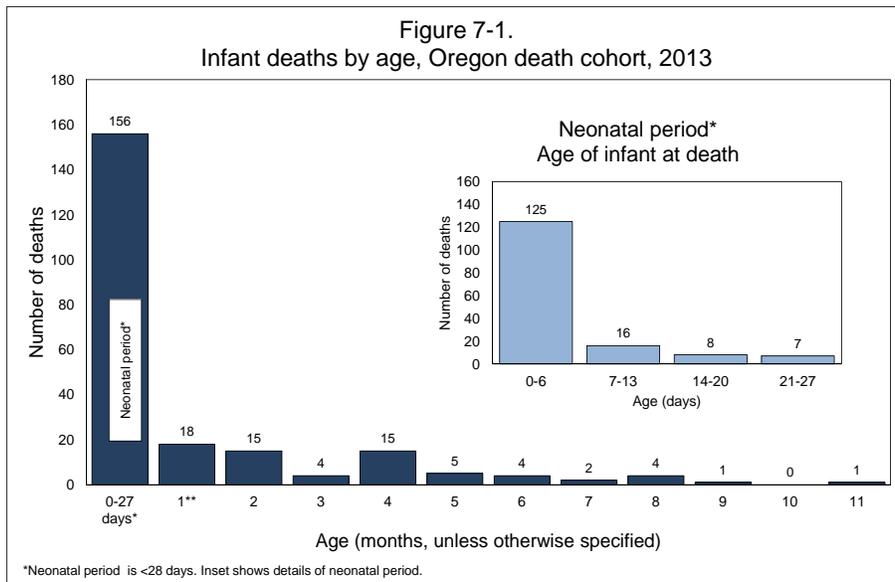


Fetal and infant mortality

Introduction

This report presents fetal and infant mortality data. Infant deaths are deaths occurring within one year of birth. Fetal deaths included in this report are for fetuses weighing at least 350 grams at delivery, or at least 20 weeks gestation if delivery weight is unknown. This definition applies to data after 1998. Although fetal and infant death records are useful for statistical descriptions of deaths within a given time frame, their fundamental purpose is to help discover and evaluate preventive strategies to improve infant health. As an aid to understanding and monitoring health trends, this report divides fetal and infant deaths into five overlapping categories, which are not necessarily mutually exclusive: fetal deaths, perinatal deaths, infant deaths, neonatal deaths and postneonatal deaths. These categories are consistent with the definitions established by the National Center for Health Statistics (see Figure 7-2).

The five categories of fetal and infant death were analyzed using three databases: fetal deaths, infant deaths and births. National publications covering the subject of fetal and infant death may use one or any combination of these databases. As a result, death rates often vary slightly depending on whether birth or death cohorts were used as the data source



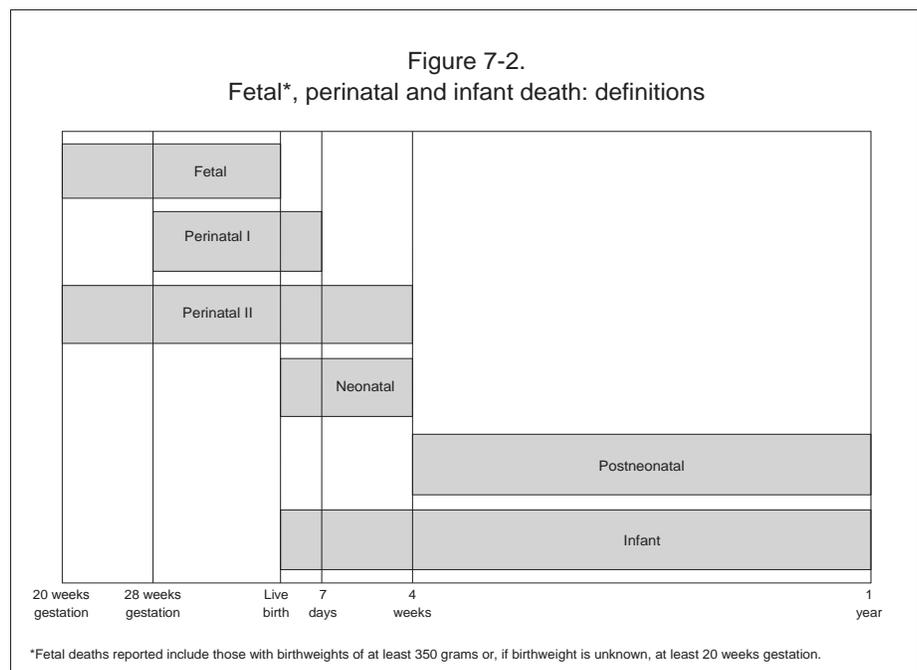
for statistical analysis. The definitions for birth and death cohorts are discussed in the next section.

Throughout this report, some tables display rates and ratios based on small numbers of events. Rates and ratios based on fewer than five events are unreliable. It is important to avoid inferring causal relationships based solely on the data contained in these tables.

Definitions and methodology

The following are definitions of fetal and infant death data components.

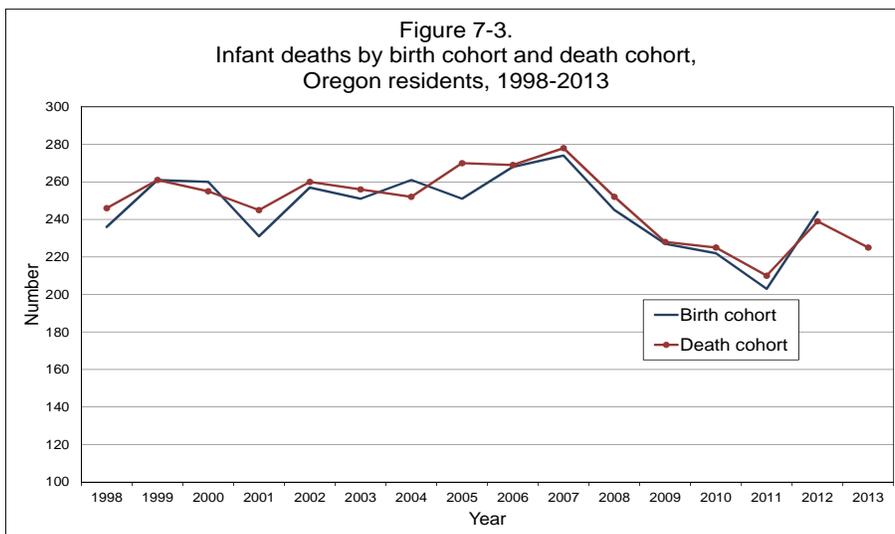
- **Fetal deaths** occur to fetuses weighing at least 350 grams at delivery, or that have completed at least 20 weeks gestation if delivery weight is unknown. For an event to be classified as a fetal death, the developing fetus dies either in utero or during delivery. Fetal deaths are classified as “early” (20–27 weeks gestation) or “late” (28 or more weeks gestation). Oregon public health and safety laws require fetal death reporting.¹
- **Infant deaths** occur during a child’s first year (i.e., measured from birth through 364 days). Infant deaths include both neonatal and postneonatal deaths.
 - » **Neonatal deaths** occur during the first 27 days of life. Neonatal deaths may be “early” (under seven days) or “late” (seven to 27 days).



» **Postneonatal deaths** occur from day 28 through day 364 after birth.

- **Perinatal deaths – definition I** includes fetal deaths at 28 weeks gestation or more, and infant deaths of less than seven days.
- **Perinatal deaths – definition II** includes fetal deaths at 20 weeks or more of gestation, and infant deaths of less than 28 days.
- The **death cohort** for infant death, or the **infant mortality rate**,² includes all infant deaths occurring in any given calendar year, divided by the total number of babies born in the same calendar year. In this report, the death cohort consists of infants who died in 2013 and could have been born in either 2012 or 2013. Data from the death cohort are usually available sooner than birth cohort data, as described below. The focus and analysis of the death cohort is on death certificate information, such as age, residence of the infant and cause of death. Tables 7-1 and 7-2 are based on a death cohort.
- The **birth cohort** for matched infant deaths (each death certificate matched to its corresponding birth certificate) is based on analysis of infants born in the same calendar year who die within one year of their birth. In this report, the birth cohort consists of infants born in 2012 who died in either 2012 or 2013. Analysis based on a birth cohort is typically not as timely; however, it allows the analysis of characteristics from

Figure 7-3.
Infant deaths by birth cohort and death cohort,
Oregon residents, 1998-2013



the birth certificate, such as mother's race, age and factors affecting the birth outcomes (i.e., birthweight, prenatal care, mother's use of tobacco). Rates using the birth or death cohorts may differ slightly, but the difference is usually small. Tables 7-8 through 7-18 are based on an infant birth cohort.

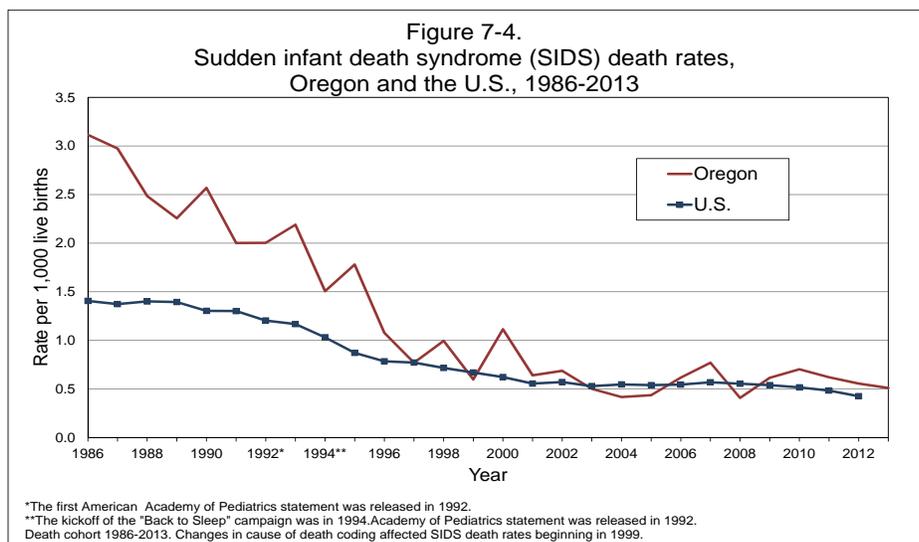
Use of the 2013 death cohort

This chapter uses data from the 2013 death cohort in the first two tables. Much of the discussion is on the cause of death. Infant characteristics at the time of death are derived from death certificates, with the primary focus on age at death, county of residence at death and underlying cause of death. Total age-specific and cause-specific mortality ratios are computed by dividing the number of infant deaths in a calendar year by the number of births in the same calendar year.

