

[REDACTED]

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**From:** Paul Evan Kilgore  
**Sent:** Friday, July 15, 2016 12:27 PM  
**To:** Marcus Zervos; Perri, Mary Beth  
**Cc:** Shawn Patrick McElmurry  
**Subject:** ?Shigella outbreak in Flint: Laura Sullivan household water needs testing  
**Attachments:** Detecting low conc shigella in environ water by PCR.pdf; deq-wb-dwehs-gwwfwim-section11\_183037\_7.pdf

Hi Mark and Mary

I think Mary is off today? We learned that Laura Sullivan was hospitalized and was confirmed to have a shigella infection. There are other reports in Flint of shigella cases--possibly hospitalized cases as I understand it. Shawn can get his students to sample and get water samples. These would need filtration and then plating for culture. Specimens can be brought to WSU this evening and then to OFP lab on or before Monday. Is there any chance Mary or Dora would have media (or get it from Bob) to test for Shigella in household water samples? or use Maldi?

Paul E. Kilgore, MPH, MD  
Associate Professor, Department of Pharmacy Practice  
Director of Research, Department of Pharmacy Practice  
Eugene Applebaum College of Pharmacy and Health Sciences  
Adjunct Professor, Department of Family Medicine and Public Health Sciences, School of Medicine  
Wayne State University

Address:  
259 Mack Ave., Room 2156  
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Cell: (248) 403-0275  
Fax: (313) 577-5369  
Email: drpaulwsu

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**From:** Paul Evan Kilgore  
**Sent:** Friday, July 15, 2016 12:20 PM  
**To:** Shawn Patrick McElmurry  
**From:** Paul Evan Kilgore  
**Subject:** Methods for Water Collection, Transport (for eventual other shigella and coliform testing) for Laura

Shawn,

I can ask Mark if his lab could do some PCR or culturing. Water samples will need to be filtered (see paper here)

1

**From:** Lawrence Reynolds <lrey52@gmail.com>  
**Sent:** Saturday, July 23, 2016 10:25 AM  
**To:** Yanna Lambrinidou <pnalternatives@yahoo.com>; Laura Caravallah <Laura.Caravallah@hc.msu.edu>; Marc Edwards <edwardsm@vt.edu>; Laura Sullivan <dr.laura2@gmail.com>; Kirk smith <ksmith@flint.org>; Peter Levine

<plevine@gcms.org>; Pino Colone <pcolone1@att.net>; Gerald Natzke <gdn2@aol.com>

**Subject:** Fw: FWICC Infrastructure Integrity and Water Quality Subcommittees Call

Bryce Feighner, who presented THE FWICC INFRASTRUCTURE report, also authored the Environmental Justice Report 10 years ago, noted that it sat on a shelf. If you know anyone who can provide input on the principles of Environmental Justice and process and outcome measures, it would help us pin the Policy Committee, headed by Mike Zimmer. I met U of Michigan retired professor, Bunyan Bryant, who is originally from Flint and known for his EJ work, and hope to talk with him further about this. If you already know him or others, please do what you can. I would like to see EJ incorporate the Life Course framework to highlight the varying impact of insults on different age groups, including those insults which manifest years post exposure.

Most recently, we are following up on Shiela reports. One of our network members spent three weeks in the hospital and isolates were plated from her tap water. There has been an ongoing issue of adequate chlorine dosing throughout the city. Our Medical society had to insist that pregnant women, children under 6, and health compromised residents continue to use bottled water. This did not please the EPA, the MDEQ, or the CDC.

See part of email below from one of our board members who is also on the County Board of Health :

"We have been asking about the Shigella spike in the Board of Health meetings. The GC Health Department's epidemiologist put out a report that they had tested water across the city and county and could not find any correlation with city water. They also marked out the cases that were connected and most did have a known contact. Additionally, they said that Shigella is up across the state and particularly in Flint and Saginaw.

Of course, all of that is only as good as the data. If Laura's house shows the same strain as her isolates in the hospital (assuming they HAVE them still), then that changes the picture considerably, and would require a different kind of public advisory. "

Thank you for sticking with us.

**From:** Zahran, Sammy <Sammy.Zahran@colostate.edu>  
**Sent:** Sunday, August 21, 2016 9:47 PM  
**To:** Shawn Patrick McElmurry  
**Cc:** Paul Evan Kilgore  
**Subject:** Re: Shigellosis Analysis

Nicely crafted letter guys. SZ

Edit first sentence second paragraph:

"At the August 9th GCHD board meeting, Paul and I we were encouraged by the Suzanne's report that cases where declining. . ."

To

"At the August 9th GCHD board meeting, Paul and I were encouraged by the Suzanne's report that cases where declining. . ."

Edit the following:

"While this data will allow us to perform only preliminary analyses. . ."

To

"While these data will allow us to perform only preliminary analyses. . ."

Sent from Outlook for Android

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**From:** Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>  
**Sent:** Sunday, August 21, 2016 7:09:29 PM  
**To:** Paul Evan Kilgore; Marcus Zervos; Zahran, Sammy; Matthew Wayne Seeger; Laura Sullivan (dr.laura2@gmail.com)  
**Subject:** Shigellosis Analysis

As we discussed last week, I would like to request more detail regarding the shigella cases in GC. Attached is a draft email. I would like to send to Suzanne and Mark V. tomorrow. Edits welcome.

I know Suzanne is not likely to respond kindly to this request but the fact that the number of cases appears to continue to increase is concerning.

Thanks,  
Shawn

Shawn P. McElmurry, Ph.D., P.E.  
Associate Professor  
Wayne State University  
Dept. of Civil and Environmental Engineering  
2158 Engineering Building

**From:** Zervos, Marcus <MZERVOS1@hfhs.org>  
**Sent:** Monday, August 22, 2016 12:01 PM  
**To:** Paul Evan Kilgore; Matthew Wayne Seeger; Shawn Patrick McElmurry  
**Subject:** FW: Analysis of Shigellosis cases

**Importance:** High

We should talk about legionnaires with her also

**From:** Shawn Patrick McElmurry [mailto:s.mcelmurry@wayne.edu]  
**Sent:** Monday, August 22, 2016 11:37 AM  
**To:** Karen Weaver <kweaver@cityofflint.com>  
**Cc:** Laura Sullivan (dr.laura2@gmail.com) <dr.laura2@gmail.com>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; Zervos, Marcus <MZERVOS1@hfhs.org>; Matthew Wayne Seeger <matthew.seeger@wayne.edu>  
**Subject:** FW: Analysis of Shigellosis cases  
**Importance:** High

Mayor Weaver, I wanted to make sure you were aware of a significant increase in the number of cases and rate of Shigellosis that has been observed in Genesee County recently. At the August 9<sup>th</sup> GCHD board meeting, Paul Kilgore and I were encouraged by Suzanne Cupal's report at this meeting that cases were declining. Following the meeting we created an epidemic curve based on data from Genesee County (through June 23) and found this not to be the case.

I hope to discuss details of this briefly at the meeting that Laura is currently trying arrange.

Thanks,  
Shawn

**From:** Shawn Patrick McElmurry  
**Sent:** Monday, August 22, 2016 11:28 AM  
**To:** Valacak, Mark <MVALACAK@gchd.us>; Cupal, Suzanne (scupal@gchd.us) <scupal@gchd.us>  
**Cc:** Matthew Wayne Seeger <matthew.seeger@wayne.edu>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; Marcus Zervos <MZERVOS1@hfhs.org>  
**Subject:** Analysis of Shigellosis cases  
**Importance:** High

Suzanne and Mark:

As you know, last month we had one of our team members become extremely ill due to shigellosis. Once we learned of this, we immediately pulled data from the MDCH Weekly Surveillance Reports. There is a significantly elevated rate of shigellosis in Genesee County; total cases and rates well above rates found in other counties this year. These data also appear to exceed previous baseline rates in Michigan. The outbreak appears to have accelerated in late June, into July.

We believe that the current outbreak is statistically outside the normal variation in cases observed each year. We're prepared to conduct preliminary analysis to allow for a better understanding of this threat to public health. To do this, we will need access to the following information for each of the shigellosis cases in Genesee County over the past five years:

1. Location. To protect identity, please round the address to the block level. If you are not comfortable with this level of deidentification, please scale it up to the block group or census tract. The greater the spatial resolution the better, obviously.
2. Age. To protect identity, please classify case age into 5 yr groups.
3. Relation to other cases (e.g. if the case is a family member of another case). To protect identity, please use code identifiers for each case.

We realize you are extremely busy and short staffed so we greatly appreciate your assistance. While these data will allow us to perform preliminary analyses, we would like to do this in the spirit of collaboration and will include you as co-authors if this analysis leads to publication.

Please let us know as soon as possible if you are willing to provide these data to us. Thank you.

Sincerely,  
Shawn McElmurry

Shawn P. McElmurry, Ph.D., P.E.  
Associate Professor  
Wayne State University  
Dept. of Civil and Environmental Engineering  
2158 Engineering Building  
5050 Anthony Wayne Dr.  
Detroit, Michigan 48202  
Phone: 313-577-3876  
Fax: 313-577-3881  
Skype: s.mcelmurry  
[www.eng.wayne.edu/mcelmurry](http://www.eng.wayne.edu/mcelmurry)

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**AUG 22, 2016**

**Laura Sullivan updated her status.**

[August 22, 2016](#) ·

Update on Laura's health: Cellulitis caused by IV fluids while in the hospital is resolved, shigellosis confirmed but source not identified by health department.

Update on public health: wash hands with antibacterial soap, turn up the temperature on your water heater, drink filtered water ONLY if you are certain that bacteria are removed.

**From:** Shawn Patrick McElmurry  
**Sent:** Friday, August 26, 2016 3:47 PM  
**To:** Lawrence Reynolds  
**Cc:** Paul Evan Kilgore; Marcus Zervos  
**Subject:** FW: Analysis of Shigellosis cases

**Importance:** High

Larry, you know we learned about an increased number of cases of shigella in Genesee County after Laura Sullivan became ill. At the August 9<sup>th</sup> GCHD board meeting, Paul and I were encouraged by Suzanne's report to her board that cases were declining. However, after further follow up we found this statement appeared to be inaccurate and this prompted us to send the following email to Mark and Suzanne. We have yet to receive a response.

Shawn

**From:** Shawn Patrick McElmurry  
**Sent:** Monday, August 22, 2016 11:28 AM  
**To:** Valacak, Mark <MVALACAK@gchd.us>; Cupal, Suzanne (scupal@gchd.us) <scupal@gchd.us>  
**Cc:** Matthew Wayne Seeger <matthew.seeger@wayne.edu>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; Marcus Zervos <MZERVOS1@hfhs.org>  
**Subject:** Analysis of Shigellosis cases  
**Importance:** High

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Please let us know as soon as possible if you are willing to provide these data to us. Thank you.

Sincerely,



**From:** Zervos, Marcus <MZERVOS1@hfhs.org>  
**Sent:** Friday, August 26, 2016 3:50 PM  
**To:** Shawn Patrick McElmurry; Lawrence Reynolds  
**Cc:** Paul Evan Kilgore  
**Subject:** RE: Analysis of Shigellosis cases

Larry what I saw of the shigella investigation left many unanswered questions, inadequacies with the investigation, which I will enumerate again later, I did express to Kay Dorr and Laura C

**From:** Shawn Patrick McElmurry [mailto:s.mcelmurry@wayne.edu]  
**Sent:** Friday, August 26, 2016 3:47 PM  
**To:** Lawrence Reynolds  
**Cc:** Paul Evan Kilgore; Zervos, Marcus  
**Subject:** FW: Analysis of Shigellosis cases  
**Importance:** High

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Shawn



[REDACTED]

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**From:** Shawn Patrick McElmurry  
**Sent:** Friday, August 26, 2016 3:52 PM  
**To:** Lawrence Reynolds  
**Cc:** Paul Evan Kilgore; Marcus Zervos  
**Subject:** FW: Analysis of Shigellosis cases

**Importance:** High

I also notified the mayor but have yet to get a response.

Shawn

**From:** Shawn Patrick McElmurry  
**Sent:** Monday, August 22, 2016 11:37 AM  
**To:** Karen Weaver <kweaver@cityofflint.com>  
**Cc:** Laura Sullivan (dr.laura2@gmail.com) <dr.laura2@gmail.com>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; Marcus Zervos <MZERVOS1@hfhs.org>; Matthew Wayne Seeger <matthew.seeger@wayne.edu>  
**Subject:** FW: Analysis of Shigellosis cases  
**Importance:** High

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I hope to discuss details of this briefly at the meeting that Laura is currently trying arrange.

