase:
☐ Device used	IND#:	Risk Level: Choose One

1.9

What date do you plan to begin this project?	
What date do you plan to complete this project?	

1.11

Will another organization's IRB review this project?	☐ Yes ☐ No
If "Yes", please list the organization(s) here:	

1.12

Describe any conflicts of interest that could be perceived to compromise the integrity of the project:

SECTION 2 – PROJECT SUMMARY (*REQUIRED*)

2.1	**Provide a summary of about 300 words (or less) in lay terms describing the project. This should not be as detailed as a study protocol (which you can attach separately). Please describe: the purpose of the project, how human subjects will participate, how subjects' data or biological specimens will be handled, how records will be maintained securely, and any follow up with subjects at completion.**

2.2	**Federal regulations define research as: "...a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge." Please indicate whether this project is research, or why you feel it may not include research:**
	☐ This project is research.
	☐ This project may not be research for the following reason(s):

2.3	**Indicate in what way human subjects might be involved in this project (check all that apply):**	
	☐ Data about the subjects and/or biological specimens that have already been collected will be retrospectively analyzed.	**SECTIONS 1-8 ARE REQUIRED**
	☐ Data about the subjects and/or biological specimens that will be prospectively collected for non-research purposes will be analyzed.	**SECTION 1-8 ARE REQUIRED**
	☐ Human subjects will be surveyed, interviewed, or participate in focus groups.	**SECTIONS 1-7, 9 & 10 ARE REQUIRED**
	☐ Human subjects will undergo experimental treatment or intervention.	**SECTIONS 1-7, 9 & 11 ARE REQUIRED**
	☐ Non-invasive measurements or tests will be performed on human subjects.	**SECTIONS 1-7, 9 & 12 ARE REQUIRED**
	☐ Biological specimens (blood, saliva, tissue, etc.) will be collected from human subjects.	**SECTIONS 1-7, 9 & 13 ARE REQUIRED**
	☐ Genetic analysis will be performed on biological samples from human subjects.	**SECTIONS 1-7, 9 & 14 ARE REQUIRED**
	☐ Human subjects are not involved because the investigator will not be obtaining information about individuals through intervention or interaction, and the investigator will not otherwise be obtaining private, identifiable information about living individuals.	**STOP AND SUBMIT ONLY WHAT IS COMPLETED THUS FAR TO THE IRB**
	☐ Other, please specify:	

Note: Your selection(s) above may indicate additional sections of the IRB application that you are required to complete. Please complete these additional sections before submitting the application to the IRB.

2.4	**Certain research involving human subjects may be eligible for approval under an exemption as described in the federal regulations at 46.101(b): http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html#46.101. If you feel your research is eligible for exemption, please list the category (1-6) below. Leave this blank if not applicable. You may also find this tool helpful: http://www.hhs.gov/ohrp/policy/checklists/decisioncharts.html**
	Exemption Category 46.101(b)_____

2.8	**Indicate below what other documents are included with this submission:**
	☐ Study protocol
	☐ Informed consent and assent (as applicable) instrument(s)
	☐ Investigator's brochure
	☐ Subject recruitment materials
	☐ Survey instruments
	☐ HIPAA-Compliant request for waiver of authorization

SECTION 3 – INFORMED CONSENT PROCESS

The Belmont principles dictate that potential study subjects should understand the research project: the procedures to be followed, the risks and benefits associated with participation, and alternatives to participation, prior to voluntarily consenting to participate in research. It is the obligation of the investigator to implement a process that facilitates such understanding, allows participants an opportunity to consent or to not consent to participation, and ensures the consent of participants is maintained throughout participation in the study. Obtaining and documenting informed consent is a process meant to aid in protecting human subjects of research. Obtaining a participant's signature is not intended to be a mechanism to protect the investigator or institution. For more information please see: "Guidelines for Informed Consent" located on the MDCH IRB website: www.michigan.gov/irb.

3.1 **Indicate how you intend to document having obtained informed consent and/or assent from participants in this project, or indicate that you do not intend to document having obtained informed consent (select all that apply):**

- ☐ Informed consent of the study subjects will not be documented. **(complete Section 3.2)**
- ☐ A comprehensive written document will be signed by the subject or a legally authorized representative. **(skip to section 3.3)**
- ☐ A short written document that satisfies the criteria under 46.117(b)(2) (described here: http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html#46.117) will be signed by the subject or a legally authorized representative. **(skip to section 3.3)**
- ☐ A document indicating assent/willingness to participate will be signed by child participants. **(skip to section 3.3)**

3.2 **Indicate below the rationale for not documenting that informed consent of participants has been obtained:**

- ☐ As indicated in 2.2 above, I do not believe this activity involves research. **(skip to section 4)**
- ☐ As indicated in 2.4 above, I believe this research is eligible for exemption. **(skip to section 4)**
- ☐ I am obtaining informed consent from study participants, but do not wish to document having obtained informed consent as allowable under 46.117(c) (described here: http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html#46.117) **(skip to and complete section 3.4)**
- ☐ I am requesting a waiver of the requirement for obtaining participant's informed consent as allowable under 46.116(c) or (d) (described here: http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html#46.116) **(skip to and complete Section 3.5)**

3.3 **Describe the process of obtaining informed consent (and if applicable, assent) from study participants, and ensuring the consent of participants is maintained throughout the duration of their participation in the study.**

Note: After completing section 3.3 you can proceed to section 4 of the application.

3.4 **Describe below the process you intend to utilize to obtain informed consent from study participants. Conclude this section by describing how your proposal meets the requirements for a waiver of documenting informed consent as described under 46.117(c).**

Note: After completing section 3.4 you can proceed to section 4 of the application.

3.5	**Document in A or B below how your proposal meets the requirements for a waiver of the requirement that informed consent be obtained from study participants.**	
A.	Is this a research or demonstration project conducted by or subject to approval of state or local government officials?	☐ Yes ☐ No
	If Yes, is it designed to study, evaluate, or otherwise examine: ☐ public benefit or service programs ☐ procedures for obtaining benefits or services under those programs ☐ possible changes in or alternatives to those programs or procedures ☐ possible changes in methods or levels of payment for benefits or services under those programs	
	Is it the case that the research cannot practicably be carried out without a waiver of the requirement for obtaining informed consent? If Yes, please explain below:	☐ Yes ☐ No
	OR	
B.	Does this research involve no more than minimal risk to subjects?	☐ Yes ☐ No
	Would waiving the requirement for informed consent adversely affect the rights and welfare of the subjects?	☐ Yes ☐ No
	Whenever appropriate, will subject be provided with additional pertinent information after participation?	☐ Yes ☐ No
	Is it the case that the research cannot practicably be carried out without a waiver of the requirement for obtaining informed consent? If Yes, please explain below:	☐ Yes ☐ No

SECTION 4 – CHARACTERISTICS OF HUMAN SUBJECTS

4.1	**Briefly describe the characteristics of the population from which you intend to draw participants and discuss why that population was chosen:**

4.2	**Detail the inclusion and exclusion criteria for project participants:**

4.3	**If applicable, please justify limitation of participants to a particular demographic group (age, gender, race, ethnicity, income, etc.):**

4.4 **Select any vulnerable populations that may be represented among research subjects. If vulnerable subjects are purposefully selected please provide justification for the inclusion of these vulnerable populations. If inclusion is possible, but incidental, please note that as well.**

Category of vulnerable subjects:	Justification for inclusion:
☐ Children (age <18 years)	
☐ Mentally compromised persons or persons with decisional impairment	
☐ Women with reproductive potential	
☐ Pregnant or lactating women	
☐ Fetuses (*ex utero*)	
☐ *In-vitro* fertilization patients	
☐ Prisoners	

Note: With respect to the regulations at 45 CFR 46 part C, patients at the Center for Forensic Psychiatry are considered "Prisoners" and their participation should be indicated as such above.

4.5 **Select from the list below any populations that could be subject to undue influence or coercion, and justify inclusion of these populations.**

Category of subjects:	Justification for inclusion:
☐ Economically or Educationally Deprived	
☐ Patients of the investigator	
☐ Students of the investigator	

☐ Employees of the investigator	

SECTION 5 – RISKS AND BENEFITS OF THE RESEARCH

5.1 **Indicate how substantial you believe the risk of harm to participants is for this project:**

☐ High risk
☐ Less than high risk, but greater than minimal risk
☐ Minimal risk

Note: "Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests."

5.2 **What direct risks could subjects face by participating in this project? What measures will be taken to minimize each risk?**

5.3 **If "Vulnerable populations" or populations susceptible to undue influence or coercion are among the research subjects, what additional measures will be taken to minimize risks that may affect them?**

5.4 **What indirect risks (if any) to the public or community could result from this research?**

5.5 **What potential direct benefits (if any) could this research provide the participating subjects?**

5.6 **What potential indirect benefits (if any) could this research provide the public or others?**

SECTION 6 – RECORDS, PRIVACY & CONFIDENTIALITY

6.1 **Will the project records themselves contain identifying information on human subjects (i.e. name, address, telephone number, e-mail address, etc.)?**

☐ Yes ☐ No

6.2 **Will the project records contain codes that can be linked back to the identity of human subjects?**

☐ Yes ☐ No

6.3 **If the information in the project records was revealed could it place the subjects (or others) at risk for criminal or civil liability? Or could it be damaging to an individual's financial standing, employability, or reputation?**

☐ Yes ☐ No

6.4 **Describe the measures you will implement to ensure the privacy (the right of an individual to control his or her own personal information) of project participants.**

6.5 **Describe the measures you will implement to ensure the confidentiality of subjects information once it is part of the research record?**

Note: Confidentiality in the use of data requires at a minimum: (a) not including personal identifiers such as names, addresses, telephone numbers, e-mail addresses, or Social Security Numbers ***except when essential*** *to the research; (b) removing personal identifiers at the earliest stage of the research compatible with the study goals; (c) If personal identifiers must remain (e.g. to link with future data) these should be limited to codes that are not based on identifying information and they should be encrypted and (d) the data files should be kept in a secure environment such as a locked cabinet or a properly secured computer file with password protection.*

6.6 **If applicable, describe when and how subject identifiers will be destroyed:**

SECTION 7 – COSTS AND COMPENSATION

7.1	**Describe any costs a research subject might incur as a result of participating in this research including indirect costs such as billing to a patient's insurance:**

7.2	**Describe any plans to compensate research subjects:**

7.3	**If subjects will be compensated, how was the amount or type of compensation decided upon?**

This concludes the portion of the application required for all new projects. The remaining sections are only required based on your responses to question 2.3 above, or at the guidance of IRB staff.

SECTION 8 – PROJECTS INVOLVING ONLY THE ANALYSIS OF DATA OR BIOLOGICAL SPECIMENS THAT ALREADY EXIST, OR WILL BE COLLECTED FOR NON-RESEARCH PURPOSES

8.1	**Describe the type of data and/or biological specimens to be used in this project.**

8.2	**If data or biological samples currently exist, describe how and for what purpose they were originally collected. If data or samples do not exist but will be collected prospectively for non-research purposes, describe how and for what purpose they will be collected.**

8.3	**At the time of collection, are or were samples stored in a way that could reveal the identity of the person from whom they originated?**

8.4	**From how many human subjects will these data or specimens be acquired?**

8.5	**Describe how the investigator plans to gain access to these data and/or specimens?**

8.6	**Did or will the human subjects provide consent at the time of data or specimen collection allowing for subsequent use of the data or specimens in research?** ☐ Yes ☐ No

8.7	**Describe any access project staff have to information about the human subjects that is not essential to this project. Describe the measures in place to protect that information.**

8.8	**Could this project reveal information of direct benefit to the human subjects involved?** ☐ Yes ☐ No **If "Yes", describe the plans to inform subjects of this information:**

8.9	**Could the project lead to the development of a commercial product that may bring financial benefit to the investigator and/or sponsor?** ☐ Yes ☐ No **If "Yes", describe the plans to inform subjects of their rights:**

8.10	**Is there a signed Data Use Agreement or Material Transfer Agreement for this project?** ☐ Yes ☐ No **If "Yes", include a copy with the application, if "No", justify why no such agreement is in place:**

SECTION 9 – SUBJECT RECRUITMENT PROCEDURES

9.1 **Describe how potential participants will be identified for recruitment (e.g. from an existing registry, convenience sampling, random digit dialing, etc.):**

9.2 **Describe from where (e.g. at home, in a clinic, etc.) the potential participants will be recruited?**

9.3 **Describe how (e.g. phone call, brochure, letter) potential participants will be recruited:**

9.4 **Print materials or transcripts of audible recruitment materials should be included in the IRB application for review (or should be approved for use by the IRB before implemented). Please list any recruitment materials included for review with this application:**

9.5 **If the project involves a topic that may have specific relevance to certain ethnic, racial, or other groups, what special measures will be taken to optimize recruitment of subjects from those groups?**

SECTION 10 – INTERVIEWS, SURVEYS OR GROUP MEETINGS

10.1 **Describe the methods (survey, interview, focus group, etc.) that will be used to collect information directly from human subjects:**

10.2 **How many sessions are proposed to collect this information, and how many sessions will each individual participant be required to attend? Also, what is the anticipated duration of each session?**

10.3 **Describe the information that will be collected through surveys, interviews, or focus groups:**

10.4 **Will the information that will be collected directly from participants include sensitive information such as substance use or illegal activities?**

10.5 **How will the privacy of the subjects be protected while collecting information about them?**

10.6 **Describe how the information collected during these procedures will be recorded:**

10.7 **Describe how any survey records will be labeled or identified to directly or indirectly link to the project participant.**

10.8 **Are surveys, questionnaires, and/or interview guides attached?** ☐ Yes ☐ No

SECTION 11 – EXPERIMENTAL TREATMENTS OR PROCEDURES

11.1 **Research in this category requires MDCH IRB approval of the study protocol.** The protocol should describe the goals of the study, background information, specific aims, experimental design, statistical analysis of results, subject of the research, risks and benefits of treatment or procedures, and significance of outcomes. **Indicate here you have read this paragraph and attached a protocol:** ☐ Protocol attached.

11.2 **Describe any treatments or procedures including tests and diagnostics that are done only for the purpose of the research (not as part of standard care).**

SECTION 12 – NON-INVASIVE MEASUREMENTS OR TESTS

12.1 **Describe the nature of the non-invasive tests and measurements which human subjects will undergo as part of this project:**

12.2 **Describe the measures taken to ensure participant privacy during these tests and measurements:**

12.3 **How often will these measurements or tests occur? How long does each session of tests or measurements take?**

SECTION 13 – BLOOD AND OTHER BIOLOGICAL SPECIMENS TO BE TAKEN FROM SUBJECTS FOR THE PURPOSES OF THIS PROJECT

13.1 **Describe how blood (venipuncture, finger stick, etc.) will be obtained for the purposes of this project? Indicate if not applicable.**

13.2 **State the number of times, the intervals, and the time-span over which blood will be collected? Indicate if not applicable.**

13.3 **What is the largest volume of blood to be taken from a subject during a single draw? Indicate if not applicable.**

13.4 **What is the total volume of blood to be taken from a subject during the entire project? Indicate if not applicable.**

13.5 **Describe what other biological specimens will be obtained for this project? Indicate if not applicable.**

13.6 **Describe how non-blood biological specimens will be obtained and stored for this project? Indicate if not applicable.**

13.7 **Will collection of biological specimens occur as part of the human subject's standard care?**

☐ Yes ☐ No

If "No", please explain:

13.8 **Describe the subject's right to financial benefit from use of his or her biological specimens for this project:**

13.9 **Describe the process for disposal of biological specimens, including all rights of the subject and obligations of the researcher, if there are plans to store the material for future use:**

SECTION 14 – GENETIC ANALYSIS OF BIOLOGICAL SPECIMENS TO BE OBTAINED FROM RESEARCH SUBJECTS

Resources related to genetics research are available here: http://www.genome.gov/Issues/

14.1	**Describe the biological specimens that will be used for genetic analysis:**
14.2	**Describe the nature of the genetic information that will be acquired:**
14.3	**What is the specific purpose of the genetic analysis?**
14.4	**Describe potential risk to the study subject or related family members from this genetic information:**
14.5	**Describe how genetic material will be kept confidential and secure:**
14.6	**Describe the process for providing genetic information to the subject (options to know or not know results, circumstances involving genetic abnormalities and parenthood, etc.):**
14.7	**Do you plan to offer genetic counseling to participants?** ☐ Yes ☐ No **Please explain:**
14.8	**Describe the subject's right to financial benefit from use of his or her genetic material for this project:**
14.9	**Describe the process for disposal of genetic material, including all rights of the subject and obligations of the researcher, if there are plans to store the material for future use:**

INSTRUCTIONS FOR SUBMITTING YOUR APPLICATION

1. Verify all required elements of the application are complete
2. Attach any materials study subjects will encounter as part of the project (recruitment materials, informed consent documents, survey instruments, etc.) as well as any protocol documents or data gathering tools used by the investigator.
3. Ensure approval by the Responsible MDCH Employee (*note: Responsible MDCH Employee's should perform a programmatic review to ensure MDCH involvement in the project is appropriate, and should serve as the first line in identifying and addressing human research protection issues that may be pertinent to the project)*
4. The Responsible MDCH Employee should indicate approval and submit the complete application by e-mailing all documents from his or her MDCH e-mail account to: MDCH-IRB@michigan.gov, or by signing the application and mailing all materials (ID mail or otherwise) to:

   MDCH Institutional Review Board
   Capitol View Building, 7th Floor
   201 Townsend Street
   Lansing, Michigan 48913

Completion of this application is required for IRB Review at MDCH when MDCH is the only organization involved in the project, or when MDCH has primary responsibility for the project. An abbreviated form of the application can be used if review will occur through another institution's IRB (see: MDCH IRB Abbreviated Initial Review Application) and if all materials submitted to the other institution's IRB are submitted to the MDCH IRB as well.

The Michigan Department of Community Health is an equal opportunity employer, services and programs provider.

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 10:54 AM
To: Peeler, Nancy (DCH)
Subject: RE: question on email response regarding Flint blood lead data

I agree that his statements are inappropriate; they are plenty of things I'd LIKE to say in response, but won't.

I can make changes according to your comments below, thanks. Should I wait to hear from Angela? Wait a couple more hours?

From: Peeler, Nancy (DCH)
Sent: Friday, September 25, 2015 10:37 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Re: question on email response regarding Flint blood lead data

I'm sitting in Zoe's quantum mechanics class, no clue what these differential equations are telling me, but I am stewing a bit about this situation. I want to say that you always do a great job, and are responsive to all data requests, and advocate to help researchers get whatever paperwork completed and turned in. That's why this feels so inappropriate to me - this isn't your fault, thus my earlier comment about apologizing less. And having said that, it probably wasn't a really helpful comment toward revising the response.

The email you received could be read as an intent to escalate and spin things, and I don't think you need to get caught up in that. A calm, fact-based response is very appropriate.

I think your first paragraph is good, but I would remove the last sentence, as I'm not sure what policies you are referencing beyond state and federal law -- and, I think the state and federal law carry enough weight that our departmental policies probably don't change much of anything about the process.

For paragraphs 2 and 3 I think I would just say state the facts, which is that both requests are in process in accordance with departmental policies - because they are. You really don't need to apologize for taking vacation, and I consider anybody's vacation time to be a normal part of doing business - none of us are expected to be at our desks every day, and there is no way to predict what might come up when we are planning to be away.

In your 4th paragraph, it looks like he is changing his data request? I appreciate your generosity in taking on responsibility to do his work for him (editing his paperwork) - your option, whether you want to do that, or request that he re-do it. I would outline the steps, clarify that you have confirmed the process which revealed the extra step, and let him know you'll watch for his response.

Finally, I might close with the piece about a small program, responsible for processing a high number of results every day or week (you sent me a number last week) in order to get them out to the professionals working directly with children and families, which IS the purpose and highest priority of our program.

I hope some of this is helpful and not too late - hope the rest of the day goes better. Thank you for all you do!

Sent from my iPad

On Sep 25, 2015, at 9:34 AM, Scott, Robert L. (DCH) <ScottR9@michigan.gov> wrote:

Angela or Jennifer,

Please see Dr. Edwards email below, and my draft response to him. I'm not very happy with him right now, but tried to respond appropriately. Given the sensitive nature of the situation, I'm checking with you first. Nancy is on annual leave, but I've CC'd her here.

Is it OK to send this? Please feel free to make changes as appropriate. I'm also asking if it's OK now to share the attached PDF with Dr. Edwards and Dr. Hanna-Attisha.

Thanks,
Bob

Marc,

As you well know, the data you and Dr. Hanna-

Attisha are requesting are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public. In addition, my Department has policies on how to determine what can be shared.

I worked with you earlier this month to get data to you relatively quickly, but did not manage to complete the process before I went on annual leave for several days. I neglected to inform you that I'd be away, and I apologize for not informing you. Unfortunately we are a very small program, and there's no one else here to process your request—or Dr. Hanna-Attisha's.

Since I returned on Wednesday, my time has been largely taken up with my Department's response to the current situation in Flint. I did manage to correspond to Dr. Hanna-Attisha, and provided her with the forms she'll need for her request. I hope to submit her request to our Legal office and to our IRB contact today.

Sorry I haven't responded to your email from Monday—as I mentioned above, I was away, and then have been juggling many tasks since I returned. I think you'll be able to get approval for data with zip code identified. I'll edit your data use agreement accordingly, and will adjust it to say "limited data set" instead of "de-identified." I'll re-submit your DUA to Legal today. You will need to submit an MDHHS IRB review application (attached) because this is considered research. You should also submit a "HIPAA Waiver Request" (attached). (I wasn't aware of that when we talked earlier this month.) I don't know whether you'll need to go through an IRB review with your institution.

I've also attached a PDF that includes the numbers behind the graphs you referred to, and I'm CC'ing Dr. Hanna-Attisha so that she has it as well.

Bob

Robert L. Scott

Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 24, 2015 8:14 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Dear Robert,

I just spoke to this young researcher at Hurley, and apparently, she has been unable to get access to the state blood lead records.
I have to say, it is very disturbing that the state keeps issuing these blood lead reports and statements in their press releases, and refuses to share the data backing them up with outside researchers.
Even worse, state reps are running around claiming that these reports are proof that Flint water is safe to drink.

Can you tell me why it is so difficult to get this data, and why your agency is raising so many obstacles to sharing it with everyone who asks? I note that I have been asking to see your data since MDEQ first sent it to reporters back in August, and I count 10 e-mails that I sent responding to all your questions. As of yet, you have given me nothing in response. Yet you have been sending reporters one report after another. It seems your agency is more interested in public relations than sound science.

In the meantime, can I at least be given the numbers of EBL cases and number of tests each month, that are the basis for the latest graph your agency is sending to the press...or is that top secret as well?