Demographics

During 2013, 225 Oregon resident infants under one year of age died, down from 239 in 2012. The infant mortality rate was 5.0 deaths per 1,000 births (see Table 7-1), and decreased 5.7% from the previous year's rate of 5.3. The decrease was not statistically significant. Oregon's infant death rate is 16.4% lower than the 2012 (the most recent available data) United States rate of 6.0 per 1,000 births.³ As in previous years, most infants (69.3%) who died during 2013 were less than 28 days old. More than one-half (55.6%) of infant deaths occurred within the first week of life (see Figure 7-1).

During 2013, 225 infants under age 1 died.



During the five-year period between 2009 and 2013, the infant mortality rates for Oregon counties ranged from 3.3 to 8.9 (excluding counties with less than five infant deaths). Two Oregon counties had infant mortality rates significantly higher than the state rate (4.9): Klamath (8.9) and Josephine (8.1). One county, Jackson (3.3), had infant mortality rates significantly lower than the state rate.

Sudden infant death syndrome

Sudden infant death syndrome (SIDS) is the sudden and unexpected death of an apparently healthy infant under one year of age, usually during the postneonatal period. Historically, Oregon's SIDS rate has been higher than the national rate, and SIDS has been a leading cause of death among Oregon infants (see Figure 7-4). However, since 2001 Oregon's and the nation's rates have been similar. Oregon's rate dropped quickly after the implementation of "Back to Sleep," a national educational campaign to encourage non-prone sleeping positions for infants, in 1994. As the number of SIDS-related events decreases, there will be more variability in Oregon's rate of SIDS deaths due to smaller numbers of SIDS deaths in rate calculations.

The number of SIDS deaths decreased from 25 deaths in 2012 to 23 in 2013, and the SIDS death rate among infants decreased from 0.6 per 1,000 live births in 2012 to 0.5 per 1,000 live births in 2013. The decrease in the number of SIDS deaths was not statistically significant. In 2013, SIDS accounted for 10.2% of Oregon's total infant deaths and 29.0% of all postneonatal deaths (see Table 7-2).

***There was a decrease
in SIDS deaths in 2013.***

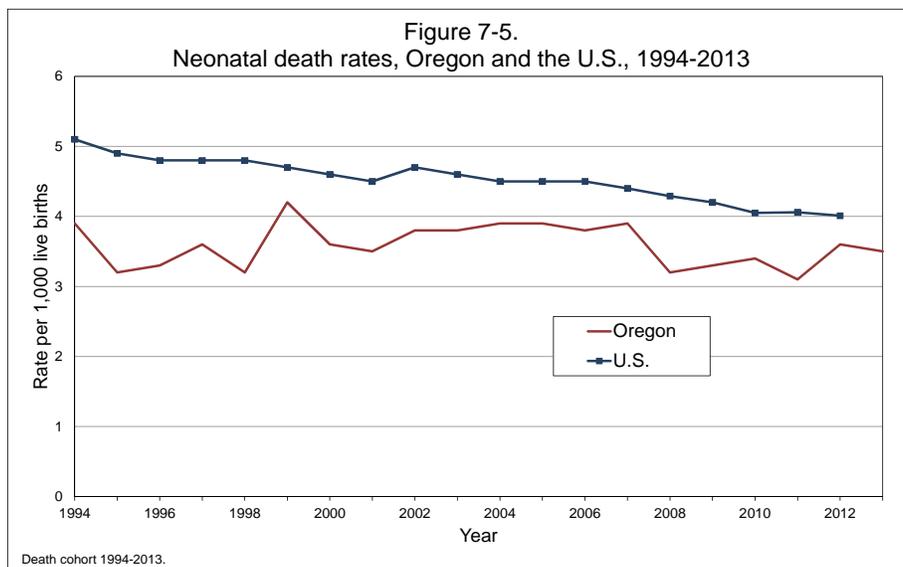


Table A - Neonatal deaths due to respiratory distress syndrome, 1997-2013			
Year	Number	Percent*	Rate**
1997	2	1.3	4.6
1998	8	5.6	17.7
1999	7	3.1	13.3
2000	6	3.6	13.1
2001	5	3.2	11
2002	4	2.3	8.9
2003	3	1.7	6.5
2004	6	3.4	13.1
2005	10	5.6	21.8
2006	5	2.7	10.3
2007	9	4.7	18.2
2008	3	1.9	6.1
2009	2	1.3	4.2
2010	3	2.0	6.6
2011	4	2.8	8.9
2012	4	2.5	8.9
2013	4	2.6	8.9

- Quantity is zero.
 * Percent of neonatal deaths due to RDS.
 **Per 100,000 live births.

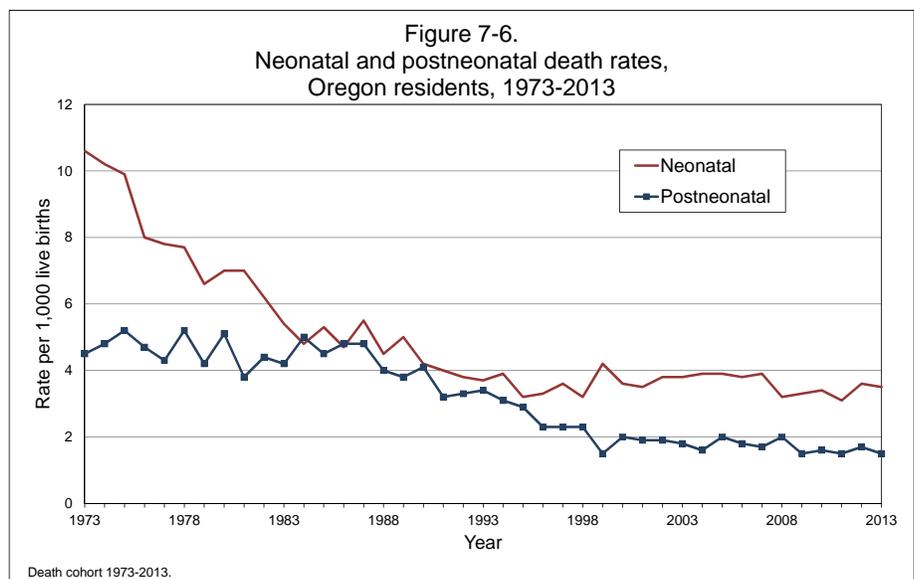
Neonatal death

Neonatal and postneonatal death rates have been declining since 1936 when the neonatal death rate was 29.0 per 1,000 births, and the postneonatal death rate was 15.3 per 1,000 births. In 2013, the neonatal death rate was 3.5 per 1,000 live births, a decrease from 3.6 in 2012, and the postneonatal death rate was 1.5, a decrease from 1.7 in 2012 (see Figure 7-6 and Table 7-1).

In 2013, 156 infants died during the neonatal period, a decrease from 163 in 2012. Oregon's neonatal death rate has consistently been below that of the United States (see Figure 7-5). The 2013 Oregon rate (3.5) is 12.7% lower than the 2012 national rate of 4.0.³ Short gestation and fetal growth were responsible for more neonatal deaths than any other cause (22.4%), followed by congenital anomalies (18.6%) and maternal factors (17.9%) (see Table 7-2). There were eight neonatal deaths due to respiratory distress syndrome (RDS) in 2013 (see Table A). The numbers of RDS deaths vary considerably from year to year. This is due to physicians citing it less frequently as the cause of death — a change of only a few RDS events can incorrectly appear as an alarming increase or decrease; e.g., there were 10 neonatal RDS events reported in 2005, but only five in 2006.

Postneonatal death

In 2013, 69 infants died during the postneonatal period, representing 30.7% of all infant deaths. The postneonatal death rate (1.5 per 1,000 births) is a decrease from 2012 (1.7 per 1,000 births); however, the difference is not statistically



significant (see Figure 7-6). Sudden infant death syndrome (SIDS) was the most common cause of death (29.0%). Congenital anomalies were the second most common cause of death and accounted for 21.7% of postneonatal deaths. Unintentional injuries were the third most common cause of postneonatal death (11.6%) (see Table 7-2). Before 1996, Oregon’s postneonatal death rate was higher than the U.S. rate; since then, the state rate has been lower than the national postneonatal rate (1.5 per 1,000 births for Oregon in 2013 vs. 2.0 per 1,000 births for the latest U.S. data available in 2012).³

Table B - Fetal death ratios per 1,000 live births, by mother's age, 2009-2013

AGE	YEAR				
	2013	2012	2011	2010	2009
Total	4.2	4.6	4.1	4.0	4.6
15-44	4.1	4.6	4.1	4.0	4.6
15-19	3.5	7.4	6.4	5.1	8.1
20-24	4.2	3.9	4.6	3.5	4.4
25-29	4.3	3.4	2.9	3.4	3.4
30-34	3.2	5.0	3.9	3.7	4.3
35-39	5.7	5.2	4.6	6.3	4.8
40-44	4.7	7.8	8.1	*	8.6

* Ratio was not calculated because there were fewer than five fetal deaths in this category.

