

# 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 to add two questions to the Oregon Birth Certificate to determine planned place of birth and birth attendant, and to report annually on birth outcomes, including death, by location and attendant type. The specific questions were: “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?” In addition, for 2012, the Oregon Public Health Division conducted a special study of deaths in term infants ( $\geq 37$  weeks’ gestation) intended to deliver out-of-hospital. The perinatal fatality analysis includes fetal and early neonatal deaths  $\geq 37$  weeks’ estimated gestational age through the first 6 days of life.

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

- During 2012, 42,011 live term births<sup>1</sup> occurred in Oregon. Of these 2,021 (4.8%) planned an out-of-hospital birth (home birth or freestanding birthing center).
- Among all live term births, planned birth attendants<sup>2</sup> included: MDs & DOs (78.6%), Certified Nurse Midwives (17.4%), Direct-Entry Midwives (Total 3.0%, Licensed 2.5%, Unlicensed 0.5%), and Naturopathic Physicians (0.5%).
- Among live term births to women who planned out-of-hospital births, planned birth attendants included: Certified Nurse Midwives (24.7%), Direct-Entry Midwives (Total 61.8%, Licensed 52.1%, Unlicensed 9.7%), and Naturopathic Physicians (10.8%).
- 379 of 2,021 (18.8 %) planned out-of-hospital births ultimately delivered in-hospital.

**Table 1. Live term births by planned place of birth and planned birth attendant, Oregon occurrence, 2012**

Planned Birth Attendant	Term Births				
	Total	Planned Hospital	Planned Out-of-Hospital		
			Total	Intrapartum Transfer to Hospital	Neonatal Transfer
<b>State Total</b>	42,011	39,990	2,021	379	24
<b>MDs and DOs</b>	33,030	33,030	0	0	0
<b>Certified Nurse Midwives</b>	7,319	6,819	500	202	3
<b>All Direct-Entry Midwives</b>	1,249	0	1,249	147	17
<i>(Licensed)</i>	1,052	0	1,052	85	16
<i>(Unlicensed)</i>	197	0	197	62	1
<b>Naturopathic Physicians</b>	219	0	219	22	1
<b>Other</b>	194	141	53	8	3

1. Total excludes 79 term births that occurred en route, were unplanned home births, or other out-of-hospital births not otherwise characterized.

2. For planned hospital births, actual attendant is used. For planned out-of-hospital births with intrapartum transfer to hospitals, planned attendant type is reported by mother and not verified.

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

- 62 term ( $\geq 37$  weeks' gestation) fetal deaths occurred in Oregon during 2012; 4 (6.5%) of these occurred among planned out-of-hospital births.
- 30 term early neonatal deaths (during the first 6 days of life) occurred in Oregon during 2012; 4 (13.3%) of these occurred among planned out-of-hospital births.
- In total, 92 term fetal and early neonatal deaths occurred in Oregon during 2012; 8 (8.7%) occurred among planned out-of-hospital births. These 8 deaths underwent a fetal and neonatal mortality case review per published national guidelines. (See [www.nfmir.org](http://www.nfmir.org).)

**Table 2. Term fetal deaths and early neonatal deaths by planned place of birth and planned birth attendant, Oregon occurrence, 2012\***

Planned Birth Attendant	Term Fetal Deaths			Term Early Neonatal Deaths			Term Fetal + Early 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>	62	58	4	30	26	4	92	84	8
<b>MDs and DOs</b>	49	49	0	22	22	0	71	71	0
<b>Certified Nurse Midwives</b>	8	8	0	5	4	1	13	12	1
<b>All Direct-Entry Midwives</b>	3	0	3	3	0	3	6	0	6
<i>(Licensed)</i>	2	0	2	2	0	2	4	0	4
<i>(Unlicensed)</i>	1	0	1	1	0	1	2	0	2
<b>Naturopathic Physicians</b>	1	0	1	0	0	0	1	0	1
<b>Other</b>	1	1	0	0	0	0	1	1	0

\* 2012 Oregon birth and death certificate data; final data will be available in Winter 2013. March 2013 report included an additional neonatal death that upon review did not meet case definition and was therefore excluded from this report.

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

- 2,021 (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 (87.7% vs. 67.7%)
  - ◊ Married (82.1% vs. 64.3%)
  - ◊ College-educated (45.9% vs. 29.0%)
  - ◊ Self-pay delivery (28.2 % vs. 1.0%)
  - ◊ Less overweight or obese pre-pregnancy (32.3% 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 (2.8% vs. 0.4%) or inadequate prenatal care (9.8% vs. 4.8%), and less likely to begin prenatal care in the first trimester (63.6% vs. 76.6%).

