



# Anencephaly Investigation

## Central Washington, 2010-2015

Advisory Committee Meeting  
April 28, 2015

Cathy Wasserman, PhD, State Epidemiologist for Non-Infectious Conditions

**PUBLIC HEALTH**  
ALWAYS WORKING FOR A SAFER AND  
HEALTHIER COMMUNITY



# Surveillance Update

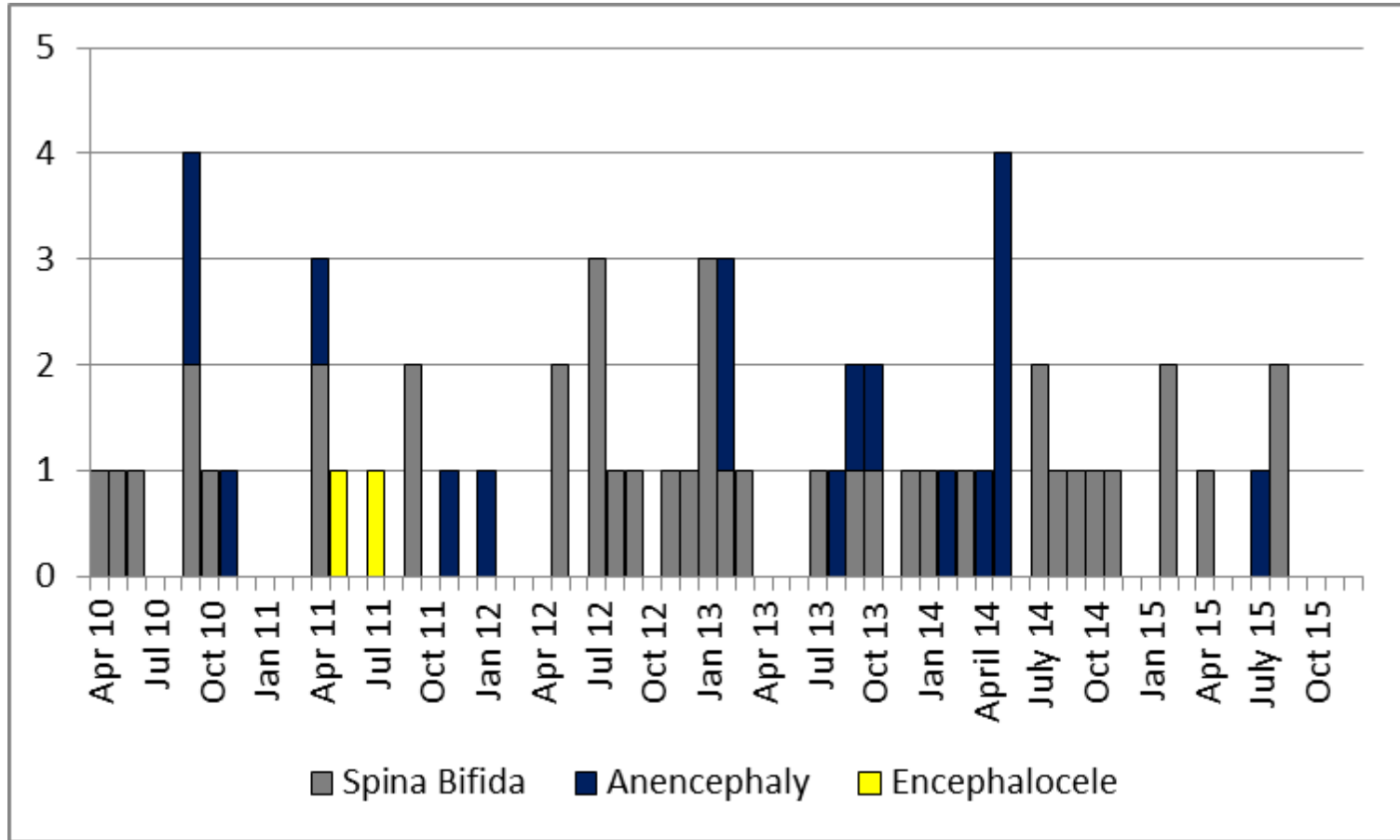
# Neural Tube Defects by Year of Delivery or Estimated Year of Delivery<sup>1</sup>

	Number	Total births	Rate per 10,000 births	95% CI
<b>All Neural Tube Defects</b>				
2010	9	8565	10.5	(4.8, 19.9)
2011	8	8528	9.4	(4.0, 18.5)
2012	10	8352	12.0	(5.7, 22.0)
2013	14	8084	17.3	(9.5, 29.1)
2014	14	8432	16.6	(9.1, 27.9)
2015	6	na		
Total to date <sup>2</sup>	61	na		
<b>Anencephaly</b>				
2010	6	8565	7.0	(2.6, 15.2)
2011	4	8528	4.7	(1.3, 12.0)
2012	9	8352	10.8	(4.9, 20.5)
2013	9	8084	11.1	(5.1, 21.1)
2014	8	8432	9.5	(4.1, 18.7)
2015	5	na		
Total to date <sup>2</sup>	41	na		

<sup>1</sup>Estimated year of delivery is used for cases terminated or delivered before 37 weeks gestation.