Fetal death

Fetal deaths were first reported to the Public Health Division in 1928, when the ratio of fetal deaths to live births was 29.0 for every 1,000 births. Since then, the ratio has generally decreased, and has remained under 6.0 since 1992 (see Figure 7-7 and Table 5-2). In 2013, there were 189 Oregon resident fetal deaths, or 4.2 fetal deaths per 1,000 live births (see Table 7-3). This is not a statistically significant decrease from 2012 when 206 fetal deaths were reported and the ratio to births was 4.6.

Fetal cause of death

Causes of Oregon’s 189 fetal deaths in 2013 are shown in Table 7-4. Fetal death of unspecified cause and complications of the placenta, cord and membranes tied as the most frequently reported causes of fetal death in 2013 (a total of 120 deaths). Congenital anomalies were the third most common cause of fetal demise with 25 deaths. These

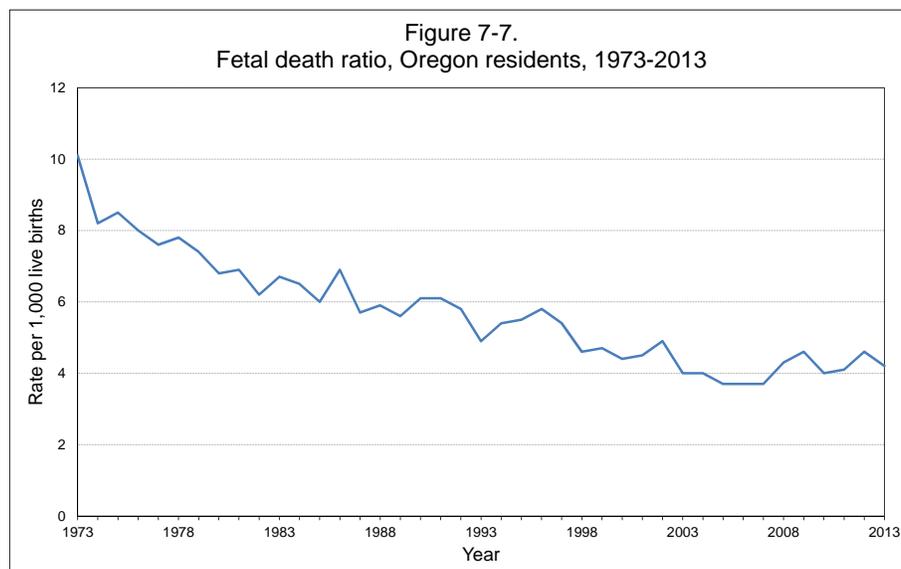


Table C - Percentage of fetal deaths by weeks of gestation, 2004-2013

Year	Weeks of gestation		
	<28	28-36	37+
2004	34.2	34.2	31.5
2005	47.7	28.5	23.8
2006	42.1	36.5	21.3
2007	45.3	31.5	22.7
2008	41.5	31.6	26.4
2009	33.3	40.3	26.4
2010	39.2	35.4	24.9
2011	36.6	36.6	26.9
2012	36.4	33.5	29.6
2013	39.2	29.1	31.7

three causes of death represented 76.7% of all 2013 Oregon fetal deaths. In 1999, the first year Oregon used ICD-10 codes, fetal death of unspecified cause represented 18.4 % of all fetal deaths. In 2013, this same cause made up 31.7% of fetal deaths, a 72.3% increase.

2012 birth cohort for infant deaths

Infant mortality analyses can also be performed using birth cohort data. The numerators for all rates and ratios are based on the number of infants born in a given year who die prior to their first birthday. Perinatal analyses also include all fetal deaths occurring in the same year. Because infants can be born in one year and die the following year, use of the birth cohort requires inclusion of the 2013 death data in the report on the 2012 birth cohort. For illustration, 244 of the infants born in 2012 died within the first year of life; of these 244 deaths, 222 died in calendar year 2012, and 22 died in 2013. Those who died in 2013 also appear in this year's report as part of the 2013 death cohort.

Small numbers

Because of the small number of events in some risk factor categories, this report uses three-year groupings of the risk characteristics to improve statistical reliability. Single-year tables displaying risk factors are also included for comparison with statistics of prior years, but the analysis of risk factors and maternal characteristics are done using only the three-year tables.

Perinatal deaths

Perinatal death, reported in Tables 7-13 through 7-16, combines fetal deaths of specific gestation and neonatal deaths (see Figure 7-2). These tables present a comprehensive picture of late gestation fetal deaths and neonatal deaths. As shown in Figure 7-8, the perinatal death rate (the combined rates of fetal and neonatal death) is generally lower than the rates seen in the 1990s. The 2012 birth cohort's neonatal death rate was 3.7, an increase from 3.1 comparing to the 2011 birth cohort. Both the fetal and neonatal death rates fluctuate year-to-year due to the small number of cases. The fetal death rate hit a low of 3.7 in the 2005 to 2007 period, but has increased slightly since that time.

Neonatal deaths: 2010–2012 birth cohorts

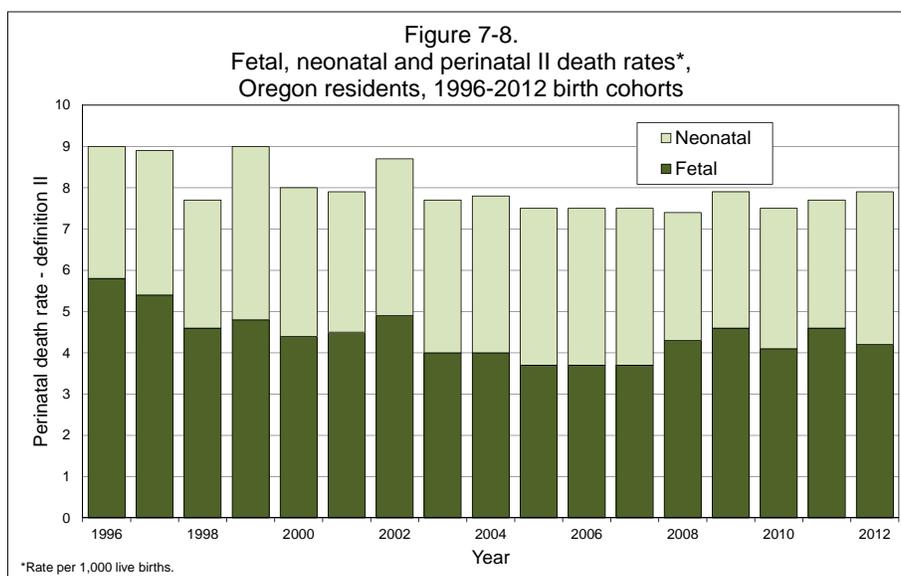
Some maternal characteristics may influence pregnancy outcomes of infants who died during the neonatal period. In this section, marital status, age, ethnicity and race, education, prenatal care, and tobacco use are discussed (see Table 7-18).

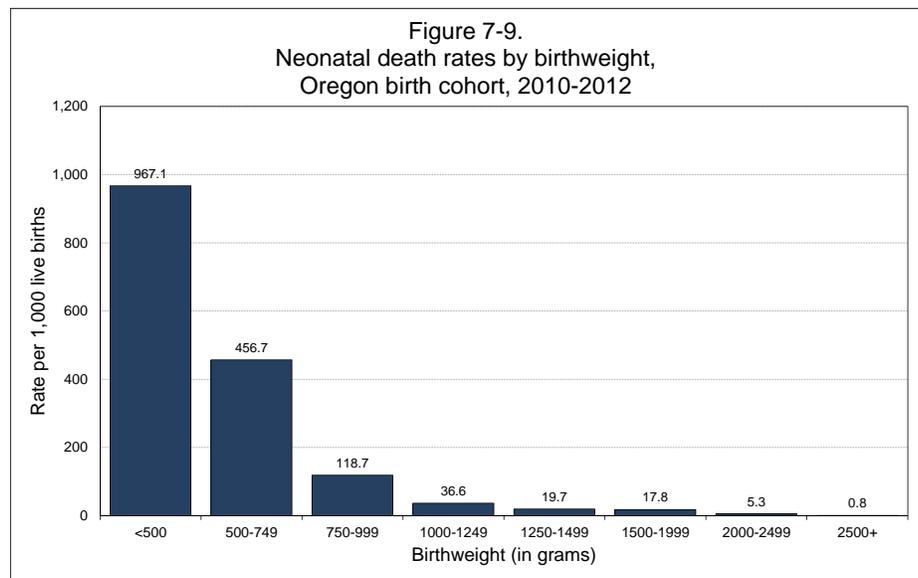
Birthweight

The birthweight of an infant has long been a predictor of subsequent survival. An increase in birthweight is correlated with a decrease in the risk of neonatal death. For the period 2010–2012, the neonatal death rate decreased, on average, by approximately one-half for each 250 to 500 gram increase in birthweight for infants weighing less than 3,000 grams at birth (see Table 7-12). The death rate for infants weighing less than 350 grams was 1000.0 per 1,000 live births, decreasing to 0.8 per 1,000 live births for infants weighing more than 2,500 grams (see Table 7-12 and Figure 7-9).

Many behavioral, social and medical conditions are associated with higher rates of infant death. These conditions may also have confounding or mitigating effects on each other. This report does not try to account for or hold all these variables constant in relation to each other. Instead, it presents a simple descriptive analysis.