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Monday, September 21, 2015 1:21 PM
To: Marc Edwards
Subject: Automatic reply: New DCH-1294, time-sensitive

I'll be out of the office until Wednesday, Sept 23. I'll respond to your message when I return.

<Flint Testing and EBLLs_updated 092315_with notes.pdf>

<HIPAA Waiver Request Template.doc>

<DCH-1277 IRB Initial Review Application.doc>

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 12:44 PM
To: Marc Edwards
Cc: Mona Hanna-Attisha; Peeler, Nancy (DCH); Minicuci, Angela (DCH)
Subject: RE: Automatic reply: New DCH-1294, time-sensitive
Attachments: HIPAA Waiver Request Template.doc; Flint Testing and EBLLs_updated 092315_with notes.pdf; DCH-1277 IRB Initial Review Application.doc

Marc,

As you well know, the data you and Dr. Hanna-Attisha have requested are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public.

I worked with you earlier this month to get data to you relatively quickly, but we did not manage to complete the process before I went on annual leave for several days. I neglected to inform you that I'd be away. I returned on Wednesday and corresponded that day with Dr. Hanna-Attisha, providing her with the forms she'll need for her request.

Regarding your email from Monday, I think you'll be able to get approval for data with zip code identified. I'll edit your data use agreement accordingly, will adjust it to say "limited data set" instead of "de-identified," and will re-submit it to our Legal office. You will need to submit an MDHHS IRB review application (attached) because this is considered research. You should also submit a "HIPAA Waiver Request" (attached). (I wasn't aware of the Waiver Request when we talked earlier this month.) Send those documents to me, and I'll pass them on to our IRB contact. I don't know whether you'll need to go through an IRB review with your institution.

In short, both your request and Dr. Hanna-Attisha's are in process in accordance with departmental policies.

I've attached a PDF that includes the numbers behind the graphs you referred to, and I'm CC'ing Dr. Hanna-Attisha so that she has it as well.

Please keep in mind that I work for a very small program responsible for processing several thousand blood lead results every week--in order to get them out to the professionals working directly with children and families, which is the primary purpose and highest priority of our program.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 24, 2015 8:14 PM

To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Dear Robert,

I just spoke to this young researcher at Hurley, and apparently, she has been unable to get access to the state blood lead records.
I have to say, it is very disturbing that the state keeps issuing these blood lead reports and statements in their press releases, and refuses to share the data backing them up with outside researchers.
Even worse, state reps are running around claiming that these reports are proof that Flint water is safe to drink.

Can you tell me why it is so difficult to get this data, and why your agency is raising so many obstacles to sharing it with everyone who asks? I note that I have been asking to see your data since MDEQ first sent it to reporters back in August, and I count 10 e-mails that I sent responding to all your questions. As of yet, you have given me nothing in response. Yet you have been sending reporters one report after another. It seems your agency is more interested in public relations than sound science.

In the meantime, can I at least be given the numbers of EBL cases and number of tests each month, that are the basis for the latest graph your agency is sending to the press...or is that top secret as well?

Marc

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Monday, September 21, 2015 1:21 PM
To: Marc Edwards
Subject: Automatic reply: New DCH-1294, time-sensitive

I'll be out of the office until Wednesday, Sept 23. I'll respond to your message when I return.

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 1:19 PM
To: Minicuci, Angela (DCH); Peeler, Nancy (DCH)
Subject: RE: Flint follow-up

Angela,

I'm available today, but I'm no epidemiologist. The best I could say is something like this: "While the trend for Michigan as a whole has shown a steady decrease in lead poisoning year by year, smaller areas such as the city of Flint have their bumps from year to year while still trending downward overall."

Does that sound reasonable?

Bob

From: Minicuci, Angela (DCH)
Sent: Friday, September 25, 2015 1:13 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>
Subject: FW: Flint follow-up
Importance: High

Hi Nancy and Bob,

The Detroit Free Press wants to do a bigger story about the issue of lead in Flint. I made it clear to her yesterday that we could not say the lead poisonings are related to the water, but she instead wants to do a story about the increase of overall lead poisonings in Flint between 12/13 and 14/15. Are either of you available to speak with her today?

Thank you,

Angela

From: Tanner, Kristi [mailto:ktanner@freepress.com]
Sent: Friday, September 25, 2015 12:16 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Subject: Flint follow-up

Hi Angela,
Thanks for the feedback yesterday. I took a look at the numbers last night that you sent over and the year over year increase between 13/14 and 14/15 is statistically significant $p<.05$
Can you ask you epidemiologist to confirm? Also, is this the first significant increase that Flint has seen for this cohort?
Thanks!
Kristi
(313) 222-8877 office
(586) 322-2094 cell

Children in Flint, less than 16 years of age, tested for lead

Children with Elevated BLL*		
May 2010 - April 2011	168	0.043796
2011-2012	153	0.036085
2012-2013	118	0.028379
2013-2014	95	0.023691
2014-2015	123	0.032106
May - August 2015	34	0.029746

Children Tested**	
May 2010 - April 2011	3,836
2011-2012	4,240
2012-2013	4,158
2013-2014	4,010
2014-2015	3,831
May - August 2015	1,143

*Each child counted only once.

**Some children counted in more than one year.

September 24, 2015
Source: MDHHS Data Warehouse

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 1:37 PM
To: Minicuci, Angela (DCH); Peeler, Nancy (DCH)
Subject: RE: Flint follow-up

Yes

From: Minicuci, Angela (DCH)
Sent: Friday, September 25, 2015 1:36 PM
To: Peeler, Nancy (DCH) <PeelerN@michigan.gov>
Cc: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Flint follow-up

Bob, I like what you had to say. That's basically what I told her, but she wants to hear it from someone other than a spokesperson ☺ Are you available for a call with her?

Angela

From: Peeler, Nancy (DCH)
Sent: Friday, September 25, 2015 1:20 PM
To: Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
Cc: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Re: Flint follow-up

I think Bob is the best person to speak to them about the lead data, if you are comfortable with that, Bob. My secret hope is that we can work in the fact that this pattern is similar to recent past. :)

Sent from my iPad

On Sep 25, 2015, at 1:12 PM, Minicuci, Angela (DCH) <MinicuciA@michigan.gov> wrote:

> Hi Nancy and Bob,
>
> The Detroit Free Press wants to do a bigger story about the issue of lead in Flint. I made it clear to her yesterday that we could not say the lead poisonings are related to the water, but she instead wants to do a story about the increase of overall lead poisonings in Flint between 12/13 and 14/15. Are either of you available to speak with her today?
>
> Thank you,
>
> Angela
>
> **From:** Tanner, Kristi [mailto:ktanner@freepress.com]
> **Sent:** Friday, September 25, 2015 12:16 PM
> **To:** Minicuci, Angela (DCH) <MinicuciA@michigan.gov>
> **Subject:** Flint follow-up
>
> Hi Angela,

Thanks for the feedback yesterday. I took a look at the numbers last night that you sent over and the year over year increase between 13/14 and 14/15 is statistically significant $p<.05$
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*Each child counted only once.

**Some children counted in more than one year.

September 24, 2015
Source: MDHHS Data Warehouse

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Friday, September 25, 2015 1:56 PM
To: Peeler, Nancy (DCH)
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Thanks--he sent a couple of responses that I'll share on Monday. ☺

I did talk with the reporting, with Angela on the line. Answered some basic questions and didn't go out on any shaky limbs. The reporter wants to speak with Cristin Larder (maybe Monday—Angela said she knows Cristin), and I'm going to prepare a table of EBLLs by year going as far back as possible, for Flint, plus Detroit and the state for comparison.

From: Peeler, Nancy (DCH)
Sent: Friday, September 25, 2015 1:50 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Re: Automatic reply: New DCH-1294, time-sensitive

Really nice email, thanks!

Sent from my iPad

On Sep 25, 2015, at 12:44 PM, Scott, Robert L. (DCH) <ScottR9@michigan.gov> wrote:

> Marc,
>
> As you well know, the data you and Dr. Hanna-Attisha have requested are derived from personal health data, which of course is confidential. There are state and federal laws governing what can be shared, and how, with researchers or the public.
>
> I worked with you earlier this month to get data to you relatively quickly, but we did not manage to complete the process before I went on annual leave for several days. I neglected to inform you that I'd be away. I returned on Wednesday and corresponded that day with Dr. Hanna-Attisha, providing her with the forms she'll need for her request.
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> Regarding your email from Monday, I think you'll be able to get approval for data with zip code identified. I'll edit your data use agreement accordingly, will adjust it to say "limited data set" instead of "de-identified," and will re-submit it to our Legal office. You will need to submit an MDHHS IRB review application (attached) because this is considered research. You should also submit a "HIPAA Waiver Request" (attached). (I wasn't aware of the Waiver Request when we talked earlier this month.) Send those documents to me, and I'll pass them on to our IRB contact. I don't know whether you'll need to go through an IRB review with your institution.
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> In short, both your request and Dr. Hanna-Attisha's are in process in accordance with departmental policies.
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Please keep in mind that I work for a very small program responsible for processing several thousand blood lead results every week--in order to get them out to the professionals working directly with children and families, which is the primary purpose and highest priority of our program.

Bob

Robert L. Scott
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(517) 335-8178
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From: Marc Edwards [mailto:edwardsm@vt.edu]
Sent: Thursday, September 24, 2015 8:14 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: RE: Automatic reply: New DCH-1294, time-sensitive

Dear Robert,

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Marc

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Sent: Monday, September 21, 2015 1:21 PM
To: Marc Edwards
Subject: Automatic reply: New DCH-1294, time-sensitive

I'll be out of the office until Wednesday, Sept 23. I'll respond to your message when I return.

<HIPAA Waiver Request Template.doc>

<Flint Testing and EBLLs_updated 092315_with notes.pdf>

<DCH-1277 IRB Initial Review Application.doc>

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Monday, September 28, 2015 10:40 AM
To: Peeler, Nancy (DCH); LyonCallo, Sarah (DCH)
Cc: McKane, Patricia (DCH); Fink, Brenda (DCH); Larder, Cristin (DCH)
Subject: RE: State data confirms higher blood-lead levels in Flint kids

I spoke with Cristin. I have extracted a file from the Warehouse with all tests for Genesee County, age <16, January 1, 2010 – August 31, 2015. I sent the file to Cristin just a few minutes ago.

We talked about which test to use—I had been using the first elevated test (>= 5, whether venous, capillary or unknown) and Cristin will probably do the same). Once Cristin has geocoded all records to identify which are in City of Flint and which are out-county, she can then slice and dice them as appropriate.

I'll be happy to help in any way I can.

From: Peeler, Nancy (DCH)
Sent: Monday, September 28, 2015 10:35 AM
To: LyonCallo, Sarah (DCH) <lyoncallos@michigan.gov>
Cc: McKane, Patricia (DCH) <McKaneP@michigan.gov>; Fink, Brenda (DCH) <FinkB@michigan.gov>; Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Re: State data confirms higher blood-lead levels in Flint kids

Bob is assembling a list of questions, info he needs to share with/obtain from Epi to do a data pull. Can we get in the same room, perhaps around 11:30 or 12?

Sent from my iPhone

On Sep 28, 2015, at 10:04 AM, LyonCallo, Sarah (DCH) <lyoncallos@michigan.gov> wrote:

> nancy - i will be in touch with you and bob via email shortly. please work with me until patti gets back, ccing patti.
>
> Sent from my iPad
>
> On Sep 28, 2015, at 9:59 AM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:
>
> > Can you give us your cell number? Bob and I have a number of questions about the data you need pulled.
> >
> > Sent from my iPhone
> >
> > On Sep 28, 2015, at 9:45 AM, McKane, Patricia (DCH) <McKaneP@michigan.gov> wrote:
> >
> > > I believe Sarah's point was that we should have been brought in before count data was provided to Angela and others and released to the press, not after.
> > > Cristin is well aware of the need to analyze data, now.

Also if you are having difficulty reaching Cristin, I would recommend contacting me, Sarah or Virginia. Email or cell phone works best for me as I'm rarely at my desk.

Sent from my iPhone

On Sep 28, 2015, at 7:35 AM, Peeler, Nancy (DCH) <PeelerN@michigan.gov> wrote:

> We've also been trying to reach Cristin – it wasn't clear to us whether she knew about this assignment, which this email indicates she does. We appreciate that confirmation. I will pass this info on to Bob Scott. We appreciate if you can please keep Bob, as the CLPPP Surveillance Manager who has extended knowledge about this data, in the loop. He can then update me as needed.
>
> Nancy
>
> ---
>
> **From:** LyonCallo, Sarah (DCH)
> **Sent:** Monday, September 28, 2015 9:19 AM
> **To:** Fink, Brenda (DCH)
> **Cc:** Peeler, Nancy (DCH); McKane, Patricia (DCH)
> **Subject:** Re: State data confirms higher blood-lead levels in Flint kids
>
> Dear Brenda,
>
> After seeing Gongwer on Friday AM, I contacted Corinne to understand what was going on, Linda Dykema and Angela later pulled in Epidemiology. I come out of environmental health (cut my teeth on superfund site in a politically complex area) and can appreciate sensitivity on multiple fronts, as well as appreciating the analyses of data at the local level (well done).
>
> It would benefit all of us for epidemiology staff to be pulled in as quickly as possible in the future, so that Patti and I can assist Cristin, that we can weigh in on design issues, and we can make sure that we are not at cross purposes when Angela requests a response. Cristin's response will take some time.
>
> Cristin and I discussed an approach on Friday before we received the report from Angela with the updated counts. We will take a look this AM and revise our approach.
>
> Sarah

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 29, 2015 8:45 AM
To: Peeler, Nancy (DCH)
Subject: RE: State data confirms higher blood-lead levels in Flint kids

It seems reasonable to me. The "remove subsequent tests for that child" is a toughy, I'm sure. I don't have any suggestions for making the process any simpler.

I expressed my concern yesterday to Cristin that they are counting EBLL kids again if they show up in a subsequent year. If I understood correctly, it's because they want to avoid any suggestion of undercounting. I'm certainly willing to go with their judgment.

From: Peeler, Nancy (DCH)
Sent: Monday, September 28, 2015 10:26 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: Fwd: State data confirms higher blood-lead levels in Flint kids

Does this sound like the process you use, or any tips on how you approach this most effectively?

Sent from my iPhone

Begin forwarded message:

> **From:** "LyonCallo, Sarah (DCH)" <lyoncallos@michigan.gov>
> **Date:** September 28, 2015 at 7:16:48 PM EDT
> **To:** "Peeler, Nancy (DCH)" <PeelerN@michigan.gov>
> **Cc:** "McKane, Patricia (DCH)" <McKaneP@michigan.gov>, "Fink, Brenda (DCH)" <FinkB@michigan.gov>, "Scott, Robert L. (DCH)" <ScottR9@michigan.gov>
> **Subject: RE: State data confirms higher blood-lead levels in Flint kids**
>
> Nancy
> Cristin has been working all day on this. We are working together right now and expect to be doing so for a while this evening. We are committed to getting monthly proportion of tested positive graphic for each region (high risk, other flint, other Genesee) for 0-6 year olds for tomorrow am review by Corinne – we will forward when comfortable it is correct.
> To do this, we are having to identify tests on a monthly basis for the denominator, up until (and including) the first incidence of high EBLL in the year. Then remove subsequent tests for that child in the rest of the calendar year. The whole thing starts over the next calendar year. We are in a maze of do-loops right now.
> Sarah
>
> ---
>
> **From:** Peeler, Nancy (DCH)
> **Sent:** Monday, September 28, 2015 5:24 PM
> **To:** LyonCallo, Sarah (DCH)
> **Cc:** McKane, Patricia (DCH); Fink, Brenda (DCH); Scott, Robert L. (DCH)
> **Subject:** RE: State data confirms higher blood-lead levels in Flint kids
>
> Thanks, everyone, I understand that Bob and Cristin connected and the work is moving forward.

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 29, 2015 3:13 PM
To: Peeler, Nancy (DCH)
Subject: RE: data request

OK

-----Original Message-----
From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 3:12 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: data request

Just had email from Dr. Wells about some data, I need to connect with you ASAP and email back to her. Will forward the email, then come find you after this meeting. Appreciate anything you can do to start looking into the question quickly.

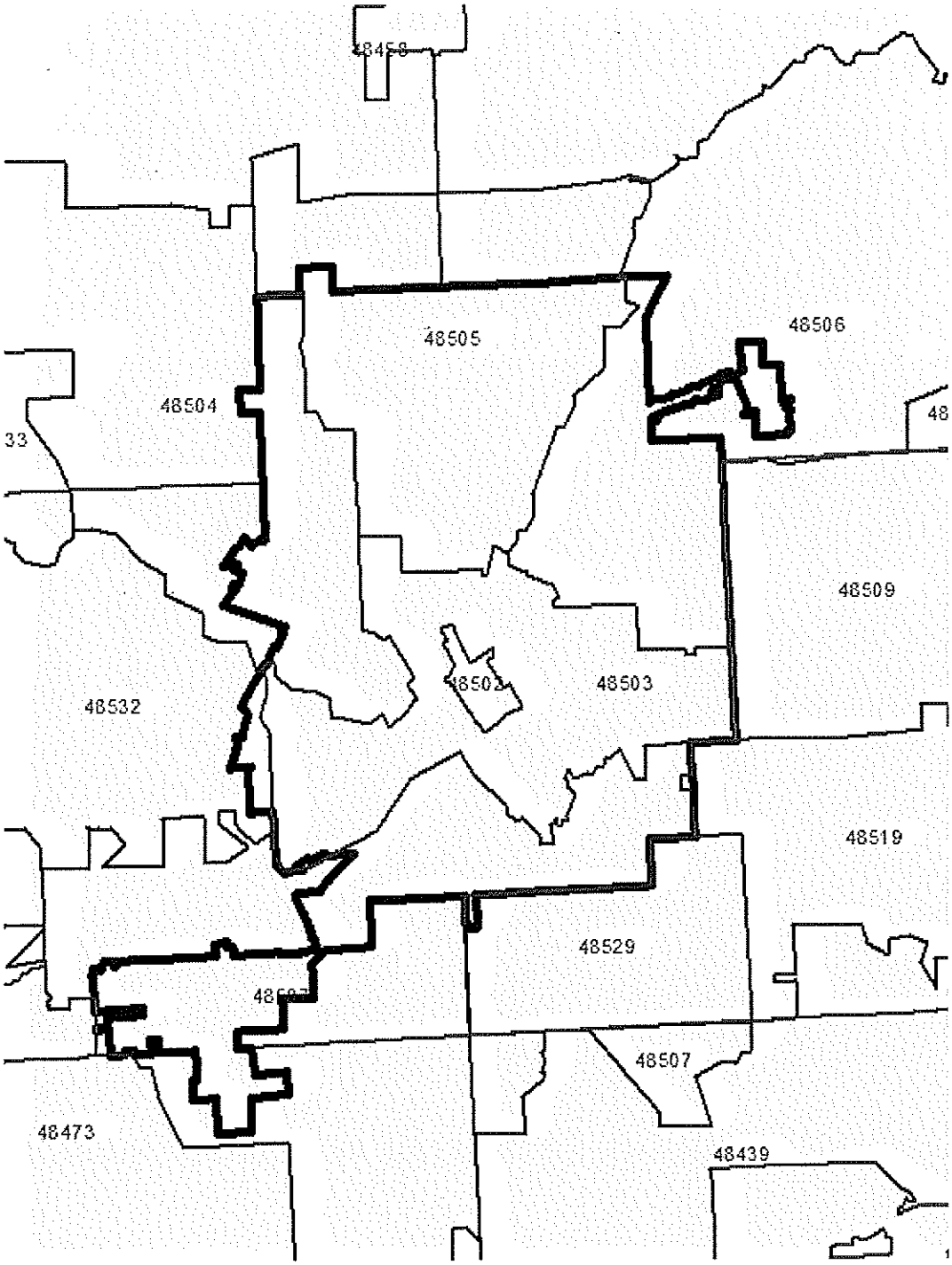
N

Sent from my iPad

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Tuesday, September 29, 2015 4:17 PM
To: Peeler, Nancy (DCH)
Cc: Fink, Brenda (DCH)
Subject: RE: Public Health Advisory

Hurley said they used zips 48501 through 48507. Yes, 48504 through 48507 all cross the city/township lines. Not sure how well this screenshot shows it (black outline is Flint; blue lines are zips). Cristin was going to geocode to the census block group—those will not cross city/township lines.



From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 4:04 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Fink, Brenda (DCH) <FinkB@michigan.gov>
Subject: FW: Public Health Advisory
Importance: High

Forwarding, FYI. The analysis is now in the hands of Epi, so out of our realm.

Just curious – Bob, what were the zip codes Hurley used, and do they cross over into the townships, or are they completely within city boundaries?

From: Lasher, Geralyn (DCH)
Sent: Tuesday, September 29, 2015 12:06 PM
To: Wells, Eden (DCH); Miller, Corinne (DCH); Moran, Susan (DCH); Robinson, Mikelle (DCH); Dykema, Linda D. (DCH); LyonCallo, Sarah (DCH); Hertel, Elizabeth (DCH); Peeler, Nancy (DCH); Travis, Rashmi (DCH); Miller, Mark (DCH)
Cc: Minicuci, Angela (DCH); Eisner, Jennifer (DCH); Grijalva, Nancy (DCH)
Subject: FW: Public Health Advisory
Importance: High

And Genesee County and the Genesee County Health Department, have just issued the attached public health advisory and on the final paragraph it says:

> Recent data provided by Hurley Hospital researchers has indicated that a significant increase in blood lead levels has occurred in children since the switch to Flint River water. The county Health Officer has requested that the Michigan Department of Health and Human Services (MDHHS) provide to the County specific data to support its claim that state data is more comprehensive and does not show a significant increase. To date, the MDHHS has failed to confirm the geographic area included in their findings. We want to assure the state data is specific to the boundaries of the City of Flint, and not Flint addresses which would include addresses in areas outside of the City of Flint. These areas,such as Flint Township,that obtain their water from the Detroit Water Authority and would,therefore,not be representative of Flint River water as the water source. The County is prepared to take further action if the State fails to provide the requested data by September 30, 2015. Further action could include a request for outside independent evaluation of the data and to declare a Public Health Emergency in Flint.

I understand that we are still reviewing the data—but the county has basically issued a ransom date that they want this information by tomorrow.

Eden—please coordinate an answer so Nick can walk into the 1:00 p.m. meeting prepared on this.

From: Minicuci, Angela (DCH)
Sent: Tuesday, September 29, 2015 11:59 AM
To: Lasher, Geralyn (DCH) <lasherg@michigan.gov>
Subject: FW: Public Health Advisory
Importance: High

Last paragraph, last page.

