Message

From: Barnicoat, Dana [Barnicoat.Dana@epa.gov]
Sent: 12/10/2019 2:21:23 PM
To: Wall, Dan [wall.dan@epa.gov]; Vranka, Joe [vranka.joe@epa.gov]; Greene, Nikia [Greene.Nikia@epa.gov]; Partridge, Charles [Partridge.Charles@epa.gov]
Subject: RE: Request for data: Meconium identifies high levels of metals in newborns from a mining community in the U.S., November 13, 2019

I agree with you, Dan.

Dana

From: Wall, Dan <wall.dan@epa.gov>
Sent: Tuesday, December 10, 2019 6:12 AM
To: Vranka, Joe <vranka.joe@epa.gov>; Greene, Nikia <Greene.Nikia@epa.gov>; Partridge, Charles <Partridge.Charles@epa.gov>; Barnicoat, Dana <Barnicoat.Dana@epa.gov>
Subject: Fwd: Request for data: Meconium identifies high levels of metals in newborns from a mining community in the U.S., November 13, 2019

All,
After last nights meeting, the last MT Std article and their reluctance to provide data and samples I believe a different tone is warranted. It seems we have several options that can be pursued sequentially or simultaneously. I propose we get together today and strategize a path forward.
Thoughts?

Sent from my iPhone

Begin forwarded message:

> **From:** "LEAD, JAMIE" <JLEAD@mailbox.sc.edu>
> **Date:** December 10, 2019 at 4:22:57 AM MST
> **To:** "Hailer, Katie" <KHailer@mtech.edu>, "Greene, Nikia" <Greene.Nikia@epa.gov>, "MCDERMOTT, SUZANNE" <SMCDERMO@mailbox.sc.edu>
> **Cc:** "Partridge, Charles" <Partridge.Charles@epa.gov>, "Wall, Dan" <wall.dan@epa.gov>, "Sullivan, Karen" <ksullivan@bsb.mt.gov>, "Hutchins, David" <DHutchins@mtech.edu>
> **Subject: RE: Request for data: Meconium identifies high levels of metals in newborns from a mining community in the U.S., November 13, 2019**
>
> Dear Nikia, all,
>
> I completely agree with Dr Hailer. On the matter of existing samples, in some cases we do not have remaining samples and, where we do, the samples will not provide accurate metal data for a number of reasons. I see no advantage and several problems with attempting to re-analyze any remaining samples. I also encourage you to perform you own study, including importantly any effects, which we have not looked at yet. We have quantified an exposure biomarker and it is more important to investigate possible human health effects.
>
> I'm happy to share disaggregated data as is standard. Although your request for raw data is unusual, I am in principle happy to share but several things give me pause. First, I didn't realize that you had already seen Dr Hailer's data, partly discounted it and also would not or could not quantify the metals which we found to be potentially problematic. Secondly, as mentioned, I have shared data before with

colleagues and it is generally disaggregated, but not raw data, for modelling, data comparison etc.. In this case you want raw data and the purpose is not clear. The request for data and samples appears to carry an implicit criticism of our professional capability; either our competence or our honesty. For the SC study, Drs Hailer, McDermott and myself supervised the research and design. Samples were handled and data analyzed by several very experienced PhD students (published and graduated), the analysis was performed by a dedicated university ICP-MS facility with a very experienced laboratory manager. The data was interpreted by the students under my direction and checked by me several times. Thirdly, I think you should have been aware of the issues of re-analysis of archived samples. Now that you are, and given the potential problems for human health, it does seem to the most appropriate way forward is to perform a new and more detailed study building on our preliminary data, including more samples and an assessment of potential health effects rather than re-checking peer-reviewed data. Fourthly, limited literature data in general agrees with our data and interpretation. However, there is clearly a need for more data because of the limited nature of literature data and the preliminary nature of our study. Taken together, the request for raw data does not seem to be scientifically justified and the logical next step is a more detailed study. If you have concerns about the data quality, I suggest you perform another independent preliminary study.

So, although happy to share data, I would like to know the reason for the request and, more importantly, a commitment to develop a program of study in this area. This does seem the best way forward and I would be happy to discuss.

