SECTION 2: NATALITY

Natality

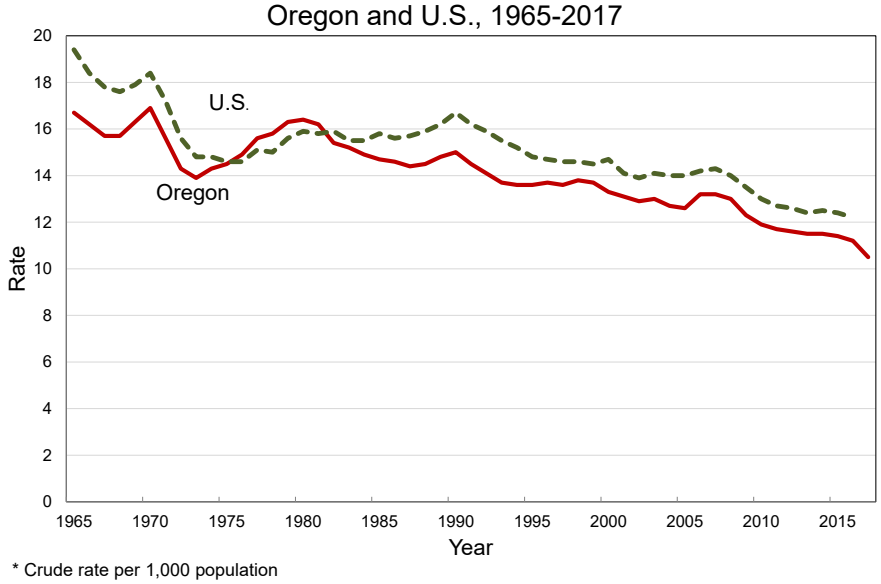
In 2017, Oregon recorded **43,630 resident births**, 1,903 fewer than in 2016. The **crude birth rate** (the number of babies born divided by the total state population) was 10.5 per 1,000 population (see Table 1-2). Oregon's crude birth rate peaked in 1947 at 25.4 per 1,000 population and has been consistently in the mid- to low-teens since the 1960s. Except for the period between 1976 and 1981, Oregon's crude birth rate has remained lower than the national rate since 1953. In 2016, the most recent year for which final U.S. data are available, Oregon's rate was 8.2% lower than the national rate (11.2 vs. 12.2; see Figure 2-1).(1)

Oregon's crude birth rate and fertility rate both remain below the national rates.

Fertility rate is defined as the number of births per 1,000 women ages 15–44 (see Appendix B). The fertility rate is a more precise measurement of changes in behavioral patterns than crude birth rate. The fertility rate relates only to women of typical childbearing age, while the crude rate is based on the entire population.

Oregon's **fertility rate** decreased 4.7% from the previous year, to 54.3 per 1,000 women ages 15–44 (see sidebar Table 2-A, Table 2-2). Age-specific birth rates decreased among all age groups of women except 35–39, which increased by 1.2%. The largest percentage decrease was among women ages 15–19 (11.7%), followed by women ages 20–24 (6.9%; see Table 2-2, Figure 2-2). In 2017 Oregon's fertility rate was 10.0% lower than the preliminary national rate of 60.3.(2)