Angela

From: Sandlin, Mary [mailto:MSANDLIN@gchd.us]
Sent: Tuesday, September 29, 2015 11:55 AM
Subject: Public Health Advisory
Importance: High

Mary E. Sandlin
Clerical Coordinator
Genesee County Health Department
630 S. Saginaw Street, Suite 4
Flint, MI 48502-1540
(810) 257-3812 FAX: (810) 257-3147
msandlin@gchd.us

Genesee County
Health Department

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For a copy of the Health Department's Notice of Information Practices, contact the Health Department or visit the Health Department's website at http://www.gchd.us

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 10:25 AM
To: Peeler, Nancy (DCH)
Subject: RE: For Wednesday - 3 things

Will do, and yes we are! ☺

From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 6:07 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Subject: For Wednesday - 3 things
Importance: High

1. I think we may need to respond to a request from Geralyn to re-run our charts we provided, limiting it to children <6 years of age. Waiting for confirmation.

2. I feel another request coming– can you run the most up-to-date lead testing rates for our top 10 (11) counties, e.g. those that receive Prevention grants – I think Budget is going to ask us why Genesee doesn't get an Intervention grant, and we'll want to show them updated numbers (that they aren't in the top 3). I may be wrong, but trying to anticipate.

3. And, amidst all else - can you take a peek – is Genesee billing Medicaid for any lead services?

I guess we are collecting ample evidence for CDC that we use our surveillance data...

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 2:35 PM
To: Travis, Rashmi (DCH)
Cc: Colston, Leslie (DCH); Fink, Brenda (DCH); Peeler, Nancy (DCH)
Subject: FW: State data - Dr. Mona Hanna-Attisha (1st of two emails I'm forwarding)
Attachments: DCH-1294 Hanna-Attisha 9 30 15.doc

Rashmi,

FYI, I'm forwarding two emails I've sent to Dr. Hanna-Attisha and Ms. LaChance today, regarding the Data Use Agreement and the IRB review application for their data request.

Please let me know if you have questions.

Thanks,
Bob Scott

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 10:47 AM
To: 'Mona Hanna-Attisha' <MHanna1@hurleymc.com>
Cc: Jenny LaChance <JLachan1@hurleymc.com>
Subject: RE: State data - Dr. Mona Hanna-Attisha

Mona,

The attached DUA has been approved by MDHHS Legal. Please sign, scan and return to me as a PDF.

No word yet on the IRB review.

Thanks,
Bob

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Tuesday, September 29, 2015 4:44 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Jenny LaChance <JLachan1@hurleymc.com>
Subject: Re: State data - Dr. Mona Hanna-Attisha

Bob, Do you have a time estimate on when we will receive the data? The first time I asked our county health dept for this data was Aug 27 and they eventually realized they didn't have the ability to pull such data and then the first time I asked you for the data was mid September. I recognize this has nothing to do with you, but it's been a bit frustrating. Just hoping for a quick turn around.

Thanks.

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Sep 29, 2015, at 4:34 PM, Scott, Robert L. (DCH) <ScottR9@michigan.gov> wrote:

> Got 'em, thanks. I've sent your Data Use Agreement to Legal for review, and will send all four IRB-related documents to our IRB.
>
> **From:** Jenny LaChance [mailto:JLachan1@hurleymc.com]
> **Sent:** Tuesday, September 29, 2015 4:32 PM
> **To:** Scott, Robert L. (DCH) <ScottR9@michigan.gov>
> **Cc:** Mona Hanna-Attisha <MHanna1@hurleymc.com>
> **Subject:** RE: State data - Dr. Mona Hanna-Attisha
>
> Hi Bob,
>
> Please see attached the HIPAA waiver form signed by Mona (PI) and the most recent IRB proposal (note the highlighted areas are based on a requirement from our IRB). If anything else is needed, please just let me know.
>
> Kind regards,
> Jenny
>
> ---
>
> **From:** Scott, Robert L. (DCH) [ScottR9@michigan.gov]
> **Sent:** Tuesday, September 29, 2015 4:06 PM
> **To:** Jenny LaChance
> **Cc:** Mona Hanna-Attisha
> **Subject:** RE: State data - Dr. Mona Hanna-Attisha
>
> Jenny,
>
> Please send the study protocol that you submitted to the Hurley IRB. I have your approval letter, thanks, but the MDHHS IRB will want to see the protocol as well.
>
> While you're at it, might as well, sign, scan and resend the HIPAA Waiver form (attached)—I assume it won't need any edits.
>
> Thanks,
> Bob
>
> **From:** Jenny LaChance [mailto:JLachan1@hurleymc.com]
> **Sent:** Friday, September 25, 2015 5:03 PM
> **To:** Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Mona Hanna-Attisha <MHanna1@hurleymc.com>
> **Subject:** RE: State data - Dr. Mona Hanna-Attisha
>
> Hi Bob,
>
> Please see attached the revised application and draft HIPAA waiver form. Please let me know if any changes are needed. (Does Mona need to sign the Waiver now or would that be after it is

reviewed?) I'm happy to make any changes.

Thanks!
Jenny

From: Jenny LaChance
Sent: Friday, September 25, 2015 4:29 PM
To: Scott, Robert L. (DCH); Mona Hanna-Attisha
Subject: RE: State data - Dr. Mona Hanna-Attisha

Hi Bob,

Thank you! I am revising the original application and completing the HIPAA waiver form now. I will send to you soon.

Thanks again,
Jenny

From: Scott, Robert L. (DCH) [ScottR9@michigan.gov]
Sent: Friday, September 25, 2015 4:09 PM
To: Jenny LaChance; Mona Hanna-Attisha
Subject: RE: State data - Dr. Mona Hanna-Attisha

Jenny,

As long as this request is for "research," then I don't think it will be a problem to provide addresses. You're correct, it would then be considered "identifiable." One thing that might slow it down—I believe you'd have to go back to Hurley's IRB and get approval for the change.

Bob

From: Jenny LaChance [mailto:JLachan1@hurleymc.com]
Sent: Friday, September 25, 2015 4:05 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Mona Hanna-Attisha <MHanna1@hurleymc.com>
Subject: State data - Dr. Mona Hanna-Attisha

Hi Bob,

My name is Jenny LaChance, and I have been working with Mona on the data. We are now doing in depth GIS analysis, which involves actual address (beyond zipcode). Would adding actual address slow down the request for the State data? I believe this would not longer be a limited data set. Any advice or guidance would be truly appreciated.

Thank you so much!
Jenny

DATA USE AND NON-DISCLOSURE AGREEMENT CONCERNING PROTECTED HEALTH INFORMATION OR OTHER CONFIDENTIAL INFORMATION

Michigan Department of Health and Human Services

Project Title: Analysis of Pediatric Blood Lead Levels in Flint, MI

Data Recipient: Mona Hanna-Attisha, MD MPH and co investigators Jenny LaChance MS and Richard Sadler PhD

Organization: Hurley Medical Center

Address: One Hurley Plaza
Flint, MI 48503

Phone: 810-262-7257 **e-mail:** mhanna1@hurleymc.com

In accordance with this agreement, data are provided by the Michigan Department of Health and Human Services (MDHHS), **Family, Maternal and Child Health/Family and Community Health** on **September/October 2015** to the Data Recipient.

The parties agree to the provisions specified in this Agreement, the Health Insurance Portability and Accountability Act (HIPAA), and all other applicable public health, research, and confidentiality laws.

SECTION 1: DATA SOURCE, PURPOSE, USE, DESCRIPTION, APPROVAL (IF HUMAN SUBJECT RESEARCH)

What is the Source of the Requested Data? *(e.g., Vital Records, Health Statistics, Cancer Surveillance, Medicaid, etc.)*

MDHHS Childhood Lead Poisoning Prevention Program database

What is the Data Recipient's Purpose for, and Specific Use of, the Data?

1. Describe why these data are requested *(e.g., Research, Statistics, Public Health, Health Care Operations, Administration of the Medicaid Program).*

   These data are being requested for two reasons: the primary purpose is related to public health. We are looking at the impact so that measures can be implemented to address any increase in children with elevated blood levels. The data is also being for research purposes so our findings can be shared with other communities.

2. Describe how the data will be used/disclosed, or incorporate by reference and attach a copy of the research protocol, work plan, or request letter that details the purpose and use of data, etc.

   Data for SPSS will be deidentified once 1) one value per person has been selected, 2) whether or not they live in the higher risk part of Flint for lead has been coded, and 3) the timing of when they had their lead level (pre/post) has been determined. GIS analysis will use address but will not include any other PHI identifiers.

   Data will saved only on encrypted zip drives or secure hospital computers located in personal office of one of the researchers. Only the 3 researchers directly involved with study will have any access to data. Encrypted zip drives will be kept secure with a researcher or in a locked office at all times. Once identifiable data is not needed, files with identifiable information will be destroyed.

3. Describe the data requested indicating amount, type, by what medium the data will be provided, and whether the data recipient is granted access to the data warehouse or state archives.

   Data Overview Description

   a. Specify the data elements *(e.g., age, gender, etc.)* and time periods *(e.g., January 2003 through January 2005).*

      Time period: January 2013 through Sept 15,2015; Data Elements: Child ID number, date of birth, date of blood draw, address with zip code, blood lead level, and specimen type. Gender, race and insurnace type are also requested if available.

   b. Specify if the data requested is identifiable, de-identified, or a limited data set as defined by HIPAA.

      Identifiable since addresses are being requested for GIS analysis

c. Specify the medium requested *(e.g., electronic, hard copy, etc.).*
electronic

d. Specify if direct access to the data warehouse or state archives is requested.
Not unless necessary for this request of data

Research Project: *Complete this box if requested data will be used for human subjects research.*

Is Institutional Review Board (IRB) (human subjects research) approval required? If YES, MDHHS Approval Number ..... *(Attach MDHHS Approval Form)*	☒ YES ☐ NO Approval Number
Is HIPAA Informed Consent/Authorization Waiver Required? If YES, MDHHS Approval Number (if above IRB approval not required)..... *(Attach HIPAA Waiver Authorization, if relevant.)*	☒ YES ☐ NO Approval Number

SECTION 2: AGREEMENT CONDITIONS

With regard to data provided under this agreement, the Data Recipient agrees to:

1. Use and disclose the data only in accordance with this agreement, or as otherwise required by law;

2. Limit access to these data only to those described and authorized in this agreement; *(MDHHS may require the specific identification of the person(s) or the agency/division/office that is permitted access. Identify if needed.)*

3. Use appropriate safeguards to prevent use or disclosure of the information other than as provided by this agreement; *(MDHHS sponsor may require description of the security procedures that will be in place and followed.)* Data will be kept very secure through the use of encrypted thumb drives (or on hospital secure computers in individual researchers' offices) and only seen by 3 researchers. Data will be with one of the researchers or in a locked office at all times. Identifiers will be removed for files for analysis as not needed and all identifiable data destroyed once not needed. As soon as data files and analysis are completed, files with identifiers will be destroyed. For GIS analysis, data and analysis file with address will be kept until after all work on data is complete, including dissemination and time for peer response.

4. Report to the responsible MDHHS sponsor any use or disclosure of information that is not provided for by this data use agreement;

5. Ensure that any agent(s) or subcontractor(s) who access these data agree to the same restrictions and conditions that apply to the data recipient; *(MDHHS sponsor may stipulate that release of data to a subcontractor cannot be done without the written authorization of MDHHS.)*

6. Make no attempt to identify or contact the individuals, providers, or health plans within the data provided unless approved in this agreement; *(Describe any agreed upon exceptions if needed.)*

7. Data recipient must provide MDHHS at least thirty days to review and provide comments on papers, publications, or presentations that the data recipient plans to submit for publication or presentation. Data recipient agrees that it will not publish or disseminate any protected health information, personally identifiable information, or data that might make it possible, directly or indirectly, to identify an individual. Data recipient must acknowledge the MDHHS program as appropriate (e.g., source of data, etc.), assume full responsibility for the analysis and interpretation of the data, and provide a copy of the publication or presentation to MDHHS. To the extent data recipient requires technical assistance in analyzing or interpreting the data and when such assistance goes beyond providing non-manipulated data, MDHHS reserves the right to request that these activities be considered a substantial contribution to the research being conducted and that the provision of such assistance may warrant MDHHS be considered as a research collaborator or co-author in any resulting publications or presentations;

8. Return or destroy all originals and copies of any potentially identifiable information upon completion of project, or upon request, unless otherwise approved in this agreement. This includes, but is not limited to: magnetic tape, micro disk files, paper records, etc. If not returned to the MDHHS, then the data must be destroyed; e.g., use a CD/DVD shredder to destroy CD Roms, DVDs, etc., erase floppy/zip disks using a magnet, shred paper records, clean computer hard drives with a program designed to wipe a disk by overwriting, etc.;

9. Not use the data provided to engage in any method, act, or practice which constitutes a commercial solicitation or advertisement of goods, services, or real estate to consumers; and

10. Not use the data provided as a basis for legal, administrative or other actions which may affect particular individuals or establishments as a result of their specific identification in this project.

The MDHHS may cancel this agreement with proper notice.

The unauthorized use or disclosure of confidential information is punishable by imprisonment or fine or both under state and federal laws specific to the data released.

I, the data recipient, have read, understand, and agree to the above conditions.

DATA RECIPIENT SIGNATURE:

Mona Hanna-Attisha, MD, MPH — Director, Pediatric Residency Program, Hurley Children's Hospital

Name of Responsible Data Recipient (Type or Print) — Title

Signature of Responsible Data Recipient — Date

MDHHS SIGNATURES:

MDHHS SPONSOR

Robert L. Scott — Departmental Specialist

Name of Responsible MDHHS Sponsor (Type or Print) — Title

Signature of Responsible MDHHS Sponsor — Date

MDHHS RESPONSIBLE PARTY

Brenda Fink, A.C.S.W. — Director, Division of Family and Community Health

Name of MDHHS Director, Bureau Director, or Delegated Authority (Type or Print) — Title

Signature of MDHHS Director, Bureau Director, or Delegated Authority — Date

AUTHORITY: This form is acceptable to the Michigan Department of Health and Human Services as compliant with HIPAA privacy regulations, 45 CFR Parts 160 and 164 as amended.

COMPLETION: Is required if disclosure is requested.

The Michigan Department of Health and Human Services is an equal opportunity employer, services, and programs provider.

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 2:36 PM
To: Travis, Rashmi (DCH)
Cc: Colston, Leslie (DCH); Fink, Brenda (DCH); Peeler, Nancy (DCH)
Subject: FW: IRB application and related documents (2nd of two emails I'm forwarding)

FYI

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 12:59 PM
To: Jenny LaChance <JLachan1@hurleymc.com>
Cc: 'Mona Hanna-Attisha' <MHanna1@hurleymc.com>
Subject: FW: IRB application and related documents

Please see MDHHS IRB's comments below. Regarding the first #1 below, that's partly my fault for missing the reference to MCIR in your protocol. Did I ever explain that MCIR does not store any blood lead results? They are stored in the MDHHS Data Warehouse. MCIR then links to the Warehouse and *displays* any records found for a given child. Along that line, I changed your reference to MCIR in the DUA to read "MDHHS Childhood Lead Poisoning Prevention Program database" (which feeds data to the Warehouse), but I didn't catch it in your protocol. So, please make that change in your protocol—and while you're at it, you might as well change the list of attributes requested to match the DUA: "Child ID number, date of birth, date of blood draw, address with zip code, blood lead level, and specimen type." I assume this means you'll have to loop back through Hurley's IRB.

Regarding the first #2 below, please note that I had copied and pasted from your HIPAA Waiver to your DUA Section 2: Agreement Conditions, #3. (I had asked for this info in one of my emails, but you must have missed it—the request was sort of buried among other comments.)

Regarding that first #2 and the second #1,2,3, please make whatever changes you think appropriate to address Ian's concerns. It's probably best if I get out of the way, and not try to interpret for you. If you have questions about Ian's concerns, please feel free to correspond with him directly and CC me.

Bob

From: MDHHS-IRB
Sent: Wednesday, September 30, 2015 11:41 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Boes, Colin (DCH) <BoesC1@michigan.gov>
Subject: RE: IRB application and related documents

Hello Bob,

Thank you for your work in coordinating submission of these IRB application documents, as well as the draft Data Use Agreement which Colin has shared with me. Colin and I have touched base and we have some questions related to the application generally and the request for a Waiver of the Requirements for Authorization.

There is some confusion in the IRB application to Hurley, and I'm guessing this is likely due to the IRB application having been written before the specifics of data sharing (as appear addressed thoroughly in the DUA) were worked out. To make sure we understand what is proposed, however, I'm hopeful you/the researchers can speak to the following:

1. The IRB application speaks to data being obtained from MCIR while the DUA speaks to data being obtained from the Childhood Lead Poisoning Prevention Program database. Please clarify the source and form of the data to be provided from MDHHS. Notably, will records be obtained via provider access to MCIR? Or will data originating from MDHHS sources be prepared for disclosure exclusively by MDHHS staff?
2. Although both the IRB application and DUA speak to the Child ID number being destroyed at the earliest possible time point (once duplicate entries have been removed), it is unclear whether the same is true for other potentially identifying information (address, birth date, testing date, etc.). The IRB application appears to suggest these identifying fields will be maintained, where the data use agreement appears to indicate that masking of these fields (removing dates and replacing with age and pre/post conversion field and masking address by geocoding to affected vs. not affected geography) is possible and will be conducted as early as possible. Please clarify the actual plan for the handling of identifiable information.

With respect to the requested Waiver of Authorization, the following clarifications would be helpful:

1. Please justify why address should remain associated with the testing data through dissemination and peer review (rather than a less specific affected area vs. non-affected area field). If it is necessary to maintain address (or any other personally identifiable information) please clarify how that information might be used.
2. Is only the minimum necessary PHI being requested for disclosure? Might some of the masking (dates and or address) be performed prior to disclosure? The item asking: "Describe why the study could not practicably be conducted without access to and use of the protected health information (PHI) requested" should address this. It appears that the researchers (as the only entity with access to data from all of the sources) will need a mechanisms to remove duplicate entries, but it is not clear why some of the other identifying information needs to be disclosed to the researchers; please clarify.
3. The item asking "Describe why the study could not practicably be conducted without this Waiver of Authorization" is not properly addressed. In essence this item is asking why it is not possible to obtain authorization from subjects of this research for the disclosure of their protected health information to the researchers. Because many of the subjects will be Hurley Medical Center patients, it appears there may be an opportunity for outreach to obtain authorization. The waiver request should document if there might be problems obtaining accurate contact information, or if anticipated response rate might lead to a sample size without adequate power, or if there are other barriers to asking permission for the use of the data requested before it is disclosed. Additional information will be appreciated.

If you or the researchers have concerns on any of these questions, please do not hesitate to let me know. Regards,
-Ian

Ian A. Horste, MPH
Institutional Review Board Administrator/Chair
Michigan Department of Health and Human Services
517-241-0806
www.michigan.gov/irb

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From: Scott, Robert L. (DCH)
Sent: Tuesday, September 29, 2015 4:42 PM
To: MDHHS-IRB
Subject: IRB application and related documents

Please see four attachments: Abbreviated IRB app; signed HIPAA Waiver Request; Hurley IRB approval; and Study Proposal that was submitted to Hurley IRB.

A related Data Use Agreement has been sent to Colin Boes for his review.

Please let me know if you need anything else.

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 5:05 PM
To: Peeler, Nancy (DCH)
Subject: Hurley

Hurley Medical Center is listed as the "Provider" on approximately half of the blood lead results we received for Flint children in 2014—I assume that pattern holds in 2015 and in recent years. Warde Medical Lab is listed as the "Laboratory" on those results. Warde reported the results to CLPPP in accordance with State law.

I can't say whether the blood specimens were a) drawn at Hurley's lab, or b) simply passed through Hurley's lab—from physician office to Hurley to Warde for analysis. As I understand it, both scenarios are common at various hospital labs.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 8:06 AM
To: Peeler, Nancy (DHHS)
Cc: Lishinski, Karen (DHHS)
Subject: RE: Hurley -- follow up about the question on Hurley lab results

We report on testing and elevated levels annually by fiscal year for the legislature--by county/Detroit and the state. We report annually by calendar year for stakeholders and the public--by county, by several funded communities, and by ZIP code; also the Medicaid population by county. These annual reports include tables, graphs and maps to provide detailed information about the past year, as well as trends over several years. We produce other reports by request.

We used to produce similar reports by quarter, and even a special monthly report for funded health departments. But as we have lost funding and staff, and as my own time has been pulled in other directions, these other more-frequent reports have fallen away.

Child- and address-specific data continues to be provided to every local health department every week—via HHLPSS on-line system, and via securely-transmitted Excel files--so that they have information on lead levels for children in their jurisdictions.

BLLs >= 20 are faxed to local health departments the same day we receive them. Starting a few months ago, copies of all BLLs >= 5 are provided to our Nurse Consultant weely, to help her monitor elevated levels in each local jurisdiction.

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 30, 2015 6:50 PM
To: Wells, Eden (DHHS) <WellsE3@michigan.gov>; Miller, Corinne (DHHS) <MillerC39@michigan.gov>; Miller, Mark (DHHS) <millerm1@michigan.gov>; LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov>; Dykema, Linda D. (DHHS) <DykemaL@michigan.gov>; Priem, Wesley F. (DHHS) <priemw@michigan.gov>; Travis, Rashmi (DHHS) <TravisR@michigan.gov>
Cc: Fink, Brenda (DHHS) <FinkB@michigan.gov>; Scott, Robert L. (DHHS) <ScottR9@michigan.gov>
Subject: RE: Hurley -- follow up about the question on Hurley lab results

I can partially answer your question now, will get additional info from Bob and send more later.

The data flows in daily, year-round. We process several thousand test results every week. We monitor the results daily, and have an algorithm for our follow-up response, based on the blood lead level.

Because we are processing results every day, we do see some patterns if they begin to emerge, especially with the higher lead levels. We normally track and report data at health department level, county level/Detroit. We are still building our capacity and putting new procedures in place via our CDC Surveillance grant to crank out more reports/report cards, and more frequent data reports, especially with the switch in focus to levels of 5 and above (which means we are focusing on a larger number of results than just 10 and above). We develop and share out many maps, charts, graphs, and yes, do publish an annual legislative report.

We have .2 FTE Epi support (Cristin Larder), mostly for special projects and/or reports, for example, Cristin is working with us and Dr. Stan Kaplowitz from MSU to use his research to help pinpoint smaller geographic areas with higher risk, so we can better direct resources toward those areas.

Bob, can you please add more information about frequency of your analysis, and how we detect issues?

From: Wells, Eden (DCH)
Sent: Wednesday, September 30, 2015 6:24 PM
To: Peeler, Nancy (DCH); Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH)
Subject: RE: Hurley -- follow up about the question on Hurley lab results

That sounds about right.

May I ask,, is it CLPP's usual process to collect the lead data on an ongoing basis...if so, at what level is the data usually analyzed (by Epi?) IS it daily,nmonthly? Quarterly? Annually? How would we normally detect/know if there is an issue in a particular locality---do you look at it at county level or smaller when you peruse your data? This question may arise...

