

Preliminary Data on Oregon Birth Outcomes,  
by Planned Birth Place and Attendant  
Pursuant to: HB 2380 (2011)

In 2011, the Oregon Legislature passed House Bill 2380, which required the Oregon Public Health Division: (1) to add two questions to the Oregon Birth Certificate to determine planned place of birth and birth attendant,<sup>1</sup> and (2) to report annually on birth outcomes, including death, by location and attendant type. In addition, for 2012, the Oregon Public Health Division conducted a special study involving a perinatal fatality case review<sup>2</sup> of term births intended to occur out-of-hospital. Key findings, reported below and in Tables 1-3, are based on 2012 Oregon occurrence birth and death certificates, and the perinatal case fatality review.

Key findings of *live term births by planned place of birth and planned birth attendant* (Table 1):

- During 2012, 41,979 live term births<sup>3</sup> occurred in Oregon. Of these, 1,995 (4.8%) were planned as an out-of-hospital birth (home birth or freestanding birthing center).
- Among all live term births, planned birth attendants included: MDs & DOs (78.7%), Certified Nurse Midwives (17.4%), Direct-Entry Midwives (Total 2.94%, Licensed 2.5%, Unlicensed 0.5%),<sup>4</sup> Naturopathic Physicians (0.5%).
- Among live term births to women who planned out-of-hospital births, planned birth attendants included: Certified Nurse Midwives (25.1%), Direct-Entry Midwives (Total 61.9%, Licensed 52.1%, Unlicensed 9.8%), and Naturopathic Physicians (10.8%).
- 381 of 1,995 (19.1%) planned out-of-hospital births ultimately delivered in-hospital (data not shown).

<sup>1</sup> "Did you go into labor planning to deliver at home or at a freestanding birthing center? If yes, what was the planned primary attendant type at the onset of labor?" Choose from a list of birth attendant types.

<sup>2</sup> Includes fetal and neonatal deaths  $\geq 37$  weeks' estimated gestational age through first 6 days of life.

<sup>3</sup> Clinical/obstetric estimate of gestation  $\geq 37$  weeks.

<sup>4</sup> Licensing status as reported by mother; not verified in preliminary report.

Key findings of *term fetal and neonatal deaths by planned place of birth and planned birth attendant* (Table 2):

- 63 term fetal deaths<sup>5</sup> occurred in Oregon during 2012; 4 (6.3%) of these occurred among planned out-of-hospital births.
- 30 term neonatal deaths<sup>6</sup> occurred in Oregon during 2012; 5 (17%) of these occurred among planned out-of-hospital births.
- In total, 93 term fetal and neonatal deaths occurred in Oregon during 2012; 9 (9.7%) occurred among planned out-of-hospital births. These 9 deaths underwent a fetal and neonatal mortality case review per published national guidelines.<sup>7</sup>

Key findings of *maternal characteristics of term births by planned place of birth* (Table 3):

- 1,995 (4.8%) mothers planned an out-of-hospital birth.
- Women who planned out-of-hospital births compared to women who planned in-hospital births tended to be:
  - Older (57.2% vs. 42.5% aged 30 years and older)
  - White, non-Hispanic (87.4% vs. 67.7%)
  - Married (82.5% vs. 64.3%)
  - College-educated (45.7% vs. 28.7%)
  - Self-pay for delivery (27.9% vs. 1.0%)
  - Less overweight or obese pre-pregnancy (32.4% vs. 49.1%)
  - Less likely to smoke (2.1% vs. 10.6%).
- Women who planned out-of-hospital births compared to women who planned in-hospital births were *more likely* to have no prenatal care (2.6% vs. 0.4%) or inadequate prenatal care (9.5% vs. 4.8%), and *less likely* to begin prenatal care in the first trimester (63.7% vs. 76.6%).