**Table 3: Maternal characteristics of term births by planned place of birth, Oregon occurrence, 2012**

Selected Maternal Characteristics	Total Births	Planned Hospital Birth		Planned Out-of-Hospital Birth	
		No.	Pct.	No.	Pct.
<b>Total Term Births</b>	42,011	39,990	N/A	2,021	N/A
<b>Mother's Age (years)</b>					
< 20	2,682	2,655	6.6	27	1.3
20-24	9,027	8,801	22.0	226	11.2
25-29	12,207	11,594	29.0	613	30.3
30-34	11,346	10,619	26.6	727	36.0
35-39	5,530	5,181	13.0	349	17.3
40+	1,219	1,140	2.9	79	3.9
<b>Single Mention Race/Ethnicity</b>					
White	28,838	27,065	67.7	1,773	87.7
African American	815	806	2.0	9	0.4
American Indian	460	439	1.1	21	1.0
Asian/Hawaiian/Pacific Islander	2,311	2,271	5.7	40	2.0
Other/Multiple Races	1,406	1,354	3.4	52	2.6
Hispanic	7,979	7,867	19.7	112	5.5
<b>Marital Status</b>					
Married	27,385	25,726	64.3	1,659	82.1
Unmarried	14,618	14,257	35.7	361	17.9
<b>Mother's Education</b>					
8th grade or less	1,741	1,731	4.3	10	0.5
Some high school	4,949	4,887	12.2	62	3.1
High school graduate/GED	9,391	9,048	22.6	343	17.0
Some college	10,232	9,692	24.2	540	26.7
Associate's Degree	3,193	3,055	7.6	138	6.8
Bachelor's Degree	7,781	7,190	18.0	591	29.2
Postbaccalaureate	4,724	4,387	11.0	337	16.7
<b>Source of Payment</b>					
Medicaid/Oregon Health Plan	18,588	18,122	45.5	466	23.3
Private Insurance	21,621	20,710	52.0	911	45.6
Self-Pay	956	392	1.0	564	28.2
Other Coverage	634	575	1.4	59	3.0
<b>Initiation of Care</b>					
1st Trimester	31,450	30,169	76.6	1,281	63.6
2nd Trimester	8,197	7,638	19.4	559	27.7
3rd Trimester	1,565	1,446	3.7	119	5.9
No Care	213	157	0.4	56	2.8
<b>Prenatal Care*</b>					
Adequate	38,295	36,490	95.2	1,805	90.2
Inadequate	2,046	1,850	4.8	196	9.8
<b>Pre-pregnancy Body Mass Index</b>					
Underweight (< 18.5)	1,376	1,305	3.3	71	3.6
Normal (18.5 - 24.9)	19,799	18,532	47.5	1,267	64.1
Overweight (25.0 - 29.9)	10,246	9,842	25.2	404	20.4
Obese (> 30.0)	9,545	9,309	23.9	236	11.9
<b>Maternal Tobacco Use</b>					
Tobacco Use During Pregnancy	4,264	4,221	10.6	43	2.1

\* 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.

Key findings of **characteristics of labor & delivery, and maternal & infant health characteristics of term births by planned place of birth** (Table 4):

- Women who planned out-of-hospital births compared to women who planned in-hospital births tended to have lower rates of medical intervention including:
- Epidural/Spinal Anesthesia (11.4% vs. 70.4%)
- Vacuum-assisted delivery (0.8% vs. 2.7%)
- Primary Cesarean delivery (5.9% vs. 16.1%)
- Women who planned out-of-hospital births were less likely to be tested for Group B streptococcal during pregnancy compared to women who planned in-hospital births (81.5% vs. 97.2%).