E

From: Peeler, Nancy (DCH)
Sent: Wednesday, September 30, 2015 5:22 PM
To: Miller, Corinne (DCH); Miller, Mark (DCH); LyonCallo, Sarah (DCH); Dykema, Linda D. (DCH); Priem, Wesley F. (DCH); Travis, Rashmi (DCH); Wells, Eden (DCH)
Subject: FW: Hurley -- follow up about the question on Hurley lab results

Hi all – I talked to Bob to confirm the information I had shared about the Hurley lab results. It is a little more nuanced than I had explained, forwarding Bob's explanation, FYI.

From: Scott, Robert L. (DCH)
Sent: Wednesday, September 30, 2015 5:05 PM
To: Peeler, Nancy (DCH)
Subject: Hurley

Hurley Medical Center is listed as the "Provider" on approximately half of the blood lead results we received for Flint children in 2014—I assume that pattern holds in 2015 and in recent years. Warde Medical Lab is listed as the "Laboratory" on those results. Warde reported the results to CLPPP in accordance with State law.

I can't say whether the blood specimens were a) drawn at Hurley's lab, or b) simply passed through Hurley's lab—from physician office to Hurley to Warde for analysis. As I understand it, both scenarios are common at various hospital labs.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 11:10 AM
To: MDHHS-IRB
Cc: Peeler, Nancy (DHHS)
Subject: RE: correspondence with Hurley

Ian, thanks so much for letting me know! I may have been reading too much into their brief silence.

From: MDHHS-IRB
Sent: Thursday, October 01, 2015 10:37 AM
To: Scott, Robert L. (DHHS) <ScottR9@michigan.gov>
Subject: RE: correspondence with Hurley

Hi Bob,

I heard from Jenny LaChance a moment ago. We discussed the comments I had made on the proposal and the need for additional detail justifying why what is requested is the minimum necessary information, and approaches to respond with that clarification. She indicated the team at Hurley will work to prepare revised information and get a response back sometime in the next few days.

Regards,
-Ian

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 9:06 AM
To: MDHHS-IRB
Subject: correspondence with Hurley

Ian,

Just checking: I haven't heard back from Mona or Jenny (the Hurley researchers) since I passed on your comments (and some thoughts of my own) about their IRB application. Have you had any correspondence with them since about 1:00pm yesterday?

Thanks,
Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 3:07 PM
To: Peeler, Nancy (DHHS)
Subject: Hurley IRB revised

Nancy,

FYI, Hurley has sent revised documents for their IRB, and I've forwarded them to MDHHS IRB.

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 3:41 PM
To: Peeler, Nancy (DHHS)
Subject: RE: Hurley IRB revised

How about this? I'll check email tomorrow at 10:00, 12:00, 2:00 and 4:00 from home (not going anywhere). If I can handle it from home, I will; if not, I'll email you.

If the IRB is approved tomorrow, I can create their file on Monday. Am I correct that we still need a "go-ahead" from MDHHS Administration before sending the file?

From: Peeler, Nancy (DHHS)
Sent: Thursday, October 01, 2015 3:20 PM
To: Scott, Robert L. (DHHS) <ScottR9@michigan.gov>
Subject: Re: Hurley IRB revised

:). I assume they'll go in today? If you are off tomorrow, can we make a plan for who will keep this moving tomorrow if needed? Prob need to give Hurley a contract person. I can do it via email from my meeting, or is there a better approach?

Sent from my iPhone

On Oct 1, 2015, at 3:07 PM, Scott, Robert L. (DHHS) <ScottR9@michigan.gov> wrote:

> Nancy,
>
> FYI, Hurley has sent revised documents for their IRB, and I've forwarded them to MDHHS IRB.
>
> Robert L. Scott
> Childhood Lead Poisoning Prevention Program
> Michigan Department of Health & Human Services
> (517) 335-8178
> fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Thursday, October 01, 2015 6:05 PM
To: Peeler, Nancy (DHHS)
Subject: FW: MDHHS IRB Approval - 201509-11-EA

FYI

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Thursday, October 01, 2015 5:52 PM
To: MDHHS-IRB <MDHHS-IRB@michigan.gov>
Cc: Scott, Robert L. (DHHS) <ScottR9@michigan.gov>; Travis, Rashmi (DHHS) <TravisR@michigan.gov>
Subject: Re: MDHHS IRB Approval - 201509-11-EA

Thank you for the rapid approval.

Bob please let me know how I can get the data.

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Oct 1, 2015, at 5:48 PM, MDHHS-IRB <MDHHS-IRB@michigan.gov> wrote:

> Please see the attached determination notice indicating MDHHS IRB approval of your research project for a period of 1 year. A hard copy of this notice will be provided to the Responsible MDHHS Employee. This IRB approval is for the study protocol, IRB application, and the most recent version of study documents in the form submitted to the IRB. Please see the comment section of the determination notice for specific requirements or additional details (if any) related to this approval. Any changes to the protocol or approved study documents must be reviewed and approved by the MDHHS IRB prior to implementation unless those changes are necessary to eliminate apparent immediate hazards to study subjects.
>
> Any severe adverse events or unexpected problems involving risks to research subjects must be reported to the MDHHS IRB as soon as possible (usually within 48 hours of discovery).
>
> Prior to the time this IRB approval expires, a report on the status of this research should be submitted to the MDHHS IRB to facilitate continued MDHHS IRB approval, or study closure.
>
> Don't hesitate to contact the MDHHS IRB with any questions or concerns.
>
> Ian A. Horste, MPH
> Institutional Review Board Administrator/Chair
> Michigan Department of Health and Human Services
> 517-241-0806
> www.michigan.gov/irb

This message, including any attachments is intended solely for the use of the named recipient(s) and may contain confidential and/or privileged information. Any unauthorized review, use, disclosure, or distribution of any confidential and/or privileged information contained in this e-mail is expressly prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy any and all copies of the original message.

<201509-11-EA.pdf>

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Friday, October 02, 2015 10:27 AM
To: Mona Hanna-Attisha; MDHHS-IRB
Cc: Travis, Rashmi (DHHS); Peeler, Nancy (DHHS)
Subject: RE: MDHHS IRB Approval - 201509-11-EA

Mona,

I'm authorized to provide you with the file at 1:30 this afternoon. It can be delivered either of two ways:

1) I can post it to our secure FTP site on Michigan's Single Sign-On page. That's our usual method, but it would require a couple of minutes of your time to get signed up. I can send instructions in you wish.
2) I can send it by email as a zipped and encrypted attachment. You'd need WinZip and the password to unzip it. I could send the password to a fax number if you provide one.

Please let me know which you'd prefer.

A few words about the file:
It has 18,688 records, all blood lead results currently in our system for children less than five years of age at time of test, with address listed as Genesee County, with specimen date from 1/1/2013 to 9/15/2015.

The fields are Child ID (unique to each child), date of birth, specimen date, house number, street name, patient city, patient zip code, pb result, sample type (V-venous, C-capillary or blank-unknown), gender code (M, F, or blank), county, and serial number (a unique ID for each record).

The file format is tab-delimited text.

I think that's everything, but if you have questions after reviewing the file, please let me know.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Thursday, October 01, 2015 5:52 PM
To: MDHHS-IRB <MDHHS-IRB@michigan.gov>
Cc: Scott, Robert L. (DHHS) <ScottR9@michigan.gov>; Travis, Rashmi (DHHS) <TravisR@michigan.gov>
Subject: Re: MDHHS IRB Approval - 201509-11-EA

Thank you for the rapid approval.

Bob please let me know how I can get the data.

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Oct 1, 2015, at 5:48 PM, MDHHS-IRB <MDHHS-IRB@michigan.gov> wrote:

> Please see the attached determination notice indicating MDHHS IRB approval of your research project for a period of 1 year. A hard copy of this notice will be provided to the Responsible MDHHS Employee. This IRB approval is for the study protocol, IRB application, and the most recent version of study documents in the form submitted to the IRB. Please see the comment section of the determination notice for specific requirements or additional details (if any) related to this approval. Any changes to the protocol or approved study documents must be reviewed and approved by the MDHHS IRB prior to implementation unless those changes are necessary to eliminate apparent immediate hazards to study subjects.
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<201509-11-EA.pdf>

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Friday, October 02, 2015 1:32 PM
To: Mona Hanna-Attisha; Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Friday, October 02, 2015 4:17 PM
To: Cooper, Jessica (DHHS); Peeler, Nancy (DHHS)
Subject: Re: File has been downloaded

Jessie, you rock! Many thanks!

From: Cooper, Jessica (DHHS)
Sent: Friday, October 2, 2015 4:05:19 PM
To: Peeler, Nancy (DHHS); Scott, Robert L. (DHHS)
Subject: File has been downloaded

Mona and Jenny are all set. I helped her get access and download the file.

She said Thank you so much☺

Jessica Cooper
Data Technician
CooperJ3@michigan.gov
Michigan Department of Health and Human Services
Childhood Lead Poisoning Prevention Program
PO Box 30195
4th Floor
Lansing MI 48909
Phone: (517) 335-8912
Fax: (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Friday, October 02, 2015 6:43 PM
To: LyonCallo, Sarah (DHHS); Mona Hanna-Attisha; Peeler, Nancy (DHHS); Jenny LaChance; Miller, Corinne (DHHS); McKane, Patricia (DHHS)
Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject: Re: The requested file has been sent

We round up from .5 and round down from .4

From: LyonCallo, Sarah (DHHS)
Sent: Friday, October 2, 2015 6:33:14 PM
To: Mona Hanna-Attisha; Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); McKane, Patricia (DHHS)
Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject: RE: The requested file has been sent

You are correct that lead level results in the file you received are rounded (i.e., no decimal places). The data set we are using in epidemiology (which is the same type of file Mr. Scott would have pulled from the data warehouse for you) contains values from 1 to 49. Are you seeing the 10 and above levels?

I do not know the rounding rules for the lead result data and am still working on getting you that information.

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 5:25 PM
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Quick question:
We have the data and are starting to geocode it!
All of your lead level results are single numbers with no decimals?? It's kinda weird. All of our lab data included decimals and there was also kids with <0.5 levels (undetectable).

Does your lead data just not have decimals? Do numbers get round up or round down?

Thanks! Mona

(I do understand that it's Friday. Sorry.)

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

HURLEY CHILDREN'S HOSPITAL

From: Peeler, Nancy (DHHS) [mailto:PeelerN@michigan.gov]
Sent: Friday, October 02, 2015 3:07 PM
To: Mona Hanna-Attisha; Scott, Robert L. (DHHS); Jenny LaChance
Cc: Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent
Importance: High

Good afternoon, Mona -

Today is Bob's scheduled day off. He came in to prepare and send the file, but has left for the rest of the day. I will see if I can reach him to find out what step to take to get you access to the data.

Can you give me any more detail that I can share with him, if I can reach him? It sounds like you did receive the email with the file attached, and the password (I assume via fax). If those two pieces are in place, is the issue that it won't 'unzip'?

Nancy Peeler, Manager
Early Childhood Health Section

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 2:59 PM
To: Scott, Robert L. (DHHS); Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent

We are unable to open the file that you sent. Can you try to send again or let us know how to open it another way. Thanks! We were really hoping to review today. thanks!

From: Scott, Robert L. (DHHS) [mailto:ScottR9@michigan.gov]
Sent: Friday, October 02, 2015 1:32 PM
To: Mona Hanna-Attisha; Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Friday, October 02, 2015 7:36 PM
To: Mona Hanna-Attisha; Peeler, Nancy (DHHS); Jenny LaChance; Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject: Re: The requested file has been sent

Mona,

The integers in your file are the values we have stored in our blood lead surveillance system; that's our current protocol.

To my knowledge, the CDC's Lead program has not taken a stance on whether to store decimals or not.

Bob

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Friday, October 2, 2015 5:24 PM
To: Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject: RE: The requested file has been sent

Quick question:
We have the data and are starting to geocode it!
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Does your lead data just not have decimals? Do numbers get round up or round down?

Thanks! Mona

(I do understand that it's Friday. Sorry.)

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From: Peeler, Nancy (DHHS) [mailto:PeelerN@michigan.gov]
Sent: Friday, October 02, 2015 3:07 PM
To: Mona Hanna-Attisha; Scott, Robert L. (DHHS); Jenny LaChance
Cc: Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent
Importance: High

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Can you give me any more detail that I can share with him, if I can reach him? It sounds like you did receive the email with the file attached, and the password (I assume via fax). If those two pieces are in place, is the issue that it won't 'unzip'?

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Early Childhood Health Section

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Sent: Friday, October 02, 2015 2:59 PM
To: Scott, Robert L. (DHHS); Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent

We are unable to open the file that you sent. Can you try to send again or let us know how to open it another way. Thanks! We were really hoping to review today. thanks!

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Sent: Friday, October 02, 2015 1:32 PM
To: Mona Hanna-Attisha; Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Scott, Robert L. (DHHS)
Sent: Saturday, October 03, 2015 3:02 PM
To: Travis, Rashmi (DHHS); Peeler, Nancy (DHHS)
Subject: Re: anyone have nancy P or Bob S cell phone numbers?
Attachments: Lead results are squishy.docx

Nancy and Rashmi,

Please see attached. This is what I'd like to send Mona, but please feel free to tell me why I shouldn't. ☺

I do think that every researcher asking for lead data should get some version of this information; I'm feeling like I should have been doing so in years past.

As Nancy said to me yesterday, we should all get together and talk about how BLLs are currently stored, and what changes should be made going forward. Mark Knottnerus and Tom Mailand from the MDHHS Trace Metals Lab should be included in the discussion. That discussion (or maybe a separate one), should also cover the difference between capillary and venous, the large number of unconfirmed capillary tests, and how best to represent them in data reports.

(My personal cell number is [redacted]. Please feel free to call.)

Thanks,
Bob

From: Travis, Rashmi (DHHS)
Sent: Saturday, October 3, 2015 3:51 AM
To: Scott, Robert L. (DHHS)
Cc: Peeler, Nancy (DHHS)
Subject: Fwd: anyone have nancy P or Bob S cell phone numbers?

Bob
Please see chain of emails below on why rounding up is done in this way?
Thanks
Rashmi

Sent from my iPhone

Begin forwarded message:

> **From:** "Wells, Eden (DHHS)" <WellsE3@michigan.gov>
> **Date:** October 2, 2015 at 7:19:50 PM EDT
> **To:** "LyonCallo, Sarah (DHHS)" <lyoncallos@michigan.gov>
> **Cc:** "Travis, Rashmi (DHHS)" <TravisR@michigan.gov>, "Miller, Corinne (DHHS)"

<MillerC39@michigan.gov>
Subject: Re: anyone have nancy P or Bob S cell phone numbers?

So I can take a deep breath now? I nearly keeled over...Rashmi- he may want to explain that to her if rounding is CDC protocol if that is tuneup, because she needs confidence in our processes.

Sent from my iPhone

On Oct 2, 2015, at 7:17 PM, LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov> wrote:

> My understanding is this is CDC protocol for handling the clinical data to get it into surveillance format. What Bob sends is the same data that goes to local health and to CDC (used to be STELLAR) – it is the raw surveillance data. I don't know the protocols for how the clinical tests come in through the warehouse –this is really a Bob question.
>
> **From:** Wells, Eden (DHHS)
> **Sent:** Friday, October 02, 2015 7:11 PM
> **To:** LyonCallo, Sarah (DHHS)
> **Cc:** Travis, Rashmi (DHHS); Miller, Corinne (DHHS)
> **Subject:** Re: anyone have nancy P or Bob S cell phone numbers?
>
> I sent an email that is portraying a real concern--- Sarah would having tenths have helped the sensitivity of our data??????
>
> Sent from my iPhone
>
> On Oct 2, 2015, at 7:06 PM, LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov> wrote:
>
>> Bob has already responded and Mona has come back with more questions. Someone needs to be responsive over the weekend or to say when we would be able to answer, I think – as Mona's group works with the data, there will be more questions.
>>
>> **From:** Travis, Rashmi (DHHS)
>> **Sent:** Friday, October 02, 2015 7:05 PM
>> **To:** Wells, Eden (DHHS)
>> **Cc:** LyonCallo, Sarah (DHHS); Miller, Corinne (DHHS)
>> **Subject:** Re: anyone have nancy P or Bob S cell phone numbers?
>>
>> I emailed Bob and Nancy. Nancy may check her email over weekend. Is there an urgent need to contact on the weekend?
>>
>> Sent from my iPhone
>>
>> On Oct 2, 2015, at 6:56 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:

Ugh

Sent from my iPhone

On Oct 2, 2015, at 6:38 PM, LyonCallo, Sarah (DHHS) <lyoncallos@michigan.gov> wrote:

> It would be great if Bob or Nancy could be contacted because I cannot find the answer to Mona's question about rounding in any materials on CDC or MDHHS CLPP materials.... Specifically Mona wants to know how a lab test with decimal values is rounded in the data base.
> Do we round up?
> Do we round down?
> Do we use the rounding rule?
>
> I am assuming we are following a cdc protocol on rounding rules, but can't find any mention of rounding in the data specs I have been able to find thus far.....

Lead results are squishy.

In Michigan:

- Any specimen that could not be analyzed (clotted, insufficient amount, etc.) is not included here.
- Any result of "below detection limit" or similar text is stored as a 1.
- Any result of less than 1 (0.0, 0.2, 0.5, 0.8, etc.) is stored as a 1.
- Any numerical result in decimals (above 1) is rounded to the nearest integer (rounding up at .5).
- Any result reported as <X is stored as the next lowest integer—e.g., <4 is stored as 3.

Everywhere:

- Different labs using different methods of analysis have different detection limits.
- Different methods of analysis have different levels of precision.
- LeadCare analyzers (including LeadCare II) have a detection limit of 3.3. LeadCare results now account for nearly half? A third? Of all results statewide.
- Regardless of the method of analysis, the method of blood draw can be either venous or capillary. Capillary is considered a screening test, and any elevated capillary test should be confirmed with a venous test. In many cases, though, the venous test never occurs—either one or more repeat capillary tests are done, or the child never gets a second test of either type.
- This situation has been further confused since 2012, when the reference level went from 10 to 5. Even more capillary BLLs 5-9 go unconfirmed than those >=10.
- THE REFERENCE LEVEL FOR BLOOD LEAD IS "5" NOT "5.0."

Peeler, Nancy (DHHS)

From: Wells, Eden (DHHS)
Sent: Friday, October 02, 2015 7:42 PM
To: Scott, Robert L. (DHHS); Peeler, Nancy (DHHS); LyonCallo, Sarah (DHHS); Travis, Rashmi (DHHS); Miller, Corinne (DHHS)
Subject: Fwd: The requested file has been sent

You are a true rock star, Bob--- sorry for doing a little freak out- I am going to tape my fingers so I can't type emails anymore as my small brain is now rattling around.

I owe you all- and CHOCOLATE is due!

Sent from my iPhone

Begin forwarded message:

> **From:** "Scott, Robert L. (DHHS)" <ScottR9@michigan.gov>
> **Date:** October 2, 2015 at 7:36:19 PM EDT
> **To:** Mona Hanna-Attisha <MHanna1@hurleymc.com>, "Peeler, Nancy (DHHS)" <PeelerN@michigan.gov>, Jenny LaChance <JLachan1@hurleymc.com>, "Miller, Corinne (DHHS)" <MillerC39@michigan.gov>, "LyonCallo, Sarah (DHHS)" <lyoncallos@michigan.gov>, "McKane, Patricia (DHHS)" <McKaneP@michigan.gov>
> **Cc:** "Travis, Rashmi (DHHS)" <TravisR@michigan.gov>, "Wells, Eden (DHHS)" <WellsE3@michigan.gov>
> **Subject: Re: The requested file has been sent**
>
> Mona,
>
> The integers in your file are the values we have stored in our blood lead surveillance system; that's our current protocol.
>
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>
> Bob
>
> ---
>
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> **Sent:** Friday, October 2, 2015 5:24 PM
> **To:** Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); LyonCallo,

Sarah (DHHS); McKane, Patricia (DHHS)
Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
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All of your lead level results are single numbers with no decimals?? It's kinda weird. All of our lab data included decimals and there was also kids with <0.5 levels (undetectable).

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(I do understand that it's Friday. Sorry.)

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Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
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Whew... Have a good weekend all!

Sent from my iPhone

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> **Date:** October 2, 2015 at 7:23:14 PM EDT
> **To:** "Wells, Eden (DHHS)" <WellsE3@michigan.gov>
> **Subject: Re: The requested file has been sent**
>
> It's ok, Eden. We can wait until Monday to get more info/clarification. Thanks so much for everything.
>
> Mona Hanna-Attisha MD MPH FAAP
> Director, Pediatric Residency Program
> Hurley Children's Hospital
> Michigan State University
>
> On Oct 2, 2015, at 7:16 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:
>
>> Hi Mona! Glad Bob got back to you- question: are you planning to work on this all weekend- if so I will advise Bob and Nancy
>>
>> Sent from my iPhone
>>
>> On Oct 2, 2015, at 6:45 PM, Mona Hanna-Attisha <MHanna1@hurleymc.com> wrote:
>>
>>> Is there a way to get the original non-rounded numbers?
>>>
>>> Mona Hanna-Attisha MD MPH FAAP
>>> Director, Pediatric Residency Program
>>> Hurley Children's Hospital
>>> Michigan State University
>>>
>>> On Oct 2, 2015, at 6:43 PM, Scott, Robert L. (DHHS) <ScottR9@michigan.gov> wrote:
>>>
>>>> We round up from .5 and round down from .4
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To: Mona Hanna-Attisha; Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); McKane, Patricia (DHHS)
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You are correct that lead level results in the file you received are rounded (i.e., no decimal places). The data set we are using in epidemiology (which is the same type of file Mr. Scott would have pulled from the data warehouse for you) contains values from 1 to 49. Are you seeing the 10 and above levels?

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Program Director Pediatric Residency
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Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

<image001.jpg>

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Importance: High

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Today is Bob's scheduled day off. He came in to prepare and send the file, but has left for the rest of the day. I will see if I can reach him to find out what step to take to get you access to the data.

Can you give me any more detail that I can share with him, if I can reach him? It sounds like you did receive the email with the file attached, and the password (I assume via fax). If those two pieces are in place, is the issue that it won't 'unzip'?

Nancy Peeler, Manager
Early Childhood Health Section

From: Mona Hanna-Attisha
[mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 2:59 PM
To: Scott, Robert L. (DHHS); Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent

We are unable to open the file that you sent. Can you try to send again or let us know how to open it another way. Thanks! We were really hoping to review today. thanks!