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Shawn

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**Sent:** Monday, August 22, 2016 11:28 AM  
**To:** Valacak, Mark <MVALACAK@gchd.us>; Cupal, Suzanne (scupal@gchd.us) <scupal@gchd.us>  
**Cc:** Matthew Wayne Seeger <matthew.seeger@wayne.edu>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; Marcus Zervos <MZERVOS1@hfhs.org>  
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We believe that the current outbreak is statistically outside the normal variation in cases observed each year. We're prepared to conduct preliminary analysis to allow for a better understanding of this threat to public health. To do this,

From: Paul Evan Kilgore

Sent: Tuesday, August 30, 2016 9:40 PM

To: Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>; Marcus Zervos <MZERVOS1@hfhs.org>; Matthew Wayne Seeger <matthew.seeger@wayne.edu>; Laura Sullivan <dr.laura2@gmail.com>; Benjamin Pauli <bpauli@kettering.edu>; Sammy Zahran <Sammy.Zahran@colostate.edu>; Joanne Lynn Sobeck <ab1350@wayne.edu>; David.Mushinski@colostate.edu

Cc: Abdulbaset M. Salim <asalim@med.wayne.edu>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; Lara J Treemore-Spears <treemorespears@wayne.edu>

Subject: Shigellosis and Legionellosis Updates: Week ending August 27 (High incidence of Shigellosis in GC is evident; suggesting ongoing health disparities relative to other parts of Michigan)

Headline: Shigellosis and Legionellosis Updates: Week ending August 27 (High incidence of Shigellosis in GC is evident; suggesting ongoing health disparities in Shigellosis disease burden among GC residents relative to other parts of Michigan)

Hi

I thought you will want to have a disease update:

Please see attached info below and in files attached here; will be double checking numbers and doing further analysis--quick analysis here

First, Legionellosis: In Genesee county to date this year: 7 (seven) cases; 2 reported in last week, see attached PDF. [REDACTED]

Second, for Shigellosis: 77 cases in Genesee county since January 1, 2016 (3 in last week of reporting)

REDACTED

**Shawn McElmurry**

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**From:** Shawn Patrick McElmurry  
**Sent:** Wednesday, August 31, 2016 9:55 AM  
**To:** Paul Evan Kilgore  
**Subject:** RE: preview of specific suggestions based on recent events in GC/Flint

need to run to lab. Can you please start call (Dial-in Number [REDACTED] Access Code [REDACTED] Post PIN [REDACTED])

**From:** Paul Evan Kilgore  
**Sent:** Wednesday, August 31, 2016 9:06 AM  
**To:** Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>; Matthew Wayne Seeger <matthew.seeger@wayne.edu>; Marcus Zervos <MZERVOS1@hfh.org>; Joanne Lynn Sobeck <ab1350@wayne.edu>; Laura Sullivan <dr.laura2@gmail.com>; bpauli@kettering.edu  
**Cc:** Lara J Treemore-Spears <treemorespears@wayne.edu>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; Abdulbaset M. Salim <asalim@med.wayne.edu>  
**Subject:** preview of specific suggestions based on recent events in GC/Flint

Some items for discussion during call this AM; I am sure I have left off some items; please amend or make edits/comments:

**Abbreviations:** PO = protective order; GC = Genesee County; LD = Legionnaires' disease; GCHD = Genesee county health department; GCMS = Genesee county medical society

**Assumptions:**

1. Communications between FACHEP, GCHD, GCMS, MDHHS, US CDC (Atlanta) and City of Flint are important yet currently sub-optimal or non-existent with respect to important health issues we are dealing with (especially Legionnaires' disease and Shigellosis; both water related to important extent)
2. FACHEP is in an important leadership position to make these communications happen on a regular basis with benefit to residents of Flint.
3. Despite recent events and the PO, there is great urgency to improve the public health response and responsiveness with respect to LD and Shigellosis within Flint and GC.
4. Although LD cases continue to occur in Flint and GC, and despite FACHEP outreach to the community, more effort in community engagement, education and outreach is required (and we have been holding back to some extent due to delays in contracting, hiring and more recently the protective order).
5. With continued cases of LD and Shigellosis occurring in Flint and GC and with little information on these cases, we need dramatically enhanced awareness of LD and Shigellosis among key staff in the above-mentioned institutions as well as the community.
6. Although the focus of FACHEP in the MDHHS contract is on LD, changes in water may be associated with increased cases of other water-related/waterborne illness including potentially Shigellosis. Thus, a discussion

of water related diseases such as LD would naturally lead to inclusion of other potentially water-related diseases such as Shigellosis.

2. Health literacy among the Flint population who is at risk for LD, Shigellosis or other water-related disease is likely sub-optimal and may be insufficient to aid health authorities in providing optimal disease recognition in the community as well as facilitation of measures that may mitigate disease acquisition in the community and/or institutions such as health care facilities.

3. Active case investigation (including more labor intensive activities such as case-control studies) and household environmental and social determinants of health surveys are urgently needed to fully elucidate the risk factors associated with LD, Shigellosis and other waterborne diseases in Flint/GC. This requires timely communication among the above organizations who are working on LD and other diseases in Flint.

#### Specific action recommendations:

1. Initiate weekly teleconference in week after Labor Day holiday with invitation from FACHEP to GCHD, MDHHS, City of Flint (for the new Health liaison starting next week), US CDC, and GCMS. The focus of these teleconferences will be to review new trends in cases or reported cases of LD and Shigellosis, provide a forum for discussion and collaboration in specific activities and to provide updates on findings from FACHEP activities.

2. Develop briefing document for FACHEP staff as well as new staff joining the above mentioned organizations who may not be familiar with the history or current landscape of LD and water-related diseases in Flint/GC.

3. Identify Data Use/Data Sharing Agreement template for GCHD that will be signed by WSU as well as GCHD; this agreement would cover data sharing of environmental testing and sampling results as well as data on human cases of LD and Shigellosis (LD cases not related to McLaren as noted in PO and our discussion yesterday).

Paul E. Kilgore, MPH, MD  
Associate Professor, Department of Pharmacy Practice  
Director of Research, Department of Pharmacy Practice  
Eugene Applebaum College of Pharmacy and Health Sciences  
Adjunct Professor, Department of Family Medicine and Public Health Sciences, School of Medicine  
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Cell: (248) 403-0275  
Fax: (313) 577-5369  
Skype: drpaulwsu

EMPHASIS ADDED

On 27 August 2016 at 20:25, Anurag Mantha <[anuragm@vt.edu](mailto:anuragm@vt.edu)> wrote:  
Hi Marc,

Keri Webber just posted on Facebook the results from the microbiological sampling from her filter on two different dates (7/8 and 7/23). The results are attached. The accompanying post follows:

"I really felt I needed to share this information with Flint residents using the tap filters for lead. I am not saying all of the filters have this issue however, ours obviously does. This testing was done on July 8th and 23rd. The scariest thing is that the amount of bacteria LEAVING our filter is astronomical. I am posting both pages so that the information is available to everyone as we all have to make our own decisions on rather to drink from the Filters or not. As most know we ARE NOT drinking from the filter....thank GOD! We continue to use only bottled water for everything! This test also showed that our bacteria reduced after the water was run for 5 minutes, however in this house it has been proven time and again that the longer we run our water the WORSE the LEAD is! This whole situation is just pathetic and really no one could even make this up on their own. Somehow we are still high in lead and now bacteria....and yet have continued to be skipped by the City of Flint. Please feel free to ask any questions and I will try to help.#discouraged"

I explained to her that HPCs don't necessarily mean that it is bad. I suggested that she wait till the second stage analysis, (which I would assume would be qPCR and culturing) before drawing conclusions and told her that it is known in our field that lead filters can act as a sponge for bacteria due to the high surface area.

Thought you would like to know. The letter was signed by Nancy Love.

Thanks,  
Anurag

**From:** Amy Pruden <apruden@vt.edu>  
**Sent:** Sunday, August 28, 2016 9:32 AM  
**To:** Nancy Love <nglove@umich.edu>  
**Subject:** Flint Water Filter HPC Study Concern

Hi Nancy,

I enjoyed your AEESP lecture and since then I've been following your study on microbes in point of use filters in Flint. As you know, I am also very interested in the topic from a scientific standpoint as a target for "probiotic" control of Legionella, etc. (e.g., Wang et al. Water Research 2013- though this is GAC treatment at the plant; Wang et al. ES&T 2013).

I noticed in a recent Facebook post from a Flint Resident, Keri Webber, that she is really worried about the high HPCs in her water and is alerting other Flint residents to heed caution as well- she posted the letter she received from your group. <https://www.facebook.com/people/Keri-Webber/519807394>

Her basic interpretation is "Thank god we never drank or used water from the filter." They are only using bottled water. This got me worried that Flint residents are going to remove their lead filters- which would be really bad because of the proven benefits for removing lead. I'm also worried that this could undermine your study- which is really a key opportunity to learn more about the microbiology at the tap and what triggers versus controls pathogen growth there.

I thought you would want to know about this and might want to bear this in mind when you send up the follow-up results. If that will be awhile, you could consider sending an interim update of some sort that makes it clear that the known benefits of removing lead- a known dangerous neurotoxin outweigh any microbial concerns for drinking the water- that all water contains some normal level of bacteria and that there is no known health risk of HPCs- they are simply an indicator to help guide further analysis of the

water. In fact, these are pretty typical levels of HPCs in premise plumbing. It's also important to keep in mind people use the point of use filters for drinking and cooking, not for showering- so it's definitely not going to explain rashes-- and cuts out the shower exposure route for Legionella.

I look forward to seeing you at MEWE- we can talk more there. This will also be a good case study for discussion at the ethics workshop. Your student Chia-Chen is a great addition to the group- I look forward to meeting her and seeing you as well.

Amy

--

*Amy Pruden*

*W. Thomas Rice Professor*

*Via Department of Civil & Environmental Engineering*

*& Associate Dean for Interdisciplinary Graduate Education*

*Virginia Tech*

*Blacksburg, VA 24061*

*(540) 231-3980*

<http://www.cee.vt.edu/people/pruden.html>

**From:** klwebb88 [<mailto:klwebb88@comcast.net>]

**Sent:** Sunday, March 4, 2018 12:21 PM

**To:** [edwardsm@vt.edu](mailto:edwardsm@vt.edu)

**Subject:** Re: FW: Verifying emails.

Marc,

All is exactly as I remember as well. The bacteria Shawn and Dr. Love told me they had found and were researching was in fact Steph. This was because of Mike's repeated infections. All dates are correct.

Thank you,

Keri

Sent from my Sprint Samsung Galaxy S8+.

----- Original message -----

From: [edwardsm@vt.edu](mailto:edwardsm@vt.edu)

Date: 3/4/18 12:14 PM (GMT-05:00)

To: 'klwebb88' <[klwebb88@comcast.net](mailto:klwebb88@comcast.net)>

Subject: FW: Verifying emails.

Hi Keri,

I just pulled together a representative timeline of some of your interactions with FACHEP from our conversations.

It was August 27th 2016 when Nancy and Shawn reported the very high levels of HPC bacteria in your water. They said they were the highest in Flint, and you met with me in LeeAnne's house, and sent out the facebook post alerting people to the bacteria problem. At the time, I contemporaneously emailed Dr. Pruden, about our conversation: Specifically, that Shawn told you "your HPC results were so bad, the State should buy your house for \$250K as a water test site." You also told me the assessed value of your house at the time was \$10K and you could maybe sell it for \$8k (see below).

On December 2nd 2016 you were worried about why nothing was being done on the supposed dangerous bacteria that Wayne State found, and you emailed Shawn and Nancy about that. Shawn forwarded it to Nancy, and Nancy claimed that she had sent you the results in November, after she had been working to 3 am. She said she was sorry it did not arrive, and in the same email, she said she attached your results to the email, but there was no attachment at all. Snail mail did not arrive the second time.

On December 15th 2016 you told me you talked to Dr. Zervos at Henry Ford. You sent out the attached text message, in which Zervos said the State was cheap, and would not fund testing for other bacteria. Zervos told you **"They <the state> are really bastards."**

At the meeting Zervos also told you that Mike's leg scars were not healed, and that he wanted to personally treat them. Mike was excited, and called Dr. Zervos at least 5 times, and kept getting the run around. Mike gave up.

At the meeting you told Shawn and Nancy you never got your letter on bacteria. Nothing was done. You then complained on facebook.

Nancy then sent you the letter, and you finally got it June 14, 2017. They looked for Shigella and another class of bacteria, not the bacteria they told you they would look for.