**Table 4: Characteristics of labor & delivery, and maternal & infant health characteristics of term births by planned place of birth, Oregon occurrence, 2012**

Selected Medical and Health Characteristics	Total Births	Planned Hospital Birth		Planned Out-of-Hospital Birth	
		No.	Pct.	No.	Pct.
Total Term Births	42,011	39,990	N/A	2,021	N/A
<b>Characteristics of Labor and Delivery</b>					
Premature Rupture of Membrane (≥12 hours)	2,241	2,068	5.2	173	8.6
Precipitous Labor (<3 hours)	2,248	2,062	5.2	186	9.2
Prolonged Labor (≥ 20 hours)	1,235	1,074	2.7	161	8.0
Induction/Augmentation of Labor	19,205	18,956	47.4	249	12.3
Epidural/Spinal Anesthesia	28,388	28,157	70.4	231	11.4
Non-vertex Presentation	1,539	1,512	3.8	27	1.3
Moderate/Heavy Meconium Staining	2,039	1,938	4.8	101	5.0
Fetal Intolerance of Labor	1,477	1,433	3.6	44	2.2
Chorioamnionitis	843	823	2.1	20	1.0
Neonatal Transfer	274	250	0.6	24	1.2
<b>Method of Delivery</b>					
Vaginal	28,558	26,790	67.0	1,768	87.5
Forceps	224	216	0.5	8	0.4
Vacuum	1,089	1,072	2.7	17	0.8
VBAC (Vaginal birth after Cesarean section)	904	817	2.0	87	4.3
Primary Cesarean section	6,555	6,436	16.1	119	5.9
Repeat Cesarean section	4,681	4,659	11.7	22	1.1

*continued on next page*

**Table 4: Characteristics of labor & delivery, and maternal & infant health characteristics of term births by planned place of birth, Oregon occurrence, 2012 (continued)**

Selected Medical and Health Characteristics	Total Births	Planned Hospital Birth		Planned Out-of-Hospital Birth	
		No.	Pct.	No.	Pct.
<b>Maternal Conditions</b>					
Multiples	677	664	1.7	13	0.6
Diabetes-Gestational	2,899	2,864	7.2	35	1.7
Diabetes-Chronic	295	293	0.7	2	*
Hypertension-Chronic	566	559	1.4	7	0.3
Hypertension-Gestational	2,210	2,186	5.5	24	1.2
Eclampsia	207	203	0.5	4	*
Group B Streptococcal Test	39,263	38,123	97.2	1,140	81.5
Maternal Transfusion	192	180	0.5	12	0.6
Perineal Laceration	506	482	1.2	24	1.2
Ruptured Uterus	13	12	*	1	*
Admission to Intensive Care	46	44	0.1	2	*
Unplanned Operating Room Procedure	208	191	0.5	17	0.8
<b>Characteristics of Infant</b>					
Immediate Assisted Ventilation	1,328	1,254	3.1	74	3.7
Assisted Ventilation 6+ hours	193	179	0.4	14	0.7
Admission to NICU	1,375	1,332	3.3	43	2.1
Surfactant Therapy	15	15	*	3	*
Antibiotics	666	639	1.6	27	1.3
Seizure	20	18	*	2	*

\* Percentages based on a small number of events may be unreliable and are suppressed.

Key findings of **perinatal fatality case review of term births planned to occur out-of-hospital:**

- 4 term fetal and 4 early neonatal deaths occurred during 2012 among women who planned to deliver out-of-hospital (Table 2).
- Planned birth attendants: Certified Nurse Midwife (1), Licensed Direct-Entry Midwives (4), Unlicensed Midwife (1), Undetermined Licensure Midwife (1), and Naturopathic Physician (1).
- Median birth weight: 3515 grams
- 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 (to confirm gestation and identify pathology.)
  - ◊ 5 mothers declined Group B streptococcal testing (to identify women who are carriers of GBS; treatment during labor is recommended to decrease the risk of early GBS neonatal sepsis.)
  - ◊ 2 mothers declined prophylaxis during labor for Group B streptococcal positive tests.
- 6 of 8 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), and malpresentation (2).
  - ◊ One mother initially declined transfer during labor despite recommendation by birth attendant.
- 6 of 8 pregnancies did not meet published low-risk criteria for out-of-hospital birth\*:
  - ◊ 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)
  - ◊ Pre-existing, or pregnancy-related maternal disease (2)
  - ◊ Respiratory failure (1)
  - ◊ Undetermined, umbilical cord wrapped around neck, large baby (1)
  - ◊ Undetermined, twin gestation, small baby (2)
- The term perinatal mortality rate for planned out-of-hospital births (4.0/1,000 pregnancies) was nearly twice that of in-hospital births (2.1/1,000).

\* 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).

## 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.

Prepared by Oregon Public Health Division, 8/30/2013



PUBLIC HEALTH DIVISION

Director's Office

800 NE Oregon Street

Portland, Oregon 97232

Voice: 971-673-1222

FAX: 971-673-1299

TTY: 971-673-0372