Key findings of *perinatal<sup>2</sup> fatality case review of term births planned to occur out-of-hospital* (Table 2, n = 9):

- 4 term fetal<sup>4</sup> and 5 neonatal deaths<sup>5</sup> occurred during 2012 among women who planned to deliver out-of-hospital.
- Planned birth attendants: Certified Nurse Midwife (1), Licensed Direct-Entry Midwives (5), Unlicensed Midwife (1), Undetermined Licensure Midwife (1), and Naturopathic Physician (1).
- Median birth weight: 3600 grams

---

<sup>5</sup> Deaths in fetus  $\geq 37$  weeks' gestation before delivery.

<sup>6</sup> Deaths to live-born infants  $\geq 37$  weeks' gestation during the first 6 days of life.

<sup>7</sup> National Fetal-Infant Mortality Review Program, [www.nfimr.org](http://www.nfimr.org).

- Maternal characteristics were similar to the larger group of planned out-of-hospital births (Table 3).
- Two pregnancies had inadequate or no prenatal care.
- Chart review noted that, among perinatal deaths:
  - 2 pregnancies were twin gestations
  - 4 mothers declined prenatal ultrasound<sup>8</sup>
  - 5 mothers declined Group B streptococcal testing<sup>9</sup>
  - 2 mothers declined prophylaxis during labor for Group B streptococcal positive tests.
- 7 of 9 transferred to the hospital during labor:
  - Indications for transfer to a hospital from home or birthing center included (multiple causes may apply): loss of fetal heart tones (3), prolonged labor (2), decreased fetal movement (2), malpresentation (2), and increased maternal blood pressure and trace urine protein (1).
  - One mother initially declined transfer during labor despite recommendation by birth attendant.
- 6 of 9 pregnancies did not meet published low-risk criteria for out-of-hospital birth:<sup>10</sup>
  - More than 41 weeks gestation (4)
  - Twin gestation (2)
  - Morbid obesity (>40 BMI) (1)
  - Planned attendants among these 6: Certified Nurse Midwife (1), Licensed Direct-Entry Midwives (3), Unlicensed Midwife (1), and Naturopathic Physician (1).
- Causes of death and major contributing factors (more than one may apply):
  - Hypoxic ischemic encephalopathy or cardiorespiratory failure (lack of blood flow) (3)
  - Chorioamnionitis (infection in the womb) (3)
  - Severe, unsuspected birth defect (normal prenatal ultrasound; born in hospital for other indications) (1)

---

<sup>8</sup> Prenatal ultrasound is recommended to confirm gestation and identify pathology that may affect pregnancy risk.

<sup>9</sup> Group B streptococcus (GBS) screening is recommended to identify women who are carriers of GBS; treatment during labor is recommended to decrease the risk of early GBS neonatal sepsis and death.

<sup>10</sup> *Planned home birth*. Committee Opinion No. 476. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;117:425–428. Low-risk criteria: gestational age  $\geq 36$  weeks and  $\leq 41$  completed weeks of pregnancy, singleton, vertex position, and absence of preexisting or pregnancy-related maternal disease. See also College of Midwives of British Columbia, Canada; Australian College of Midwives; Obstetric Working Group of the National Health Insurance Board of the Netherlands (2009).

- Maternal factors (2)
  - Respiratory failure (1)
  - Undetermined, umbilical cord wrapped around neck, large baby (1)
  - Undetermined, twin gestation, small baby (2)
- Excluding the infant with severe congenital anomalies, the term perinatal mortality rate <sup>2</sup> in planned out-of-hospital births (4.0/1,000 pregnancies) was twice that of in-hospital births (2.1/1,000).

Appendix: *Birth attendant definitions:*

- Certified Nurse Midwives (CNMs) are registered nurses who have graduated from a nurse-midwifery education program and have passed a national certification examination to receive the professional designation of certified nurse-midwife. They are licensed with the Oregon Board of Nursing.
- Direct-Entry Midwives (DEM) are independent practitioners educated in the discipline of midwifery through self-study, apprenticeship, a midwifery school, or a college- or university-based program distinct from the discipline of nursing.
  - A Licensed Direct Entry Midwife (LDM) is licensed to practice in a particular jurisdiction (usually a state or province).
- Birth Attendants also include: Medical Doctors (MDs), Doctors of Osteopathic Medicine (DOs), and Naturopathic Doctors (NDs).
- Other Midwife may include the uncertified or unlicensed midwife who was educated through informal routes, such as self-study or apprenticeship, rather than through a formal program. Other similar terms are: traditional midwife, traditional birth attendant, granny midwife and independent midwife.