***Birthweight has long
been a predictor of
survival.***





Maternal characteristics

Though a majority of women reported being married at the time of birth, the neonatal death rate was significantly higher for unmarried women than for married women during the period 2010–2012 (3.9 versus 3.1 per 1,000). Women with at least some college education had a lower neonatal death rate (3.1 per 1,000) than women with fewer years of education, but the differences between these rates were not statistically significant. Non-Hispanic White mothers had a significantly lower rate of neonatal infant death than non-Hispanic Pacific Islander mothers (3.1 versus 8.8). Mothers of other and unknown race had a significantly higher rate of neonatal infant death than mothers who were non-Hispanic White, Asian, two or more races or Hispanic (14.8 versus 3.1, 3.8, 3.1 and 3.7). None of the other differences in rates between race and ethnic groups was significant. There were no significant differences in neonatal death among mothers of different age groups. Mothers of multiple births had significantly higher rates of neonatal deaths than those with single births (22.2 versus 2.7, see Table 7-18).

Prenatal care

Women who received prenatal care, regardless of when it began, had significantly lower rates of neonatal deaths than women who received no prenatal care (3.0 versus 22.4 per 1,000 births) (see Table 7-18).

Tobacco use

The infants of women who smoked pre-pregnancy or during pregnancy had significantly higher rates of neonatal deaths (6.4 and 3.9 per 1,000 respectively) than infants of women who did not use tobacco (3.2 per 1,000). Tobacco use may be underreported, thereby eliminating some high-risk mothers from the analysis and potentially lowering the neonatal death rates for this category (see Table 7-18).

**Postneonatal deaths:
2010–2012 birth cohort**

Postneonatal death refers to a death to an infant between its 28th and 364th day of life. In this section, the influence(s) of marital status, age, ethnicity and race, education, prenatal care, and tobacco on birth outcomes are discussed (see Table 7-18).

Maternal characteristics

Similar to the maternal characteristics for neonatal deaths, single mothers had a statistically higher rate of postneonatal death than married mothers (2.6 versus 1.0). The postneonatal death rate was also higher for mothers who gave birth to multiple infants, 3.8 versus 1.5 for singleton births. Women who had not completed high school had a higher postneonatal death rate than those with more than a high school education (2.6 versus 1.3). The postneonatal mortality rate for non-Hispanic American Indian mothers was statistically significantly higher than the rate for non-Hispanic White and Hispanic mothers (5.6 versus 1.4 and 1.4, respectively). Infants of younger mothers had higher death rates than infants of older mothers. Infants born to mothers aged 30–34 had the lowest postneonatal death rate (0.9). This age group had significantly lower death rates than mothers aged 15 to 19 (2.7), and 20 to 24 (2.2) (see Table 7-18).

Prenatal care

Women who received prenatal care during the first trimester of pregnancy (1.2) had significantly lower rates of postneonatal deaths than women who received prenatal care during the second (2.1) or third trimester (2.8) (see Table 7-18).

Tobacco use

The postneonatal death rate among mothers who used tobacco during pregnancy was significantly higher than for mothers who did not smoke (4.2 versus 1.2) (see Table 7-18).

Fetal and early neonatal deaths: birth attendant and place of delivery

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. Every mother who delivered in the hospital was asked if she planned to deliver at a private home or a freestanding birthing center and the planned primary attendant type at the time she went into labor. Overall, six fetal deaths and three early neonatal deaths with gestation of 37 weeks or more were planned out-of-hospital births in 2013.

There are three different types of midwives in Oregon: certified nurse midwives (CNM), licensed direct entry midwives (LDM) and direct entry midwives (DEM). CNMs have completed an accredited, university-affiliated nurse midwifery program, and have an active nurse practitioner license. They may attend deliveries in hospitals, freestanding birth centers and homes. LDMs are direct entry midwives who have volunteered for state licensure through the Oregon Health Licensing Agency. They must meet qualifications and adhere to regulations set by the Oregon Legislature and Board of Direct Entry Midwifery. Lay midwives are unlicensed but are registered with the Center for Health Statistics to certify births.

In 2013, there were 58 full-term fetal deaths (at least 37 weeks of gestation). Mothers in six of these full-term deaths intended an out-of-hospital birth. Four deaths occurred after intrapartum transfer to a hospital, and two deaths occurred in non-hospital settings (see Table 7-19). The intended birth attendant for the four full-term fetal deaths with intrapartum transfer to a hospital were as follows: CNM (one), LDM (one) and unlicensed direct entry midwife (two). The birth attendants for the two full-term fetal deaths delivered out of hospital were LDM (one) and other midwife (one). There were 16 full-term early neonatal deaths in 2013. These are deaths where the infant lived less than seven days after

birth, and the gestational period was at least 37 weeks. The mothers in most (13) of these deaths intended to deliver in a hospital. Just three of the full-term early neonatal deaths occurred out-of-hospital, and the attendants in all three deaths were LDMs (see Table 7-20).

Endnotes

1. Prior to Nov. 10, 1998, fetal deaths occurring at 20 weeks of gestation or more were reported. Effective Nov. 10, 1998, the Oregon Legislature amended ORS 432.333 to read, “Each fetal death of 350 grams or more, or, if weight is unknown, of 20 completed weeks gestation or more, calculated from the date last normal menstrual period began to the date of delivery, that occurs in this state shall be reported within 5 days after delivery to the county registrar of the county in which the fetal death occurred or to the Center for Health Statistics or as otherwise directed by the Center for Health Statistics.” Currently, hospitals and reporting facilities send all fetal deaths’ reports directly to the Oregon Center for Health Statistics rather than to county registrars.
2. See definitions under “Statistical measure and definitions” at the National Association of Health Statistics and Information Systems website:
www.naphsis.org/Pages/StatisticalMeasuresandDefinitions.aspx or the Volume 61, Number 4, National Vital Statistics Reports at the National Center for Health Statistics website: *www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_04.pdf*.
3. Final 2012 U.S. data obtained from the Volume 63, Number 9, National Vital Statistics Reports at the National Center for Health Statistics website:
www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63_09.pdf.

TABLE 7-1. Infant deaths by age and county of residence, Oregon, 2013

County of residence	Total infant deaths ¹	Infant death rate ²	Neonatal deaths ³ (Age <28 days)				Neonatal rate ²	Post-neonatal deaths ⁴	Post-neonatal rate ²
			Total neonatal	Under 1 day	1-6 days	7-27 days			
Total	225	5.0	156	96	29	31	3.5	69	1.5
Baker	–	–	–	–	–	–	–	–	–
Benton	2	3.1	2	–	1	1	3.1	–	–
Clackamas	17	4.3	10	4	3	3	2.5	7	1.8
Clatsop	3	7.6	1	1	–	–	2.5	2	5.1
Columbia	2	4.0	1	1	–	–	2.0	1	2.0
Coos	4	6.6	2	1	–	1	3.3	2	3.3
Crook	1	5.2	1	–	1	–	5.2	–	–
Curry	2	10.3	2	–	1	1	10.3	–	–
Deschutes	7	4.1	3	2	–	1	1.7	4	2.3
Douglas	9	8.5	7	4	–	3	6.6	2	1.9
Gilliam	–	–	–	–	–	–	–	–	–
Grant	–	–	–	–	–	–	–	–	–
Harney	2	22.2	2	2	–	–	22.2	–	–
Hood River	1	3.5	1	–	1	–	3.5	–	–
Jackson	9	3.9	8	5	1	2	3.4	1	0.4
Jefferson	3	10.0	2	2	–	–	6.6	1	3.3
Josephine	8	9.6	5	2	1	2	6.0	3	3.6
Klamath	5	6.4	3	2	–	1	3.8	2	2.6
Lake	–	–	–	–	–	–	–	–	–
Lane	23	6.5	17	10	5	2	4.8	6	1.7
Lincoln	1	2.4	1	1	–	–	2.4	–	–
Linn	9	6.3	8	4	–	4	5.6	1	0.7
Malheur	–	–	–	–	–	–	–	–	–
Marion	21	4.9	12	7	3	2	2.8	9	2.1
Morrow	1	7.8	–	–	–	–	–	1	7.8
Multnomah	45	4.8	34	22	9	3	3.6	11	1.2
Polk	6	7.1	5	3	1	1	5.9	1	1.2
Sherman	–	–	–	–	–	–	–	–	–
Tillamook	–	–	–	–	–	–	–	–	–
Umatilla	6	5.2	4	4	–	–	3.5	2	1.7
Union	1	3.1	1	–	1	–	3.1	–	–
Wallowa	1	14.7	1	–	1	–	14.7	–	–
Wasco	3	10.0	2	1	–	1	6.7	1	3.3
Washington	29	4.0	20	17	–	3	2.8	9	1.3
Wheeler	–	–	–	–	–	–	–	–	–
Yamhill	4	3.8	1	1	–	–	1.0	3	2.9

– Quantity is zero.

¹ Infant death is the death of a child prior to its first birthday.² Rates per 1,000 live births.³ Neonatal deaths occur during the first 27 days of life.⁴ Postneonatal deaths occur from day 28 through 364 after birth.
WARNING: Rates based on less than five events are unreliable.