Figure 2-1.
Live birth rates*
Oregon and U.S., 1965-2017

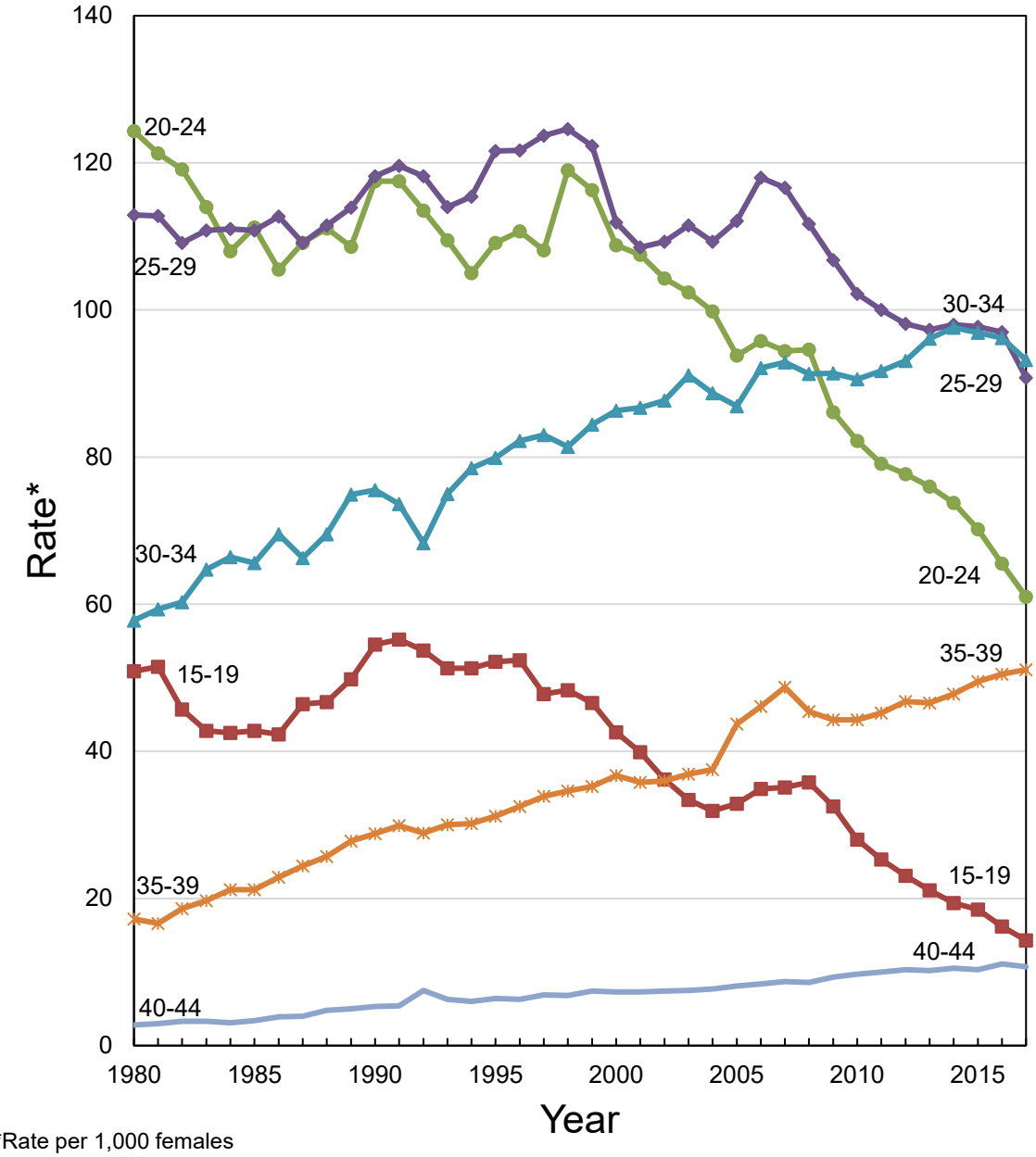


* Crude rate per 1,000 population

Table 2-A. Fertility rates per 1,000 females 15-44, Oregon and U.S.

Year	Oregon	U.S.
1985	62.2	66.3
1990	65.1	70.9
1991	63.7	69.3
1992	62.5	68.4
1993	61.1	67.0
1994	61.0	65.9
1995	62.3	64.6
1996	63.2	64.1
1997	63.0	63.6
1998	64.2	64.3
1999	64.2	64.4
2000	62.9	65.9
2001	61.6	65.3
2002	60.9	64.8
2003	61.2	66.1
2004	60.0	66.3
2005	62.2	66.7
2006	65.5	68.5
2007	66.0	69.2
2008	64.6	68.6
2009	62.0	66.7
2010	60.0	66.7
2011	59.3	63.2
2012	58.8	63.0
2013	58.6	62.5
2014	58.6	62.9
2015	58.0	62.5
2016	57.0	62.0
2017	54.3	60.3

Figure 2-2.
Age-specific birth rates, Oregon residents, 1980-2017



*Rate per 1,000 females

The youngest female to give birth in 2017 was 13 years old, and the oldest was 55 years old. Mother's median age for all births was 29 years, and the mean age was 29.3 years. The median age at first birth was 27 years, and the mean age was 27.5 years. The **rate of first birth** decreased from the previous year to 21.0 first births per 1,000 women ages 15–44. The proportion of first births among total births has been stable for almost two decades; 40.1% of births were first births in 2000 compared to 38.7% in 2017.

Information on the father was missing from 8.4% of birth certificates. The reported father's mean age for births was 31.9 years, and the median age was 32 years. The **birth rate per 1,000 men** ages 15–54 was 40.6 in 2017 for Oregon resident births.