**Table 1. Live Term<sup>1</sup> Births by Planned Place of Birth and Planned Birth Attendant, Oregon Occurrence, 2012 Preliminary Data**

Planned Birth Attendant <sup>2</sup>	Term Births		
	Total <sup>3</sup>	Planned Hospital	Planned Out-of-Hospital
<b>State Total</b>	<b>41,979</b>	<b>39,984</b>	<b>1,995</b>
<b>MDs &amp; DOs</b>	<b>33,026</b>	<b>33,026</b>	<b>0</b>
<b>Certified Nurse Midwives</b>	<b>7,316</b>	<b>6,816</b>	<b>500</b>
<b>All Direct-Entry Midwives</b>	<b>1,235</b>	<b>0</b>	<b>1,235</b>
<i>(Licensed)</i>	<i>1,040</i>	<i>0</i>	<i>1,040</i>
<i>(Unlicensed)</i>	<i>195</i>	<i>0</i>	<i>195</i>
<b>Naturopathic Physicians</b>	<b>216</b>	<b>0</b>	<b>216</b>
<b>Other</b>	<b>186</b>	<b>142</b>	<b>44</b>

1 Clinical/obstetric estimate of gestation greater than or equal to 37 weeks.

2 For planned hospital births, actual attendant is used. Planned attendant type is reported by mother and not verified.

3 Total excludes 80 term births that occurred en route, were unplanned homebirths, or other out-of-hospital births not otherwise characterized.

Source: Oregon Health Authority, Public Health Division, 6 March 2013

**Table 2. Term<sup>1</sup> Fetal Deaths and Neonatal<sup>2</sup> Deaths by Planned Place of Birth and Planned Birth Attendant, Oregon Occurrence, 2012 Preliminary Data**

Planned Birth Attendant <sup>3</sup>	Term Fetal Deaths			Term Neonatal Deaths			Term Fetal + Neonatal Deaths		
	Total	Planned Hospital	Planned Out-of-Hospital	Total	Planned Hospital	Planned Out-of-Hospital	Total	Planned Hospital	Planned Out-of-Hospital
<b>State Total</b>	<b>63</b>	<b>59</b>	<b>4</b>	<b>30</b>	<b>25</b>	<b>5</b>	<b>93</b>	<b>84</b>	<b>9</b>
<b>MDs &amp; DOs</b>	<b>50</b>	<b>50</b>	<b>0</b>	<b>21</b>	<b>21</b>	<b>0</b>	<b>71</b>	<b>71</b>	<b>0</b>
<b>Certified Nurse Midwives</b>	<b>7</b>	<b>7</b>	<b>0</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>12</b>	<b>11</b>	<b>1</b>
<b>All Direct-Entry Midwives</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>7</b>	<b>0</b>	<b>7</b>
<i>(Licensed)</i>	<i>2</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>3</i>	<i>5</i>	<i>0</i>	<i>5</i>
<i>(Unlicensed)*</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>1</i>	<i>0</i>	<i>1</i>	<i>2</i>	<i>0</i>	<i>2</i>
<b>Naturopathic Physicians</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>Other</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>

1 Clinical/obstetric estimate of gestation greater than or equal to 37 weeks.

2 Deaths to live-born infants in the first 6 days of life.

3 For planned hospital births, actual attendant is used. Planned attendant type is reported by mother and not verified.

\*Or undetermined licensure status.