If any of this or the attached text below is incorrect, let me know. If it is correct, can you send an email verifying that this is consistent with what you told me?

Marc

Hard copy arrived June 14, 2017.

Dear Kerri Webber:

This letter is a follow-up from our previous report on samples we took around your water filter in July. In the last report, we said that we were taking a closer look at the types of bacteria that are present in samples collected from your home. Since bacterial abundance increases across most (79%) point-of-use, faucet-mounted water filters in Flint, we wanted to understand if potentially harmful bacteria that can exist in treated drinking water distribution systems were increasing in number as well.

We have performed additional analyses on samples from your home using DNA-based methods. DNA-based methods offer us exceptional sensitivity to detect specific DNA sequences that, if present, indicate the possible presence of harmful bacteria. Although the presence of DNA in water does not confirm that it is associated with cells that can cause infection, finding DNA that is associated with harmful bacteria suggests that the utility might need to modify treatment practices to ensure the safety of the public. We conducted our study in an attempt to assist with this assessment.

In one test, we used a DNA-based analysis informed by a previously published method to look for a gene that is associated with illness by *Shigella*. *Shigella* is the bacterium associated with a diarrheal outbreak that occurred in Flint this summer and early fall. In all samples from your house that were analyzed (four per visit, including: water going to the PoU filter; water leaving the PoU filter; water leaving the PoU filter after 5 minute flush, and the PoU filter fabric that is wrapped around the outer surface of the filter), we did not detect the gene. Our method detection limit is around 1 gene copy, which is well below the level thought to cause illness.

In a second screening test applied to some samples from Flint, including samples from your home, results indicated the possible presence of DNA from the Enterobacteriaceae family of bacteria. Some forms of Enterobacteriaceae bacteria can be harmful. Detection of bacteria within this family would be consistent with, but not proof of, bacteria found in the gut of animals and humans. We applied a second, published DNA method that targets the Enterobacteriaceae family to samples from your home to quantify levels. Results for all water samples collected from your house were below our method quantification limit for Enterobacteriaceae. We have not analyzed samples taken from the filters for this family of bacteria yet.

It is unclear how common the Enterobacteriaceae family DNA markers are in treated drinking water in other cities around the US. We have used the same method applied to samples from your home to water samples taken this month from Davison, a community south of Flint that also receives drinking water from Detroit, and also from samples taken this month from Ann Arbor, which uses a different water source than Flint or Detroit. The levels of Enterobacteriaceae in both Davison and Ann Arbor were below our quantification level. We intend to run more samples with the same methods to further assess how these levels vary over time and over seasons.

Thank you for your participation in this study of Flint drinking water quality, and we appreciate your willingness to give us access to your home. Our research continues and we will provide you with additional results from samples collected at your home as they become available. Before the end of this study, we will be developing a PoU filter guidance document that highlights the most appropriate practices for operating and maintaining the PoU filter in your home. If you have any questions, please do not hesitate to contact Professor Nancy Love at your earliest convenience (734-763-9664, [nglove@umich.edu](mailto:nglove@umich.edu)). Note that Professor Love will be out of the country from November 19 - 26. If you have questions during that time, you can contact Professor McElmurry at 313-577-3876 ([s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)) or Professor Laura Sullivan at 810-762-9838 ([lsulliva@kettering.edu](mailto:lsulliva@kettering.edu)).

Sincerely,

Shawn P. McElmurry, PhD, PE  
Associate Professor  
Wayne State University  
Nancy G. Love, PhD, PE, BCEE  
Professor  
University of Michigan  
Susan Masten, Ph.D., P.E.  
Professor  
Michigan State University

----- Original Message -----

From: Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)>

To: klwebb88 <[klwebb88@comcast.net](mailto:klwebb88@comcast.net)>

Cc: Shawn Patrick McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>

Date: June 13, 2017 at 11:15 PM

Subject: Fwd: Keri Webber

Hi Keri - I apologize for not getting this back out to you sooner. I'm forwarding the letter I sent you back in December and the associated email that explains a few things about the date on it. I'll also put a copy of this email thread and the letter in the snail mail to you. I hope it arrives sooner than the last one! Let me know if you have any questions.

Nancy

Nancy G. Love, Ph.D., P.E., BCEE  
Borchardt and Glysson Collegiate Professor Department of Civil and  
Environmental Engineering, University of Michigan Adjunct Professor, Addis  
Ababa University Institute of Biotechnology, Ethiopia  
Fellow: Water Environment Federation; International Water Association;  
Association of Environmental Engineering and Science Professors  
183 EWRE Building  
1351 Beal Avenue  
Ann Arbor, MI 48109  
Voice: (734) 763-9664  
[nglove@umich.edu](mailto:nglove@umich.edu)  
<http://envbiotech.engin.umich.edu/>  
Twitter: @Love\_H2O

Attend the AEESP 2017 Conference on Advancing Healthy Communities June  
20-22, 2017, Ann Arbor Michigan [www.aeesp2017.com](http://www.aeesp2017.com)

----- Original Message -----

From: klwebb88 <[klwebb88@comcast.net](mailto:klwebb88@comcast.net)>  
To: Shawn McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>  
Date: May 27, 2017 at 6:39 PM  
Subject: Fwd: RE: Keri Webber  
Hi Shawn,

I hate to bug you on a long weekend but I am trying to locate the follow-up  
report to the filter testing that was done on July 8 and July 23rd. I am not  
sure if I am missing it or not but could you please send it when you get a  
chance. I would appreciate it.

Have a great weekend,

Keri

----- Forwarded message -----

From: Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)>  
Date: Fri, Dec 2, 2016 at 6:15 PM  
Subject: Re: Keri Webber  
To: Shawn McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>  
Cc: klwebb88 <[klwebb88@comcast.net](mailto:klwebb88@comcast.net)>

Hi Keri: I'm attaching your letter here. I'm sorry you didn't get it. I  
mailed it from Ann Arbor Nov 19 to this address:

[REDACTED]

Do we have your address correct in the database? Do you know if others from  
our July sample who you may be in touch with got their letters, week of  
Thanksgiving?

Also, the letter may show today's date, but that is because it autocorrects. Below is a snip of my folder when I created all second letters from homes sampled in July. You are PoU04 - PoU11. They were definitely printed 11/18 and early morning 11/19 (yes, 3:30 am...I was working all night to get ready to leave on the 19th). Finally, I realize your name is misspelled in our database (two r's instead of 1). I will correct it. So sorry about that!

Please let me know if you have any questions [REDACTED]

Nancy

From: Amy Pruden [<mailto:apruden@vt.edu>]  
Sent: Sunday, August 28, 2016 9:10 AM  
To: Marc Edwards <[edwardsm@vt.edu](mailto:edwardsm@vt.edu)>  
Subject: Re: Confidential

clueless people- where do you even start?

On Sun, Aug 28, 2016 at 10:08 AM, Marc Edwards <[edwardsm@vt.edu](mailto:edwardsm@vt.edu)> wrote:  
She also said, that Shawn told her one on one, that the state should buy her house for \$250,000 as a water test site. Her house assessed value is \$10K, and they would be lucky to sell it for \$8K. Maybe he was joking, but wow.bad joke.

Marc

**From:** Amy Pruden <[apruden@vt.edu](mailto:apruden@vt.edu)>  
**Sent:** Saturday, September 24, 2016 1:20 PM  
**To:** Siddhartha Roy <[sidroy@vt.edu](mailto:sidroy@vt.edu)>  
**Cc:** Marc Edwards <[edwardsm@vt.edu](mailto:edwardsm@vt.edu)>  
**Subject:** Re: Bacterial growth in lead filters

I only got as far as communicating this concern to Nancy via email, sharing the Facebook post, and then talking to her in person about it when we met in Copenhagen. She thanked me for letting her know about this concern and affirmed that she agrees that using the filters is very important for protecting against lead, and that she and Sean understand the concerns. I'm not sure what a next step would be- maybe reaching out to Sean- as he seems to be the primary point of contact with the residents. Has anyone talked to him? They view communicating results to residents to be an ethical responsibility- so the letters will continue, but maybe they could be persuaded to improve the messaging?

Amy

On Sat, Sep 24, 2016 at 11:59 AM, Siddhartha Roy <[sidroy@vt.edu](mailto:sidroy@vt.edu)> wrote:

Amy/Marc -- did the UM folks respond to how the content of their letters on bacterial testing inside lead filters are scaring residents?

I wish someone would conduct a survey on this to see what the trust levels are on filters, bottled water, MDEQ testing, etc.

--

Siddhartha Roy

Virginia Tech

**From:** Marc Edwards <edwardsm@vt.edu>

**Sent:** Sunday, September 25, 2016 7:06 PM

**To:** 'Susan J. Masten' <masten@egr.msu.edu>; 'Shawn Patrick McElmurry' <s.mcelmurry@wayne.edu>; 'Amy Pruden' <apruden@vt.edu>; 'Nancy Love' <nglove@umich.edu>

**Cc:** 'Siddhartha Roy' <sidroy@vt.edu>

**Subject:** RE: Conference Call

At the EPA data summit, we were told the Shigella cases are not just in Flint, nor are they associated only for water systems on Detroit water.

Thus, while it is not surprising people are concerned about bacteria, I do not see any concern that is specific to Flint residents.

The bacteria levels coming off the filters are exactly as is expected. We have no reason to believe these extra bacteria pose a health concern for water used for cooking or drinking.

Marc

----- Forwarded Message -----

**Subject:** proposed call

**Date:** Sun, 25 Sep 2016 22:08:58 -0400

**From:** Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)>

**To:** Shawn McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>, [masten@egr.msu.edu](mailto:masten@egr.msu.edu)

This is just to you two, although perhaps we need to bring Paul and Laura into this conversation:

I'm in New Orleans and, theoretically, the only day this week I can do a call is Tuesday but it will be tight. Also, I'm hesitant to do so without the three of us having a conversation first and so I would suggest that we three talk on Tue. At best, I might be able to then have a conversation Friday 6 pm eastern.

I appreciate that Amy and Marc want to have a common message, but I do worry that the message we want to convey is different from the message they will want to convey (and have been conveying for months) as they will need to change their message, and I think that will be challenging for VT to do. They have promoted a single point of treatment as being sufficient to protect public health. I think it is not so simple and a modified message is needed. Let me just convey my thoughts/reaction.

Amy and I had a discussion about this in Denmark and I conveyed to her what I think needs to be conveyed to the community. She seemed satisfied with our conversation, but it seems something has changed. Perhaps more people are worried (I still don't mine the Facebook page) and so a clear message about PoU filters is needed. My hope was to develop a message for the community through the Mayor's office and her public health official. One challenge with this plan is that the person isn't starting as soon as hoped. At this point, I think we need to bring Laura S. into this conversation too.

I think the message is:

the water treatment design gold standard is to provide multiple treatment barriers to protect public health. All treatment systems are designed with multiple treatment steps, each of which provides benefits to other steps in the process and enhanced treatment overall. In Flint, the damage to the distribution system has compromised water quality between the treatment plant and homes, so point-of-use treatment has been needed. The single unit PoU treatment method that was selected last January in a moment of crisis was absolutely correct, but alone is insufficient in my opinion for drinking purposes. PoU filters are critical for the inorganic and organic chemical contaminants of concern, and are doing a very good job in reducing exposure of consumers to those contaminants. They are not designed to reduce exposure to bacteria, and indeed both increase bacterial counts and change which bacteria are there. The first of these two consequences has been known for decades (but not the second and Marc is ignoring the second point in his comments). We were clear about the fact that increases in bacteria through filters is nothing new in our discussions with residents, and that all water contains bacteria naturally. However, Flint is not just any city. It is a city with a high prevalence of immune- or health-compromised individuals. It is also a city experiencing a high level of interference in the distribution system (LSL replacements, water main breaks, aging infrastructure). Consequently, it is a city at higher risk for health consequences due to biological quality of the water. How high that risk is, I do not know yet.

Our goal with the RAPID grant was to develop a best practice for Flint. We had hoped that changing filters every two weeks would eliminate the increase in incidence of bacteria (and, presumably, the change in composition of microbial communities). It did not, and I was surprised by this. At this point, I think it is best to take filtered water, boil it, and then refrigerate for drinking. This provides \*\*two\*\* barriers (more in concert with our gold standard of multiple barriers) and covers the chemical and biological risks well.