Demographics

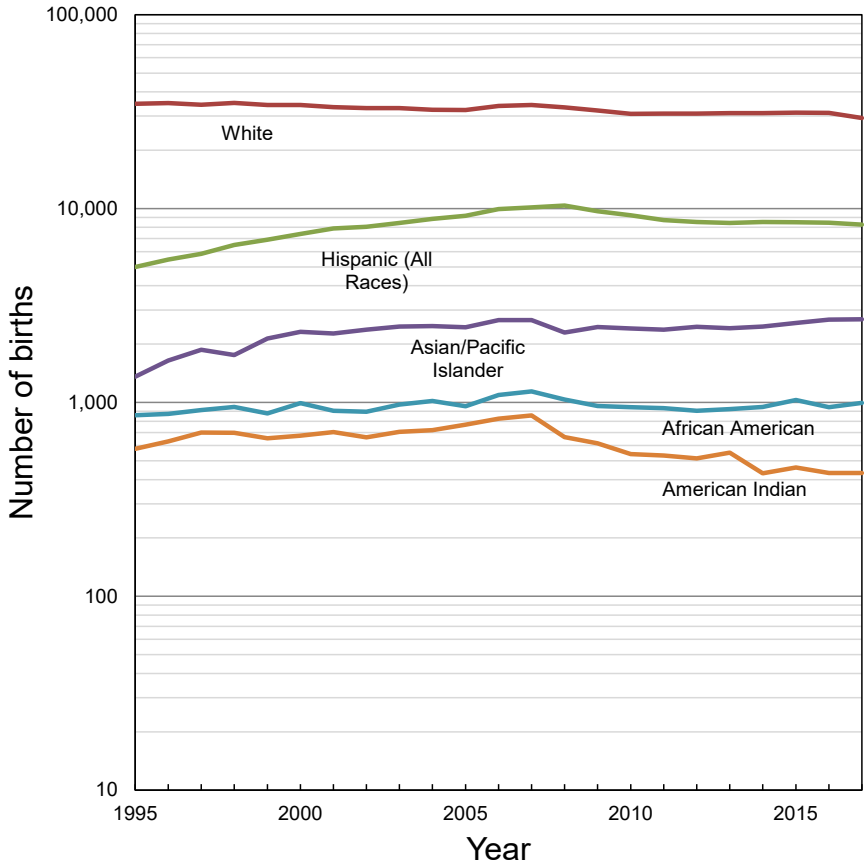
Maternal race/ethnicity

Birth rates for racial and ethnic groups are not calculated in this report because precise population data by racial and ethnic groups are available only for census years. Instead, this report focuses on the race and ethnicity of women who gave birth as a proportion of total births.

The method for reporting the Hispanic category has changed in Oregon over the years. From 1981 to 1988, "Hispanic" was a race category on the birth certificate. From 1989 to 2007, information regarding Hispanic ethnicity was reported separately from race. Starting in 2008, an individual could choose multiple race/ethnicity responses (see Appendix B: "Technical notes — methodology"). Persons of Hispanic ethnicity may belong to any race category (or categories). This change addresses the complexity of race and ethnicity and facilitates an increase of self-reporting accuracy for Oregon.

Differences in perinatal outcomes by race and ethnicity of mother persist. These differences are noted within the topic areas discussed in the remainder of this chapter.

Figure 2-3.
Number of births by race and ethnicity of mother,
Oregon residents, 1995-2017



Note: A logarithmic scale is used for the vertical axis.
Specified races are non-Hispanic.

Marital status of mother

Unmarried women as a group have historically poorer birth outcomes than married women.(3) They generally have a greater proportion of babies with lower birthweight and lower Apgar scores than do their married counterparts. Infants born to unmarried mothers are more likely to require neonatal intensive care, have congenital anomalies or die before the age of one. In Oregon, the ratio of births to unmarried mothers in 2017 was 3.6 times higher than in 1975, and 5.7 times higher than in 1965 (see Table 1-2, Figure 2-4). While there has not been a matching increase in low birthweight rates and other indicators of poor health, the disparity in prenatal care, tobacco use and race/ethnicity between married and unmarried women continues.

In 2017, 36.2% of all Oregon births were to unmarried women, a slight increase from the previous year (see Table 1-2). Oregon has consistently had a lower percentage of births to unmarried women than the United States has had. Oregon's rate in 2016 was 10.2% lower than the national rate (see Figure 2-4).

Among women giving birth in 2017, the percentage of women who were unmarried varied widely by ethnic and racial group (see sidebar Table 2-B). For example, non-Hispanic American Indian women had the highest percentage of non-marital births (68.5%), followed by non-Hispanic Hawaiian/Pacific Islander women (53.6%) and African American women (52.9%). Non-Hispanic Asian women had the lowest percentage of unmarried mothers (12.0%; see Table 2-13).