Source: Oregon Health Authority, Public Health Division, 6 March 2013

**Table 3: Maternal Characteristics of Term<sup>1</sup> Births by Planned Place of Birth, Oregon Occurrence, 2012 Preliminary Data**

Selected Maternal Characteristics	Total Births <sup>2</sup>	Planned Hospital Birth		Planned Out-of-Hospital Birth	
		No.	Pct. <sup>3</sup>	No.	Pct. <sup>3</sup>
<b>Total Term Births</b> .....	41,979	39,984	N/A	1,995	N/A
<b>Mother's Age</b>					
<20 .....	2,678	2,652	6.6	26	1.3
20-24 .....	9,013	8,792	22.0	221	11.1
25-29 .....	12,204	11,597	29.0	607	30.4
30-34 .....	11,339	10,621	26.6	718	36.0
35-39 .....	5,523	5,179	13.0	344	17.2
40+ .....	1,221	1,142	2.9	79	4.0
<b>Single Mention Race/Ethnicity<sup>4</sup></b>					
White .....	28,805	27,061	67.7	1,744	87.4
African American .....	815	806	2.0	9	0.5
American Indian .....	460	439	1.1	21	1.1
Asian/Hawaiian/Pacific Islander .....	2,310	2,269	5.7	41	2.1
Other/Multiple Races .....	1,406	1,354	3.4	52	2.6
Hispanic .....	7,976	7,865	19.7	111	5.6
<b>Marital Status</b>					
Married .....	27,364	25,719	64.3	1,645	82.5
Unmarried .....	14,607	14,258	35.7	349	17.5
<b>Mother's Education</b>					
8th grade or less .....	1,742	1,731	4.3	11	0.6
Some high school .....	4,949	4,888	12.3	61	3.1
High school graduate/GED .....	9,385	9,049	22.7	336	17.0
Some college .....	10,218	9,688	24.3	530	26.8
Associate's Degree .....	3,190	3,052	7.7	138	7.0
Bachelor's Degree .....	7,773	7,188	18.1	585	29.5
Postbaccalaureate .....	4,522	4,202	10.6	320	16.2
<b>Source of Payment</b>					
Medicaid/Oregon Health Plan .....	18,432	17,970	45.2	462	23.4
Private Insurance .....	21,576	20,671	51.9	905	45.8
Self-Pay .....	943	392	1.0	551	27.9
Other Coverage .....	816	760	1.9	56	2.8
<b>Initiation of Care</b>					
1st Trimester .....	31,434	30,167	76.6	1,267	63.7
2nd Trimester .....	8,191	7,636	19.4	555	27.9
3rd Trimester .....	1,562	1,446	3.7	116	5.8
No Care .....	208	157	0.4	51	2.6
<b>Prenatal Care<sup>5</sup></b>					
Adequate .....	38,277	36,489	95.2	1,788	90.5
Inadequate .....	2,037	1,850	4.8	187	9.5
<b>Birth Order</b>					
1st .....	16,990	16,139	40.4	851	42.7
2nd .....	13,588	12,969	32.4	619	31.0
3rd .....	6,674	6,413	16.0	261	13.1
4th+ .....	4,726	4,462	11.2	264	13.2
<b>Pre-pregnancy Body Mass Index</b>					
Underweight (< 18.5) .....	1,380	1,310	3.4	70	3.6
Normal (18.5 - 24.9) .....	19,779	18,527	47.5	1,252	64.0
Overweight (25.0 - 29.9) .....	10,246	9,842	25.2	404	20.7
Obese (> 30.0) .....	9,532	9,303	23.9	229	11.7
<b>Maternal Tobacco Use</b>					
Tobacco Use During Pregnancy .....	4,263	4,222	10.6	41	2.1

<sup>1</sup> Clinical/obstetric estimate of gestation of at least 37 weeks.

<sup>2</sup> Total excludes 80 term births that occurred en route, were unplanned home deliveries, or other out-of-hospital births not otherwise classified.

<sup>3</sup> Percentages are calculated excluding missing and unknown values.

<sup>4</sup> Non-Hispanic single mention race. The Hispanic category may include any mention of race.

<sup>5</sup> Adequate care: Care that began in the first or second trimester and included at least five visits.

Inadequate care: No care, or care that began in the third trimester or fewer than five visits.