From: Scott, Robert L. (DHHS)
[mailto:ScottR9@michigan.gov]
Sent: Friday, October 02, 2015 1:32 PM
To: Mona Hanna-Attisha; Jenny LaChance
Cc: Peeler, Nancy (DHHS); Travis, Rashmi (DHHS)
Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

<image001.jpg>

Peeler, Nancy (DHHS)

From: LyonCallo, Sarah (DHHS)
Sent: Friday, October 02, 2015 6:13 PM
To: Mona Hanna-Attisha; Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); McKane, Patricia (DHHS)
Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject: RE: The requested file has been sent

Dr. Hanna-Attisha,
I got your email and am working on an answer for you.
Sarah

Sarah Lyon-Callo, MA, MS
Director, Lifecourse Epidemiology and Genomics Division
Bureau of Disease Control, Prevention and Epidemiology
Population Health and Commmunity Services Administration
Michigan Department of Health and Human Services
201 Townsend St., 4th Floor Capitol View Building
PO Box 30195
Lansing, MI 48909
PH: 517-335-9315

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From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 5:25 PM
To: Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance; Miller, Corinne (DHHS); LyonCallo, Sarah (DHHS); McKane, Patricia (DHHS)
Cc: Travis, Rashmi (DHHS); Wells, Eden (DHHS)
Subject: RE: The requested file has been sent

Quick question:
We have the data and are starting to geocode it!
All of your lead level results are single numbers with no decimals?? It's kinda weird. All of our lab data included decimals and there was also kids with <0.5 levels (undetectable).

Does your lead data just not have decimals? Do numbers get round up or round down?

Thanks! Mona

(I do understand that it's Friday. Sorry.)

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From: Peeler, Nancy (DHHS) [mailto:PeelerN@michigan.gov]
Sent: Friday, October 02, 2015 3:07 PM
To: Mona Hanna-Attisha; Scott, Robert L. (DHHS); Jenny LaChance
Cc: Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent
Importance: High

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Early Childhood Health Section

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Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Peeler, Nancy (DHHS)
Sent: Friday, October 02, 2015 3:47 PM
To: Mona Hanna-Attisha
Subject: RE: The requested file has been sent

I understand that Bob is putting you in touch with our program staff person, Jessica Cooper, to set up the SSO page.

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 3:23 PM
To: Peeler, Nancy (DHHS)
Subject: RE: The requested file has been sent

Sorry to have to bother him. Maybe we can try the Michigan's Single Sign-On page way.

From: Peeler, Nancy (DHHS) [mailto:PeelerN@michigan.gov]
Sent: Friday, October 02, 2015 3:22 PM
To: Mona Hanna-Attisha; Scott, Robert L. (DHHS); Jenny LaChance
Cc: Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent

I left a message for Bob, in the event that he might be able to shed more light on this.

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Friday, October 02, 2015 3:16 PM
To: Peeler, Nancy (DHHS); Scott, Robert L. (DHHS); Jenny LaChance
Cc: Travis, Rashmi (DHHS)
Subject: RE: The requested file has been sent

Yes, we got the fax, but the attachment was the below:

McAfee®

Protected Archive Detected

A password-protected file could not be scanned.

See your system administrator for further information.

Copyright © 1993-2015 McAfee, Inc.
All Rights Reserved.
http://www.mcafee.com

From: Peeler, Nancy (DHHS) [mailto:PeelerN@michigan.gov]
Sent: Friday, October 02, 2015 3:07 PM
To: Mona Hanna-Attisha; Scott, Robert L. (DHHS); Jenny LaChance
Cc: Travis, Rashmi (DHHS)

Subject: RE: The requested file has been sent
Importance: High

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Early Childhood Health Section

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Subject: The requested file has been sent

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

Peeler, Nancy (DHHS)

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Friday, October 02, 2015 10:48 AM
To: Scott, Robert L. (DHHS); MDHHS-IRB; Jenny LaChance
Cc: Travis, Rashmi (DHHS); Peeler, Nancy (DHHS)
Subject: RE: MDHHS IRB Approval - 201509-11-EA

Thanks Bob. We will go with option 2.

The fax number here is 810-262-9736. Please include attn to me.

Much appreciated! Mona

From: Scott, Robert L. (DHHS) [mailto:ScottR9@michigan.gov]
Sent: Friday, October 02, 2015 10:27 AM
To: Mona Hanna-Attisha; MDHHS-IRB
Cc: Travis, Rashmi (DHHS); Peeler, Nancy (DHHS)
Subject: RE: MDHHS IRB Approval - 201509-11-EA

Mona,

I'm authorized to provide you with the file at 1:30 this afternoon. It can be delivered either of two ways:

1) I can post it to our secure FTP site on Michigan's Single Sign-On page. That's our usual method, but it would require a couple of minutes of your time to get signed up. I can send instructions in you wish.
2) I can send it by email as a zipped and encrypted attachment. You'd need WinZip and the password to unzip it. I could send the password to a fax number if you provide one.

Please let me know which you'd prefer.

A few words about the file:
It has 18,688 records, all blood lead results currently in our system for children less than five years of age at time of test, with address listed as Genesee County, with specimen date from 1/1/2013 to 9/15/2015.

The fields are Child ID (unique to each child), date of birth, specimen date, house number, street name, patient city, patient zip code, pb result, sample type (V-venous, C-capillary or blank-unknown), gender code (M, F, or blank), county, and serial number (a unique ID for each record).

The file format is tab-delimited text.

I think that's everything, but if you have questions after reviewing the file, please let me know.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Thursday, October 01, 2015 5:52 PM
To: MDHHS-IRB <MDHHS-IRB@michigan.gov>
Cc: Scott, Robert L. (DHHS) <ScottR9@michigan.gov>; Travis, Rashmi (DHHS) <TravisR@michigan.gov>
Subject: Re: MDHHS IRB Approval - 201509-11-EA

Thank you for the rapid approval.

Bob please let me know how I can get the data.

Mona Hanna-Attisha MD MPH FAAP
Director, Pediatric Residency Program
Hurley Children's Hospital
Michigan State University

On Oct 1, 2015, at 5:48 PM, MDHHS-IRB <MDHHS-IRB@michigan.gov> wrote:

> Please see the attached determination notice indicating MDHHS IRB approval of your research project for a period of 1 year. A hard copy of this notice will be provided to the Responsible MDHHS Employee. This IRB approval is for the study protocol, IRB application, and the most recent version of study documents in the form submitted to the IRB. Please see the comment section of the determination notice for specific requirements or additional details (if any) related to this approval. Any changes to the protocol or approved study documents must be reviewed and approved by the MDHHS IRB prior to implementation unless those changes are necessary to eliminate apparent immediate hazards to study subjects.
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>
> Don't hesitate to contact the MDHHS IRB with any questions or concerns.
>
> Ian A. Horste, MPH
> Institutional Review Board Administrator/Chair
> Michigan Department of Health and Human Services
> 517-241-0806
> www.michigan.gov/irb
>
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>
> <201509-11-EA.pdf>

Peeler, Nancy (DHHS)

From: Wells, Eden (DHHS)
Sent: Friday, October 02, 2015 10:01 AM
To: Travis, Rashmi (DHHS)
Cc: Peeler, Nancy (DHHS); Fink, Brenda (DHHS); Colston, Leslie (DHHS)
Subject: RE: TIME SENSITIVE:: MDHHS IRB Approval - 201509-11-EA

Good to go at 1:30

From: Travis, Rashmi (DHHS)
Sent: Friday, October 02, 2015 6:31 AM
To: Wells, Eden (DHHS)
Cc: Peeler, Nancy (DHHS); Fink, Brenda (DHHS); Colston, Leslie (DHHS)
Subject: Re: TIME SENSITIVE:: MDHHS IRB Approval - 201509-11-EA

Eden
Ok we will wait. Please let us know status after the press conference in ok to share data.
Thanks
Rashmi

Sent from my iPhone

On Oct 1, 2015, at 8:20 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:

> Governor's Communication Plan states data not to be shared with HURLEY/LHD until I call her/them before 1:30 press conference(about 1 PM) Once Press conference starts at 1:30, that would be fine, I would think!!!!!
>
> ---
>
> **From:** Peeler, Nancy (DHHS)
> **Sent:** Thursday, October 1, 2015 6:20 PM
> **To:** Wells, Eden (DHHS)
> **Cc:** Travis, Rashmi (DHHS); Fink, Brenda (DHHS); Colston, Leslie (DHHS)
> **Subject:** FW: MDHHS IRB Approval - 201509-11-EA
>
> Hi – the IRB approval for Hurley came through late today (5:48pm), and they are asking for the data file (5:52pm).
>
> Dr. Wells, you asked us to coordinate with you on this request, look forward to hearing back from you about next steps.
>
> Nancy
>
> ---
>
> **From:** Scott, Robert L. (DHHS)
> **Sent:** Thursday, October 01, 2015 6:05 PM
> **To:** Peeler, Nancy (DHHS)
> **Subject:** FW: MDHHS IRB Approval - 201509-11-EA

FYI

From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Thursday, October 01, 2015 5:52 PM
To: MDHHS-IRB <MDHHS-IRB@michigan.gov>
Cc: Scott, Robert L. (DHHS) <ScottR9@michigan.gov>; Travis, Rashmi (DHHS) <TravisR@michigan.gov>
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<201509-11-EA.pdf>

Peeler, Nancy (DHHS)

From: Travis, Rashmi (DHHS)
Sent: Friday, October 02, 2015 6:34 AM
To: Peeler, Nancy (DHHS)
Cc: Fink, Brenda (DHHS); Colston, Leslie (DHHS)
Subject: Re: MDHHS IRB Approval - 201509-11-EA

Nancy
Please let Corinne and staff know with a cc to me. Sounds like we are in s holding pattern as per instructions with Gov office. Let Corrine know that too. I will let you know when we hear further action from Eden.
Thanks
Rashmi

Sent from my iPhone

On Oct 1, 2015, at 6:37 PM, Peeler, Nancy (DHHS) <PeelerN@michigan.gov> wrote:

> Rashmi, do you want me to check with Corinne and 'all' – or is that something you want to do?
>
> We were asked to coordinate with Dr. Wells, Geralyn Lasher and Angela Minicuci were also on the phone at that time, and Dr. Wells is now including Corinne and I assume her Epi partners.
>
> ---
>
> **From:** Wells, Eden (DHHS)
> **Sent:** Thursday, October 01, 2015 6:34 PM
> **To:** Peeler, Nancy (DHHS)
> **Cc:** Travis, Rashmi (DHHS); Fink, Brenda (DHHS); Colston, Leslie (DHHS)
> **Subject:** Re: MDHHS IRB Approval - 201509-11-EA
>
> Share tomorrow if ok by with all including Corinne
>
> Sent from my iPhone
>
> On Oct 1, 2015, at 6:20 PM, Peeler, Nancy (DHHS) <PeelerN@michigan.gov> wrote:
>
>> Hi – the IRB approval for Hurley came through late today (5:48pm), and they are asking for the data file (5:52pm).
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<201509-11-EA.pdf>

Peeler, Nancy (DHHS)

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 6:16 PM
To: Peeler, Nancy (DCH)
Subject: Re: TIME SENSITIVE: Fw: Discrepencies

Sorry, just realized I had only replied to you, so looped all in on my response later...If Geralyn wants, I have no quibble! And really, thank you!!

From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 6:01 PM
To: Wells, Eden (DCH)
Subject: RE: TIME SENSITIVE: Fw: Discrepencies

Many cooks in the kitchen, all doing their best. So should we respond to Geralyn's request?

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 6:00 PM
To: Peeler, Nancy (DCH)
Subject: Re: TIME SENSITIVE: Fw: Discrepencies

Sorry, that was my bad...which is one of the problems---lots of people doing different analyses.

Thanks for the info, I will forward to her!

Eden

From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 3:53 PM
To: Wells, Eden (DCH)
Cc: Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH); Scott, Robert L. (DCH)
Subject: RE: TIME SENSITIVE: Fw: Discrepencies

Bob went back and looked at his numbers.

For the first chart, with the elevated blood lead levels, he found one number in the 2014-2015 row that changed, and he confirmed that the data in the later version was correct (the version dated September 23).

In the second chart, showing testing numbers, use the one dated September 23rd. That chart shows unduplicated tests (e.g. one test per child, per month), whereas the previous version did count some 'duplicate' tests.

I have copied Bob on this email, in case you have further questions.

I'd also like to ask for clarification on one of Geralyn's earlier emails today; Bob (CLPPP) had produced these descriptive charts – but it looked like Dr. Wells is asking Corinne to do that instead of CLPPP (it was a request to re-do the chart with

only younger children included). Trying not to duplicate efforts, so please clarify if you would like us to do that, or someone else. Thanks!

Nancy

From: Wells, Eden (DCH)
Sent: Tuesday, September 29, 2015 3:11 PM
To: Peeler, Nancy (DCH)
Cc: Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Subject: Re: TIME SENSITIVE: Fw: Discrepencies

fantastic, thanks!!

From: Peeler, Nancy (DCH)
Sent: Tuesday, September 29, 2015 3:04 PM
To: Wells, Eden (DCH)
Cc: Miller, Corinne (DCH); Lasher, Geralyn (DCH); Hertel, Elizabeth (DCH)
Subject: Re: TIME SENSITIVE: Fw: Discrepencies

I'll connect with him shortly, and we'll get back to you.

Sent from my iPad

On Sep 29, 2015, at 2:41 PM, Wells, Eden (DCH) <WellsE3@michigan.gov> wrote:

> HI Nancy,
>
> I do not have Bob's email, so if you cam talk to him; however, I got a request from Dr. Hanna-Attisha at Hurley today as to why the 2014-2015 may differ in the 2 pdf's she attached (received 9/15 and 9/25). FYI, she stated that Bob is great to work with.
>
> However, due to different numbers and analyses and such flying around in the last 24 hours, please respond back to me ASAP regarding the discrepancies, and I can relay to her.
>
> Thank you!
>
> Eden
>
> Eden V. Wells, MD, MPH, FACPM
> Chief Medical Executive
> Michigan Department of Health and Human Services
> 201 Townsend Street, 5th Floor CVB
> Lansing, MI 48913
> Phone: 517-335-8011
> wellse3@michigan.gov

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 1:07 PM

To: Wells, Eden (DCH)
Subject: FW: Discrepencies

Dr Wells, in regards to the discrepancy noted in state data. Attached are two PDF files that were sent regarding the state lead numbers.

The original PDF was sent on 9/15/15 to Dr Reynolds from Bob Scott from MDHHS's Childhood Lead Poisoning Prevention Program and the updated PDF was sent to me from Bob Scott last Friday.

The attached excel database (that I created) has two tabs that include the original and updated numbers. Yellow highlights are all the numbers that changed. It is very strange how many of the numbers have changed. I'm not sure if the updated numbers tried to refine the location to Flint proper???

The analyses of the data does not change very much (when you look at total annual EBL%) - there has been a statistically significant increase in EBL% since water change (2014-2015) where every year prior there has been a decrease (as has happened nationally). And this does not even include the fact that the data is not scientific – wrong age range and missing lots of EBLS by using first time lead analysis rather than highest lead.

Just thought the discrepancy was odd.

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

<Flint Testing and EBLLs_updated 092315_with notes (2).pdf>

<Flint Testing and EBLLs (4).pdf>

<STATELEADDATA with original and updated numbers.xlsx>

Peeler, Nancy (DHHS)

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Wednesday, September 23, 2015 10:58 AM
To: Scott, Robert L. (DCH)
Cc: Lawrence Reynolds; Peeler, Nancy (DCH)
Subject: RE: IRBNet Board Action

Thank you. Greatly appreciated!

From: Scott, Robert L. (DCH) [ScottR9@michigan.gov]
Sent: Wednesday, September 23, 2015 10:56 AM
To: Mona Hanna-Attisha
Cc: Lawrence Reynolds; Peeler, Nancy (DCH)
Subject: RE: IRBNet Board Action

I will ASAP, but still trying to get caught up after being away.

-----Original Message-----
From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Wednesday, September 23, 2015 10:55 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Lawrence Reynolds <lrey52@gmail.com>; Peeler, Nancy (DCH) <PeelerN@michigan.gov>
Subject: RE: IRBNet Board Action

Thanks. Will do today.

Are you able to look at EBL % as was previously done for the more recent months and for kids less than 5yr?

Mona Hanna-Attisha MD MPH

Director, Pediatric Residency Program

Hurley Children's Hospital at Hurley Medical Center

Assistant Professor, Department of Pediatrics and Human Development

Michigan State University College of Human Medicine

Office: 810-262-7257

mhanna1@hurleymc.com

From: Scott, Robert L. (DCH) [ScottR9@michigan.gov]

Sent: Wednesday, September 23, 2015 10:53 AM
To: Mona Hanna-Attisha
Cc: Lawrence Reynolds; Peeler, Nancy (DCH)
Subject: RE: IRBNet Board Action

Mona,

I'll be happy to help with this. We'll need you to submit a DCH-1294 Data Use Agreement (attached) and an IRB Initial Review Application - Abbreviated for review by the MDHHS IRB. The latter is available at Michigan.gov/irb under "Information for New Applications." (The "Abbreviated" application is used whenever another IRB has already approved the project.) Please complete each of the two documents as far as you can, and send to me unsigned, as Word documents. I'll fill in the rest, and will send the DUA to our Legal department and the IRB app to our IRB contact. I'll ask each of them for as quick a review as possible.

Please let me know if you have questions.

Bob

Robert L. Scott
Childhood Lead Poisoning Prevention Program Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

-----Original Message-----
From: Mona Hanna-Attisha [mailto:MHanna1@hurleymc.com]
Sent: Wednesday, September 16, 2015 3:10 PM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>
Cc: Lawrence Reynolds <lrey52@gmail.com>
Subject: FW: IRBNet Board Action

Bob, I just received IRB approval to look at the City of Flint blood lead levels. I would love to get the raw data if that is possible. Attached is my study proposal and the IRB approval.

Specific fields that we are looking for include:
MCIR ID or some sort of identifier to ensure first time lead level only Zip code Date of Birth Date of Blood lead level Lead level

Would greatly appreciate your assistance! Thanks!

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center Michigan State University College of Human Medicine Department of Pediatrics and Human Development Mhanna1@hurleymc.com

-----Original Message-----
From: Nicolas Lecea [mailto:no-reply@irbnet.org]
Sent: Wednesday, September 16, 2015 2:09 PM
To: Jenny LaChance; Mona Hanna-Attisha
Subject: IRBNet Board Action

Please note that Hurley Medical Center Institutional Review Board has taken the following action on IRBNet:

Project Title: [807433-1] Analysis of Pediatric Blood Lead Levels Principal Investigator: Mona Hanna-Attisha, MD MPH

Submission Type: New Project
Date Submitted: September 15, 2015

Action: APPROVED
Effective Date: September 16, 2015
Review Type: Expedited Review

Should you have any questions you may contact Nicolas Lecea at nlecea1@hurleymc.com.

Thank you,
The IRBNet Support Team

www.irbnet.org

Peeler, Nancy (DHHS)

From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 22, 2015 10:12 PM
To: Scott, Robert L. (DCH); Lawrence Reynolds; Laura Carravallah; Dr. Lawrence Reynolds, M.D.; MVALACAK@gchd.us; Hallwood, Dawn; Henry, James; Jenny LaChance; Holtrop, Teresa
Cc: Peeler, Nancy (DCH); Lishinski, Karen (DCH); Emily Houk (emily@r2pconsultants.com)
Subject: RE: Lead level data
Attachments: Pediatric Lead Exposure Flint Water.pdf

Bob,

I hope you are well and back in the office. Since we have been unable to obtain recent MCIR blood lead data for Flint kids in response to the lead in water concerns, we looked at all the blood lead levels that were processed through Hurley Medical Center from Jan 1, 2013. It turns out that most providers in Genesee county run their leads through our institution. Attached is a presentation that includes our striking pre-water switch (2013) and post-water switch results (2015) for kids less than 5years living in the city of Flint (2.1% EBL to 4.0% EBL). Our pre and post periods included the same months considering the expected seasonal summer increase in lead levels. The results are most concerning for the kids that live in the zip codes where the water lead levels were found to be the highest (2.5% EBL to 6.3% EBL). No statistical change in %EBL for kids out of the city. Similar results were seen for kids less than 15 months. (Please do not share the presentation.)

Our sample size was large and our results were statistically significant; and we followed the same research methods conducted in the literature for similar lead exposures (most notably the DC lead in water issue). However, an even larger sample size which includes MCIR lead data would be very helpful as we continue to advocate for primary prevention. If we do have the MCIR data, for consistency and comparability to published research, we would like to conduct the analysis the same way as our above research. I am available via email or phone (cell [redacted]) if you have any questions about our data/methods/results and how best to move forward.

Thanks so much! Mona

Mona Hanna-Attisha MD MPH FAAP

Director, Pediatric Residency Program

Hurley Children's Hospital at Hurley Medical Center

Assistant Professor, Department of Pediatrics and Human Development

Michigan State University College of Human Medicine

Office: 810-262-7257

mhanna1@hurleymc.com

From: Mona Hanna-Attisha
Sent: Wednesday, September 16, 2015 11:28 AM

To: 'Scott, Robert L. (DCH)'; Lawrence Reynolds; Laura Carravallah; Dr. Lawrence Reynolds, M.D.
Cc: Peeler, Nancy (DCH); Lishinski, Karen (DCH); Emily Houk (emily@r2pconsultants.com)
Subject: RE: Lead level data

Thanks Bob for your willingness to get us this data!

At Hurley Children's Hospital, we have run similar analysis of BLL for all kids 5 and under, and then a focus on kids 15 months and under, with first time lead levels starting from 01/01/2013 to date of water source change 04/25/14 and then compared one year after water switch 4/25/15 to current. We looked at the change in mean BLL and the change in the % of EBL. Our sample size is representative of the high risk City of Flint population (zip codes 48501-48507), yet the sample size would be much greater with your MCIR data. To have more data will greatly help us advocate for prevention and educate our families.

Thank you in advance!

Mona Hanna-Attisha MD MPH FAAP
Program Director Pediatric Residency
Hurley Children's Hospital at Hurley Medical Center
Michigan State University College of Human Medicine
Department of Pediatrics and Human Development
Mhanna1@hurleymc.com

From: Scott, Robert L. (DCH) [mailto:ScottR9@michigan.gov]
Sent: Wednesday, September 16, 2015 10:48 AM
To: Lawrence Reynolds; Mona Hanna-Attisha; Laura Carravallah; Dr. Lawrence Reynolds, M.D.
Cc: Peeler, Nancy (DCH); Lishinski, Karen (DCH); Emily Houk (emily@r2pconsultants.com); Scott, Robert L. (DCH)
Subject: RE: Lead level data

Dr. Reynolds,

I'll be happy to slice up the data in that way, including the most recent months available. I'll be out of the office for the next few days, but will work on it when I get back.

It's my understanding that the State will develop a fact sheet as well as a tip sheet on lead-safe water use for parents. I'm not sure how they'll be made public.