TABLE 7-2. Infant deaths by cause and age, Oregon residents, death cohort, 2013

Selected causes of death (and their ICD-10 codes)	Total infant deaths ¹	Neonatal deaths ²				Post- neo- natal deaths ³
		Under 1 day	1-6 days	7-27 days	Total neo- natal	
Total	225	96	29	31	156	69
Rate ⁴	5.0	2.1	0.6	0.7	3.5	1.5
Infections & parasitic disease (A00-B99)	8	—	—	1	1	7
Gastroenteritis of infectious origin (A09)	3	—	—	—	—	3
Meningococcal infection (A39)	1	—	—	1	1	—
Septicaemia (A40-A41)	2	—	—	—	—	2
Diseases of blood & immune disorders (D50-D89)	1	—	1	—	1	—
Endocrine, nutritional, & metabolic disease (E00-E88)	1	—	—	—	—	1
Diseases of the nervous system (G00-G99)	1	1	—	—	1	—
Diseases of the circulatory system (I00-I99)	3	1	—	—	1	2
Diseases of the heart (I00-I09, I11, I13, I20-I51)	1	1	—	—	1	—
Diseases of the digestive system (K00-K92)	4	—	—	1	1	3
Perinatal conditions (P00-P96)	122	77	22	17	116	6
Fetus & newborn affected by maternal factors (P00-P04)	30	27	1	—	28	2
Gestation & fetal growth (P05-P08)	35	30	3	2	35	—
Intrauterine hypoxia & asphyxia (P20-P21)	5	2	1	1	4	1
Respiratory distress (P22)	4	2	2	—	4	—
Other respiratory (P24-P28)	8	3	4	1	8	—
Bacterial sepsis of newborn (P36)	6	1	2	3	6	—
Haemorrhagic disorders of newborn (P50-P61)	9	1	5	3	9	—
Congenital anomalies (Q00-Q99)	44	16	5	8	29	15
Anencephaly (Q000)	1	1	—	—	1	—
Malformation of the heart (Q20-Q24)	19	3	2	6	11	8
Down's syndrome & other chromosomal (Q90-Q99)	4	—	2	—	2	2
Symptoms, signs not elsewhere classified (R00-R99)	29	1	1	4	6	23
Sudden infant death syndrome (R95)	23	—	—	3	3	20
Other ill-defined and unspecified causes (R99)	6	1	1	1	3	3
External causes of death (V01-Y89)	11	—	—	—	—	11
Accidents (V01-X59, Y85-Y86)	8	—	—	—	—	8
Nontransport accidents (W00-X59, Y86)	8	—	—	—	—	8
Falls (W00-W19)	1	—	—	—	—	1
Drowning & submersion (W65-W74)	1	—	—	—	—	1
Exposure to smoke, fire & flames (X00-X09)	1	—	—	—	—	1
Assault (homicide) (X85-Y09, Y87.1)	1	—	—	—	—	1
Events of undetermined intent (Y10-Y34, Y87.2, Y89.9) ...	2	—	—	—	—	2
Strangulation/suffocation, undeterm intent (Y20)	2	—	—	—	—	2

¹ Infant death is the death of a child prior to its first birthday.

² Neonatal deaths occur during the first 27 days of live.

³ Postneonatal deaths occur from day 28 through 364 after birth.

⁴ Rates per 1,000 live births.

— Quantity is zero.

TABLE 7-3. Fetal deaths by age of mother and county of residence, Oregon, 2013

County of residence	Total	Age of mother								
		<15	15-19	20-24	25-29	30-34	35-39	40-44	45+	N.S.
Total	189	1	9	40	56	40	34	6	-	-
Ratio to births ¹	4.2	*	3.5	4.2	4.3	3.2	5.7	4.7	-	-
Baker	1	-	-	-	-	1	-	-	-	-
Benton	-	-	-	-	-	-	-	-	-	-
Clackamas	16	-	-	1	6	6	1	1	-	-
Clatsop	-	-	-	-	-	-	-	-	-	-
Columbia	3	-	-	1	-	-	1	-	-	-
Coos	3	-	-	-	1	2	-	-	-	-
Crook	1	-	-	1	-	-	-	-	-	-
Curry	-	-	-	-	-	-	-	-	-	-
Deschutes	11	-	2	2	2	1	4	-	-	-
Douglas	4	-	1	-	2	1	-	-	-	-
Gilliam	-	-	-	-	-	-	-	-	-	-
Grant	1	-	-	-	1	-	-	-	-	-
Harney	-	-	-	-	-	-	-	-	-	-
Hood River	2	-	-	-	-	1	1	-	-	-
Jackson	7	-	2	3	-	1	1	-	-	-
Jefferson	2	-	-	1	1	-	-	-	-	-
Josephine	2	-	-	-	2	-	-	-	-	-
Klamath	3	-	-	-	3	-	-	-	-	-
Lake	1	-	-	-	-	-	1	-	-	-
Lane	15	-	-	4	7	1	2	1	-	-
Lincoln	2	1	-	1	-	-	-	-	-	-
Linn	12	-	-	7	1	3	1	-	-	-
Malheur	3	-	-	-	-	2	1	-	-	-
Marion	22	-	1	5	5	7	3	1	-	-
Morrow	-	-	-	-	-	-	-	-	-	-
Multnomah	35	-	1	5	12	8	8	1	-	-
Polk	1	-	-	-	-	-	1	-	-	-
Sherman	-	-	-	-	-	-	-	-	-	-
Tillamook	-	-	-	-	-	-	-	-	-	-
Umatilla	3	-	1	-	-	-	1	-	-	-
Union	2	-	-	2	-	-	-	-	-	-
Wallowa	-	-	-	-	-	-	-	-	-	-
Wasco	5	-	-	2	2	1	-	-	-	-
Washington	31	-	1	5	11	5	7	2	-	-
Wheeler	-	-	-	-	-	-	-	-	-	-
Yamhill	1	-	-	-	-	-	1	-	-	-
Unknown	-	-	-	-	-	-	-	-	-	-

- Quantity is zero.

¹ All ratios per 1,000 live births.

* Ratios are not calculated for fewer than five events.

TABLE 7-4. Fetal deaths by weeks of gestation and cause of death, Oregon, 2013

Selected causes of death (and their ICD-10 codes)	Total	Weeks of gestation*										N.S.
		<20	20-23	24-27	28-31	32-35	36	37-39	40	41+		
Total	189	4	37	33	18	31	6	42	13	5	-	
Perinatal conditions (P00-P96)	162	4	27	27	17	25	6	39	13	4	-	
Maternal conditions unrelated to present pregnancy (P00)	12	-	-	3	2	1	1	3	1	1	-	
Maternal complications of pregnancy (P01)	15	2	7	4	-	-	2	-	-	-	-	
Complications of placenta, cord and membranes (P02)	60	1	12	7	7	8	1	19	5	-	-	
Slow fetal growth and fetal malnutrition (P05)	1	-	-	-	-	1	-	-	-	-	-	
Short gestation and low birthweight disorders, NEC (P07)	1	-	1	-	-	-	-	-	-	-	-	
Fetal hemorrhage (P50-P54)	1	-	-	-	-	1	-	-	-	-	-	
Transitory endocrine and metabolic disorders specific to fetus (P70-P74)	6	-	-	-	-	2	-	3	1	-	-	
Other perinatal conditions (P80-P96)	64	1	7	12	8	12	2	14	5	3	-	
Fetal death of unspecified cause (P95)	60	1	6	10	8	11	2	14	5	3	-	
Congenital malformations (Q00-Q99)	25	-	9	6	1	6	-	2	-	1	-	
Of the nervous system (Q00-Q07)	6	-	2	2	-	2	-	-	-	-	-	
Anencephaly and similar malformations (Q00)	2	-	1	-	-	1	-	-	-	-	-	
Congenital hydrocephalus (Q03)	2	-	1	1	-	-	-	-	-	-	-	
Of the heart (Q20-Q24)	2	-	2	-	-	-	-	-	-	-	-	
Of the urinary system (Q60-Q64)	1	-	-	-	1	-	-	-	-	-	-	
Of musculoskeletal system, limbs and integument (Q65-Q85) ..	4	-	1	-	-	2	-	1	-	-	-	
Other congenital malformations (Q86-Q89)	2	-	-	1	-	1	-	-	-	-	-	
Chromosomal abnormalities, NEC (Q90-Q99)	6	-	4	2	-	-	-	-	-	-	-	
Down's syndrome (Q90)	1	-	1	-	-	-	-	-	-	-	-	
Edward's syndrome (Q91.0-Q91.3)	3	-	1	2	-	-	-	-	-	-	-	

- Quantity is zero.

* Based on clinical estimate of gestation.

TABLE 7-5. Fetal deaths by weeks of gestation and age of mother, Oregon, 2013

Age of mother	Total	Weeks of gestation*									
		<20	20-23	24-27	28-31	32-35	36	37-39	40	41+	N.S.
Total	189	4	37	33	18	31	6	42	13	5	—
<15	1	—	—	1	—	—	—	—	—	—	—
15-19	9	—	1	1	1	3	—	2	1	—	—
20-24	40	—	8	6	2	12	—	9	3	—	—
25-29	56	3	11	10	7	6	3	11	3	2	—
30-34	40	1	7	6	5	5	2	12	2	—	—
35-39	34	—	9	6	2	4	1	6	3	3	—
40-44	6	—	—	3	1	1	—	1	—	—	—
45+	—	—	—	—	—	—	—	—	—	—	—
N.S.	3	—	1	—	—	—	—	1	1	—	—

— Quantity is zero.

* Based on clinical estimate of gestation.

TABLE 7-6. Births by weeks of gestation and weight, Oregon residents, 2012

Birthweight (in grams)	Total	Weeks of gestation*									
		<20	20-23	24-27	28-31	32-35	36	37-39	40	41+	N.S.
Total	45,059	14	56	128	292	1,552	1,350	24,721	11,613	5,276	57
349 and less	22	11	11	—	—	—	—	—	—	—	—
350-499	32	2	29	1	—	—	—	—	—	—	—
<500	54	13	40	1	—	—	—	—	—	—	—
500-749	61	—	16	40	2	—	—	3	—	—	—
750-999	90	—	—	63	24	3	—	—	—	—	—
1000-1249	100	—	—	18	66	13	—	2	1	—	—
1250-1499	139	—	—	5	78	51	1	4	—	—	—
1500-1999	531	—	—	1	108	333	42	45	—	2	—
2000-2499	1,803	—	—	—	12	683	314	742	38	13	1
<2500	2,778	13	56	128	290	1,083	357	796	39	15	1
2500-2999	6,562	—	—	—	—	372	602	4,545	834	199	10
3000-3499	17,047	—	—	—	—	72	310	10,702	4,374	1,567	22
3500-3999	13,879	—	—	—	—	18	54	6,780	4,683	2,330	14
4000-4499	4,043	—	—	—	—	5	20	1,616	1,465	934	3
4500+	737	—	—	—	—	1	7	279	217	230	3
Unknown	13	1	—	—	2	1	—	3	1	1	4

— Quantity is zero.

