Anencephaly Advisory Committee Meeting (webinar)
Minutes
December 14, 2016

Advisory Committee Members present:
Kathy Lofy, MD, Chair
Nora Coronado, PhD, MPH, MSW
Peter Langlois, PhD
Christina Nyirati, PhD, FNP-BC
Melissa Schiff, MD, MPH
Christopher Spitters, MD
Vicki Ybarra, PhD, MPH, BSN

WA Dept of Health Staff present:
Kathy Ann Chapman, RN, MN
Zachary Holmquist, MPH
Lauren Jenks, MPH, CHES
Paj Nandi, MPH
Cathy Wasserman, PhD, MPH

Interested parties were sent information about the meeting and asked if they wanted to participate. There were several interested parties on the call, including representatives from the media.

I. Welcome and Introductions
Kathy Lofy began the meeting at 8:05 a.m.

KL: Good morning everyone, and welcome to the Advisory Committee webinar. As we discussed on our August call, this will be our last advisory committee meeting. We just wanted to have this meeting to wrap up some of the pieces that were left hanging during the last time we talked. Cathy has been working incredibly hard to document pretty much everything we have done as part of this response in a report – she sent this report out yesterday. We wanted to give you all some time to review that. In the process of reviewing this report, there were some tweaks to some of the tables, but no big changes to the conclusions. We want to talk a little bit about the conclusions and make sure that nobody has concerns. After that, we will wrap up our time together. I will pass it on to Cathy with some time for discussion afterward.

CW: Without further ado, let me get started. I sent the report out yesterday and I apologize for the very short notice. We wanted to give people time to comment on the report, and we want to make sure we have time for you to give your input before the report is finalized. Today I want to give you an update on the investigation, and discuss some of our interview findings. Folks wanted to know about the fortification of corn masa from our last call so I will discuss that, and we will go over some elements of the report's executive summary.

SLIDES BEGIN

Slide 3
At our last meeting, we presented updated numbers with 69 total cases, including 44 cases of anencephaly ascertained through July 15th. We updated these numbers with cases confirmed through September 23, 2016 for the Anencephaly report. There were 70 neural tube defect (NTD) cases, including 45 anencephaly cases at that time.

We again updated our numbers with cases, confirmed through November 14, 2016 for this morning's presentation. We have identified three more cases of Spina Bifida, all of which had an expected date of delivery in 2016. We now have a total of 73 cases of NTDs, including 45 cases of anencephaly.

Slide 4
Here we show the course of the investigation and the number of neural tube defects by month. The only thing that has changed on this slide is the three new cases added on the right side.

Slide 5
Here is the graph of seasonality which aggregates across the time period by month of estimated delivery. We do not see any strong seasonality across the years, but the maximum number of cases in any one month was 11 in September. There were small increases in January and August with the addition of the new cases.

Slide 6
Now we will move on to the results of our interviewed mothers.

Slide 7
This table compares all interviewed mothers of infants with NTDs, and infants with anencephaly in the three-county area with interviewed mothers – both case and control mothers from the National Birth Defects Prevention Study (NBDPS) respondents in California and Texas. Looking just at the case mothers:

- Mothers appeared to be older than California and Texas case mothers
- Mothers less likely to be Hispanic
- Mothers less likely to speak Spanish at home
- Mothers less likely to be born in Mexico
- Mothers more likely to have more than a high school education
- Mothers more likely to report a prior pregnancy
- Mothers are more likely to report a prior NTD-affected pregnancy
- With respect to body mass index, a similar proportion of interviewed Washington mothers of infants with anencephaly from the three-county area appeared to report an overweight body mass index, but a lower proportion of obese body mass index compared with the Texas and California case mothers.

We did not perform statistical testing because of the small numbers and the likelihood that the results would not be statistically significant. As noted in prior presentations, we suspect that the interviewed case mothers from the three-county area may not represent all cases in the three-county area.

Slide 8
In this table we looked at the vitamin use of interviewed mothers. Interviewed mothers in the three-county area were more likely to report any folic acid use from three months before pregnancy through the end of pregnancy. They were also more likely to use during the periconceptional window during the months before pregnancy through the first month of pregnancy.