Thanks,
Bob

Robert L. Scott

Childhood Lead Poisoning Prevention Program
Michigan Department of Health & Human Services
(517) 335-8178
fax (517) 335-8509

From: Lawrence Reynolds [mailto:lrey52@gmail.com]
Sent: Wednesday, September 16, 2015 10:31 AM
To: Scott, Robert L. (DCH) <ScottR9@michigan.gov>; Mona Hanna-Attisha <MHanna1@hurleymc.com>; Laura Carravallah <lcarrav1@yahoo.com>; Dr. Lawrence Reynolds, M.D. <reynolds@mottchc.org>
Subject: Lead level data

Good morning Mr. Scott .
Thank you for your timely response.I have reviewed the graphs with our GCHD and Dr. Mona Hanna-Attisha of Hurley.Is it possible to stratify the data by age -under 15 months, 16 months to under 6 years of age , over 6 years.Also can we get the most recent data for 2015.
At this point we will work with our patients to educate them.
Breast feeding is first choice .
I understand different filters do different things for lead , and not all get lead clumps from leaching pipes so we will not emphasize them.
We will try to get WIC to cover bottled water and encourage using water from outside the city system
Our goal is to give the most consistent correct information.
Are there any plans for public service announcements from the state ?
I am asking you to cc my reynolds@mottchc.org email along with lrey52@ gmail so I can access from anywhere.
--
Lawrence Reynolds

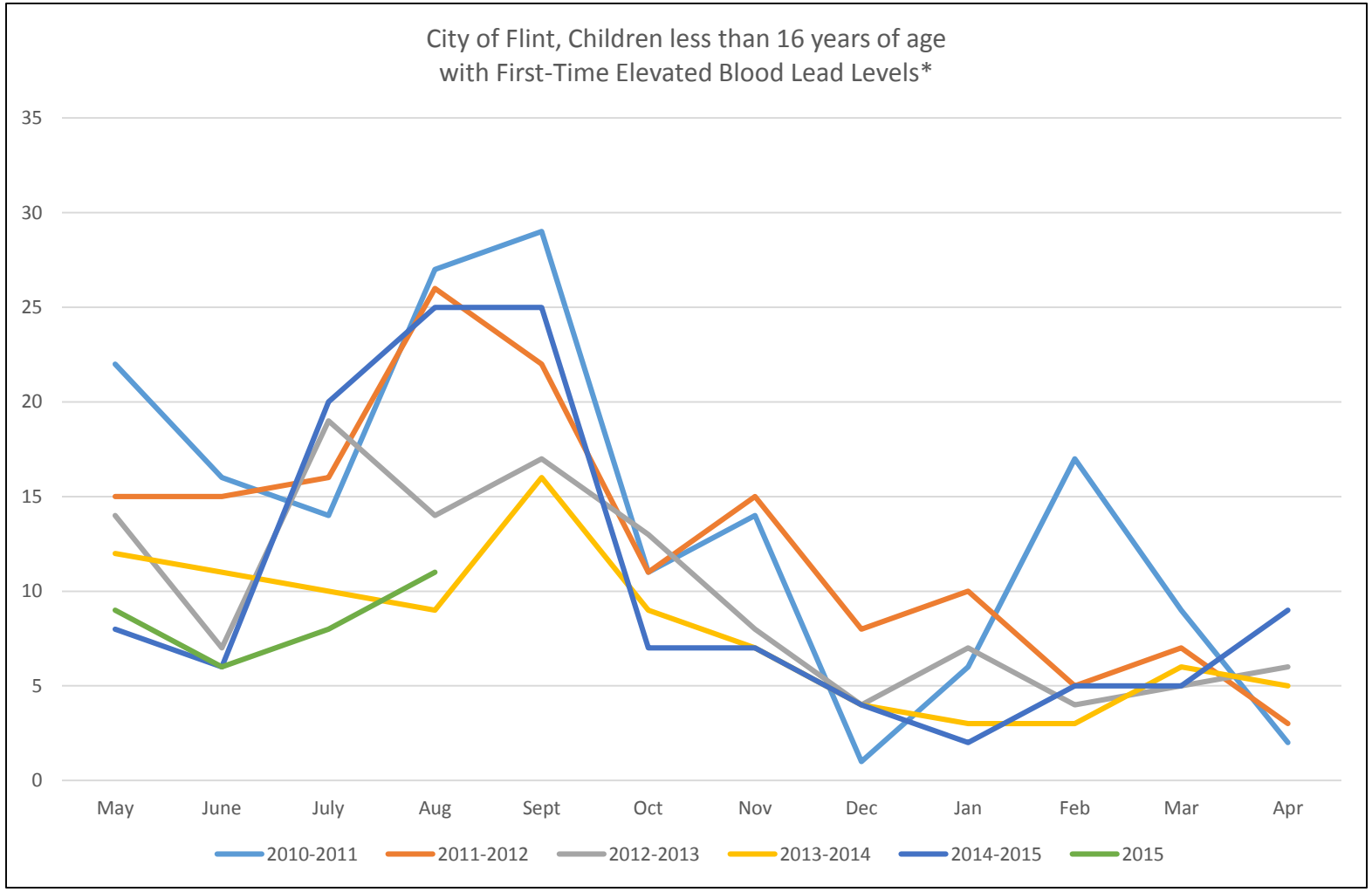
Additional analyses are needed to better understand how results are received and processed in the data warehouse (we are finding true duplicates, duplicates reported on subsequent report dates, long interval between specimen date and report date, and we aren't finding as many children receiving follow-up testing as we would expect, but may need to lengthen our time frame to look for them).

Talking Points:

- Rates of positive lead tests (greater than or equal to 5 mcg/dl) vary over time partly due to small numbers and seasonal fluctuation.
- Shortly after the 2010 quarters rates were below the state 5 year average in most Flint zip codes.
- Beginning in Quarter 3 of 2014 rates increased in all Flint zip codes except 48507
- In Q1 2015 rates decreased, but begin rising and are highest in Q3 of 2015 in zip codes 48503 and 48504.
- Data for Q4 2015 is incomplete and based on tests drawn after October 1, with results reported to and processed in the MDHHS data warehouse. Data from this quarter should not be used for comparison until the quarter is complete.

Blood Lead Testing of Children in Flint, Before and After the Change in Flint's Water

- The change in Flint's water source occurred in April 2014. MDHHS looked at children's blood lead levels (BLL) before and after this event.
- The dark blue line (May 2014 – April 2015) and the green line (May-August 2015) reflect children's blood lead tests after the change. All other lines reflect tests before the change.
- An increase in childhood lead poisoning in summer (July, August, September) is typical throughout Michigan every year.
- While there is a dramatic difference between the numbers of elevated BLL in the summer before and after the event, a wider look that includes data back to 2010 shows that the year BEFORE the event (the yellow line) was more of an anomaly than the year after (the dark blue line).
- If elevated BLL were being driven by the change in water, we would expect the dark blue line to stay high rather than follow the seasonal pattern.
- All data included in this analysis were reported by laboratories directly to MDHHS, in accordance with State law.



*This graph includes:

Children whose address is listed as "Flint"--may not conform exactly to Flint city limits

Children less than 16 years of age at time of test

Only first-time blood lead levels >= 5 ug/dL

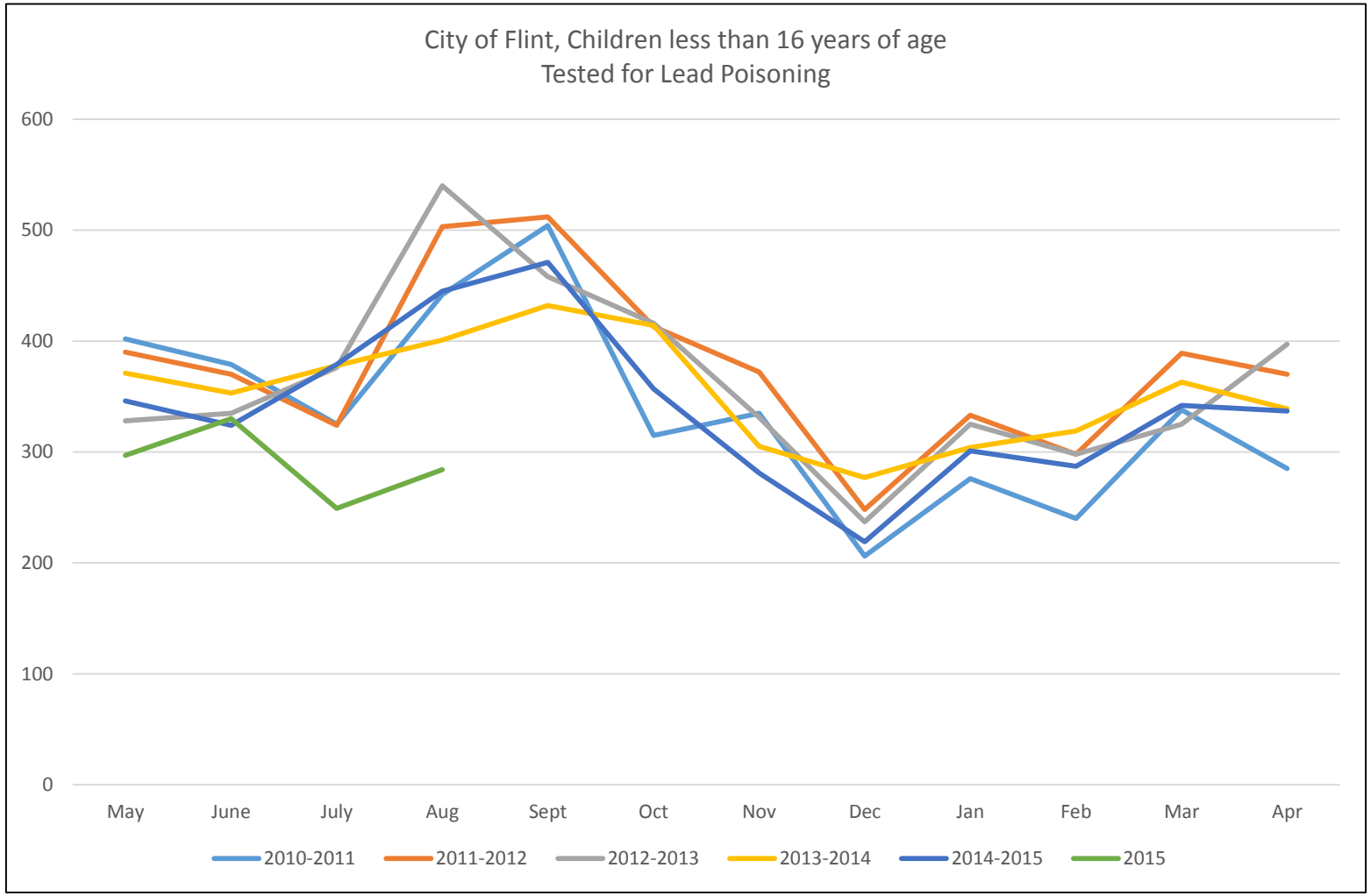
All first-time elevated levels, regardless of sample type (venous, capillary or unknown)

September 24, 2015

Source: MDHHS Data Warehouse, Lead Specimen table

Blood Lead Testing of Children in Flint, Before and After the Change in Flint's Water

- Blood lead testing (regardless of elevated levels) also tends to rise during late summer (August, September, October).
- This graph shows that testing in Flint has remained fairly steady over the last five years, except for a recent decline(May – August 2015).



*This graph includes:

Children whose address is listed as "Flint"--may not conform exactly to Flint city limits

Children less than 16 years of age at time of test

The number of children tested within each month.

Some children are tested more than once, and may be included in more than one month or year.

September 24, 2015

Source: MDHHS Data Warehouse, Lead Specimen table

Blood Lead Levels in Flint Talking Points
October 1, 2015

- Initial analysis of MDHHS data found that blood lead levels (BLLs) of children in Flint have followed an expected seasonal trend; due to small numbers further analysis was initiated.
- While this analysis of blood lead levels in Flint as a whole remains true, after a comprehensive and detailed review down to the zip code level, we have found that the state analysis is consistent with that presented by Hurley.
- Director Lyon is working closely with DEQ and the administration to take active steps to reduce all potential lead exposures in Flint, and across the state.
- Our Chief Medical Executive has been in communication with the lead investigator at Hurley Children's Hospital, and we continue to work with Hurley, the city of Flint, local and state leaders to verify and analyze data trends.
- Zip code-level data does show that there has been an increase in elevated childhood blood lead levels in specific communities.
  - This does not conclusively mean that the water source change is the sole cause of the increase, but data does show an association.
  - There is an increased proportion of children with elevated Blood Levels (ELBs) in several zip codes, particularly 03 and 04. These appear to have increased over the last 1.5 years.
  - Lead exposure can occur from a number of different sources (such as paint, gasoline, solder, and consumer products) and through different pathways (such as air, food, water, dust, and soil).
  - Although there are several exposure sources, lead-based paint is still the most widespread and dangerous high-dose source of lead exposure for young children in the US and Michigan.
- We reviewed MDHHS statewide data using the same methodology used by Hurley, looking at our numbers by zip code and age ranges, and filtering out non-Flint children.
- Routine surveillance of blood lead levels does not analyze data down to the zip code level. Detailed analysis like this occurs when there is reason to focus in on precise locations or populations.
- MDHHS will be working closely with the Michigan Department of Environmental Quality, Hurley Children's Hospital, the Genesee County Health Department, and community organizations to initiate further action steps.
- We understand that cost may be a barrier to following the recommendations of the local health department. We are actively working with public and private partners to make resources available to those who may need assistance.

- MDHHS is recommending that residents follow the Public Health Advisory issued by the Genesee County Health Department, as well as take further steps to reduce exposures to all forms of lead in and around their homes.

MDHHS Stats and Facts

- 'High Risk' Zip codes (48503 and 48504)
  - Blood lead level rates among children under six years of age in the high risk zip codes (48503, 48504) were 2.7 times higher than the rest of Genesee County before the switch to Flint River Water.
  - After the switch to Flint River Water, rates in the high risk Zip codes were 3.2 times that of the rest of Genesee County.
- Other Zip codes in Flint
  - Rates of elevated blood lead levels among children under six years of age in other parts of the city of Flint were 2 times that of the rest of Genesee County before the switch to Flint River Water.
  - The magnitude of the elevated rate remained roughly the same during the period after the water source switch.
- Lead abatement through MDHHS was federally funded up until FY14 when Michigan began providing additional funds to abate homes.
- In FY14, $1.25M General Fund was added. In FY15, General Fund was bumped up to $1.75M and FY16, General Fund remains at $1.75M.

Water Filters

- Our first action item is to work closely with our public and private partners to provide water filters to Flint residents and MDHHS clients.
- To meet this priority, the governor has identified one million dollars in state funding to purchase water filters for Flint residents.
- Given the questions and concerns regarding the change in water source in Flint, MDHHS has authorized the use of emergency services funding to provide water filters for MDHHS clients receiving assistance in the city of Flint.
- We are pursuing a plan for clients who are active Family Independence Program (FIP), Food Assistance Program (FAP), Child Development and Care (CDC), State Disability Assistance (SDA), State Disability Assistance (SDA), or Social Security Insurance (SSI) to that they can obtain filters that are National Sanitation Foundation (NSF) certified to remove lead and ANSI Standard 53.
- We are in discussions with local retailers and will share additional information about where residents can go to purchase filters as soon as those details have been finalized.

- MDHHS currently serves approximately 25,000 households in Flint.

Reducing and Removing Lead Exposure

- In housing built before 1978, it can be assumed that the paint has lead unless tests show otherwise.
- Make sure your child does not have access to peeling paint or chewable surfaces painted with lead-based paint.
- Children and pregnant women should not be present in housing built before 1978 that is undergoing renovation. They should not participate in activities that disturb old paint or in cleaning up paint debris after work is completed.
- Create barriers between living/play areas and lead sources. Until environmental clean-up is completed, you should clean and isolate all sources of lead.
    - Close and lock doors to keep children away from chipping or peeling paint on walls. You can also apply temporary barriers such as contact paper or duct tape, to cover holes in walls or to block children's access to other sources of lead.
- Regularly wash children's hands and toys. Hands and toys can become contaminated from household dust or exterior soil. Both are known lead sources.
- Regularly wet-mop floors and wet-wipe window components. Because household dust is a major source of lead, you should wet-mop floors and wet-wipe horizontal surfaces every 2-3 weeks.
    - Windowsills and wells can contain high levels of leaded dust. They should be kept clean. If feasible, windows should be shut to prevent abrasion of painted surfaces or opened from the top sash.
- Take off shoes when entering the house to prevent bringing lead-contaminated soil in from outside.
- Prevent children from playing in bare soil; if possible, provide them with sandboxes. Plant grass on areas of bare soil or cover the soil with grass seed, mulch, or wood chips, if possible.
    - Until the bare soil is covered, move play areas away from bare soil and away from the sides of the house. If you have a sandbox, cover the box when not in use to prevent cats from using it as a litter box. That will help protect children from exposure to animal waste.
- Avoid using makeup, containers, cookware, or tableware to store or cook foods or liquids that are not shown to be lead free.
- Remove recalled toys and toy jewelry immediately from children.
- Use only cold water from the tap for drinking, cooking, and making baby formula. Hot water is more likely to contain higher levels of lead. Most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.

- Shower and change clothes after finishing a task that involves working with lead-based products such as stained glass, making bullets, or using a firing range.

WIC Children

- There are 855 infants participating in WIC in Flint.
- We are working with partners at the United Way to ensure that WIC families have access to water filters and bottled water.
- In homes with infants on WIC, if the household has documentation from an official source of unsanitary water supply issues, that family may be eligible to receive ready-to-feed formula. Families should contact WIC to see if they are eligible.
- Each household would have to be looked at on an individual basis.
- WIC cannot cover bottled water.

Background

- The results of the Hurley Children's Hospital were reviewed by MDHHS after the study was released last week.
- The analysis that Hurley conducted was different from the initial MDHHS data regarding blood lead levels in Flint.
- MDHHS initial data looked at the entire blood lead levels for the Flint area for the past five years and showed the annual seasonal trends in the area.
- Seasonal exposure is higher in the summer for a variety of reasons including children playing outside in the soil, and when windows are open and lead paint is more likely to be in the air. Further, seasonal variations in water can occur due to changes in temperature, pH , and other factors

Blood Lead Levels in Flint Talking Points
October 5, 2015

- Initial analysis of MDHHS data found that blood lead levels (BLLs) of children in Flint have followed an expected seasonal trend; due to small numbers further analysis was initiated.
- While this analysis of blood lead levels in Flint as a whole remains true, after a comprehensive and detailed review down to the zip code level, we have found that the state analysis is consistent with that presented by Hurley.
- Director Lyon is working closely with DEQ and the administration to take active steps to reduce all potential lead exposures in Flint, and across the state.
- Our Chief Medical Executive has been in communication with the lead investigator at Hurley Children's Hospital, and we continue to work with Hurley, the city of Flint, local and state leaders to verify and analyze data trends.
- Zip code-level data does show that there has been an increase in elevated childhood blood lead levels in specific communities.
    - This does not conclusively mean that the water source change is the sole cause of the increase, but data does show an association.
    - There is an increased proportion of children with elevated Blood Levels (ELBs) in several zip codes, particularly 03 and 04. These appear to have increased over the last 1.5 years.
    - Lead exposure can occur from a number of different sources (such as paint, gasoline, solder, and consumer products) and through different pathways (such as air, food, water, dust, and soil).
    - Although there are several exposure sources, lead-based paint is still the most widespread and dangerous high-dose source of lead exposure for young children in the US and Michigan.
- We reviewed MDHHS statewide data using the same methodology used by Hurley, looking at our numbers by zip code and age ranges, and filtering out non-Flint children.
- Routine surveillance of blood lead levels does not analyze data down to the zip code level. Detailed analysis like this occurs when there is reason to focus in on precise locations or populations.
- MDHHS will be working closely with the Michigan Department of Environmental Quality, Hurley Children's Hospital, the Genesee County Health Department, and community organizations to initiate further action steps.
- We understand that cost may be a barrier to following the recommendations of the local health department. We are actively working with public and private partners to make resources available to those who may need assistance.

- MDHHS is recommending that residents follow the Public Health Advisory issued by the Genesee County Health Department, as well as take further steps to reduce exposures to all forms of lead in and around their homes.

MDHHS Stats and Facts

- 'High Risk' Zip codes (48503 and 48504)
    - Blood lead level rates among children under six years of age in the high risk zip codes (48503, 48504) were 2.7 times higher than the rest of Genesee County before the switch to Flint River Water.
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    - Rates of elevated blood lead levels among children under six years of age in other parts of the city of Flint were 2 times that of the rest of Genesee County before the switch to Flint River Water.
    - The magnitude of the elevated rate remained roughly the same during the period after the water source switch.
- Lead abatement through MDHHS was federally funded up until FY14 when Michigan began providing additional funds to abate homes.
- In FY14, $1.25M General Fund was added. In FY15, General Fund was bumped up to $1.75M and FY16, General Fund remains at $1.75M.

Water Filters

- Our first action item is to work closely with our public and private partners to provide water filters to Flint residents and MDHHS clients.
- To meet this priority, the governor identified one million dollars in state funding to purchase water filters for Flint residents.
- Free water filters are available to current Michigan Department of Health and Human Services clients and Flint residents at four locations:
    - Flint residents who are not current MDHHS clients should visit one of two Genesee County Community Action Resource Department offices to obtain a filter.
        - at 2727 Lippincott and 601 North Saginaw in Flint
    - Current MDHHS clients in the city of Flint should visit their local MDHHS office
        - At 125 E. Union St. or 4809 Clio Road
- Staff will be onsite at all four locations from 9 a.m. to 4 p.m., Monday through Friday, to distribute filters and assist residents who have questions about proper installation.

- Given the questions and concerns regarding the change in water source in Flint, MDHHS authorized the use of emergency services funding to provide water filters for MDHHS clients receiving assistance in the city of Flint.
- This funding will support active Family Independence Program (FIP), Food Assistance Program (FAP), Child Development and Care (CDC), State Disability Assistance (SDA), State Disability Assistance (SDA), or Social Security Insurance (SSI) recipients so that they can obtain filters that are National Sanitation Foundation (NSF) certified to remove lead and ANSI Standard 53.
- MDHHS currently serves approximately 25,000 households in Flint.

