Message

From: Wall, Dan [wall.dan@epa.gov]
Sent: 12/10/2019 5:07:30 PM
To: Partridge, Charles [Partridge.Charles@epa.gov]
CC: Lynn Woodbury [woodburyl@cdmsmith.com]
Subject: RE: meconium literature

HI Lynn
Please include me on any future emails.

From: Partridge, Charles <Partridge.Charles@epa.gov>
Sent: Tuesday, December 10, 2019 10:05 AM
To: Wall, Dan <wall.dan@epa.gov>
Subject: FW: meconium literature

Fyi

From: Woodbury, Lynn <woodburyl@cdmsmith.com>
Sent: Tuesday, December 10, 2019 8:48 AM
To: OBrien, Wendy <OBrien.Wendy@epa.gov>
Cc: Partridge, Charles <Partridge.Charles@epa.gov>
Subject: RE: meconium literature

Wendy –

Here is literature I have pulled thus far…see attached. I have added highlights in most documents specific to the meconium results.

A few items of note:

- There are two published MIREC studies with meconium data – Ettinger 2017 (arsenic) and Arbuckle 2016 (cadmium, lead, manganese, mercury). Both are referenced in the McDermott paper in the discussion.

- The Turker et al. (2013) study is also one that is being referenced in the McDermott paper; however, I didn't find this study to be especially helpful because of the way the meconium concentrations are being reported. First, the authors indicated the values are being expressed as ng/g/kg (i.e., as a dose per mass of infant body weight). Because individual body weight values aren't provided, we would need to convert based on an assumption the median reported body weight applies to all samples, which is not ideal. Second, I suspect there may be a typo in the reported units. In other places within the article text, it appears the Greek mu character (µ) was manually added after the fact. Given expected meconium concentrations in other studies, I suspect the 'n' character in ng/g/kg was supposed to replaced by µ. The other oddity about this study is that the detection limits are reported as µg/mL, which is unexpected as meconium is a solid. These are Turkish researchers publishing an English translation in a Japanese journal…I'm thinking something may have gotten lost in translation. I have not included this results of this study in the presentation, but it may be worth reaching out to the researchers to clarify their results as McDermott does rely upon this study in their results interpretation.

- The Friel et al. (1989) study looked promising at first, but it too has limitations due to the way the results were reported. Meconium concentrations were reported as µg/kg, BUT the kg in the denominator is not based on the mass of meconium, but the mass of the infant. I estimated the meconium concentration based on the total

metal mass reported and then normalized it based on the average mass of stool passed for full-term infants (8.9 g), which is not ideal, but provides another dataset to support our findings.

Let me know if you need any additional literature,
Lynn

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From: OBrien, Wendy <OBrien.Wendy@epa.gov>
Sent: Tuesday, December 10, 2019 8:11 AM
To: Partridge, Charles <Partridge.Charles@epa.gov>; Woodbury, Lynn <woodburyl@cdmsmith.com>
Subject: meconium literature

Can anyone share the literature cited in the presentation with me? I have the Canadian study and the Aziz study. Thx.

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