Slide 9
The reported mean dietary folate of Washington case mothers appears lower than the reported mean dietary folate of California and Texas case mothers in the NBDPS. The mean dietary folate reported by Washington case mothers is also well below that reported by California and Texas control mothers. This might be expected given the literature showing the protective effect of periconceptional folic acid intake for preventing neural tube defects.

Some important conclusions can be made when reviewing maternally reported vitamin use and dietary folate intake. Interviewed mothers of infants with anencephaly and mothers of infants with any NTD do not appear to be folate insufficient based on vitamin use and dietary intake. This could mean that the study has a biased group of women who volunteered for interview; it could also be that these women have a higher need for folate than other women, or it could suggest that a lack of folic acid is not the underlying explanation for these NTD cases to have occurred.

Slide 10

This is a revised analysis of the interviewed mothers from the three-county area. More mothers from the three-county area worked during early pregnancy:

- 11 mothers (65%) of NTDs;
- 9 (75%) mothers of anencephalics;
- 54% of California and Texas case mothers worked.

Unfortunately, we were not able to have the California and Texas data analyzed for occupational exposure probability due to very limited capacity and complex analyses needed. For the three-county area we calculated occupational exposures as the percent of interviewed women who worked. Four (44%) of the interviewed mothers of anencephalics who worked were estimated to be exposed to pesticides – including insecticides, fungicides and herbicides.

As noted previously, three of these women had farm related exposures – harvesting, pruning, field work, or fruit packing. One additional mother was estimated to have pesticide exposure due to her non-farm work. We were hoping to have data to compare to California and Texas. We would like to acknowledge Adrian Hoyt from Texas, who was able to perform many of the analyses for California and Texas data and provide those to us so we could report them. She ran out of time to work with us, however, and because of the Zika outbreak our CDC colleagues, who have helped with analysis, are stretched thin. The timeframe for conducting these analyses without their capacity was very short, so we do not have that data to share with you. For comparison, though, there was a paper published by the National Birth Defects Prevention Network (NBDPN) that found that 30% of control mothers had occupational pesticide exposures. This analysis included eight sites including California and Texas.

Slide 11

We met this summer with health administrators and health officers from Benton, Franklin and Yakima counties and reviewed the findings to date. Together, with them, we offer the following conclusions and recommendations:

- We believe the elevated anencephaly rate is due, in part, to more complete ascertainment of cases in the three-county area.
- Because cases are not strongly clustered in time and space it is more challenging to identify a preventable cause from among multiple factors leading to NTD cases. Neither our case-control analyses of record based data nor our interviews with mothers of cases have identified an actionable preventable cause.
- Despite pursuing a number of hypotheses, there is still no evidence that the excess is due to folic acid deficiency, nitrates in drinking water, pesticides or radiation from Hanford. As a reminder, when we started the investigation these were some of the biggest concerns of community members.
- We have not identified prevention opportunities beyond promoting preconception folic acid use.
- Given these conclusions, we feel resources should be focused on outreach to educate women about prevention and early detection of NTDs, as well as the promotion of preconception and pregnancy health

Slide 12

In terms of future activities, we recommend:

- suspending additional investigation efforts into the cause of the elevated rate of anencephaly
- continuing stimulated passive surveillance with area hospitals and providers through January 2018, reviewing the findings at that time, and making further decisions about surveillance then as well.
- incorporating the lessons learned from our intercept interviews into our continued outreach, as well as the development of preconception and pregnancy materials, and our department efforts to improve access.
- Lastly, we suggest continued work in collaboration with local health and other partners on folic acid outreach, communication and improvement of preconception and pregnancy health.

Slide 13

Let me speak briefly about corn masa and what we learned about that. In our last call somebody asked about what was happening with corn masa products, and if they are reaching the three-county area.

We tried to reach Gruma Corporation, one of the largest producers of corn masa and corn tortilla products. Here you can see some of the products that they produce. They have 79 production plants around the world and are present in 112 countries. Two of the main brands they have in the northwest are Maseca and Mission, which many of you will recognize from your local stores. Guerrero is also a brand that is produced and distributed in the United States, whereas the remaining products are primarily distributed globally. When the U.S. Food and Drug Administration (FDA) approved fortification of corn masa flour in April, Gruma said they would be producing folic acid fortified products by the second quarter of 2016. We have not been able to reach Gruma to have that confirmed, or ask some other questions. When we were not able to reach them, we went to local grocery stores in Olympia and a local restaurant that has a grocery inside it. One of the stores carried several products, including corn masa flour and corn tortillas. Some, but not all, of their corn masa flour was Maseca. There was a note on the packaging that stated it was folic acid fortified. They also had several different types of corn tortillas but none of the other products noted that they had been fortified.