Reducing and Removing Lead Exposure

- In housing built before 1978, it can be assumed that the paint has lead unless tests show otherwise.
- Make sure your child does not have access to peeling paint or chewable surfaces painted with lead-based paint.
- Children and pregnant women should not be present in housing built before 1978 that is undergoing renovation. They should not participate in activities that disturb old paint or in cleaning up paint debris after work is completed.
- Create barriers between living/play areas and lead sources. Until environmental clean-up is completed, you should clean and isolate all sources of lead.
    - Close and lock doors to keep children away from chipping or peeling paint on walls. You can also apply temporary barriers such as contact paper or duct tape, to cover holes in walls or to block children's access to other sources of lead.
- Regularly wash children's hands and toys. Hands and toys can become contaminated from household dust or exterior soil. Both are known lead sources.
- Regularly wet-mop floors and wet-wipe window components. Because household dust is a major source of lead, you should wet-mop floors and wet-wipe horizontal surfaces every 2-3 weeks.
    - Windowsills and wells can contain high levels of leaded dust. They should be kept clean. If feasible, windows should be shut to prevent abrasion of painted surfaces or opened from the top sash.
- Take off shoes when entering the house to prevent bringing lead-contaminated soil in from outside.
- Prevent children from playing in bare soil; if possible, provide them with sandboxes. Plant grass on areas of bare soil or cover the soil with grass seed, mulch, or wood chips, if possible.
    - Until the bare soil is covered, move play areas away from bare soil and away from the sides of the house. If you have a sandbox, cover the box when not in

use to prevent cats from using it as a litter box. That will help protect children from exposure to animal waste.

- Avoid using makeup, containers, cookware, or tableware to store or cook foods or liquids that are not shown to be lead free.
- Remove recalled toys and toy jewelry immediately from children.
- Use only cold water from the tap for drinking, cooking, and making baby formula. Hot water is more likely to contain higher levels of lead. Most of the lead in household water usually comes from the plumbing in your house, not from the local water supply.
- Shower and change clothes after finishing a task that involves working with lead-based products such as stained glass, making bullets, or using a firing range.

WIC Children

- There are 855 infants participating in WIC in Flint.
- We are working with partners at the United Way to ensure that WIC families have access to water filters and bottled water.
- In homes with infants on WIC, if the household has documentation from an official source of unsanitary water supply issues, that family may be eligible to receive ready-to-feed formula. Families should contact WIC to see if they are eligible.
- Each household would have to be looked at on an individual basis.
- WIC cannot cover bottled water.

Background

- The results of the Hurley Children's Hospital were reviewed by MDHHS after the study was released last week.
- The analysis that Hurley conducted was different from the initial MDHHS data regarding blood lead levels in Flint.
- MDHHS initial data looked at the entire blood lead levels for the Flint area for the past five years and showed the annual seasonal trends in the area.
- Seasonal exposure is higher in the summer for a variety of reasons including children playing outside in the soil, and when windows are open and lead paint is more likely to be in the air. Further, seasonal variations in water can occur due to changes in temperature, pH , and other factors

MDcH
9/24

Blood Lead Levels in Flint Talking Points
September 24, 2015

- The results of the Hurley Children's Hospital are under review by the Michigan Department of Health and Human Services.
- The analysis that Hurley conducted is different from the way MDHHS has analyzed data regarding blood lead levels in Flint.
- MDHHS is looking to see if we can replicate the results of the Hurley study to see how they achieved their results.

Differences in Analysis

- MDHHS data provides a much more robust picture of the entire blood lead levels for the Flint area, and specifically, accounts for data over the full course of the past five years.
- Looking at the past five years as a whole provides a much more accurate look at the seasonal trends of lead in the area.
- Seasonal exposure is higher in the summer for a variety of reasons including children playing outside in the soil, and when windows are open and lead paint is more likely to be in the air. This seasonal increase would be unrelated to the water system.
- Our data includes children from the entire city, including all medical facilities, rather than just Hurley, has a larger age group of children, and includes a much larger sample size.
- The MDHHS analysis looks specifically at the first elevated blood lead level for each child, which provides an accurate picture of when first exposure occurred.
- The Hurley data includes a smaller sample size, much more limited time period (January-September of 2013 and 2015 only), and a smaller age group of children.

WIC Children

- In homes with infants on WIC, if the household has documentation from an official source of unsanitary water supply issues, that family may be eligible to receive ready-to-feed formula.
- Each household would have to be looked at on an individual basis.
- Families should contact WIC to see if they are eligible.
- WIC cannot cover bottled water.

Lead in City of Flint Drinking Water Briefing Document
Prepared by
Dr. Linda D Dykema

<u>The purpose of the city of Flint water sampling is to determine compliance with the drinking water regulations for lead.</u>

- There is no health-based Maximum Contaminant Level (MCL) for lead.
- Lead enters drinking water in the distribution system from corrosion of lead-containing supply lines or plumbing fixtures in a home.
- EPA & DEQ rely on a "treatment approach" to reduce exposures to lead in drinking water.
- The "action level" for lead in drinking water is 15 parts per billion (ppb).
- This is a level the EPA considers attainable by such measures as adjusting the physical characteristics of the water (pH, hardness) that affect the corrosivity of the water.
- The compliance point for lead is the tap water in the homes.
- Water suppliers randomly select homes to be sampled and focus on areas with lead service lines.
- A tap water sample is collected by the resident from a frequently used cold water faucet. DEQ instructs residents to flush the faucet for 5 minutes, then not use it at all for at least 6 hours (but not more than 12) after which the residents collects a first draw sample.
- The first draw sample represents the water that has been motionless (or stagnant) in the home's plumbing for 6-12 hours.
- If more than 10% of the samples collected during any monitoring period is greater than 15 ppb the drinking water system is out of compliance.
- Compliance monitoring is not intended to represent or evaluate human intake of lead.

<u>The purpose of the water sampling conducted by the Virginia Tech Flint Water Study was to characterize lead levels in drinking water in the city of Flint to which people are exposed.</u>

- VA Tech researchers recruited volunteer participants and attempted to sample all areas of the city.
- Tap water samples were collected by the resident from a kitchen or bathroom cold-water faucet.
- Residents were instructed not to use the faucet for at least 6 hours (no pre-flush) then collect 3 samples:
    - a first draw sample, which represents the water that has been motionless (or stagnant) in the home's plumbing for at least 6 hours,
    - a second sample letting the tap run for 45 seconds after filling the 1st bottle, which represents water from the service line proximal to the home, and
    - a third sample letting the tap run for 2 minutes after filling the #2 bottle, which presumably represents water from the service line at a greater distance from the home.
- The visual graphic representations of the VA Tech data are attached.
- First draw samples exceeded 15 ppb in zip codes 48503 (20% of 69), 48504 (18% of 55), 48505 (13% of 48), 48506 (16% of 44), and 48507 (16% of 51).
- Second and third sample results appear to have exceeded 15 ppb as well, but exact percentages cannot be determined from the graphic representations of the data.
- Too few samples were collected from zip codes 48502, 48529, and 48532 to draw conclusions.
- **The protocol used by the VA Tech researchers and their results appear to be consistent with their intent to characterize lead levels in drinking water in the city of Flint.**

DRAFT

WATER SAMPLING KIT FOR LEAD

Read these instructions the day before filling bottles!

Step 0. Plan ahead. It is ***very*** important to collect water **after allowing it to sit in your pipe for at least 6 hours**. To do so easily, water should be collected first thing in the morning (after no one uses the water overnight).

Step 1. After the water was not used for at least 6 hours, open the kit and remove the plastic caps from all three bottles.

Step 2. With the largest bottle #1 (1 liter) held under the kitchen or bathroom tap, open the cold water tap and fill the bottle at high flow (as if you were filling a pitcher of water). Place the filled large bottle on the counter while letting water continue to flow normally.

Step 3. Let water run for 45 seconds after the first bottle was filled, and then place the medium size bottle #2 under the faucet to catch the water and fill the bottle. Put the filled medium size bottle on the counter while allowing the water to continue to flow.

Step 4. Let the water run for another 2 minutes after the second bottle was filled, and then place the smallest bottle #3 under the faucet to catch the water and fill the bottle. Put the small size bottle on the counter.

Step 5. Turn off the flow, put caps on each bottle, and firmly tighten the caps.

Step 6. Place the bottles into the zip-lock bag that is provided. Seal the zip lock bag and place the bag (with bottles inside) into the box that is provided (see picture).

Step 7. Fill out the information below, so that we can mail you the results after we analyze the samples for lead.

Name: _____

Address: _____

City/State/Zip: _____

E-mail: _____

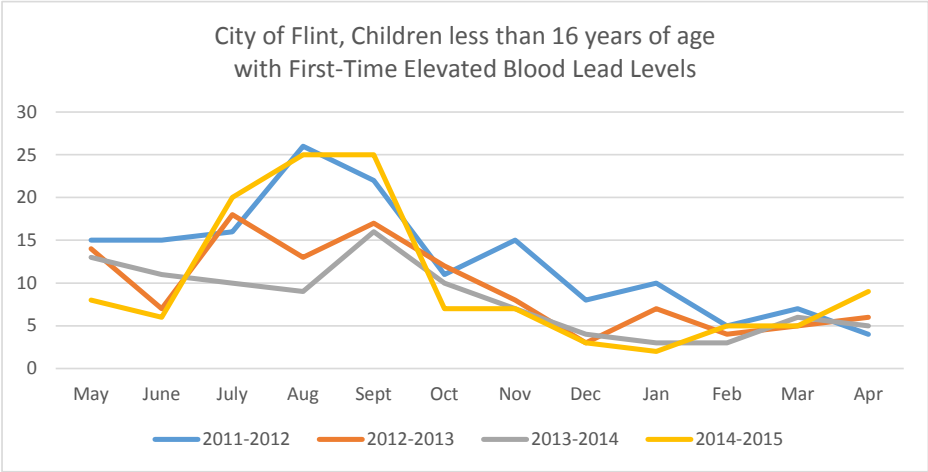
Phone: _____

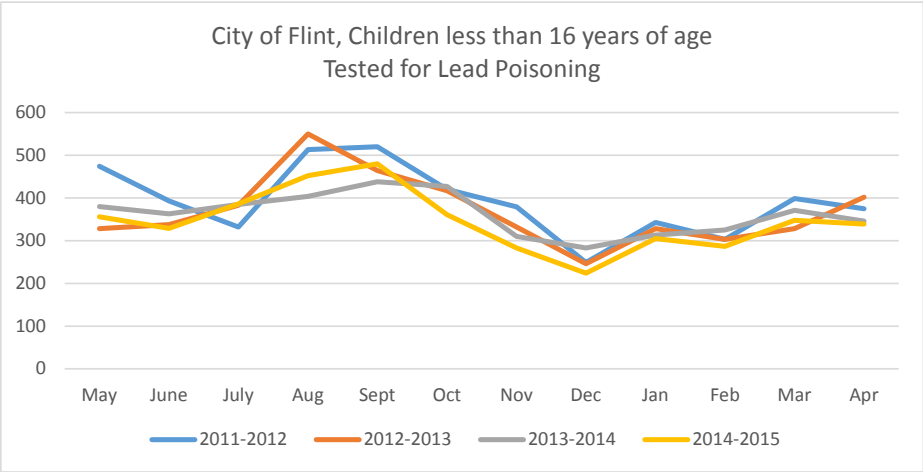
Date Sample Collected: _____

Year House Constructed (if known): _____ Do you use a water softener or a filter? _____

Step 8. Put this sheet into the box, tape the box shut and then return it to your collection point so it can be shipped to Virginia Tech.

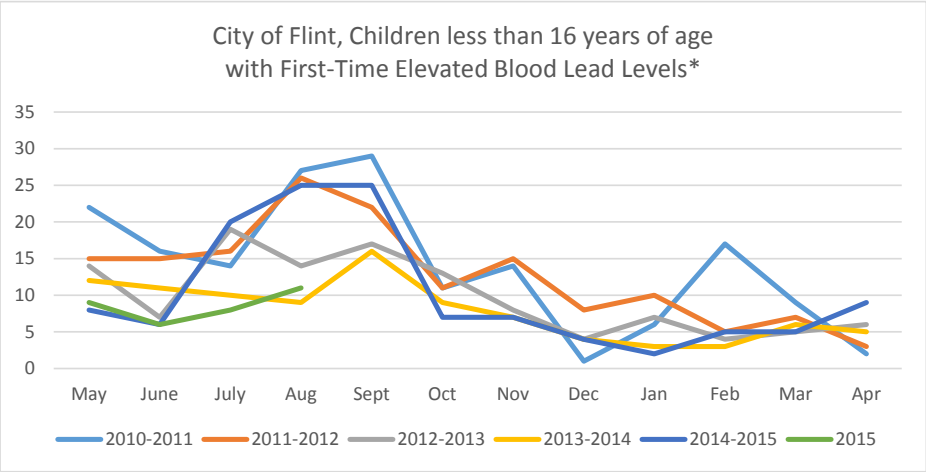
Call Jeff Parks at 540-392-4781 if you have any questions regarding these instructions.

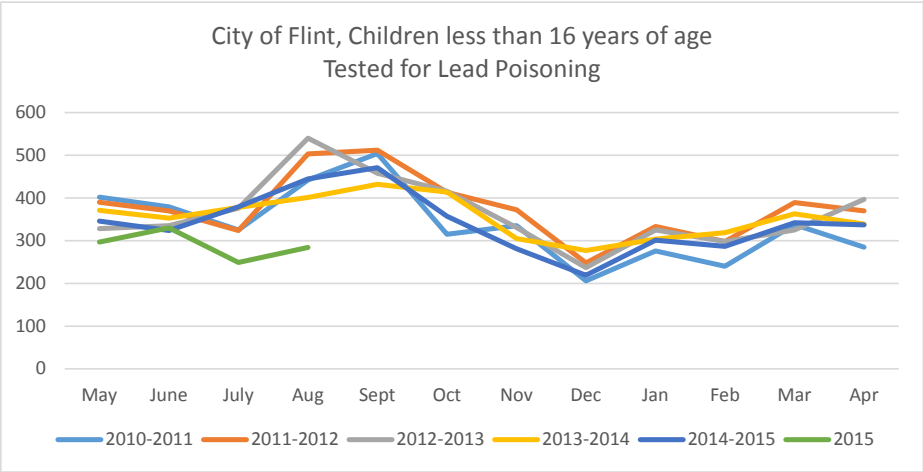




	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2011-2012	15	15	16	26	22	11	15	8	10	5	7	4
2012-2013	14	7	18	13	17	12	8	3	7	4	5	6
2013-2014	13	11	10	9	16	10	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	3	2	5	5	9

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2011-2012	474	393	332	513	520	420	379	249	343	303	399	375
2012-2013	328	338	383	550	464	417	332	246	328	303	328	402
2013-2014	380	363	385	404	438	427	310	283	313	325	371	346
2014-2015	356	329	386	452	480	361	283	224	305	287	348	339



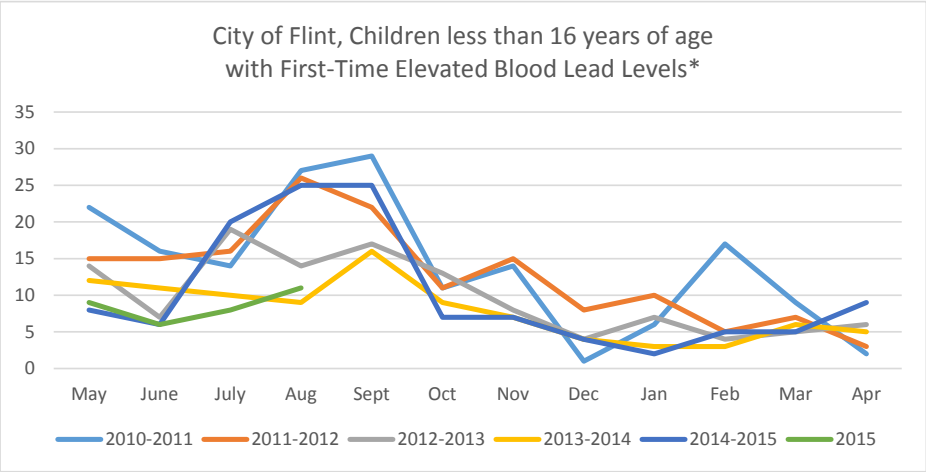


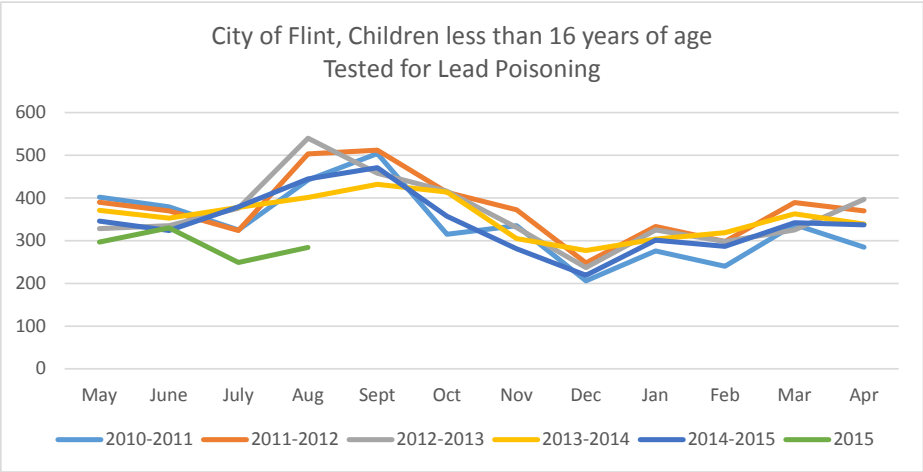
	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3
2012-2013	14	7	19	14	17	13	8	4	7	4	5	6
2013-2014	12	11	10	9	16	9	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	4	2	5	5	9
2015	9	6	8	11								

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	402	379	325	442	504	315	335	206	276	240	338	285
2011-2012	390	370	324	503	512	413	372	248	333	298	389	370
2012-2013	328	335	376	540	458	416	331	237	325	298	325	397
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337
2015	297	330	249	284								

*Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Less than 16 years of age at time of test
Includes only first-time blood lead levels >= 5 ug/dL
Includes sample type of venous, capillary or unknown

September 23, 2015
Source: MDHHS Data Warehouse, Lead Specimen table





	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	22	16	14	27	29	11	14	1	6	17	9	2
2011-2012	15	15	16	26	22	11	15	8	10	5	7	3
2012-2013	14	7	19	14	17	13	8	4	7	4	5	6
2013-2014	12	11	10	9	16	9	7	4	3	3	6	5
2014-2015	8	6	20	25	25	7	7	4	2	5	5	9
2015	9	6	8	11								

	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
2010-2011	402	379	325	442	504	315	335	206	276	240	338	285
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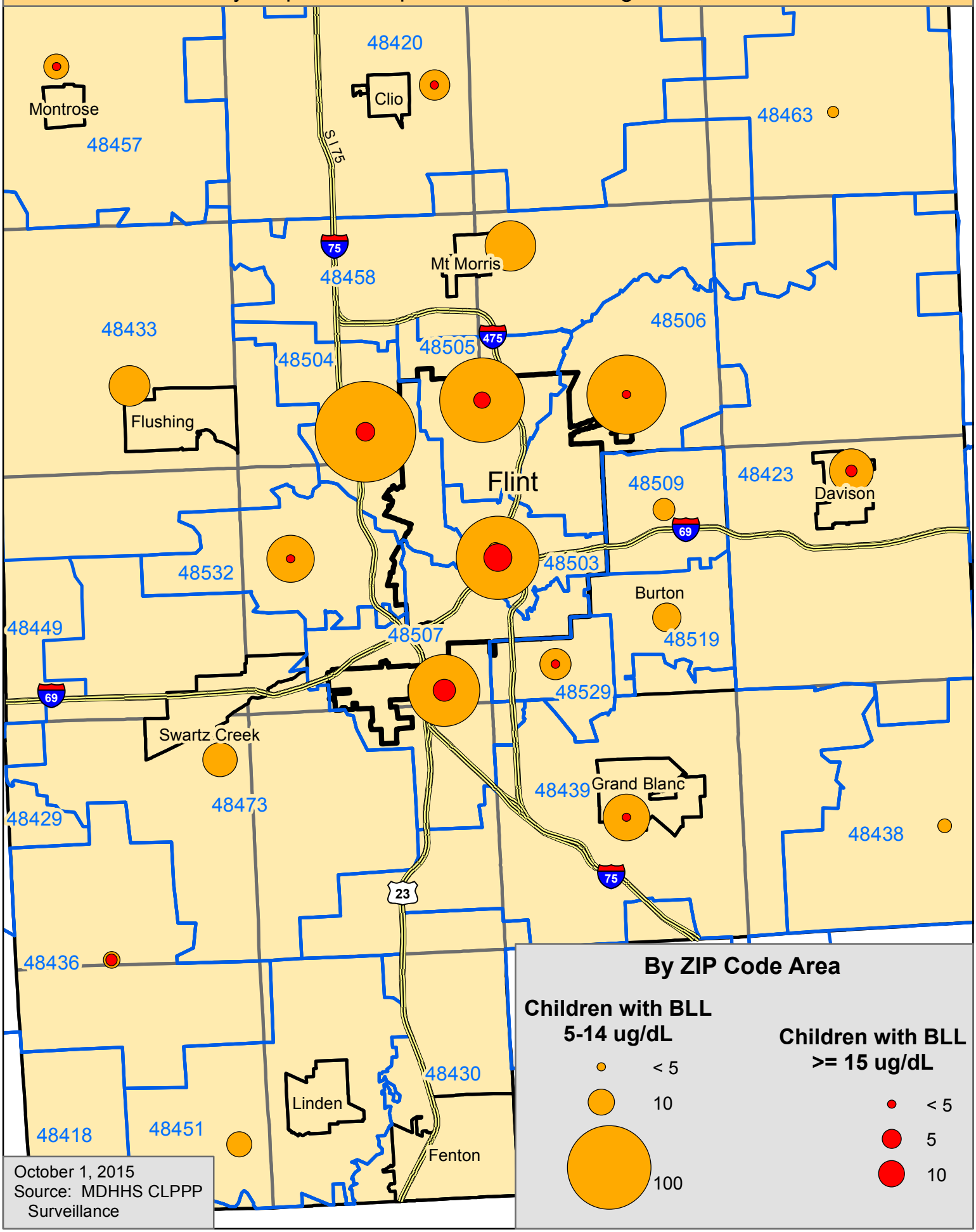
2013-2014	371	353	378	401	432	414	305	277	304	319	363	339
2014-2015	346	324	379	445	471	357	281	219	301	287	342	337
2015	297	330	249	284								

*Children whose address is listed as "Flint"--may not conform exactly to Flint city limits
Less than 16 years of age at time of test
Includes only first-time blood lead levels >= 5 ug/dL
Includes sample type of venous, capillary or unknown

September 23, 2015
Source: MDHHS Data Warehouse, Lead Specimen table

Children with Elevated Blood Lead Levels in Genesee County, by ZIP Code Area
5-year period: September 1, 2010 - August 31, 2015



Children in Genesee County, Tested for Lead Poisoning, by Blood Lead Level

Most Recent 12-Month Period: September 1, 2014 - August 31, 2015

	0 - 4 ug/dL	5 - 14 ug/dL Confirmed*	5 - 14 ug/dL Not Confirmed*	15 - 44 ug/dL Confirmed*	15 - 44 ug/dL Not Confirmed*	>= 45 ug/dL
Flint ZIPS (48501-48507)	2,721	49	53	5	**	0
Genesee County (all ZIPs)	6,086	58	94	6	**	0

Most Recent Five-Year Period: September 1, 2010 - August 31, 2015

	0 - 4 ug/dL	5 - 14 ug/dL Confirmed*	5 - 14 ug/dL Not Confirmed*	15 - 44 ug/dL Confirmed*	15 - 44 ug/dL Not Confirmed*	>= 45 ug/dL
Flint ZIPS (48501-48507)	11,596	287	219	24	**	0
Genesee County (all ZIPs)	26,362	359	415	29	9	0

*One test per child is included in each table: the highest venous result, or if no venous, then the highest capillary result.
Only venous tests are considered to be "confirmed."
**Supressed (N<5)

October 1, 2015

Source: MDHHS CLPPP Surveillance

Grijalva, Nancy (DHHS)

From: Lyon, Nick (DHHS)
Sent: Tuesday, January 12, 2016 5:58 PM
To: Chris Kolb
Cc: Ken Sikkema
Subject: Muchmore Email
Attachments: Flint.pdf

Chris – Here is the email we discussed last week. I have reached out to Mr. Edwards on a different topic, but I know he was inquiring with Dr. Wells so I plan on sending to him as well.