The message the community has received for months implies that PoU filters alone are sufficient, and I suspect it will be hard for VT to agree to an alternative message. We can get on the phone to try and convince them, but the email messages sound like their intent is to try and convince us to stop talking about bacteria because it scares people. They also do not know about the incidence of enterobacteriaceae and shigella hits we saw and I don't think they need to learn about this before the city and mayor. We are in the midst of trying to figure out what this means and if we have independent measures that confirm what we saw. I think until we have a better handle on what is going on with these indicators in the samples we've detected, a disinfection step is really best. It is what I am starting to do in my own house in Ann Arbor (which is a city with relatively high Myco counts), and I cannot in good conscience recommend otherwise to the citizens of Flint, especially given the average health condition of its citizens. After we have spoken with the city (and maybe Genesee County Health Dept), I am happy to convey more to VT but I do not think it appropriate to do this in the reverse order.

The goal of our RAPID study was to develop a best practices guideline for the city and I think we are ready to make an initial recommendation as noted above, while at the same time clarifying that we continue to analyze samples. I would feel more comfortable having the conversation if we can compile all our data together. Zixu updated the PoU microbial data tonight on the other houses we have data on, and I'll look at that next.

So, I agree a message about our work and the filters needs to be conveyed to the citizens of Flint, but I want to do it in partnership with the Mayor and her office (and county health dept and state if you think necessary).

Let me know what you think about my logic. And, I would like to bring Paul and Laura into this dialog. I will also need to bring Terri in as a partner on the PoU study.

Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**

Professor, Department of Civil and Environmental Engineering  
Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia  
Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors  
University of Michigan  
183 EWRE Building  
1351 Beal Avenue  
Ann Arbor, MI 48109  
Voice: (734) 763-9664  
[nglove@umich.edu](mailto:nglove@umich.edu)  
<http://envbiotech.engin.umich.edu/>  
Twitter: @Love\_H2O

----- Forwarded Message -----

**Subject:**Re: Conference Call

**Date:**Thu, 29 Sep 2016 07:48:54 -0400

**From:**Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)>

**To:**Susan J. Masten <[masten@egr.msu.edu](mailto:masten@egr.msu.edu)>

**CC:**Shawn Patrick McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>

Hi Susan and Shawn:

Susan, I am also glad we can push this off. I had hoped my email would allow for more time but Amy seems anxious to talk again and I felt it would be hard for me to do so without looking like I was blowing her off. Any conversation we had again wouldn't have been different in terms of my message from what we already had. Having you constrain the meeting has helped. I do hear that she wants a common message, which I am fine with. Her email does suggest, however, that she will not like the message we believe needs to be conveyed. We'll just have to find out. But pushing to October 10 will give us more time with our molecular analysis. Will have a full Miseq analysis assessment by today. But, what is really critical is the qPCR and Chia-Chen is out most of next week. Nevertheless, I have pushed on identifying primers that at least target the enteriobacteriaceae that are for thermotolerant indicators (typically associated with mammalian sources). I'm starting to think that we should return to doing fecal samples when we go to houses.

Ann Arbor water ran around 100 cfu/mL on average out of the pipe when we did our study November 2014.

Note that are Ann Arbor data was not first flush. The results for Flint are first flush. The lowest is 36 +/- 4 and the highest was 5300 +/- 458. If we eliminate the high number, the average in Flint first flush is 1,600. It very well may be that the piped average after flushing could be around 500 cfu/ml or less; we just haven't taken those measures since our focus has been the filter and plating is hard to do with multiple samples at triplicate each.

What may be more important is the count after 5 minutes coming OUT of the PoU Filter. Average by plating so far is 1,140 +/- 290.

Nancy



**Nancy G. Love, Ph.D., P.E., BCEE**

Professor, Department of Civil and Environmental Engineering

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors

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1351 Beal Avenue

Ann Arbor, MI 48109

Voice: (734) 763-9664

[nglove@umich.edu](mailto:nglove@umich.edu)

<http://envbiotech.engin.umich.edu/>

Twitter: @Love\_H2O

On 9/28/2016 6:45 PM, Amy Pruden wrote:

Hi Susan,

Yes, I definitely agree this can wait until after ABET- good luck with that! From Shawn's email, he returns Oct. 6th. Looking at the week of Oct. 10th, I am completely open EXCEPT Tuesday Oct 11 8-12, Wednesday 10-12 and 1-2, and Friday 9-3:30. Maybe check with Shawn after ABET and suggest some times in this range that work for you.

Thanks for doing this.

Amy

On Wed, Sep 28, 2016 at 3:42 PM, Prof. Susan Masten <[masten@egr.msu.edu](mailto:masten@egr.msu.edu)> wrote:

Hi Amy

I can't meet until after our ABET visit is over next week (I'm coordinator for both CE and ENE programs and running ragged right now).

I can meet on 10/5 from 2:30-3:30 pm and 10/6 from 1-2 pm, however, I think we should wait until after Shawn returns. I'm not available on 10/7.

Susan

On 9/28/2016 1:07 PM, Amy Pruden wrote:

Hi Nancy,

Yes, this is a follow-up to our discussion in Copenhagen. Our team on the ground are noting heightened concerns about the HPCs since we last talked. The attached is how Keri's Facebook string has progressed since we last talked, as an example. I know we are all on the same page

regarding the importance of the messaging and avoiding alarm over numbers that represent normal levels of bacteria in filtered drinking water. Also, Staph and fecal bacteria don't tend to survive or grow on filters, it is things like Myco and Legionella that are problematic, but even then- not so much for drinking the water (they are more of a shower risk, and the filters aren't installed there). In any case. I just thought it might be useful to follow up with some brainstorming together on how we can all work together to improve messaging and try to be on the same page in assuring the residents.

That being said- it does seem our schedules are crazy-- Shawn said the rest of this week is out, and Marc's schedule is out of question. But Sid and I could make ourselves available next week. Here's when I am

available (can open more slots if need be), if you, Susan, and Shawn could reply and let us know which of these slots work, that would be great.

10/3 1-3PM  
10/4 10:30-12:30, 2:30-4:00  
10/5 8-11, 2:30-3:30  
10/6 11-2  
10/7 8-10, 2-5

Thanks!  
Amy

On Tue, Sep 27, 2016 at 3:04 PM, Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)> wrote:

Amy: I'm just getting back in town now, and got through today's class. I wanted to circle back to your email. As you surmised, we are unlikely to get all of us together in the short term, plus we have a lot of flint-related "irons in the fire" right now that need our focused attention. Your note to Shawn seems to mimic the same conversation we had in Denmark, and I came away from our conversation with the impression that you understood that we had conveyed your exact sentiments to the homeowners, both in result letters and in person. Is there new information that you want to discuss? If so, perhaps a subset of us can get on the phone with you in the short term - maybe toward the end of the week. If not, I believe we understand and share your concerns and believe our approach is consistent with both your concern and our principle of providing timely results to homeowners who participate in our PoU study.

If you want to get on the phone to discuss this further either way, I can carve out some time in the next few days. Let me know.

Nancy

\*Nancy G. Love, Ph.D., P.E., BCEE\*  
Professor, Department of Civil and Environmental Engineering  
Adjunct Professor, Addis Ababa University Institute of  
Biotechnology, Ethiopia  
Fellow: Water Environment Federation; International Water  
Association; Association of Environmental Engineering and Science  
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Voice: (734) 763-9664 <tel:%28734%29%20763-9664>  
[nglove@umich.edu](mailto:nglove@umich.edu) <mailto:[nglove@umich.edu](mailto:nglove@umich.edu)>  
<http://envbiotech.engin.umich.edu/> <<http://envbiotech.engin.umich.edu/>>  
Twitter: @Love\_H20

On Sun, Sep 25, 2016 at 5:44 PM, Amy Pruden <[apruden@vt.edu](mailto:apruden@vt.edu)> wrote:

Hi Shawn,  
Thanks for your quick response- yes, Australia is probably the trickiest time zone to connect with. I presume you mean you are returning Oct. 6, not Aug. 6th (unless you are gone a year)? We

would like to try to connect sooner rather than later- For me personally, 5:00PM or 6:00PM is workable any day this week, except can't do 6PM on Thursday. I will let others chime in regarding availability- I have a conference line I can send out that has an international dial-in, or we could try zoom.  
Amy

On Sun, Sep 25, 2016 at 5:23 PM, Shawn Patrick McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)> wrote:

Hey Amy, thanks for reaching out. I completely understand your concern. This is a challenge to communicate. Unfortunately, I'm in Australia until Aug. 6<sup>th</sup>, making conference calls tough. With the 14 hour time difference, the time that seems to work best is if we schedule an early evening call for you (5pm) which turns out to be early morning call for me one day ahead (7am). I've copied Nancy and Susan Masten, MSU, as they are both working on this with me. \_\_\_\_\_

— —

Nancy, do you want to suggest a few times that will work with your travel schedule? If it is 5 or 6pm (EST) then it should be fine for me on most days. \_\_\_\_\_

— —

Shawn \_\_\_\_\_

— —

\*From:\* Amy Pruden [mailto:[apruden@vt.edu](mailto:apruden@vt.edu)]  
<mailto:[apruden@vt.edu](mailto:apruden@vt.edu)>]  
\*Sent:\* Monday, September 26, 2016 6:50 AM  
\*To:\* Shawn Patrick McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)> <mailto:[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)> >  
\*Cc:\* Marc Edwards <[edwardsm@vt.edu](mailto:edwardsm@vt.edu)> <mailto:[edwardsm@vt.edu](mailto:edwardsm@vt.edu)>>; Siddhartha Roy <[sidroy@vt.edu](mailto:sidroy@vt.edu)> <mailto:[sidroy@vt.edu](mailto:sidroy@vt.edu)>>  
\*Subject:\* Conference Call \_\_\_\_\_

— —

Hi Shawn, \_\_\_\_\_

It was nice to finally meet you back in May-- I can't believe the summer flew by so quick! \_\_\_\_\_

We were hoping we could touch base with you this week with respect the HPC testing on the lead filters- would you be available any time this week for a conference call? If so, please send a few available slots. \_\_\_\_\_

Our main concern is the messaging back to Flint residents on the bacteria numbers. We are getting some indicators that some folks are getting scared because they don't know what they mean. I know from my experience, people can find mention of bacteria of any sort as "scary"- and we hope to help get the message out that all drinking water has

bacteria in it- this is normal, Flint's bacteria are not higher than the bacteria in other drinking water. Worst would be if people rip out the lead filters because of fear over bacteria.\_\_\_\_\_

I am in touch with Nancy about this too- but I think you have more direct contact with residents at this point- We just thought it would be helpful to follow up with a conference call and make sure our messaging is on the same page.\_\_\_\_\_

Thanks!\_\_\_\_\_

Amy

\_\_\_\_\_

-- \_\_\_\_\_

**Shawn McElmurry**

**From:** Shawn Patrick McElmurry  
**Sent:** Tuesday, September 27, 2016 7:04 AM  
**To:** Nancy Love  
**Subject:** RE: Conversation this week about communicating data results

Thanks Nancy. Safe travels.

**From:** Nancy Love [mailto:nglove@umich.edu]  
**Sent:** Tuesday, September 27, 2016 8:44 PM  
**To:** Marcus Zervos <MZERVOS1@hfhs.org>; Paul Evan Kilgore <paul.kilgore@wayne.edu>; Susan Masten <masten@egr.msu.edu>; Terese Olson <tmolson@umich.edu>; Matthew Seeger <matthew.seeger@wayne.edu>; Laura Sullivan <dr.laura2@gmail.com>; Lara J Treemore-Spears <treemorespears@wayne.edu>  
**Cc:** Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>  
**Subject:** Conversation this week about communicating data results

All- Susan, Shawn and I have had some preliminary e-conversations about communicating preliminary and final results associated with the point-of-use filter NSF study. We have some interesting but incompletely analyzed microbial results that we will explain, and need to think through these results in a public health context, how and when we convey our results and to whom, and in what order. Mark and Laura, you are not directly involved with the PoU study but it overlaps sufficiently with FACHEP that I think it valuable to have you both involved with this conversation. Matt, we could use your communications expertise.

We probably won't be getting Shawn who is truly on vacation this week! But, given his lack of availability we can schedule this around the EST clock. I am boarding a flight now but would like to find a time when we can all talk this week if at all possible. Please reply to me about time options below. Thank you.