We would like to know if they are using fortified corn masa to produce their tortillas, and if they will be noting that on their future product packaging. That was from one grocery store. When I looked in another, none of the tortilla products had fortification notes. I went to the local mom and pop restaurant/store and talked to their salesperson, who said she would talk to the owners. She said they would look into buying folic acid fortified corn masa products. That is anecdotally what I have seen in Olympia – I assume that if fortified corn masa flour has made it to Olympia, it has probably made it to the three-county area, but we may need to enlist some folks to take a look for us out there.

Advisory Committee Questions and Comments

Department of Health (DOH): With that I will stop talking, and we can answer any questions from our committee members. We are getting some questions through the chat function.

DOH: Does anyone have any questions or comments? We will start with the Advisory Committee, and then we will open things up to the public.

Advisory Committee (AC): Thanks for acknowledging Adrian's help; she really did put many hours into this.

DOH: We totally appreciate the time she put into the analyses, as well as the folks from the CDC who helped with the analyses.

DOH: Other comments? Do folks want to voice whether or not they agree with the conclusions and future activities?

AC: I agree.

AC: I agree.

AC: I am just wondering how do you leave it with providers at the end of the study?

DOH: Can you elaborate a little bit on what you mean?

AC: So you have a report, and are informing them of the results – are you continuing to ask them to inform you if they see anencephaly or other issues, and the prevention piece?

DOH: We are going to continue to perform the enhanced surveillance, which involves providers contacting us for at least the next year. We can provide providers with the report, especially the executive summary, and continue to show them the prevention materials. Is there anything else you think we should be doing?

AC: Not necessarily, I was just curious.

DOH: I think that most of that communication will be coming from the local health jurisdictions (LHJs) to their providers, since the LHJs have lists of providers in their communities. We will obviously be posting the final report and updating our website so that everybody can see what the conclusions of the investigation were.

AC: Will there be any educational materials that will be developed out of this as well?

DOH: We have some educational materials that have been developed and will be disseminated. In terms of additional materials, at this time we do not have plans to develop new ones. As we continue to look at what we learned from the interviews and the other efforts we have undertaken to contact providers and the work Department of Health (DOH) staff have done with the Washington State Hospital Association (WSHA) on the Safe Deliveries Road Map, we may develop future tools. However, at this time we are not developing new materials. We are discussing new activities through social media, but we are not actively developing new materials.

DOH: Chris Spitters is listening in on the webinar, and wrote in that he supports our approach going forward.

DOH: If there are not any more comments or questions from the Advisory Committee, I would like to address some of the questions that have come from the public. I did want to ask the Advisory Committee about a reasonable time frame to get back to us with edits. I was thinking that if we have edits by mid-January, we could revise it and get it back by late January. Does that seem like a reasonable timeframe?

AC: I think so.

AC: I agree.

DOH: So let's go with that timeframe, and now transition to questions from the public.

DOH: We have one question that says: a general estimate of how many families were from the Yakima Reservation area? Includes the towns of Wapato, Toppenish, White Swan, and Harrah?

DOH: The cases were largely from the population areas of the three-county area. We basically had three population centers where we saw cases. One was in Yakima, one was in the Tri-Cities, and one was in the lower Yakima area. We looked at those areas to see if anything jumped out if we looked at them separately; we did not see any noticeable differences. I cannot remember off the top of my head whether the Lower Yakima cases included mothers from Wapato, Toppenish, White Swan and Harrah..

DOH: Another question from online: [Is there an] estimate what percent of women were from small towns of Zillah, Bena, Granger, Sunnyside, and Mabton? These towns have a much higher level of nitrates both in wells and municipal water. The municipal water might be under 10mg/L, but for example Zillah dilutes their well with high nitrates, so in testing the city water is about 6mg/L .