* Based on clinical estimate of gestation.

TABLE 7-7. Fetal deaths by weeks of gestation and weight, Oregon residents, 2012

Birthweight (in grams)	Total	Weeks of gestation*									
		<20	20-23	24-27	28-31	32-35	36	37-39	40	41+	N.S.
Total	206	5	38	32	25	37	7	47	4	10	1
350-499	36	3	24	9	—	—	—	—	—	—	—
<500	36	3	24	9	—	—	—	—	—	—	—
500-749	35	2	12	16	4	1	—	—	—	—	—
750-999	16	—	1	3	7	3	—	1	—	—	1
1000-1249	10	—	—	2	5	3	—	—	—	—	—
1250-1499	6	—	—	1	2	3	—	—	—	—	—
1500-1999	16	—	—	—	4	10	—	2	—	—	—
2000-2499	25	—	—	—	1	13	3	7	—	1	—
<2500	144	5	37	31	23	33	3	10	—	1	1
2500-2999	23	—	—	—	1	3	4	14	—	1	—
3000-3499	17	—	—	—	1	1	—	12	2	1	—
3500-3999	14	—	—	—	—	—	—	8	2	4	—
4000-4499	4	—	—	—	—	—	—	2	—	2	—
4500+	1	—	—	—	—	—	—	—	—	1	—
Unknown	3	—	1	1	—	—	—	1	—	—	—

— Quantity is zero.

* Based on clinical estimate of gestation.

**TABLE 7-8. Early neonatal deaths¹ by weeks of gestation and weight,
Oregon residents, birth cohort 2012**

Birthweight (in grams)	Total	Weeks of gestation									
		<20	20-23	24-27	28-31	32-35	36	37-39	40	41+	N.S.
Total ²	135	14	53	21	2	12	3	17	7	5	1
001-349	22	11	11	–	–	–	–	–	–	–	–
350-499	32	2	29	1	–	–	–	–	–	–	–
<500	54	13	40	1	–	–	–	–	–	–	–
500-749	26	–	13	13	–	–	–	–	–	–	–
750-999	8	–	–	6	–	2	–	–	–	–	–
1000-1249	1	–	–	–	1	–	–	–	–	–	–
1250-1499	5	–	–	–	–	4	–	1	–	–	–
1500-1999	4	–	–	1	–	1	–	2	–	–	–
2000-2499	10	–	–	–	1	5	1	–	2	1	–
<2500	108	13	53	21	2	12	1	3	2	1	–
2500+	24	–	–	–	–	–	2	14	4	4	–
2500-2999	5	–	–	–	–	–	1	3	1	–	–
3000-3499	11	–	–	–	–	–	–	6	2	3	–
3500-3999	6	–	–	–	–	–	1	3	1	1	–
4000-4499	1	–	–	–	–	–	–	1	–	–	–
4500+	1	–	–	–	–	–	–	1	–	–	–

¹ Early neonatal deaths occur through day six after birth.

² Includes unknown weight.

– Quantity is zero.

NOTE: Calculated gestation from reported date of last menses. If calculated gestation is unknown, the clinical estimate of gestation is used. Total includes reports with unknown birthweight and/or gestation.

**TABLE 7-9. Late neonatal deaths¹ by weeks of gestation and weight,
Oregon residents, birth cohort 2012**

Birthweight (in grams)	Total	Weeks of gestation									
		<20	20-23	24-27	28-31	32-35	36	37-39	40	41+	N.S.
Total ²	30	–	1	8	–	3	2	12	3	1	–
001-349	–	–	–	–	–	–	–	–	–	–	–
350-499	–	–	–	–	–	–	–	–	–	–	–
<500	–	–	–	–	–	–	–	–	–	–	–
500-749	5	–	1	4	–	–	–	–	–	–	–
750-999	4	–	–	4	–	–	–	–	–	–	–
1000-1249	–	–	–	–	–	–	–	–	–	–	–
1250-1499	–	–	–	–	–	–	–	–	–	–	–
1500-1999	2	–	–	–	–	1	–	1	–	–	–
2000-2499	2	–	–	–	–	2	–	–	–	–	–
<2500	13	–	1	8	–	3	–	1	–	–	–
2500+	17	–	–	–	–	–	2	11	3	1	–
2500-2999	4	–	–	–	–	–	1	3	–	–	–
3000-3499	8	–	–	–	–	–	1	5	2	–	–
3500-3999	3	–	–	–	–	–	–	2	–	1	–
4000-4499	1	–	–	–	–	–	–	–	1	–	–
4500+	1	–	–	–	–	–	–	1	–	–	–

¹ Late neonatal deaths occur from day seven through 27 after birth.

² Includes unknown weight.

– Quantity is zero.

NOTE: Calculated gestation from reported date of last menses. If calculated gestation is unknown, the clinical estimate of gestation is used. Total includes reports with unknown birthweight and/or gestation.

**TABLE 7-10. Postneonatal deaths¹ by weeks of gestation and weight,
Oregon residents, birth cohort 2012**

Birthweight (in grams)	Total	Weeks of gestation									
		<20	20-23	24-27	28-31	32-35	36	37-39	40	41+	N.S.
Total ²	79	-	-	2	2	8	5	37	17	8	-
001-349	-	-	-	-	-	-	-	-	-	-	-
350-499	-	-	-	-	-	-	-	-	-	-	-
<500	-	-	-	-	-	-	-	-	-	-	-
500-749	1	-	-	-	1	-	-	-	-	-	-
750-999	1	-	-	1	-	-	-	-	-	-	-
1000-1249	1	-	-	1	-	-	-	-	-	-	-
1250-1499	2	-	-	-	1	1	-	-	-	-	-
1500-1999	2	-	-	-	-	2	-	-	-	-	-
2000-2499	13	-	-	-	-	4	2	7	-	-	-
<2500	20	-	-	2	2	7	2	7	-	-	-
2500+	59	-	-	-	-	1	3	30	17	8	-
2500-2999	18	-	-	-	-	1	2	13	-	2	-
3000-3499	23	-	-	-	-	-	1	10	9	3	-
3500-3999	13	-	-	-	-	-	-	5	5	3	-
4000-4499	5	-	-	-	-	-	-	2	3	-	-
4500+	-	-	-	-	-	-	-	-	-	-	-

¹ Postneonatal deaths occur from day 28 through 364 after birth.

² Includes unknown weight.

- Quantity is zero.

NOTE: Calculated gestation from reported date of last menses. If calculated gestation is unknown, the clinical estimate of gestation is used. Total includes reports with unknown birthweight and/or gestation.

TABLE 7-11. Neonatal deaths by birthweight, Oregon residents, birth cohort 2012

Birthweight (in grams)	Deaths	Rate ¹
Total ²	165	3.7
001-349	22	1000.0
350-499	32	1000.0
<500	54	1000.0
500-749	31	508.2
750-999	12	133.3
1000-1249	1	*
1250-1499	5	36.0
1500-1999	6	11.3
2000-2499	12	6.7
<2500	121	43.6
2500+	41	1.0
2500-2999	9	1.4
3000-3499	19	1.1
3500-3999	9	0.6
4000-4499	2	*
4500+	2	*

¹ Rate per 1,000 live births.

² Includes unknown weight.

* Rates are not calculated when there are fewer than five deaths in a category.

TABLE 7-12. Neonatal deaths by birthweight, Oregon residents, birth cohort 2010-2012

Birthweight (in grams)	Deaths	Rate ¹
Total ²	460	3.4
001-349	67	1000.0
350-499	80	941.2
<500	147	967.1
500-749	95	456.7
750-999	33	118.7
1000-1249	12	36.6
1250-1499	8	19.7
1500-1999	29	17.8
2000-2499	29	5.3
<2500	353	41.9
2500+	100	0.8
2500-2999	28	1.4
3000-3499	40	0.8
3500-3999	24	0.6
4000-4499	4	*
4500+	4	*

¹ Rate per 1,000 live births.

² Includes unknown weight.

* Rates are not calculated when there are fewer than five deaths in a category.

**TABLE 7-13. Perinatal death rates by county of residence,
Oregon residents, birth cohort 2012**

County of residence	Perinatal I ¹			Perinatal II ²			Neonatal ³	
	No.	Rate	Ratio	No.	Rate	Ratio	No.	Rate
Total ⁴	266	5.9	5.9	366	8.1	8.1	165	3.7
Baker	1	*	*	3	*	*	1	*
Benton	7	9.2	9.2	7	9.2	9.2	5	6.6
Clackamas	19	4.7	4.8	25	6.2	6.3	8	2.0
Clatsop	4	*	*	5	11.2	11.4	2	*
Columbia	7	15.5	15.6	8	17.6	17.8	5	11.1
Coos	3	*	*	5	7.7	7.8	1	*
Crook	—	—	—	—	—	—	—	—
Curry	2	*	*	2	*	*	2	*
Deschutes	9	5.4	5.5	14	8.4	8.5	7	4.3
Douglas	8	7.2	7.3	11	9.9	10.0	6	5.5
Gilliam	—	—	—	—	—	—	—	—
Grant	1	*	*	2	*	*	—	—
Harney	—	—	—	—	—	—	—	—
Hood River	1	*	*	2	*	*	—	—
Jackson	14	6.1	6.2	22	9.6	9.7	7	3.1
Jefferson	1	*	*	1	*	*	—	—
Josephine	9	10.9	11.0	11	13.3	13.4	7	8.5
Klamath	9	11.7	11.7	12	15.5	15.6	8	10.4
Lake	—	—	—	—	—	—	—	—
Lane	22	6.3	6.3	33	9.4	9.5	12	3.4
Lincoln	1	*	*	2	*	*	2	*
Linn	3	*	*	7	4.9	4.9	1	*
Malheur	4	*	*	4	*	*	—	—
Marion	33	7.5	7.6	40	9.1	9.2	15	3.5
Morrow	—	—	—	1	*	*	1	*
Multnomah	54	5.7	5.8	76	8.0	8.1	36	3.8
Polk	5	5.8	5.8	6	6.9	7.0	1	*
Sherman	—	—	—	—	—	—	—	—
Tillamook	2	*	*	2	*	*	2	*
Umatilla	4	*	*	8	7.2	7.2	5	4.5
Union	1	*	*	1	*	*	1	*
Wallowa	1	*	*	1	*	*	—	—
Wasco	—	—	—	2	*	*	2	*
Washington	34	4.7	4.7	43	5.9	5.9	22	3.0
Wheeler	—	—	—	—	—	—	—	—
Yamhill	7	6.3	6.3	10	8.9	9.0	6	5.4

¹ Perinatal definition I includes fetal deaths at 28 weeks of gestation or more and infant deaths of less than 7 days.