Times THIS week starting 9/28:  
Wednesday 7-8 am, 12-1 pm  
Thursday 7-8 am, 9-10:30 am  
Friday 7-8 am, 10:30-11:30 am, 1-4 pm

---  
**Nancy G. Love, Ph.D., P.E., BCEE**  
Professor, Department of Civil and Environmental Engineering  
Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia  
Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors  
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Voice: (734) 763-9664  
[nglove@umich.edu](mailto:nglove@umich.edu)  
<http://envbiotech.engin.umich.edu/>  
Twitter: @Love\_H2O

**From:** Ganim, Sara [<mailto:Sara.Ganim@turner.com>]  
**Sent:** Friday, September 30, 2016 12:57 PM  
**To:** Marc Edwards <[edwardsm@vt.edu](mailto:edwardsm@vt.edu)>  
**Subject:** RE: filter question

Residents tell me this. I'm working on something about a Shigella outbreak in Flint, and that people are not washing their hands. I asked because some people who do wash in filtered water don't wash hands with hot or warm water because they believe it decreases the life of the filter.

**From:** Marc Edwards [<mailto:edwardsm@vt.edu>]  
**Sent:** Friday, September 30, 2016 12:43 PM  
**To:** Ganim, Sara <[Sara.Ganim@turner.com](mailto:Sara.Ganim@turner.com)>  
**Subject:** RE: filter question

First of all, EPA says that hot water is generally not safe for drinking...period. So no one should be drinking hot water in Flint or elsewhere. Second, they should not put hot water through the filter. It should be bypassed when they need hot water. Third, there is no reason to believe that hot water will decrease the filter effectiveness, or at least no data I am aware of on that issue. If anyone has such data, I'd be happy to review it.

Marc

**From:** Ganim, Sara [<mailto:Sara.Ganim@turner.com>]  
**Sent:** Friday, September 30, 2016 10:59 AM  
**To:** Marc Edwards <[edwardsm@vt.edu](mailto:edwardsm@vt.edu)>  
**Subject:** filter question

Is it true that HOT WATER causes the life of the water filters to decrease? I'm being told that people in Flint are scared of using hot water for that reason.

--

Sara Ganim

Correspondent, CNN Investigations  
(954) 663-2523

[http://wethepeopleofdetroit.com/wp-content/uploads/2017/07/RuttBluwstein2017\\_Quests-for-Justiceand-Mechanisms-of-Supression-in-Flint-MI.pdf](http://wethepeopleofdetroit.com/wp-content/uploads/2017/07/RuttBluwstein2017_Quests-for-Justiceand-Mechanisms-of-Supression-in-Flint-MI.pdf)

Residents' concerns over deteriorating health were also met with the "blaming the victim" response by some officials who responded that "people don't wash hands." This particularly emerged in relation to a county-level epidemic of the Shigella bacteria in 2016, which causes severe diarrhea and fever and is believed to spread in conditions of poor hygiene. Most incidences have been reported in Flint. In response, the Genessee county Health Department started a "wash your hands campaign."<sup>14</sup> However, the public authorities' (and media's) fixation on people's personal habits, even when behaviors are legitimated by people's fear of the water,<sup>15</sup> has frustrated and shamed Flint residents.

<http://gchd.us/wp-content/uploads/2016/09/shigella-9.12.16.pdf>

## Water and use baby wipes instead

- **53 residents of Flint have been infected with shigellosis**
- **The infection causes bloody diarrhea, fever, and nausea**
- **Officials say it is because residents are scared to wash in water that could be contaminated with lead**
- **Two years ago the water supply became contaminated with lead**

---

By [MIA DE GRAAF FOR DAILYMAIL.COM](http://MIA.DE.GRAAF.FOR.DAILYMAIL.COM)

PUBLISHED: 12:05 EST, 4 October 2016 | UPDATED: 18:23 EST, 6 October 2016

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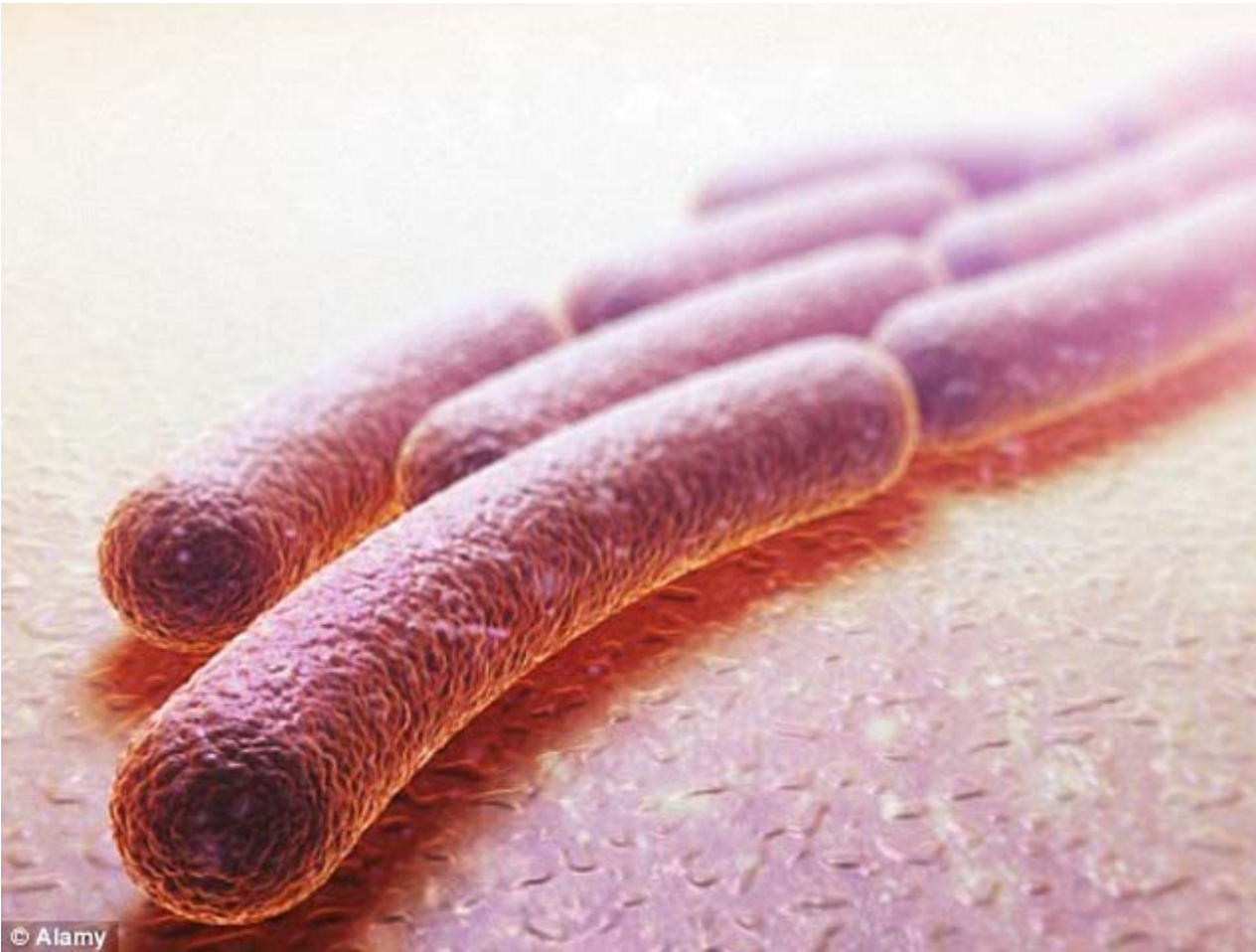
Flint, Michigan, has confirmed an outbreak of a highly infectious bacterial disease - caused by residents being too scared to bathe in lead-contaminated water.

So far 53 residents in Flint have contracted shigellosis - a virus that causes bloody diarrhea, fever, and nausea. It is usually the result of poor hygiene. A total of 84 cases have been recorded in Genesee County.

It is the latest health crisis to hit the city two years after lead contaminated the water system, leaving scores of residents with potentially life-long side effects.

City health officials claim it is the direct result of residents being too scared to wash themselves with possibly contaminated water. Officials say that instead, they are washing themselves with free baby wipes handed out at community centers following the 2014 lead contamination of the town's water supply.

**Scroll down for video**



- **Dozens of residents have contracted shigellosis, a virus that causes bloody diarrhea, fever, and nausea. It is usually the result of poor hygiene. Pictured: Shigella bacteria**

As with many bacterial infections, tests show all strains of the bug are becoming increasingly resistant to antibiotics.

'People aren't bathing because they're scared,' Jim Henry, Genesee County's environmental health supervisor, told [CNN](#).

'Some people have mentioned that they're not going to expose their children to the water again.'

He said residents are washing themselves with the free baby wipes they get from the community centers - such as churches and nonprofits, as opposed to the nine Community Water Resource Sites set up to provide bottled water.

**EXHIBIT: FACHEP repeatedly suggests Shigella is coming from Flint water.**

Representative of communications sent November 2016 (see Love email)

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6/14/2017

Dear Kerri Webber:

This letter is a follow-up from our previous report on samples we took around your water filter in July. In the last report, we said that we were taking a closer look at the types of bacteria that are present in samples collected from your home. Since bacterial abundance increases across most (79%) point-of-use, faucet-mounted water filters in Flint, we wanted to understand if potentially harmful bacteria that can exist in treated drinking water distribution systems were increasing in number as well.

We have performed additional analyses on samples from your home using DNA-based methods. DNA-based methods offer us exceptional sensitivity to detect specific DNA sequences that, if present, indicate the possible presence of harmful bacteria. Although the presence of DNA in water does not confirm that it is associated with cells that can cause infection, finding DNA that is associated with harmful bacteria suggests that the utility might need to modify treatment practices to ensure the safety of the public. We conducted our study in an attempt to assist with this assessment.

In one test, we used a DNA-based analysis informed by a previously published method to look for a gene that is associated with illness by *Shigella*. *Shigella* is the bacterium associated with a diarrheal outbreak that occurred in Flint this summer and early fall. In all samples from your house that were analyzed (four per visit, including: water going to the PoU filter; water leaving the PoU filter after 5 minute flush, and the PoU filter fabric that is wrapped around the outer surface of the filter), **we did not detect the gene**. Our method detection limit is around 1 gene copy, which is well below the level thought to cause illness.

In a second screening test applied to some samples from Flint, including samples from your home, results indicated the possible presence of DNA from the Enterobacteriaceae family of bacteria. Some forms of Enterobacteriaceae bacteria can be harmful. Detection of bacteria within this family would be consistent with, but not proof of, bacteria found in the gut of animals and humans. We applied a second, published DNA method that targets the Enterobacteriaceae family to samples from your home to quantify levels. Results for all water samples collected from your house were below our method quantification limit for Enterobacteriaceae. We have not analyzed samples taken from the filters for this family of bacteria yet.

It is unclear how common the Enterobacteriaceae family DNA markers are in treated drinking water in other cities around the US. We have used the same method applied to samples from your home to water samples taken this month from Davison, a community south of Flint that also receives drinking water from Detroit, and also from samples taken this month from Ann Arbor, which uses a different water source than Flint or Detroit. The levels of Enterobacteriaceae in both Davison and Ann Arbor were below our quantification level. We intend to run more samples with the same methods to further assess how these levels vary over time and over seasons.

Thank you for your participation in this study of Flint drinking water quality, and we appreciate your willingness to give us access to your home. Our research continues and we will provide you with additional results from samples collected at your home as they become available. Before the end of this study, we will be

On Tue, Oct 4, 2016 at 10:50 AM, Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)> wrote:

Thank you, Amy. Yes, we are and have been aware of the shigella issue for months, and have been engaging with our public outreach and communication team. I think Shawn is back by the weekend and will be able to offer some times for a call as soon as his schedule allows.

Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**

Professor, Department of Civil and Environmental Engineering

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

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**From:** Matthew Seeger  
**Sent:** Tuesday, October 04, 2016 8:28 AM  
**To:** Nancy Love; Shawn Patrick McElmurry  
**Cc:** Paul Evan Kilgore; Matthew Seeger; Marcus Zervos  
**Subject:** Re: shigella news is finally out in national level

Thanks Nancy. I'm following up with our general consul today. Hope the kids are better.

Matt

**From:** Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)>  
**Date:** Tuesday, October 4, 2016 at 7:14 AM  
**To:** Shawn Patrick McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>  
**Cc:** Paul Evan Kilgore <[paul.kilgore@wayne.edu](mailto:paul.kilgore@wayne.edu)>, Matt Seeger <[Matthew.seeger@wayne.edu](mailto:Matthew.seeger@wayne.edu)>, Marcus Zervos <[MZERVOS1@hfhs.org](mailto:MZERVOS1@hfhs.org)>  
**Subject:** Re: shigella news is finally out in national level

All:

I had a chat with Laura Sullivan over the weekend and she has some suggestions on how to be more transparent to homeowners about results, while not causing fear. I ended up not getting much done this weekend as my sitter was sick and husband was out of town, so spent the weekend with the kids. I will draft my notes from Friday's call this week. But, I am wondering if at least from the point-of-use filter perspective, it is time to take Rebecca Williams from Michigan Radio up on her offer to me to discuss PoU filters in Flint. Let me generate my notes and we can consider this option.

