From: Mona Hanna-Attisha <MHanna1@hurleymc.com>
Sent: Tuesday, September 29, 2015 6:50 PM
To: Wells, Eden (DCH)
Subject: RE: Prelim GIS results3

Follow Up Flag: Follow up
Flag Status: Flagged

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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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

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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

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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.

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