² Perinatal definition II includes fetal deaths at 20 weeks of gestation or more and infant deaths of less than 28 days.

³ Neonatal deaths include infant deaths of less than 28 days.

⁴ Includes unknown county of residence.

* Rates are not calculated when there are fewer than five deaths in a category.

— Quantity is zero.

NOTE: Perinatal I and perinatal II ratios and neonatal rates are per 1,000 births. Perinatal I rates include all live births and fetal deaths at 28 weeks gestation or more. Perinatal II rates include all live births and fetal deaths at 20 weeks of gestation or more.

**TABLE 7-14. Perinatal death rates by county of residence,
Oregon residents, birth cohort 2010-2012**

County of residence	Perinatal I ¹			Perinatal II ²			Neonatal ³	
	No.	Rate	Ratio	No.	Rate	Ratio	No.	Rate
Total ⁴	734	5.4	5.4	1,027	7.5	7.6	460	3.4
Baker	2	*	*	4	*	*	1	*
Benton	9	4.0	4.0	16	7.1	7.1	8	3.6
Clackamas	48	4.1	4.1	65	5.5	5.6	29	2.5
Clatsop	12	9.3	9.4	17	13.1	13.3	7	5.5
Columbia	9	6.3	6.3	11	7.7	7.7	5	3.5
Coos	8	4.3	4.3	16	8.5	8.5	4	*
Crook	2	*	*	2	*	*	1	*
Curry	6	10.9	10.9	6	10.9	10.9	4	*
Deschutes	19	3.8	3.8	29	5.7	5.7	15	3.0
Douglas	20	6.2	6.2	31	9.5	9.6	11	3.4
Gilliam	—	—	—	1	*	*	—	—
Grant	2	*	*	3	*	*	—	—
Harney	—	—	—	—	—	—	—	—
Hood River	5	5.9	5.9	7	8.2	8.2	2	*
Jackson	35	5.0	5.0	48	6.8	6.9	16	2.3
Jefferson	4	*	*	5	5.8	5.8	2	*
Josephine	15	6.3	6.3	20	8.4	8.4	10	4.2
Klamath	20	8.3	8.4	28	11.6	11.7	15	6.3
Lake	—	—	—	—	—	—	—	—
Lane	49	4.7	4.7	74	7.0	7.1	26	2.5
Lincoln	4	*	*	10	7.5	7.6	2	*
Linn	22	5.0	5.0	33	7.5	7.6	15	3.4
Malheur	10	7.6	7.6	12	9.1	9.2	5	3.8
Marion	96	7.2	7.2	123	9.2	9.2	62	4.7
Morrow	3	*	*	4	*	*	2	*
Multnomah	156	5.5	5.5	213	7.4	7.5	99	3.5
Polk	15	5.7	5.7	18	6.8	6.8	6	2.3
Sherman	—	—	—	—	—	—	—	—
Tillamook	6	8.0	8.0	7	9.3	9.4	5	6.7
Umatilla	15	4.6	4.6	28	8.5	8.6	9	2.8
Union	4	*	*	5	5.6	5.6	3	*
Wallowa	3	*	*	3	*	*	2	*
Wasco	3	*	*	7	8.0	8.0	5	5.7
Washington	112	5.2	5.2	154	7.1	7.2	76	3.5
Wheeler	—	—	—	1	*	*	—	—
Yamhill	20	5.9	5.9	26	7.6	7.7	13	3.8

¹ Perinatal definition I includes fetal deaths at 28 weeks of gestation or more and infant deaths of less than 7 days.

² Perinatal definition II includes fetal deaths at 20 weeks of gestation or more and infant deaths of less than 28 days.

³ Neonatal deaths include infant deaths of less than 28 days.

⁴ Includes unknown county of residence.

* Rates are not calculated when there are fewer than five deaths in a category.

— Quantity is zero.

NOTE: Perinatal I and perinatal II ratios and neonatal rates are per 1,000 births. Perinatal I rates include all live births and fetal deaths at 28 weeks gestation or more. Perinatal II rates include all live births and fetal deaths at 20 weeks of gestation or more.

TABLE 7-15. Perinatal death rates by mother's risk factors, Oregon residents, birth cohort 2012

Risk factors	Perinatal I ¹			Perinatal II ²			Neonatal ³	
	No.	Rate	Ratio	No.	Rate	Ratio	No.	Rate
Total⁴	266	5.9	5.9	366	8.1	8.1	165	3.7
Marital status								
Married	169	5.8	5.8	226	7.7	7.8	98	3.4
Unmarried	96	6.0	6.1	138	8.6	8.7	66	4.2
Age of mother								
10-14	—	—	—	—	—	—	—	—
15-19	18	6.3	6.3	32	11.1	11.2	11	3.9
20-24	52	5.3	5.4	68	7.0	7.0	31	3.2
25-29	61	4.7	4.7	85	6.5	6.5	42	3.2
30-34	86	7.0	7.1	113	9.2	9.3	53	4.4
35-39	37	6.2	6.2	49	8.1	8.2	19	3.2
40-44	11	8.5	8.5	17	13.0	13.2	8	6.2
45+	1	*	*	2	*	*	1	*
Non-Hispanic race								
White	179	5.7	5.8	249	8.0	8.0	107	3.4
Black	5	5.5	5.5	9	9.8	9.9	4	*
American Indian	5	9.6	9.6	6	11.5	11.5	5	9.6
Asian ⁵	9	4.2	4.2	13	6.0	6.0	6	2.8
Pacific Islander ⁶	2	*	*	3	*	*	2	*
Other & unknown	4	*	*	4	*	*	4	*
Two or more races	7	4.9	4.9	8	5.6	5.6	4	*
Total Hispanic	55	6.4	6.5	74	8.6	8.7	33	3.9
Education								
8th grade or less	12	6.4	6.4	16	8.5	8.6	9	4.8
Some high school	38	7.1	7.1	53	9.8	9.9	17	3.2
HS diploma/GED	50	4.9	4.9	79	7.7	7.8	35	3.5
More than HS	140	5.1	5.1	183	6.6	6.7	95	3.5
Start of prenatal care								
Any trimester	224	5.3	5.3	306	7.2	7.2	133	3.1
1st trimester	164	4.9	4.9	234	7.0	7.0	105	3.1
2nd trimester	50	6.6	6.6	61	8.0	8.1	25	3.3
3rd trimester	10	6.6	6.7	11	7.3	7.4	3	*
No prenatal care	15	48.1	50.7	22	67.5	74.3	7	23.6
Tobacco use								
Pre-pregnancy only	8	8.0	8.1	11	11.0	11.1	8	8.1
During pregnancy	35	7.4	7.5	52	10.9	11.1	24	5.1
No tobacco use	219	5.6	5.6	297	7.5	7.6	129	3.3
Multiple birth								
Yes	42	27.9	28.3	56	36.7	37.7	35	23.6
No	224	5.1	5.1	310	7.1	7.1	130	3.0

¹ Perinatal definition I includes fetal deaths at 28 weeks of gestation or more and infant deaths of less than 7 days.

² Perinatal definition II includes fetal deaths at 20 weeks of gestation or more and infant deaths of less than 28 days.

³ Neonatal deaths include infant deaths of less than 28 days.

⁴ Due to unreported items, the sum of all categories may not equal the total.

⁵ Includes Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese and other Asian.

⁶ Includes Guamanian, Hawaiian, Samoan and other Pacific Islander.

* Rates are not calculated when there are fewer than five deaths in a category.

— Quantity is zero.

NOTE: Perinatal I and perinatal II ratios and neonatal rates are per 1,000 births. Perinatal I rates include all live births and fetal deaths at 28 weeks gestation or more. Perinatal II rates include all live births and fetal deaths at 20 weeks of gestation or more.