Also, timing is bad but [REDACTED] is out of town this week.

**Nancy G. Love, Ph.D., P.E., BCEE**  
Professor, Department of Civil and Environmental Engineering  
Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia  
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Twitter: @Love\_H2O

**Subject:** Re: Conference Call

**Date:** Tue, 4 Oct 2016 11:03:15 -0400  
**From:** Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)>  
**To:** Prof. Susan Masten <[masten@egr.msu.edu](mailto:masten@egr.msu.edu)>  
**CC:** Shawn Patrick McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>

We do not have qPCR results for specific pathogenic species yet and timing is bad as my student who does this work is out this week. But, we have a more thorough MiSeq result. I have her focused on qPCR of filter effluents only next week once back. I have given her an Oct 14 deadline for first cut results on all samples, not just from July but other effluents taken since. We do know that we CANNOT detect one of the virulence factors (makes toxin that makes one sick) common in Shigella, and I am quite confident in those results (we had positive and negative controls that came out as expected, and George Garcia's lab was able to confirm our result). Next, we are just looking for specific species. We can't just run samples, we have to create positive controls or acquire them.



We are focused on: Shigella/E. coli, Pseudomonas aeruginosa, NTM (non-tuberculosis Mycobacterium and Mycobacterium ulcerans), and general fecal indicators. We definitely have genera that contain opportunistic pathogens at all houses, but that is the same as we would find in almost every city in America. It doesn't mean we have the species within that genus present, or high enough counts to cause illness.

I will work on a communication piece tonight based on a conversation I had with Laura Sullivan. Trying to merge Laura's desire for full face-to-face transparency with homeowners, Matt's thoughts about how to communicate so as to avoid causing alarm, and my own principles which align pretty far toward Laura's thoughts, but which desire having more data before engaging.

Sorry. I am not happy with the week off timing and didn't know it was scheduled.

Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**

**From:** Nancy Love [<mailto:nglove@umich.edu>]

**Sent:** Thursday, October 20, 2016 12:17 AM

**To:** Strockbine, Nancy (CDC/OID/NCEZID) <[nas6@cdc.gov](mailto:nas6@cdc.gov)>

**Cc:** Karwowski, Mateusz P. (CDC/OID/NCEZID) <[ydh4@cdc.gov](mailto:ydh4@cdc.gov)>; Shawn Patrick McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>; Terese Olson <[tmolson@umich.edu](mailto:tmolson@umich.edu)>; Paul Evan Kilgore <[paul.kilgore@wayne.edu](mailto:paul.kilgore@wayne.edu)>; Matt Seeger <[matthew.seeger@wayne.edu](mailto:matthew.seeger@wayne.edu)>; Garcia, George <[gagarcia@med.umich.edu](mailto:gagarcia@med.umich.edu)>; [masten@egr.msu.edu](mailto:masten@egr.msu.edu)

**Subject:** Request for assistance with critiquing our analysis of samples from Flint

Dear Dr. Strockbine:

I found your contact information on the web and believe you may have heard about me from Dr. Matt Karwowski, who is currently assisting with the Shigellosis outbreak assessment in Flint, Michigan. I am writing to ask for your assistance, through critiquing our analytical approach to selected samples (72) that were collected across point-of-use (PoU) filters deployed in Flint Michigan in July 2016, which coincides with the spike in Shigellosis in the city and surrounding county. To date, we understand that no correlation between drinking water and Shigellosis has been made. We also understand that a source for the outbreak has also not been identified. At the same time, the baseline levels of Shigellosis seem to be somewhat elevated relative to normal baselines. Finally, there are multiple and unusual risk factors associated with management and status of the infrastructure in Flint's distribution system that make this assessment worth exploring.

Dr. Terri Olson and I have a National Science Foundation-supported grant to look at how point-of-use filters deployed in Flint affect the microbial water quality of drinking water. Dr. Shawn McElmurry at Wayne State University and Susan Masten at Michigan State University have a complementary grant to evaluate the chemistry across these same filters. Our three institutions have partnered to take field samples together and share data. This work follows on work we have been doing at U-M on a separate NSF grant that affirms work shown by many others that PoU filters enhance microbial abundance in waters that pass through the filter. Our work, conducted initially on water from Ann Arbor, also shows that PoU filters change the microbial community and actually enhance the abundance of Mycobacteria in filtered effluents (we are still assessing whether the opportunistic pathogens species are enhanced).

Our RAPID grant for Flint is focused on identifying best management practices for using the filters, and the frequency that cartridges should be replaced (assuming it could be more frequent than manufacturer recommendations) based on both microbiological and chemical data. We considered the changes in microbial composition across the filters as part of our assessment. It was in the process of doing this analysis that we obtained results that indicated the possible presence of Shigella in the water.

Independent of the shigellosis outbreak in Flint, we had detected possible Shigella or E. coli through a high level biomolecular screen (16S Illumina sequencing) in some samples from our July sampling events. The levels were extremely

low and below what we would normally consider significant. In fact, in discussing the results with a bioinformatics expert, his assessment was that the samples could represent contamination at the core lab that ran our samples (in case samples were run before ours that included human fecal waste and some residual DNA interfered with our run). Nevertheless, the presence surprised us since we never saw that taxa in all our Ann Arbor-based samples. We also have very significant Enterobacteriaceae hits (up to 21% relative abundance in one sample) that we have not yet evaluated by PCR as we have focused our time on the Shigella/E. coli hits (and we never detected Enterobacteriaceae in Ann Arbor water either). Given the shigellosis outbreak in Flint and the high abundance of contamination risk factors from an infrastructure perspective, we felt obligated to further assess these samples using more targeted analyses. We engaged Dr. George Garcia on our campus, who has studied virulence factors in Shigella. Together, we decided to pursue a method that targets ipaH (see attached paper) using PCR (George's lab) and qPCR (Terri's and my lab), followed by running gels and sequencing bands by Sanger sequencing. We have run samples multiple times, anticipating negative results so that we could emphatically say that Shigella was not detected when we reported back to residents. However, we continue to see unexpected results with ipaH positives, albeit at levels below typical infectious doses (estimated at around 2 cells per 2L water sample by the qPCR method outlined in the attached paper and applied to a subset of samples). Before we discuss with the county and state public health officials, we want to open up a discussion and critique of our approach with your group, since you have substantive expertise with Shigella/EIEC detection. We believe we have been diligent and careful with all our analyses. At the same time, my expertise is not Shigella and we are not used to working with agents that have such low infectious doses. We hope that you and others in your lab will listen to what we've done, look at our results and assess whether further analysis is warranted (and, if so, what method), or indicate why our method may not be valid. We are committed to getting the most accurate and truthful information to the citizens of Flint and, frankly, could use your help to this end. Furthermore, we have limited DNA and do not want to compromise the availability of those samples. I note that we have not analyzed all the biofilms that grow on the PoU fabric filters, which have much higher biomass amounts and are environments largely devoid of disinfectant residual since the residual is destroyed on the activated carbon block surface within the PoU device.

We would be happy to set up a webinar with you, appropriate members of your lab, and our team, and give you a presentation of our results. I believe we could do this as early as this Friday morning. We prefer to keep this a highly technical discussion, after which we will share our results with the city, public health officers in Michigan involved in this case, and community organizers to frame how to discuss results with the homeowners whose homes we sampled.

We thank you, in advance, for your assistance.

Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**

Professor, Department of Civil and Environmental Engineering

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors



----- Forwarded message -----

From: **Hill, Vincent (CDC/OID/NCEZID)** <[veh2@cdc.gov](mailto:veh2@cdc.gov)>

Date: Fri, Oct 28, 2016 at 2:25 PM

Subject: RE: UMich+FACHEP discussion with CDC about PoU microbiological data

To: "[nglove@umich.edu](mailto:nglove@umich.edu)" <[nglove@umich.edu](mailto:nglove@umich.edu)>

Hi Nancy,

Thank you for sharing your research data today and being so open to a wide ranging discussion of technical questions and public health communication considerations. We agree with your view regarding sharing specific Shigella testing results (ipaH-specific data) in a timely manner and would be happy to assist your team in developing public health messages to communicate results to your study households. We would be happy to have a call with you again to discuss approaches to communicating these results, and can help you refine draft communications that your team develops.

We look forward to talking with you again and hope that your ongoing work on this study goes well.

Vince

Vincent R. Hill, PhD, PE

Waterborne Disease Prevention Branch

Division of Foodborne, Waterborne and Environmental Diseases

Centers for Disease Control and Prevention


[1600 Clifton Road, NE](#)

Mailstop C-09

Atlanta, GA 30329

Phone: [404-718-4151](tel:404-718-4151)

On Sat, Oct 29, 2016 at 9:30 PM, Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)> wrote:

I've received some notes with interest in a discussion on how we go forward with the PoU study and have received some individual input from some of you. At this point in time, I have heard support for holding on any reporting of results until we have completed all analyses, including Enterobacteriaceae. I am in agreement, but would be happy to discuss further. I have been reading more about the Enterobacteriaceae tonight and believe this is a very important part of the story. 

Next week is tough but please indicate if you can handle a call regarding PoU study and follow up to discussion with CDC:

Monday 10/31, 3:30 pm

Wednesday, 11/2, between 8 and 11 am

Thursday, 11/3, 9-10

The earlier, the better, so please be flexible.

Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**

Professor, Department of Civil and Environmental Engineering

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

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**From:** Durno, Mark

**Sent:** Tuesday, November 15, 2016 6:42 PM

**To:** Cupal, Suzanne; Lytle, Darren; Schock, Michael

**Subject:** RE: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

**Follow Up Flag:**

**Flag Status:**

Suzanne,

Follow up

Flagged

After reading this, I'm concerned about the over-emphasis on the bacterial results and how it may be perceived - especially if these are common findings. Do you have moment to discuss Wednesday morning?

Thanks,

Mark

Mark

#### Flint water filter study reports ~~initial~~ new findings

ANN ARBOR—DETROIT—EAST LANSING — ~~In partnership with Flint residents, r~~ Researchers from the University of Michigan, Wayne State University and Michigan State University are conducting studies to determine the best ways to manage the type of point-of-use water filters being used by Flint residents ~~on kitchen faucets~~. The studies are supported by grants from the National Science Foundation ~~and homeowners who volunteered to be part of this study~~.

The study team is releasing ~~all validated additional~~ results from the ~~on-going~~ water filter study this week to the ~~17-xx (# sampled)~~ home owners sampled to date. ~~The validated results include total lead concentrations, total trihalomethane (TTHM) concentrations, heterotrophic plate counts (HPCs), and a DNA-based analysis that targets Shigella or enteroinvasive Escherichia coli (E. coli), both pathogenic microorganisms that can cause diarrheal illness. Additional DNA-based analyses are underway and will be reported as soon as the validated results are available.~~

Results show that the point-of-use filters remove total lead to below detection limits, which is consistent with multiple other studies, including a published EPA study. Furthermore, the filters remove TTHMs to below detection. Both these results are consistent with manufacturer's claims that the filters are effective at removing these contaminants.

Because of the activated carbon filter core, disinfectant residual is destroyed across the filter. The team's measurements show that ~~while the free chlorine residual concentrations entering the filters average xxxx, the average concentration drops to trace levels (0.13 ppm, on average) in filtered water averaged < xxxx mg/L (ppm).~~ These results are consistent with what is expected of water passed through an activated carbon-based point-of-use filter.

~~Consistent with p~~ Past studies ~~on-of~~ the type of point-of-use filters ~~that are being used deployed~~ in Flint ~~have, the team has~~ shown that heterotrophic plate counts (HPCs), an indicator of total bacteria, increase across the filters. ~~The presence of bacteria detected by HPC does not mean that the bacteria are harmful. As with many food products, such as yogurt, all water contains bacteria. In Flint, in 75% (reconfirm final number) of homes sampled followed this trend. In 975% (confirm number) of homes, the HPC count decreased substantially after five minutes of flushing. The presence of bacteria detected by HPC does not mean that the bacteria are harmful. As with many food products, such as yogurt, all water contains bacteria.~~ These results show that point-of-use filters increase the abundance of bacteria in drinking water in most homes studied, as would be expected from multiple past studies associated with activated carbon-based point-of-use filters. ~~Studies Experiments are also underway to clarify how long water needs to be flushed to effectively decrease HPC counts.~~

Preliminary results indicated the presence of DNA from the Enterobacteriaceae family of bacteria, which ~~include both pathogens and non-pathogens. Detection of bacteria within this family would be consistent with, but not proof of, bacteria found in the gut of animals and humans. Based on these initial indications and motivated by the Shigellosis outbreak in Genesee County, informed by the research team's previous experience with point-of-use filters studied in Ann Arbor, the composition of the bacteria in samples were analyzed by published DNA-based protocols that target Shigella-type disease assessed using a DNA-based analyses method.~~ Sampling points included water going into the filter, leaving the filter, after five minutes flushing, and at three locations across the filter where bacteria can grow on surfaces. Filters that were collected from homes were disassembled to gain access to the last three sample locations. DNA from all samples collected in July were analyzed by a screening

Commented [NL1]: Shawn to provide

Commented [SM2R1]: If one data point is skewing results, perhaps it would be better to report the median – but then that should be done to levels from the filter.