DOH: We can have some conversations offline about nitrates. We feel we have looked intensively at nitrate concerns, and we do not think it is related to the increase. I am happy to have a chat offline about what we did and what we found. My contact information is on the last slide, which we will pull up in a minute.

DOH: Looking at other questions: Christina was also saying that she agrees with the conclusions of the report and wants to know how she could be involved in further enhanced surveillance.

DOH: I am not sure that we need assistance with future enhanced surveillance, other than to ask providers to continue to report any cases that they find to the state DOH.

DOH: I am going to open the lines up to the public who are on the phones now.

Public: My question is, we have a lot of other problems for babies over here. Neurological problems. I understand the rates for autism are higher here than they are in other parts of the state, and you are aware we have a problem with gastroschisis. Is there a way we can build on this study to look at the overall health of infants in Yakima County and Benton and Franklin counties as well?

DOH: I am not aware of what you have said about autism in the three-county area, and Kathy Chapman of Maternal and Child Health (MCH) is here and is not aware of that either.

Public: I was at a presentation a few months ago, and a mother of an autistic child gave a very impassioned presentation, and she cited some statistics about the area, mentioning 1 in 58 children. When you have a high burden of issues in an area, I think it may warrant a closer look. The number of issues may improve your numbers and allow you to take a closer look.

DOH: Autism is a heartbreaking issue that is increasing nationwide. We know that Yakima has a disproportionate share of poor health outcomes for families, in large part because there are a lot of lower income people in Yakima and lower income people across the state and country are more likely to have poor health outcomes. It is

something that we work on all the time to look at our health inequities and address those. In terms of looking at many health outcomes altogether, what is the goal we are trying to reach? There are a lot of folks who are working with connecting people in Yakima with services, also in Benton-Franklin, and we will continue to do that. Aside from connections to services, if you are looking at potential causes of poor outcomes, it does not make a lot of sense from the perspective of trying to determine what is causing something to group a lot of outcomes together, unless you know they are related to similar causes.

Public: I understand it is a big picture thing, I am a nurse, but right now I am primarily an environmentalist. Right now we are suffering from the worst air quality and water pollution in the state. When you put that together with the agricultural issues in the region, it seems to me it may be worth studying the people in the region and not blame it on people being poor. I know I am preaching and I appreciate how quickly you have responded to my questions and concerns. I am just throwing that out there.

DOH: Thank you for your comments, Jean, and I think you are preaching to the choir. There are a lot of issues in Yakima and we are working with our colleagues in ecology and environmental health to try and address those poor outcomes, and look at all the factors related to those outcomes.

DOH: Back in June we, along with John Wiesman, met with our colleagues in the three-county area, and they were interested in trying to respond to this issue and broadly improve maternal and child health in their region overall. Unfortunately, Chris cannot speak today and Amy is not on the phone. They did note that there was a lot of improvement that they wanted to see, and they really wanted to work with their providers and communities to try and improve all outcomes for their babies. I just wanted to pass this comment on from our meeting back in June.

DOH: Are there any other comments or questions?

DOH: Not hearing any comments or questions, I would like to thank everyone for participating. I would especially like to thank our advisory committee members for participating in all the advisory committee calls over the past two years and for advising us and providing their feedback, comments, and questions. I am hoping you can take one last bit of time to look over the report and help us finalize it so we can disseminate it to the public. With that we will end today's call.

DOH: I also want to thank the advisory committee for all the time they have put in, especially since this went longer than we anticipated. We thank you for hanging in there and providing all the great advice you have given. I want to thank Peter and his staff who have gone above and beyond, helping us to produce these presentations. I want to thank Cathy and Zach who have spent an incredible amount of time working on this. Mandy Stahre started this investigation, and many people in DOH have been working so hard, including Barb Morrissey, and our maternal and child health staff, and it has really been an incredible effort along with our local health colleagues from Benton, Franklin, and Yakima. I want to acknowledge everyone's work. It would be nice to have stronger conclusions, but we know that a lot of these cluster investigations, unfortunately, are not successful in finding a definitive cause. As Cathy commented, we really do want your comments on the report, and if you do not have time I think Cathy mentioned the most important parts of the report for you to look at so we can hopefully wrap up by the end of January.

DOH: Thanks again, and everyone have a great day.

Meeting Ended at 8:53 a.m.