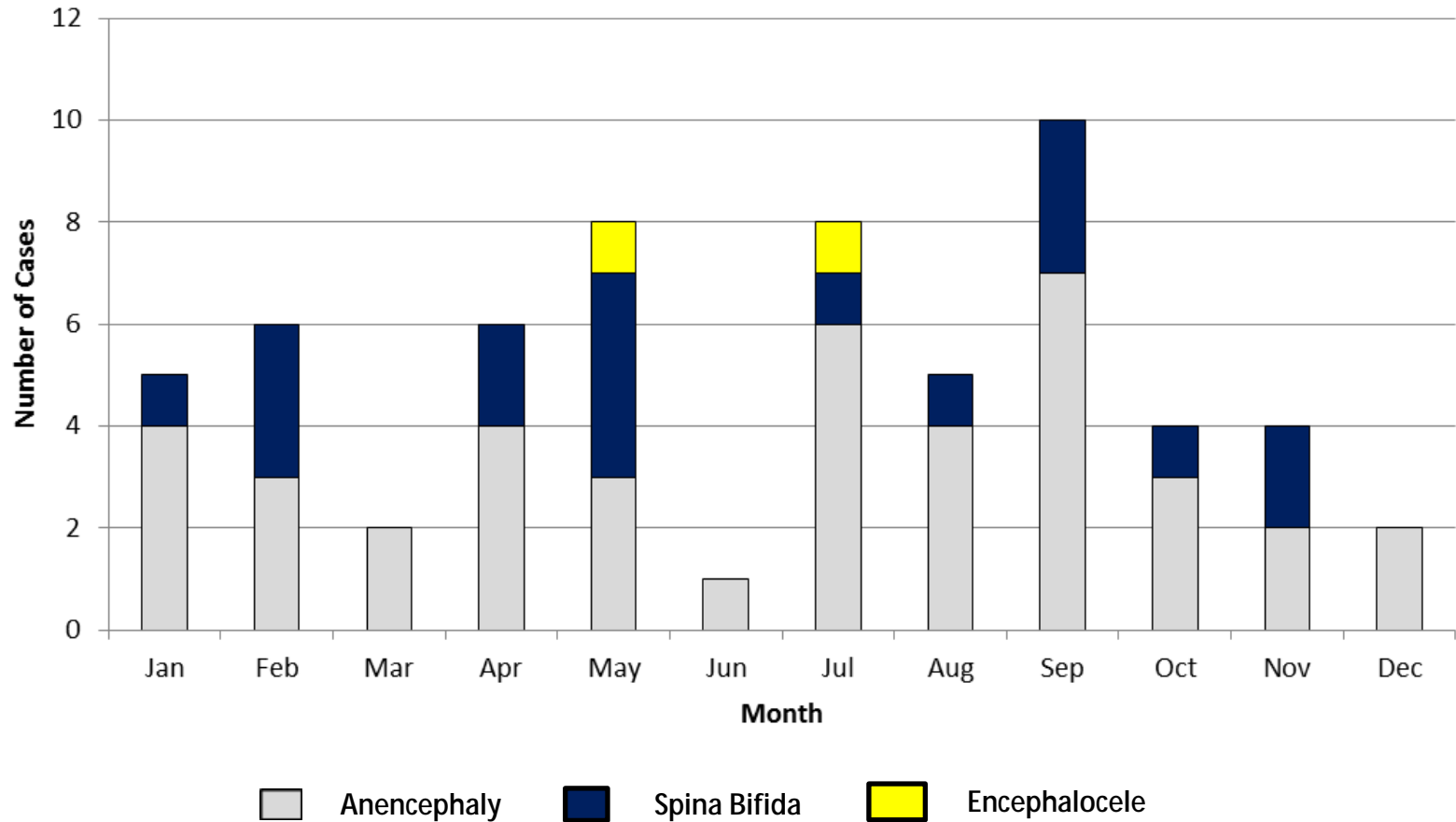
<sup>2</sup>Total to date reflects cases confirmed by April 14, 2015 with a delivery or estimated date of delivery in 2010-2015.

# Neural Tube Defects by Month of Estimated Delivery Date<sup>1</sup>



<sup>1</sup>Estimated delivery date uses delivery date for gestational age  $\geq 37$  weeks and estimated delivery date for gestational age  $< 37$  weeks at delivery. Cases were confirmed through April 14, 2015.

# Neural Tube Defects by Month of Estimated Delivery Date 2010-2015 Combined<sup>1</sup>



<sup>1</sup>Estimated delivery date uses delivery date for gestational age  $\geq 37$  weeks and estimated delivery date for gestational age  $< 37$  weeks at delivery. Cases were confirmed through April 14, 2015.