Commented [NL3]: Shawn - should we give a median here, or a range? I suspect the one case of 0.4 is skewing this and giving a false sense of "typical".

Formatted: Highlight



method that gives a snapshot of all bacterial families present. All samples collected from July through October were analyzed by a DNA-based method called quantitative polymerase chain reaction (qPCR) that targets specific genes. To date, the team has used a published method for a virulence gene that is associated with the mechanism within enteroinvasive *Escherichia coli* (EIEC) and *Shigella* that causes diarrheal illness. All water samples analyzed, which include water going into and out of filters, were below detection for the method *Shigella*, which is less than one copy of the gene <confirm with Chia-Chen>. Furthermore, a targeted DNA method for the Enterobacteriaceae has been developed and found in multiple homes tested so far. It is unclear how common these bacteria are in disinfected drinking water around the US. In one sample collected from Davison, a community that receives drinking water from Detroit, Enterobacteriaceae were below detection. The team is currently applying this method to all samples collected, and results will be provided to homeowners and the public as soon as they are available.

Methods for other targeted genes are being validated and results will be released as soon as they are available. Studies are also underway to clarify how long water needs to be flushed to effectively decrease HPC counts.

Recommendations for managing point-of-use filters in homes are being developed based on the team's results and a final recommendations document will be provided as soon as results are available. Based on what we know about the behavior of point-of-use filters in Flint so far, the our-research team acknowledges that point-of-use filters offer excellent protection from lead and TTHM exposure in drinking water. In most cases, the filter increases bacterial counts in filtered water, which can be reduced by flushing. However, because flushing may not be preferential from the standpoint of maintaining protection against lead <this statement comes out of the blue and may need explanation or deletion>, homeowners who are concerned about exposure to higher bacterial counts from their filters have a few options available to them. One of those options is to only-use bottled water for drinking and cooking. The other option is to boil filtered water to offer an additional level of protection against the possible presence of potentially harmful bacteria.

heterotrophic plate counts (HPCs), and a DNA-based analysis that targets *Shigella* or enteroinvasive *Escherichia coli* (*E. coli*), both pathogenic microorganisms that can cause diarrheal illness. Additional DNA-based analyses are underway and will be reported as soon as the validated results are available.

Commented [SM4]: Reads as if the method has been found in multiple homes. Should you note that the DNA method does not distinguish between live/dead organisms?

**Shawn McElmurry**

---

**From:** Wells, Eden (DHHS) <WellsE3@michigan.gov>  
**Sent:** Wednesday, November 16, 2016 2:03 PM  
**To:** Nancy Love  
**Cc:** Shawn McElmurry  
**Subject:** RE: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

Have a WONDERFUL holiday! Sounds like a good plan.

Eden

**From:** Nancy Love [mailto:nglove@umich.edu]  
**Sent:** Wednesday, November 16, 2016 12:56 PM  
**To:** Wells, Eden (DHHS) <WellsE3@michigan.gov>  
**Cc:** Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>  
**Subject:** Re: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

Eden: We came to the same conclusion, albeit late, but that is why we pulled back for now. We think a combined press release appropriately targeted for the public + white paper with technical detail that one can look at if they want more information is best, and that will take a bit of time. I am out of the country and largely off-line all next week. We'll be back in touch after the Thanksgiving holiday.

Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**  
Borchardt and Glysson Collegiate Professor  
Department of Civil and Environmental Engineering, University of Michigan  
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<http://envbiotech.engin.umich.edu/>  
Twitter: @Love\_H20

On Wed, Nov 16, 2016 at 12:29 PM, Wells, Eden (DHHS) <WellsE3@michigan.gov> wrote:

Good afternoon,

At initial review, the reading level is too high for general public or media use; this has very technical terms that will need to be revised.

As you get closer to your release, we can provide further comments.

Eden V. Wells, MD, MPH, FACPM

Chief Medical Executive

Michigan Department of Health and Human Services

P.O. Box 30195

Lansing, MI 48909

(517)-284-4998

From: Nancy Love [mailto:[nglove@umich.edu](mailto:nglove@umich.edu)]

Sent: Tuesday, November 15, 2016 8:23 PM

To: JoLisa McDay <[jmcd@cityofflint.com](mailto:jmcd@cityofflint.com)>; Pamela Pugh <[ppugh@cityofflint.com](mailto:ppugh@cityofflint.com)>; Wells, Eden (DHHS)

<[WellsE3@michigan.gov](mailto:WellsE3@michigan.gov)>; Beach, Michael J. (CDC/OID/NCEZID) <[mjb3@cdc.gov](mailto:mjb3@cdc.gov)>; Strockbine, Nancy

(CDC/OID/NCEZID) <[ns6@cdc.gov](mailto:ns6@cdc.gov)>; jhenry@gchd.us; McFadden, Jevon (DHHS-Contractor)

<[McFaddenJ1@michigan.gov](mailto:McFaddenJ1@michigan.gov)>; MVALACAK@gchd.us; Mark Adas <[madas@cityofflint.com](mailto:madas@cityofflint.com)>;

[weaverkaren@sbcglobal.net](mailto:weaverkaren@sbcglobal.net)

Cc: Matt Seeger <[matthew.seeger@wayne.edu](mailto:matthew.seeger@wayne.edu)>; Nicole Moore <[ncmoore@umich.edu](mailto:ncmoore@umich.edu)>; Shawn Patrick McElmurry

<[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>; Benjamin Pauli <[bpauli@kettering.edu](mailto:bpauli@kettering.edu)>; Paul Evan Kilgore <[paul.kilgore@wayne.edu](mailto:paul.kilgore@wayne.edu)>;

Marcus Zervos <[MZERVOS1@hfhs.org](mailto:MZERVOS1@hfhs.org)>; masten@egr.msu.edu; Terese Olson <[tmolson@umich.edu](mailto:tmolson@umich.edu)>; Laura Sullivan

<[dr.laura2@gmail.com](mailto:dr.laura2@gmail.com)>; [REDACTED]

Subject: Re: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

I am following up on today's email. Our team has decided to hold on a press release until after the holiday. In the mean time, we will complete dissemination of results that we currently have available this week to the Flint residents who participated in our study. We will revisit this after the Thanksgiving holiday. We still welcome comments you have to the document, which will serve as a starting point for materials we prepare for the public about our study.

Nancy

Shawn McElmurry  
Tuesday, November 15, 2016 10:41 PM  
Nancy Love; Shawn McElmurry  
RE: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

Yeah, sorry this is all falling on your shoulders. I'll be in office by 9am. feel free to call anytime or I'll call you when I get in.

Shawn P. McElmurry, PhD, PE  
Associate Professor  
Wayne State University

----- Original message -----

From: Nancy Love <nglove@umich.edu>  
Date: 11/15/16 10:18 PM (GMT-05:00)  
To: Shawn McElmurry <s.mcelmurry@wayne.edu>  
Subject: Re: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

Happy to chat with you tomorrow. Need to work on some things tonight.

I'm really irritated with [REDACTED] sat on this all week because she was despondent over the election. I nudged her on Saturday and she put together something that was, frankly, crap. The document she sent back out to us today had serious inaccuracies in it that she made up and, frankly, felt like she was targeting alarmism. I own blame, though, in that it was too much information to start with.

Nancy

Nancy G. Love, Ph.D., P.E., BCEE  
Professor, Department of Civil and Environmental Engineering  
Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia



Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors  
University of Michigan  
183 EWRE Building  
1351 Beal Avenue  
Ann Arbor, MI 48109  
Voice: (734) 763-9664  
[nglove@umich.edu](mailto:nglove@umich.edu)  
<http://envbiotech.engin.umich.edu/>  
Twitter: @Love\_H2O

On Tue, Nov 15, 2016 at 8:53 PM, Shawn McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)> wrote:

Sorry Nancy. I know this has been tough. I'll be happy to take any calls regarding the letters while you're out. Obviously I do not have your expertise but I'll do my best.

Originally, I thought it was most important to get this press release out before you leave....but now I agree, waiting would be best. If it will help, I'd be happy to reach out to Kerri Webber and a few others that we believe might be more likely to publicly post their letters.

Happy to discuss.

Shawn

**From:** Nancy Love [<mailto:nglove@umich.edu>]  
**Sent:** Tuesday, November 15, 2016 8:23 PM  
**To:** JoLisa McDay <[jmcd@cityofflint.com](mailto:jmcd@cityofflint.com)>; Pamela Pugh <[ppugh@cityofflint.com](mailto:ppugh@cityofflint.com)>; Wells, Eden (DHHS <[WellsE3@michigan.gov](mailto:WellsE3@michigan.gov)>; Beach, Michael J. (CDC/OID/NCEZID) <[mjb3@cdc.gov](mailto:mjb3@cdc.gov)>; Strockbine, Nancy (CDC/OID/NCEZID) <[nas6@cdc.gov](mailto:nas6@cdc.gov)>; jhenry@gchd.us; McFadden, Jevon (DHHS-Contractor) <[McFaddenJ1@michigan.gov](mailto:McFaddenJ1@michigan.gov)>; MVALACAK@gchd.us; Mark Adas <[madas@cityofflint.com](mailto:madas@cityofflint.com)>; [weaverkaren@sbcglobal.net](mailto:weaverkaren@sbcglobal.net)  
**Cc:** Matthew Seeger <[matthew.seeger@wayne.edu](mailto:matthew.seeger@wayne.edu)>; Nicole Moore <[ncmoore@umich.edu](mailto:ncmoore@umich.edu)>; Shawn McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>; Benjamin Pauli <[bpauli@kettering.edu](mailto:bpauli@kettering.edu)>; Paul Kilgore <[paul.kilgore@wayne.edu](mailto:paul.kilgore@wayne.edu)>; Marcus Zervos <[MZERVOS1@hfhs.org](mailto:MZERVOS1@hfhs.org)>; Susan Masten <[masten@egr.msu.edu](mailto:masten@egr.msu.edu)>; Terese Olson <[tmolson@umich.edu](mailto:tmolson@umich.edu)>; Laura Sullivan <[dr.laura2@gmail.com](mailto:dr.laura2@gmail.com)>; [REDACTED]  
**Subject:** Re: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

I am following up on today's email. Our team has decided to hold on a press release until after the holiday. In the mean time, we will complete dissemination of results that we currently have available this week to the Flint residents who participated in our study. We will revisit this after the Thanksgiving holiday. We still welcome comments you have to the document, which will serve as a starting point for materials we prepare for the public about our study.



Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**

Borchardt and Glysson Collegiate Professor

Department of Civil and Environmental Engineering, University of Michigan

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors

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<http://envbiotech.engin.umich.edu/>

Twitter: @Love\_H20

On Tue, Nov 15, 2016 at 12:25 PM, Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)> wrote:

The partners involved with the National Science Foundation-funded point-of-use filter study in Flint have drafted a new press release slated for release this week, preferably by end of day Wednesday. We welcome your input. The time frame is short, but is affected by the fact that we are releasing new results letters to participating Flint residents this week (started yesterday and will continue through tomorrow) since we completed some key analyses last Friday and we are committed to rapid dissemination.

We have had multiple discussions with many of you and know you have significant experience and knowledge to offer. I ask for your comments by 2 pm Wednesday (tomorrow), please. Your comments will be considered. I know that you understand that the ultimate decision for the version released will rest with the Universities that were awarded the grants from NSF.