Best,

Jamie Lead,
Endowed Professor of Environmental Nanoscience and Risk,
Director of the SmartState Center for Environmental Nanoscience and Risk (CENR),
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Adjunct Professor, Shanxi Agricultural University, China
Honorary Professor, University of Birmingham, UK

Sent from Mail for Windows 10

From: Hailer, Katie
Sent: Friday, December 6, 2019 3:49 PM
To: Greene, Nikia; MCDERMOTT, SUZANNE; LEAD, JAMIE
Cc: Partridge, Charles; Wall, Dan; Sullivan, Karen; Hutchins, David
Subject: RE: Request for data: Meconium identifies high levels of metals in newborns from a mining community in the U.S., November 13, 2019

Dear Nikia,

I am happy to provide you with my raw data from the ICP-MS work. I should have that information to you early next week. I have been in contact with Dr. Jamie Lead from S.C. He is the chemist (who is also in the top 1% of cited scientists worldwide for 2019) that performed the sample analysis in Columbia. He is copied in on this email. He is currently out of the country and only has access to some

of his raw data at the moment. He will send you the full set of raw data as soon as possible, once he returns to the US.

I'd like some clarification regarding your request of our remaining physical samples. There are many potential issues with re-analyzing these samples. First off, these samples have been sitting in a freezer for over a year. Most of the remaining samples do not contain sufficient amounts to perform an identical analysis (less than 1g of sample present) which means that methods will need to be cut by ½ or a 1/4 . With concentrations in the low ppb for some metals (especially the samples from Columbia), cutting the method in half or more, you run the risk of not detecting any metals, giving you false negatives on the results. In addition, while sitting in the freezer for over a year, there could be sorptive metal loss or even microbial degradation. Conversely, loss of water from the samples could actually concentration metal levels, giving higher concentrations. Having not conducted time lapse studies on meconium samples myself, I can only speculate as to how the sample might degrade or change over time. Instead of trying to re-analyze old samples with a potential myriad of unknown issues, why don't you collect some new samples from Butte and analyze them? Once you get approval, sample collection is essentially free and working with fresh samples will eliminate the concerns listed above. I would be happy to work with you to make the correct connections within St. James to gain approval to verbally consent mothers and gather additional samples.

My second point of clarification is regarding your statement of "contaminates of concern". When I met with you, Charlie, and Chris in March 2019, I shared this data with you. Granted in hadn't been published, but the numbers were the same. At that point in time, all of you indicated that you did not have the ability to look at any metals except for the contaminates of concern, and you seemed largely unconcerned with the data because of the lack of lead (Pb) in the samples. My samples were analyzed for Pb, As, and Cd. Only 1 baby had detectable Pb in the Butte set (low ppb concentrations). All samples had detectable As. Cadmium was not detected in any of the samples. What metals will you be able to analyze for? Specifically will you be looking at Cu, Mn, and Zn levels? I'm curious what has changed between March and now that allows you to analyze for these other metals.

Both Jamie and I have been through our own data a number of times and are sure that the units are correct. Parts per billion or ug/kg is a very common unit to express data from ICP-MS analysis and it is also a unit commonly used in other publications using meconium as a sampling matrix. Columbia's numbers with low ppb to below detection for various metals seems to be similar to other published meconium studies from non-exposed populations. Again, I really wonder why time and resources are being spent on trying to find mistakes in our data rather than collecting additional samples and analyzing them for metals?

I'll have my raw data files to you next week. Dr. Lead will have his sent to you once he is back in the US.

Thanks,
Katie

From: Greene, Nikia <Greene.Nikia@epa.gov>
Sent: Thursday, December 5, 2019 2:32 PM
To: smcdermo@mailbox.sc.edu; Hailer, Katie <KHailer@mtech.edu>
Cc: Partridge, Charles <Partridge.Charles@epa.gov>; Wall, Dan <wall.dan@epa.gov>
Subject: Request for data: Meconium identifies high levels of metals in newborns from a mining community in the U.S., November 13, 2019

Professors McDermott and Hailer,

I was made aware of the accepted journal (November 13, 2019) of your cross-sectional pilot study performed in Butte and Columbia on November 25th 2019. Also, on November 26th 2019 the Montana Standard published an article "Health study shows startling levels of metals in Butte babies' meconium".

I work with the community of Butte on a daily basis as a Remedial Project Manager for EPA. The main objective of my position is to make sure that the cleanup in Butte is protective of human health and the environment. So when I come across a new study that has metals associated with public health and statements like "potential public health emergency" I am responsible to provide a due diligence review of those possible health issues that may be associated with contaminants of concern that are associated with my site. To ensure that my review is thorough and accurate I am making the following request:

My request is for the original laboratory report from the cross-sectional pilot study. If the report was developed through a commercial laboratory I would like to request the ICP-MS instrument output in Form 1. If the report was developed through a University Laboratory I would like to request the raw output for the laboratory instrumentation. Additionally, if there are any physical samples that have been preserved, I would like to request them from Butte and Columbia or both. I am particularly interested in the physical samples from Columbia.

Thank you for the consideration.

Nikia Greene
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