Nick

Muchmore, Dennis (GOV)

From: Muchmore, Dennis (GOV)
Sent: Wednesday, July 22, 2015 3:04 PM
To: Lyon, Nick (DCH)
Subject: Flint

I'm frustrated by the water issue in Flint. I really don't think people are getting the benefit of the doubt. Now they are concerned and rightfully so about the lead level studies they are receiving from the DEQ samples. Can you take a moment out of your impossible schedule to personally take a look at this? These folks are scared and worried about the health impacts and they are basically getting blown off by us (as a state we're just not sympathizing with their plight).

Grijalva, Nancy (DHHS)

From:	Lyon, Nick (DHHS)
Sent:	Sunday, January 31, 2016 3:20 PM
To:	Davis, Matthew (Matt); chris@environmentalcouncil.org; ksikkema@pscinc.com; reynolds@mottchc.org; erothste@grg-ltd.com; Baird, Richard (GOV)
Cc:	Becker, Timothy (DHHS); Lasher, Geralyn (DHHS); Grijalva, Nancy (DHHS); Lyon, Nick (DHHS)
Subject:	Re: FOR RESPONSE - Latest lead testing info - questions from Flint Water Advisory Task Force
Attachments:	Response to Task Force 1-31-16 2 with attachment.pdf

Please find attached DHHS's responses to your questions on behalf of the Task Force emailed to us on January 20th. If you have any questions or comments, please let us know.

Thank you for your continued efforts on this.

Nick

From: Davis, Matthew (Matt) <mattdav@med.umich.edu>
Sent: Wednesday, January 20, 2016 11:37 AM
To: chris@environmentalcouncil.org; ksikkema@pscinc.com; reynolds@mottchc.org; erothste@grg-ltd.com; Baird, Richard (GOV)
Cc: Lyon, Nick (DHHS); Becker, Timothy (DHHS); Lasher, Geralyn (DHHS); Grijalva, Nancy (DHHS)
Subject: FOR RESPONSE - Latest lead testing info - questions from Flint Water Advisory Task Force

On behalf of the Flint Water Advisory Task Force

Dear Rich,

Our Task Force mentioned this morning our concerns about the latest lead testing results posted by MDHHS on the "Taking Action on Flint Water" site within michigan.gov.

We are referring to the report posted Jan 15, 2016, regarding testing through Jan 8, 2016.

The report to which we are referring is available at: http://www.michigan.gov/documents/deq/Elevated_Blood_Lead_Level_Report_-_Jan._15_2016_511054_7.pdf

Michigan Department of Health and Human Services (MDHHS ...

www.michigan.gov

Michigan Department of Health and Human Services (MDHHS) Blood Lead Level Test Results for Flint Zip Codes 48501-48507, Genesee County, and the State of Michigan

We raise the following comments and questions, to be addressed by MDDHS at the very earliest convenience, and at the latest by January 31, 2016:

1 - The news about recent blood lead testing in Flint appears to be declining of late, with a proportion of children with levels >=5 mcg/dL at 2.3% for testing completed among children under age 6 years between Oct 1, 2015, and Jan 8, 2016. While this is a positive trend, it is an incomplete report regarding response, and it is unclear how these findings fit into a larger context regarding:

... (a) the location of residences for children who have been tested. How many of the tested children have residences in Flint locations (city wards) known to be at highest risk for exposure to lead-contaminated water? What are the proportions of children with elevated blood lead levels among tested children in the highest-risk wards?

... (b) the proportion of children in Flint under age 6 years who have had blood lead levels checked in 2015. Based on Census statistics, MDHHS and the Task Force have estimated that there are 7,000-8,000 children under age 6 years in Flint. Based on this report (pg 3), 3,339 children had lead levels checked from Jan 1, 2015, to December 31, 2015. Even under conservative estimates, these data indicate a testing rate of <50%. The Task Force recognizes that testing is not conducted primarily by MDHHS; however, our previous discussions with MDHHS have included dialogue about the intention of MDHHS to work with Medicaid health plans to advance testing. What is the nature of such plans, and where do such plans stand?

... (c) the proportion of children with elevated blood lead levels in Flint who have received appropriate home visits and timely clinical follow-up. According to the report, 112 children under age 6 years had blood lead levels >=5 mcg/dL between Jan 1, 2015, and Dec 31, 2015, with Flint addresses; a subgroup of 28 children had their elevated levels detected between Oct 1, 2015, and Dec 31, 2015. What proportions of these groups have had: (1) documented home visits to assess lead exposure risk in the home? (2) documented home visits that included measurement of water as a possible source of lead? (3) a subsequent blood lead level measurement documented within 3 months, and within 6 months? The Task Force had anticipated that such follow-up information would be part of the updates about the Flint Water response from MDHHS, and asks that these measures be part of the report going forward.

2 - Recognizing that blood lead testing data for Jan 1-Jan 8, 2016, are incomplete, we nevertheless read with substantial concern that >6% of blood lead levels for children in Michigan overall for this period have levels of >=5 mcg/dL, reflecting blood lead tests that reach the action level for 28 young Michiganders. While none of these positive tests were measured for children in Flint, the charge to our Task Force is to make recommendations for the entire state. We believe that the active attention that MDHHS is now dedicating to timely review of trends in lead testing for children provides a key opportunity for MDHHS to assure that these children with blood lead levels at the action level have timely, thorough assessments of potential lead exposures -- including water sources in residences, child care facilities, and schools -- and clinically appropriate follow-up in their medical homes. What are plans that MDHHS has in place for follow-up of this nature, and for reporting these measures to the public?

We look forward to hearing your responses to these inquiries.

Sincerely,

Matt Davis

****

Electronic Mail is not secure, may not be read every day, and should not be used for urgent or sensitive issues

Issue 1(a): How many of the tested children have residences in Flint locations known to be at highest risk for exposure to lead-contaminated water? What are the proportions of the children with elevated blood lead levels among tested children in the highest-risk 'wards"?

We do not have information about children's residences in relation to city ward; our data are gathered by zip code and include zip codes 48501-48507. Zip codes 48503 and 48504 are considered highest risk areas among these seven zip codes and are consistent geographically with the city wards identified as highest risk by Dr. Mona Hanna-Attisha. Table 1 presents the numbers and percent of tested children < 6 years of age in 2015 in the two highest zip codes and all zip codes for 2015. These two high risk zip codes with all zip codes combined. Table 2 presents this same information for the fourth quarter of 2015 and first week of 2015.

Table 1: Calendar Year 2015: Children age < 6 years of age: Number tested/number and percent EBL high risk zip codes and totals.

	Number tested	Number (%)=>5 ug/dL
Zip 48503	626	36 (5.8%)
Zip 48504	686	29 (4.2%)
All 7 zips combined	3339	112 (3.4%)

Table 2: Oct 1, 2014 – January 8, 2016: Children age <6 years of age: Number tested/number and percent EBL high risk zip codes and totals.

	Number tested	Number (%) =>5 ug/dl
Zip 48503	250	6(2.4%)
Zip 48504	259	8 (3.1%)
All zip codes combined	1186	28(2.4%)

We will continue to monitor trends as more testing results are added in 2016. We have also added a metric related to blood lead testing for children < 6 years of age enrolled in Medicaid and will be adding a second Medicaid-related table for children < 6 years of age living in greater Flint.

Issue: 1(b) the proportion of children in Flint under age 6 years who have had blood lead levels checked in 2015. Based on Census statistics, MDHHS and the Task Force have estimated that there are 7,000-8,000 children under age 6 years in Flint. Based on this report (pg 3), 3,339 children had lead levels checked from Jan 1, 2015, to December 31, 2015. Even under conservative estimates, these data indicate a testing rate of <50%. The Task Force recognizes that testing is not conducted primarily by MDHHS; however, our previous discussions with MDHHS have included dialogue about the intention of MDHHS to work with Medicaid health plans to advance testing. What is the nature of such plans, and where do such plans stand?

The percentage you noted is relatively low for children under six, as the standard protocol and Medicaid Policy required testing children at the age of one and two. MDHHS issued a Medicaid letter (attached) to all providers urging them to screen all children 0-6 years of age. We are working very closely with the Medicaid Health Plans (MHP) to ensure children enrolled in a Medicaid health plan living in the affected Flint zip codes (48501, 48502, 48503, 48504, 48505, 48506, 48507) are receiving enhanced testing. MDHHS has instructed the MHPs, and all Medicaid providers in Flint, to conduct blood lead testing on all children ages 0-6 that were exposed to the City of Flint drinking water after April 2014. For MHP members with blood levels greater than or equal to 5 mcg/dl, health plans have been instructed to refer

those members for in-home case management services provided by the Genesee County Health Department and coordinated with the care management provided by each of the MHPs.

In the Flint zip codes, as of January 25, 2016, there are 10,920 children ages 0-6 who are enrolled in Medicaid. Of these children 10,106 (92%) are enrolled in one of the six MHPs that serve Genesee County. The remaining children may be Fee For Service or have not yet selected a plan. MDHHS has requested and received information from the health plans on their strategies to complete enhanced testing. We have also strongly encouraged coordination among the health plans themselves, as well as with local health officials.

Health Plan	Members age 0-6 living in affected Flint zip codes	Percent of Flint members ages 0-6 in each health plan
Molina	5,093	51%
McLaren	2,730	27%
Meridian	2,072	21%
Blue Cross Complete	146	1%
United	43	<1%
HAP/Midwest	22	<1%
TOTAL	10,106	100%

OUTREACH

- **Molina** - Coordinating with Genesee County to conduct 10-15 lead testing events at elementary schools, community agencies and provider sites. Joint public releases with Genesee County to educate on lead testing and upcoming events. Fax blasts to all Genesee County PCPs about lead awareness and testing.
- **McLaren** - Letters and calls are being utilized to contact the members who need testing. A PCP Fax will be sent to all PCPs serving children that reside in Flint. Conducting lead clinics at Genesee County Health Department and PCP sites.
- **Meridian** - Provider education flyer distributed to PCPs in Genesee County. Telephonic outreach campaign for children 0-6 without a lead test completed. Plan to do additional outreach in the future to follow-up with those who still do not have a completed test. Lead screening events in coordination with Genesee County Health Department.
- **Blue Cross Complete** - Telephonic outreach to members who have not had a lead screen or those who have elevated levels. Leaving voicemail if member does not answer phone. Visit homes for those members unable to be reached telephonically. Contact PCP offices to confirm members keep appointments scheduled during outreach. Providing PCPs a list of members who need a blood screening and requesting the PCP office conduct outreach to those members.
- **United** – Letters being sent to all eligible members. Direct phone outreach to households with children 6 and under. LHD or Community Health Workers are visiting homes of those they cannot reach by phone. CMO to contact primary care physician's (PCPs) to ensure follow-up.
- **HAP/Midwest** - Members who do not have a recent lead test documented will be contacted via phone or letter. Articles in provider newsletter about lead screening and reference to MDHHS resources.

FOLLOW-UP/CARE COORDINATION

- **Molina** - Coordinating awareness and testing efforts with 3 other payers: Blue Cross Blue Shield of Michigan, United/Great Lakes and McLaren. Children with levels greater than 5 mcg/dl will be referred to the Molina care management team for intervention which will include care coordination, nutrition counseling and more.
- **McLaren** - Encourages PCPs to lead screen children in their own practices by providing incentives to the member and the PCP once screening is scheduled. Collaborating closely with the Genesee County Health Department, including participating in health fairs. Coordinating with Molina Health Plan to sponsor elementary-school based and community-based organization lead clinics in January and February.
- **Meridian** - Collaborating with the Genesee County Health Department, including participating in health fairs. Incentivizing members with $100 gift card raffles for children living in Genesee County who complete their screening. Provider incentives of $25 per member for completing a lead screening before the member's second birthday.
- **Blue Cross Complete** - Offering a $50 incentive for members who receive their lead screening. For members with an elevated level, BCC will contact the member's PCP office and the Genesee County Health Department.
- **United** – United will follow blood levels through MCIR for identified children. Care Coordination with PCP to ensure consistent follow up. Genesee County Health Department care coordination of Nurse Home Visits for those at higher risk.
- **HAP/Midwest** - Member incentive for lead screening on or before second birthday. Continue Pay for Performance (P4P) for providers for lead testing.

Issue 1(c). What proportion of children with elevated blood lead levels in Flint have had: (1) documented home visit to assess lead exposure risk in the home? (2) Documented home visit that included measurement of water as a possible source of lead? (3) A subsequent blood lead level measurement documented within 3 months and within 6 months?

In October of 2015, MDHHS created a list of children aged less than 18 years living in Flint ZIP codes 48501 to 48507 who were identified since April of 2014 with a blood lead level ≥ 5 micrograms of lead per deciliter of blood (µg/dL). As more children with an elevated blood lead (EBL) are identified, they are added to this list. As of January 19, 2016, the list includes 192 children age less than 6 years and 12 children between the ages of 6 and 17 years.

MDHHS entered into a contract with the Genesee County Health Department (GCHD) to provide case management services to the families of EBL children. The case management nurses are tasked with contacting the families of all children on the Flint EBL list to offer case management services. In addition, families are offered the opportunity to have a lead inspection of their home that includes collection and testing of at least 14 tap water samples, dust, soil, paint and household items that could potentially contain lead. If residents are willing to allow an environmental investigation, the case management nurses coordinate with Environmental Testing & Consulting, Inc. (ETC) contractors who perform the investigations under protocols established by the MDHHS Division of Environmental Health.

The table below presents a report of these activities through January 26, 2016.

Flint Metric	Count as of 1/26/16
Flint children 0-17 years with BLL ≥ 5 mcg/dL from 4/1/14 to current	204
Children who have moved out of Genesee County or Michigan	9[1]

Children who have received appropriate follow up testing[2]	56
Children whose follow up testing shows BLL ≤ 5 mcg/dL	32
Flint families offered CM services	141
Flint families declined CM services	13
Flint families receiving CM services	27
EBL Investigations Completed	20
Water Sampling Completed	18 of 20[3]
Full EBL Reports Completed (includes water test results)	13 of 20
Homes with lead detected in tap water	9 of 13
Homes with lead water levels < 5 parts per billion	6 of 9
Homes with lead water levels 5 to < 10 parts per billion	1 of 9
Homes with lead water levels 10 to < 15 parts per billion	0 of 9
Homes with lead water levels > 15 parts per billion	2 of 9
Homes identified with lead dust hazards	11
Homes identified with lead soil hazards	4
Homes identified with lead-paint hazards	10

[1] Referred to appropriate jurisdiction for follow-up if new address can be identified.
[2] http://www.mi.gov/documents/deq/ProviderQuickReference_Sept2015_501831_7.pdf?20160125105450
[3] Water could not be sampled in two homes: one home was not receiving water at the time of the investigation; the other home had not prepared for water sampling and water in that home will be sampled at a later date.

I have asked Sue Moran to serve as point of contact if there are other statistics or modifications to the metrics above that the task force would feel are more relevant in future reporting.

Issue 2. We believe that the active attention that MDHHS is now dedicating to timely review of trends in lead testing for children provides a key opportunity for MDHHS to assure that these children with blood lead levels at the action level have timely, thorough assessments of potential lead exposures – including water sources in residences, children care families and schools – and clinically appropriate follow-up in their medical homes. What are plans that MDHHS has in place for follow-up of this nature, and for reporting these measures to the public?

As described in the report of Blood Lead Level Test Result for Flint as of January 22, 2016, 38 children aged less than 6 years and 7 children between the ages of 6 and 17 years had an EBL ≥ 5 µg/dL. MDHHS has long standing procedures and protocols to respond to EBL reports, however, we are actively reviewing these to identify areas for improvements.

The Michigan Public Health Code (Act 368 of 1978, Section 333.5474 of the Michigan Compiled Laws) requires that all laboratories report blood lead test results to the Childhood Lead Poisoning Prevention Program (CLPPP). These reports currently reach us through a variety of mechanisms, but efforts have been underway in MDHHS to streamline the process and ensure timely reporting.

CLPPP staff daily scan incoming reports for BLLs greater than 20 µg/dL. When such a report is submitted, staff immediately FAX it to the local health department (LHD) of jurisdiction and notify the CLPPP nurse consultant. The nurse consultant contacts the LHD to offer guidance. Medical case management for EBL children is provided by the CLPPP nurse consultant, the child's primary medical provider and/or LHD

staff. EBL children are referred for medical follow-up including a referral to Children's Hospital of Michigan for medically appropriate treatment if the BLL is > 45 µg/dL. The nurse consultant works with the LHD and CHM social worker during the child's hospitalization to plan for discharge to a lead safe residence.

CLPPP staff prepare a weekly report of all results of ≥ 5 µg/dL that is provided to the Division of Environmental Health Lead Safe Home Program (LSHP), who sends weekly mailings, including LSHP application, outreach materials and postage paid envelope, to all families statewide with children testing at lead level ≥ 5 ug/dL. LSHP staff place follow-up telephone calls to these families to assist in completing the application. LSHP staff review all applications to verify that the owner- or renter-occupied unit meets all Title X requirements including income and family composition requirements. Housing units are prioritized based on criteria including; the presence of an EBL child less than six years of age, the child's lead level, the potential for partner resource-sharing, and age of housing. All lead inspections, assessments and clearance testing is performed in accordance with applicable state and federal regulations and standards. The table below describes the general work flow and timeframe for completion through clearance testing.

Task	Timeframe
From Intake to Inspection/Risk Assessment	2-4 Weeks
Inspection/Risk Assessment Report and Specification Drafting	2-3 Weeks
Schedule Contractor Walkthrough	2 Weeks
Contractor Bids Due	2 Weeks
Purchase Order Issued and LHC Work Scheduled	2 Weeks
LHC Work	10 days or less
Clearance Examination Conducted	1 Day Following Work Completion
All Phases	12-16 Weeks

Reporting of CLPPP and LSHP activities is currently accomplished through several venues including quarterly and annual reports to federal funding agencies, annual reports posted on the MDHHS web site, legislatively mandated reports, and internal reporting on department metrics.

CLPPP staff and the LSHP were recently consolidated in the MDHHS Division of Environmental Health, which is actively recruiting staff to fill three new positions including two epidemiologists who will actively analyze data state-wide to detect any increase in EBL children. With these additional resources, MDHHS will be better positioned to provide accurate and timely reporting of EBL data to the public. We are consulting with the U.S. Environmental Protection Agency and the Agency for Toxic Substances and Disease Registry to adapt and incorporate the Flint household water sampling protocol into the state-wide EBL investigation protocol. MDHHS will use state general funds to support supplies for water sample testing, as well as plumbing assessments and replacement of lead containing fixtures.

The MDHHS CLPPP funds local health departments in communities having greater numbers of children with elevated blood lead levels, including jurisdictions such as Detroit, Grand Rapids and Muskegon. Currently, Muskegon, Wayne County have federal grants from Housing and Urban Development (HUD). MDHHS uses grants from HUD to support housing-related activities including abatement.

Michigan Department of Health and Human Services
PO Box 30479
Lansing MI 48909

December 30, 2015

<Provider Name>
<Provider Address1>
<Provider Address2>
<Provider City> <state> <zipcode5-zip4>

Dear Provider:

RE: Blood Lead Guidelines to Address the City of Flint Residents' Potential Exposure to Lead

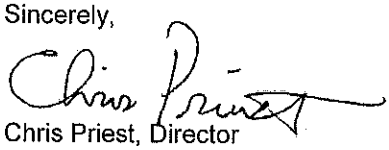
Michigan Medicaid Early Periodic Screening, Diagnosis and Treatment (EPSDT) guidelines require children to be tested for blood lead poisoning at 12 and 24 months of age, and between 36 and 72 months of age if the child has not been previously tested as indicated by the Medicaid Provider Manual. The Manual is located at: www.michigan.gov/medicaidproviders >> Policy and Forms.

Due to the enhanced public health issue of an increased risk for lead exposure in the City of Flint, providers have been advised to follow enhanced guidelines for lead testing in children:

- Providers should screen ALL children (regardless of Medicaid/insurance status) between 0 and 6 years of age that may have been exposed to the City of Flint drinking water after April 2014. Note: This includes all children less than 1 year of age and children between 3 and 6 years of age.
- If the child has already been screened since April 2014 by a capillary test, providers should follow-up on any elevated levels greater than 5 mcg/dl to ensure confirmatory venous testing is conducted.
- Providers should utilize the standard Blood Lead Level (BLL) Quick Reference for Primary Care Providers located at: www.mi.gov/documents/deq/ProviderQuickReference_Sept2015_501831_7.pdf?20151204122739.
- All clients with blood lead levels greater than 5 mcg/dl should be referred for case management coordinated through the Genesee County Health Department.
- Providers should inquire about the use of a drinking water filter and/or bottled water by all clients residing within the Flint city limits.
- Providers should inquire about other potential sources of lead within the household per the current recommendations of the Childhood Lead Poisoning Prevention Program's Statewide Lead Testing/Lead Screening Plan. The Statewide Lead Testing/Lead Screening Plan is located at: www.michigan.gov/documents/mdch/testing-screening071009_287511_7.pdf.

Lead testing performed using these enhanced testing guidelines is covered as a Medicaid EPSDT service. Providers should contact the beneficiary's Medicaid health plan for additional assistance if needed. Any questions regarding this letter should be directed to Provider Inquiry, Department of Health and Human Services, P.O. Box 30731, Lansing, Michigan 48909-8231, or e-mail at ProviderSupport@michigan.gov. When you submit an e-mail, be sure to include your name, affiliation, and phone number so you may be contacted if necessary. Providers may phone toll-free 1-800-292-2550.

Sincerely,



Chris Priest, Director
Medical Services Administration