Thank you,



**From:** Nancy Love <nglove@umich.edu>  
**Sent:** Tuesday, November 15, 2016 11:53 AM  
**To:** Paul Evan Kilgore; Marcus Zervos  
**Subject:** Fwd: Press release - going out to others for comment shortly  
**Attachments:** FlintPOURelase\_15Nov\_ForReview.docx

oops....left you two off

----- Forwarded message -----

**From:** Nancy Love <nglove@umich.edu>  
**Date:** Tue, Nov 15, 2016 at 11:47 AM  
**Subject:** Press release - going out to others for comment shortly  
**To:** Shawn Patrick McElmurry <s.mcelmurry@wayne.edu>, Matt Seeger <matthew.seeger@wayne.edu>, Terese Olson <tmolson@umich.edu>, Benjamin Pauli <bpauli@kettering.edu>, masten@egr.msu.edu, Nicole Moore <ncmoore@umich.edu>, Laura Sullivan <dr.laura2@gmail.com>

All: I compiled your comments and this is where our press release is as of now. I need to give our other partners a chance for comment so will send this version out, so our continuing review will occur in parallel with theirs. Ultimately, Nicole will release it. While I'd like it out by Wed end of day, I expect it could be Thursday morning first thing.

Partners who I am sending to for a heads up and to provide input are:

City  
State  
County  
Utility  
CDC

I will clarify that we welcome their input and expertise. Ultimately, responsibility for the final version sits with us.

Here are some decisions/changes we can still debate:

1. I took out the quote. I can be listed as a point of contact, but we'll need to list more than me since I will only be here 1.5 days after the release. If we want to add the quote back in, we have to identify who wants to be associated with that quote. Putting me and then having me leave the country shortly thereafter will frustrate media, I presume. I asked Terri and she does not feel she should be the quoted person either. For further discussion, but it is gone as of now.
2. I think the modified version addresses the questions and comments of Laura and Ben, in spirit. They can reread and see.
3. We are running another anticipated "below detection" Enterobacteriaceae today from Ann Arbor, freshly prepared in the same manner as all other samples. Those result will be incorporated into this in some fashion, so there will be an edit to include that. I've modified the draft to indicate that this is coming.

Call if you have any concerns that need my immediate attention. Email may not be the best way to get my attention. [REDACTED]

Thanks to you all! Here we go!

Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**

Borchardt and Glysson Collegiate Professor

Department of Civil and Environmental Engineering, University of Michigan

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors

183 EWRE Building

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[nglove@umich.edu](mailto:nglove@umich.edu)

<http://envbiotech.engin.umich.edu/>

Twitter: @Love\_H2O

**From:** Sent: To: Subject: Durno, Mark

Tuesda 2016 6:42 PM  
y, Cupal, Suzanne; Lytle, Darren; Schock, Michael  
Novemb RE: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting  
er 15, comments

**Follow UpFlag:** Follow up  
**Flag Status:** Flagged

Suzanne,

After reading this, I'm concerned about the over-emphasis on the bacterial results and how it may be perceived - especially if these are common findings. Do you have moment to discuss Wednesday morning?

Thanks,  
Mark

---

**Mark Durno**

Homeland Security Advisor / Deputy Chief  
Emergency Response Branch  
U.S. Environmental Protection Agency  
25063 Center Ridge Road  
Westlake, OH 44145  
440-250-1743

**From:** Cupal, Suzanne [mailto:scupal@gchd.us]  
**Sent:** Tuesday, November 15, 2016 2:28 PM  
**To:** Durno, Mark <durno.mark@epa.gov>; Lytle, Darren <Lytle.Darren@epa.gov>; Schock, Michael <Schock.Michae1@epa.gov>  
**Subject:** FW: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

FYI...

Suzanne Cupal, M.P.H.  
Public Health Division Director  
Genesee County Health Department  
630 S. Saginaw Street  
Suite 4  
Flint, MI 48502  
(810)·768;;7970·  
[scupal@gchd.us](mailto:scupal@gchd.us)

**From:** Valacak, Mark  
**Sent:** Tuesday, November 15, 2016 12:32 PM  
**To:** laRocco, Toni; Cupal, Suzanne; Henry, James; Johnson, M.D., Gary; Pavone, Anthony; Stoddard, Steve; Swartout, April; Howard, Kathie  
**Subject:** Fwd: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments

FYI

Sent from my iPhone

Begin forwarded message:

**From:** Nancy Love <[nglove@umich.edu](mailto:nglove@umich.edu)>

**Date:** November 15, 2016, 12:25:28 PM EST

**To:** JoLisa McDay <[jmcd@cityofflint.com](mailto:jmcd@cityofflint.com)>, Pamela Pugh <[ppugh@cityofflint.com](mailto:ppugh@cityofflint.com)>, "Wells, Eden (DHHS)" <[WelisE3@michigan.gov](mailto:WelisE3@michigan.gov)>, "Beach, Michael J. (CDC/OID/NCEZID)" <[mjb3@cdc.gov](mailto:mjb3@cdc.gov)>, "Strockbine, Nancy (CDC/0 1D/NCEZID)" <[nas6@cdc.gov](mailto:nas6@cdc.gov)>, [jhenry@gchd.us](mailto:jhenry@gchd.us), "McFadden, Jevon (DHHS-Contractor)" <[McFadclenJ1@michigan.gov](mailto:McFadclenJ1@michigan.gov)>, MVALACAK(c.4gchd.us, Mark Adas <[maclas\(a\),cityofflint.com](mailto:maclas(a),cityofflint.com)>, [weaverkaren\(a\),sbcglobal.net](mailto:weaverkaren(a),sbcglobal.net)

**Cc:** Matt Seeger <[matthew.seeger\(a\),wayne.edu](mailto:matthew.seeger(a),wayne.edu)>, Nicole Moore <[ncmoore@umich.edu](mailto:ncmoore@umich.edu)>, Shawn Patrick McElmurry <[s.mcelmurry@wayne.edu](mailto:s.mcelmurry@wayne.edu)>, Benjamin Pauli <[bpauli@kettering.edu](mailto:bpauli@kettering.edu)>, Paul Evan Kilgore <[paul.kilgore@wayne.edu](mailto:paul.kilgore@wayne.edu)>, Marcus Zervos <[MZERVOS1@hths.org](mailto:MZERVOS1@hths.org)>, masten@egr.msu.edu, Terese Olson <[tmolson@umich.edu](mailto:tmolson@umich.edu)>, Laura Sullivan <[dr.laura2@gmail.com](mailto:dr.laura2@gmail.com)>, Chia-chen Wu <[cchenwu@umich.edu](mailto:cchenwu@umich.edu)>

**Subject: Time Sensitive: Draft press release 2 regarding Point-of-Use Filters; inviting comments**

The partners involved with the National Science Foundation-funded point-of-use filter study in Flint have drafted a new press release slated for release this week, preferably by end of day Wednesday. We welcome your input. The time frame is short, but is affected by the fact that we are releasing new results letters to participating Flint residents this week (started yesterday and will continue through tomorrow) since we completed some key analyses last Friday and we are committed to rapid dissemination.

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Thank you,

Nancy

**Nancy G. Love, Ph.D., P.E., BCEE**

Borchardt and Glysson Collegiate Professor

Department of Civil and Environmental Engineering, University of Michigan

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors

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[nglove@umich.edu](mailto:nglove@umich.edu)

<http://envbiotech.engin.umich.edu/>

Shawn McElmurry

---

**From:** Zervos, Marcus <MZERVOS1@hfhs.org>  
**Sent:** Friday, December 02, 2016 8:47 AM  
**To:** Paul Kilgore  
**Cc:** Shawn McElmurry  
**Subject:** RE: Final report? Shigella update: bacteria not spread through Flint-area drinking water, CDC officials suggest

Right I have this one, from laura c, thought there might be something more final

**From:** Paul Kilgore [mailto:paul.kilgore@wayne.edu]  
**Sent:** Friday, December 02, 2016 8:32 AM  
**To:** Zervos, Marcus <MZERVOS1@hfhs.org>  
**Cc:** Shawn McElmurry <s.mcelmurry@wayne.edu>  
**Subject:** Final report? Shigella update: bacteria not spread through Flint-area drinking water, CDC officials suggest

Hi Mrk this is last document that I have; actually from you on Nov. 21

Paul E. Kilgore, MPH, MD  
Associate Professor, Department of Pharmacy Practice  
Director of Research, Department of Pharmacy Practice  
Eugene Applebaum College of Pharmacy and Health Sciences  
Adjunct Professor, Department of Family Medicine and Public Health Sciences, School of Medicine  
Wayne State University

Address:  
259 Mack Ave., Room 2156  
Detroit, Michigan 48201  
Phone: (313) 577-1215  
Cell: (248) 403-0275  
Fax: (313) 577-5369  
Skype: drpaulwsu

---

**From:** Zervos, Marcus <MZERVOS1@hfhs.org>  
**Sent:** Monday, November 21, 2016 7:55 AM  
**To:** Nancy Love  
**Cc:** Shawn McElmurry; Paul Kilgore; Laura Sullivan (dr.laura2@gmail.com); Benjamin Pauli (bpauli@kettering.edu)  
**Subject:** RE: Shigella update: bacteria not spread through Flint-area drinking water, CDC officials suggest

Sorry just plowing through emails, you likely have seen

**From:** Nancy Love [mailto:nglove@umich.edu]  
**Sent:** Saturday, November 19, 2016 11:11 PM  
**To:** Zervos, Marcus <MZERVOS1@hfhs.org>  
**Cc:** Shawn McElmurry <s.mcelmurry@wayne.edu>; Paul Kilgore <paul.kilgore@wayne.edu>; Laura Sullivan

Shawn McElmurry

---

From: Zervos, Marcus <MZERVOS1@hfhs.org>  
Sent: Friday, December 02, 2016 6:55 AM  
To: Shawn McElmurry  
Subject: RE: Incident associated with October 28th conversation

wow

From: Shawn McElmurry [mailto:s.mcelmurry@wayne.edu]  
Sent: Friday, December 02, 2016 6:46 AM  
To: Zervos, Marcus  
Subject: Fwd: Incident associated with October 28th conversation

FYI

Shawn P. McElmurry, PhD, PE  
Associate Professor  
Wayne State University

----- Original message -----

From: Nancy Love <nglove@umich.edu>  
Date: 12/1/16 11:41 PM (GMT-05:00)  
To: "Beach, Michael J. (CDC/OID/NCEZID)" <mjb3@cdc.gov>, "Strockbine, Nancy (CDC/OID/NCEZID)" <nas6@cdc.gov>  
Cc: Shawn McElmurry <s.mcelmurry@wayne.edu>, Paul Kilgore <paul.kilgore@wayne.edu>, Laura Sullivan <dr.laura2@gmail.com>, Terese Olson <tmolson@umich.edu>, Susan Masten <masten@egr.msu.edu>  
Subject: Incident associated with October 28th conversation

Dear Michael and Nancy:

I wanted to alert you to an incident that has occurred as an outcome of the conversation we had with your lab on October 28 that I believe you should be aware of. You may recall that the intent of the meeting was to get feedback from your lab on our data and approach, and I considered the conversation to be confidential among the three of us on the call. Indeed, I had written "CONFIDENTIAL-DO NOT SHARE" across the top of the slides I presented to you. Unfortunately, a member of your lab did not heed this request and has taken information (incorrect information, I might add) from the confidential conversation and shared information about the work we were associated with a faculty member at another university who is not involved with this study at all.

I recently traveled to the university where the faculty member who was contacted resides. Shortly after being picked up from the airport, I was surprised to have this faculty member tell me that they knew I was working on testing Flint water (and additional details I will not repeat here) because they had been asked by someone they know who works in your lab and was asked questions about the methods we are using and my name with the faculty member. The information the faculty member gave me indicated that the information shared was technically inaccurate as well.



...attention of telling you who either of these people are. I do ask, however, that you redouble your efforts to remind your staff that when something confidential is shared with them, it is appropriate to honor such requests (unless legally required otherwise). Over the last few months, I have been surprised at the number of times people in government and outside of my research team have talked about our data or results surrounding our Flint studies in an inaccurate or inappropriate way. It has been more than frustrating and, frankly, disappointing to see how many times we've had to deal with such breeches. I believe Federal agencies like the CDC have ethics policies in place to prevent such incidents and I suggest you review them with your staff.

Nancy Love

**Nancy G. Love, Ph.D., P.E., BCEE**

Borchardt and Glysson Collegiate Professor

Department of Civil and Environmental Engineering, University of Michigan

Adjunct Professor, Addis Ababa University Institute of Biotechnology, Ethiopia

Fellow: Water Environment Federation; International Water Association; Association of Environmental Engineering and Science Professors

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Twitter: @Love\_H20

**Attend the AEESP2017 Conference on Advancing Healthy Communities**

**June 20-22, 2017, Ann Arbor Michigan**

**Abstracts due: January 9, 2017**

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