**TABLE 7-16. Perinatal death rates by mother's risk factors,
Oregon residents, birth cohort 2010-2012**

Risk factors	Perinatal I ¹			Perinatal II ²			Neonatal ³	
	No.	Rate	Ratio	No.	Rate	Ratio	No.	Rate
Total⁴	734	5.4	5.4	1,027	7.5	7.6	460	3.4
Marital status								
Married	444	5.1	5.1	596	6.8	6.8	269	3.1
Unmarried	286	5.9	6.0	426	8.8	8.9	187	3.9
Age of mother								
10-14	—	—	—	—	—	—	—	—
15-19	59	6.2	6.2	97	10.1	10.2	38	4.0
20-24	155	5.2	5.2	213	7.1	7.1	95	3.2
25-29	192	4.8	4.8	259	6.5	6.5	132	3.3
30-34	188	5.3	5.3	264	7.4	7.4	116	3.3
35-39	110	6.4	6.4	147	8.5	8.5	56	3.3
40-44	27	7.2	7.2	40	10.6	10.7	18	4.8
45+	2	*	*	6	23.9	24.2	4	*
Non-Hispanic race								
White	478	5.1	5.1	663	7.1	7.1	285	3.1
Black	21	7.5	7.5	33	11.7	11.8	16	5.7
American Indian	9	5.6	5.6	13	8.1	8.1	8	5.0
Asian ⁵	31	4.9	4.9	48	7.5	7.6	24	3.8
Pacific Islander ⁶	14	15.2	15.4	20	21.6	22.0	8	8.8
Other & unknown	10	18.4	18.5	11	20.2	20.3	8	14.8
Two or more races	18	4.3	4.3	22	5.3	5.3	13	3.1
Total Hispanic	153	5.8	5.8	217	8.1	8.2	98	3.7
Education								
8th grade or less	36	5.7	5.7	56	8.9	8.9	26	4.1
Some high school	114	6.6	6.6	157	9.1	9.2	63	3.7
HS diploma/GED	163	5.2	5.2	236	7.5	7.6	105	3.4
More than HS	356	4.4	4.4	479	5.9	5.9	250	3.1
Start of prenatal care								
Any trimester	623	4.8	4.8	866	6.7	6.7	381	3.0
1st trimester	458	4.6	4.6	651	6.5	6.5	287	2.9
2nd trimester	139	5.7	5.7	185	7.5	7.6	83	3.4
3rd trimester	26	5.5	5.5	30	6.4	6.4	11	2.3
No prenatal care	45	48.6	50.3	61	64.3	68.2	20	22.4
Tobacco use								
Pre-pregnancy only	20	7.1	7.1	26	9.2	9.2	18	6.4
During pregnancy	91	6.2	6.3	136	9.3	9.4	57	3.9
No tobacco use	606	5.2	5.2	844	7.2	7.2	371	3.2
Multiple birth								
Yes	114	25.1	25.4	142	31.2	31.6	100	22.2
No	620	4.7	4.7	885	6.7	6.7	360	2.7

¹ Perinatal Definition I includes fetal deaths at 28 weeks of gestation or more and infant deaths of less than seven days.

² Perinatal Definition II includes fetal deaths at 20 weeks of gestation or more and infant deaths of less than 28 days.

³ Neonatal deaths include infant deaths of less than 28 days.

⁴ Due to unreported items, the sum of all categories may not equal the total.

⁵ Includes Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese and other Asian.

⁶ Includes Guamanian, Hawaiian, Samoan and other Pacific Islander.

* Rates are not calculated when there are fewer than five deaths in a category.

— Quantity is zero.

NOTE: Perinatal I and perinatal II ratios and neonatal rates are per 1,000 births. Perinatal I rates include all live births and fetal deaths at 28 weeks gestation or more. Perinatal II rates include all live births and fetal deaths at 20 weeks of gestation or more.

TABLE 7-17. Neonatal, postneonatal and infant death rates by mother's risk factors, Oregon residents, birth cohort 2012

Risk factors	Neonatal ¹		Postneonatal ²		Infant ³	
	No.	Rate	No.	Rate	No.	Rate
Total⁴	165	3.7	79	1.8	244	5.4
Marital status						
Married	98	3.4	31	1.1	129	4.4
Unmarried	66	4.2	48	3.0	114	7.2
Age of mother						
10-14	—	—	—	—	—	—
15-19	11	3.9	12	4.2	23	8.1
20-24	31	3.2	26	2.7	57	5.9
25-29	42	3.2	24	1.8	66	5.1
30-34	53	4.4	11	0.9	64	5.3
35-39	19	3.2	6	1.0	25	4.2
40-44	8	6.2	—	—	8	6.2
45+	1	*	—	—	1	*
Non-Hispanic race						
White	107	3.4	47	1.5	154	5.0
Black	4	*	1	*	5	5.5
American Indian	5	9.6	2	*	7	13.4
Asian ⁵	6	2.8	5	2.3	11	5.1
Pacific Islander ⁶	2	*	1	*	3	*
Other & unknown	4	*	1	*	5	27.0
Two or more races	4	*	5	3.5	9	6.3
Total Hispanic	33	3.9	17	2.0	50	5.9
Education						
8th grade or less	9	4.8	1	*	10	5.4
Some high school	17	3.2	21	3.9	38	7.1
HS diploma/GED	35	3.5	16	1.6	51	5.0
More than HS	95	3.5	41	1.5	136	4.9
Start of prenatal care						
Any trimester	133	3.1	74	1.7	207	4.9
1st trimester	105	3.1	46	1.4	151	4.5
2nd trimester	25	3.3	24	3.2	49	6.5
3rd trimester	3	*	4	*	7	4.7
No prenatal care	7	23.6	—	—	7	23.6
Tobacco use						
Pre-pregnancy only	8	8.1	2	*	10	10.1
During pregnancy	24	5.1	24	5.1	48	10.2
No tobacco use	129	3.3	51	1.3	180	4.6
Multiple birth						
Yes	35	23.6	2	*	37	24.9
No	130	3.0	77	1.8	207	4.8

¹ Neonatal deaths include infant deaths of less than 28 days.

² Postneonatal deaths occur from day 28 through 364 after birth.

³ Infant death is the death of a child prior to its first birthday.

⁴ Due to unreported items, the sum of all categories may not equal the total.

⁵ Includes Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese and other Asian.

⁶ Includes Guamanian, Hawaiian, Samoan and other Pacific Islander.

* Rates are not calculated when there are fewer than five deaths in a category.

— Quantity is zero.

NOTE: All rates per 1,000 live births.

TABLE 7-18. Neonatal, postneonatal and infant death rates by mother's risk factors, Oregon residents, birth cohort 2010-2012

Risk factors	Neonatal ¹		Postneonatal ²		Infant ³	
	No.	Rate	No.	Rate	No.	Rate
Total⁴	460	3.4	209	1.5	669	4.9
Marital status						
Married	269	3.1	86	1.0	355	4.1
Unmarried	187	3.9	123	2.6	310	6.5
Age of mother						
10-14	—	—	1	*	1	*
15-19	38	4.0	26	2.7	64	6.7
20-24	95	3.2	66	2.2	161	5.4
25-29	132	3.3	59	1.5	191	4.8
30-34	116	3.3	32	0.9	148	4.2
35-39	56	3.3	21	1.2	77	4.5
40-44	18	4.8	3	*	21	5.6
45+	4	*	1	*	5	20.2
Non-Hispanic race						
White	285	3.1	130	1.4	415	4.5
Black	16	5.7	9	3.2	25	8.9
American Indian	8	5.0	9	5.6	17	10.6
Asian ⁵	24	3.8	9	1.4	33	5.2
Pacific Islander ⁶	8	8.8	1	*	9	9.9
Other & unknown	8	14.8	1	*	9	16.6
Two or more races	13	3.1	12	2.9	25	6.0
Total Hispanic	98	3.7	38	1.4	136	5.1
Education						
8th grade or less	26	4.1	8	1.3	34	5.4
Some high school	63	3.7	45	2.6	108	6.3
HS diploma/GED	105	3.4	52	1.7	157	5.0
More than HS	250	3.1	103	1.3	353	4.4
Start of prenatal care						
Any trimester	381	3.0	183	1.4	564	4.4
1st trimester	287	2.9	118	1.2	405	4.1
2nd trimester	83	3.4	52	2.1	135	5.5
3rd trimester	11	2.3	13	2.8	24	5.1
No prenatal care	20	22.4	3	*	23	25.7
Tobacco use						
Pre-pregnancy only	18	6.4	5	1.8	23	8.2
During pregnancy	57	3.9	61	4.2	118	8.1
No tobacco use	371	3.2	138	1.2	509	4.3
Multiple birth						
Yes	100	22.2	17	3.8	117	26.0
No	360	2.7	192	1.5	552	4.2

¹ Neonatal deaths include infant deaths of less than 28 days.

² Postneonatal deaths occur from day 28 through 364 after birth.

³ Infant death is the death of a child prior to its first birthday.

⁴ Due to unreported items, the sum of all categories may not equal the total.

⁵ Includes Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese and other Asian.

⁶ Includes Guamanian, Hawaiian, Samoan and other Pacific Islander.

* Rates are not calculated when there are fewer than five deaths in a category.

— Quantity is zero.

NOTE: All rates per 1,000 live births.

TABLE 7-19. Term fetal deaths¹ by planned attendant and planned place of birth, Oregon occurrence, 2013

Planned birth attendant	Total term fetal deaths	Planned hospital birth ²	Planned out-of-hospital birth		
			Total	Intrapartum transfer to hospital ³	Non-hospital delivery ⁴
Total	58	52	6	4	2
MD's and DO's	47	47	–	–	–
Certified nurse midwives	6	5	1	1	–
Licensed direct-entry midwives	2	–	2	1	1
Unlicensed direct-entry midwives	2	–	2	2	–
Naturopathic physicians	–	–	–	–	–
Other	1	–	1	–	1

– Quantity is zero.

¹ Term fetal deaths include fetal deaths with gestation of 37 weeks or more.

² For planned hospital births, actual attendant type is used.

³ For planned out-of-hospital births with intrapartum transfer to hospitals, planned attendant type is reported by mother and not verified.

⁴ For planned out-of-hospital births with non-hospital deliveries, the actual attendant type is used.

TABLE 7-20. Term early neonatal deaths¹ by planned attendant and planned place of birth, Oregon occurrence, preliminary 2013 birth cohort

Planned birth attendant ²	Total term early neonatal deaths	Planned hospital birth	Planned out-of-hospital birth
Total	16	13	3
MD's and DO's	13	13	–
Certified nurse midwives	–	–	–
Licensed direct-entry midwives	3	–	3
Unlicensed direct-entry midwives	–	–	–
Naturopathic physicians	–	–	–
Other	–	–	–

– Quantity is zero.

¹ Term early neonatal deaths include infant deaths of less than seven days and with gestation of 37 weeks or more.

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

NOTE: 2013 birth cohort might include infant deaths occurred in 2013 and 2014. Data for 2014 is undergoing edit processes and data in this table is subject to change.