# Neural Tube Defects by County of Residence<sup>1</sup>

	Total Number <sup>1</sup>	Number 2011-2014	Births 2011-2014	Rate per 10,000 births	95% CI
<b>All Neural Tube Defects</b>					
Benton County	22	17	10,301	16.5	(9.6, 26.4)
Franklin County	9	9	6,675	13.5	(6.2, 25.6)
Yakima County	30	20	16,420	12.2	(7.4, 18.8)
3 County Area	61	46	33,396	13.8	(10.1, 18.4)
<b>Anencephaly</b>					
Benton County	17	13	10,301	12.6	(6.7, 21.6)
Franklin County	6	6	6,675	9.0	(3.3, 19.6)
Yakima County	18	11	16,420	6.7	(3.3, 12.0)
3 County Area	41	30	33,396	9.0	(6.1, 12.8)

<sup>1</sup>Total number reflects cases confirmed by April 14, 2015 with a delivery or estimated date of delivery in 2010-2015.

# Neural Tube Defects by Race Ethnicity

	Total Number <sup>1</sup>	Number 2011-2014	Births 2011-2014	Rate per 10,000 births	95% CI
<b>All Neural Tube Defects</b>					
Hispanic	30	22	17,251	12.8	(8.0, 19.3)
Non-Hispanic White	26	21	13,501	15.6	(9.6, 23.8)
Other	1	1	2,267	4.4	(0.1, 24.6)
<b>Anencephaly</b>					
Hispanic	24	17	17,251	9.9	(5.7, 15.8)
Non-Hispanic White	13	11	13,501	8.1	(4.1, 14.6)
Other	1	0	2,267	0.0	

<sup>1</sup>Total number reflects cases confirmed by April 14, 2015 with a delivery or estimated date of delivery in 2010-2015. Three anencephaly cases and 1 spina bifida case had unknown race/ethnicity.

# Washington Rates of Anencephaly and Spina Bifida<sup>1</sup>

	<b>Anencephaly</b>	<b>Rate per 10,000</b>	<b>All Neural Tube Defects</b>	<b>Rate per 10,000</b>	<b>Births</b>
2005	18	2.2	39	4.7	82,625
2006	13	1.5	45	5.2	86,845
2007	21	2.4	55	6.2	88,921
2008	24	2.7	59	6.5	90,270
2009	25	2.8	55	6.2	89,242
2010	27	3.1	53	6.1	86,480
2011	35	4.0	64	7.4	86,929
2012	23	2.6	49	5.6	87,417
2013	23	2.7	49	5.7	86,566
2014 <sup>2</sup>	24	2.7	47	5.3	88,546
2005-2014	233	2.7	515	5.9	873,841

<sup>1</sup>Based on ascertainment from birth certificates, fetal death certificates and hospital discharge data, 2005-2013.

<sup>2</sup>Based on ascertainment from birth certificates and fetal death certificates only, 2014.



# Washington Rates of Anencephaly and Spina Bifida<sup>1</sup>

	Number 2005-2014	Births 2005-2014	Rate per 10,000 births	95% CI
<b>All Neural Tube Defects</b>				
3 County Area	81	83,803	9.7	(9.7, 12.1)
Rest of Washington	434	790,038	5.5	(5.0, 6.0)
Total Washington	515	873,841	5.9	(5.4, 6.4)
<b>Anencephaly</b>				
3 County Area	47	83,803	5.6	(4.1, 7.5)
Rest of Washington	186	790,038	2.4	(2.0, 2.7)
Total Washington	233	873,841	2.7	(2.3, 3.0)

<sup>1</sup>Based on ascertainment from birth certificates, fetal death certificates and hospital discharge data, 2005-2012.

# Investigation Update

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- We've interviewed 13 of the 25 women we sought to interview.
- Two women declined to participate and one woman we did not contact per MD request.
- Have made at least 10 calls to each of remaining mothers. We attempted to find better phone numbers from MD offices. In a few cases, we have reached the mom, but not able to complete interview at that time.
- We will discontinue attempting to reach moms at the end of this week.

# Investigation Update

- 7 additional mothers to interview
- Follow NBDPS protocol – or interview sooner?
- Despite low response rate, we do hope to explore any common exposures. We hope to be able to address some community concerns about exposures to nitrates in drinking water, parental agricultural occupations, household pesticide use and proximity to fields. We also hope to better understand folic acid supplementation in this population.

# Prevention Update

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- Dept. of Health is developing tools for providers and community health workers to use to print resources or order free materials from CDC and the March of Dimes.
- We are in the process of developing Spanish messaging regarding preconception care, including folic acid vitamin use. The messaging is tied to a series of radio novelas that will air in the 3 county area over the next few months.

# Prevention Update

- We are currently developing a contract for English and Spanish ads promoting folic acid use among women of reproductive age to air on central Washington stations in May/June.
- Chris Spitters, Yakima Health District's health officer continues to follow up with Vitamin Angels, in an attempt to establish a source for free vitamins for women of childbearing age.

To provide comments or questions,  
please contact:

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# Case Definition

- ICD-9 code: 740, 741, 742, 655.0
- Confirmed diagnosis: ultrasound, pathology report, or physical examination
- Resident: Yakima, Benton, or Franklin counties at time of conception
- Last menstrual period: August 2009 – present