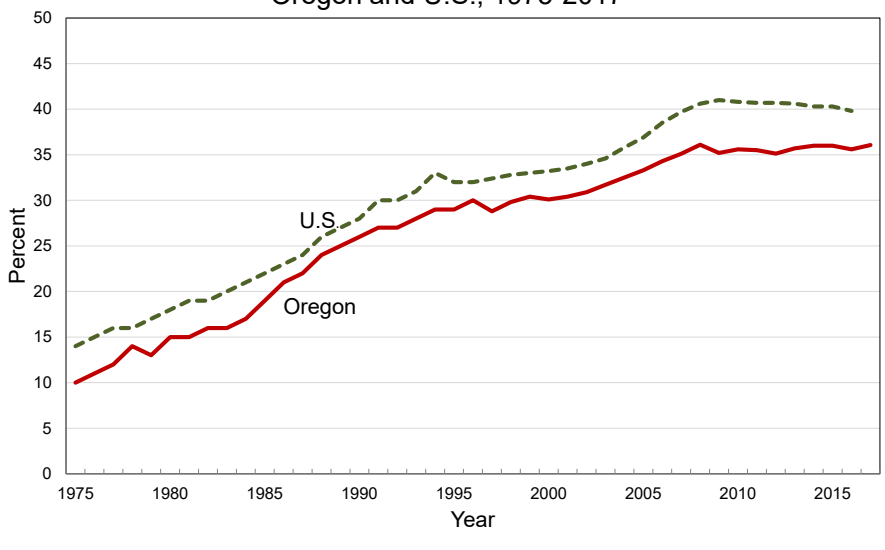
Mothers under age 17 are likely to be unmarried. Note, persons younger than age 17 cannot legally marry in Oregon. More than four-fifths of teens ages 15–19 years who gave birth in 2017 were unmarried (88.1%), compared to 61.7% for women ages 20–24 and 36.0% for women ages 25–29 years. The percentage of unmarried women was lowest for mothers ages 35–39 years (21.8%) and 30–34 years (22.3%), while 25.4% of mothers ages 40-44 years were unmarried (see Table 2-3).

A county's non-marital birth proportion should be viewed, in part, as a function of its own specific population mix, especially age and race. Variations in population composition among counties will likely correspond to significant differences

Table 2-B. Percent of unwed mothers by race/ethnicity, Oregon residents, 2017

Total unmarried	**36.2**
Non-Hispanic	
African American	52.9
American Indian	68.5
Asian	12.0
Hawaiian/Pacific Islander	53.6
Multiple races	50.5
White	32.1
Hispanic	50.1

Figure 2-4.
Percent of births to unmarried women
Oregon and U.S., 1975-2017



in non-marital births. Eleven of Oregon's 36 counties had proportions of non-marital births significantly higher than the state average (see Table 2-9). Among counties with statistically significant differences, Jefferson had the highest percentage (55.7%) of non-martial births followed by Coos (52.2%) and Umatilla (51.1%) (see Appendix B: "Technical notes — formulas" for information on statistical significance). Five Oregon counties had percentages of non-marital births significantly lower than the state average. Benton County had the lowest percentage of non-marital births (20.0%).

Educational attainment

A mother's level of education was closely related to prenatal care patterns. Women with less than a high school education had the lowest percentage of first trimester prenatal care. As educational attainment increased, so did the percentage of women who obtained first trimester care. Women with a master's degree, doctorate or other professional degree had the highest percentage of first trimester care (see sidebar Table 2-C, Table 2-19).

More than four-fifths of women who gave birth in 2017 had at least a high school diploma or GED (87.4%) and 32.5% had a bachelor's degree or higher. The racial/ethnic groups with the highest percentages of high school completion were non-Hispanic Asian (94.7%) and non-Hispanic White (92.6%) mothers. Hispanic mothers had the lowest percentage of completion of at least 12 years of education (68.5%; see Table 2-13).

Table 2-C. Mothers' education and no first trimester care, Oregon residents, 2017

Education	No first trimester care (%)
8th grade or less	35.7
9th to 12th grade, no diploma	33.8
High school graduate or GED	25.8
Some college, no degree	20.3
Associate's degree	16.5
Bachelor's degree	12.2
Master's degree	9.5
Doctorate or professional degree	9.5

Maternal lifestyle and health characteristics

Tobacco

Women who smoked had a low birthweight rate of 120.5 per 1,000.

National Healthy People 2020 objective

Percentage of infants whose mothers did not use tobacco during pregnancy (self-reported)

2020 national target:	*98.6 %*
2017 Oregon actual:	*91.0%*

Women who smoke when pregnant have a far higher incidence of low birthweight babies than do nonsmokers. Low birthweight infants are more likely to experience serious health problems, including increased rates of infant mortality. In Oregon, women who smoked had a low birthweight rate of 120.5 per 1,000 live births, compared to 63.0 per 1,000 among women who did not smoke. Approximately one in 10 mothers (9.0%) reported using tobacco during pregnancy, slightly less than the previous year (9.6%) (see sidebar Table 2-D).

Table 2-D. Percent of maternal tobacco use by year, Oregon residents

1990	22.4
1995	17.9
2000	13.5
2005	12.4
2006	12.3
2007	11.7
2008	11.8
2009	11.3
2010	11.3
2011	10.7
2012	10.6
2013	10.2
2014	10.4
2015	10.0
2016	9.6
2017	9.0

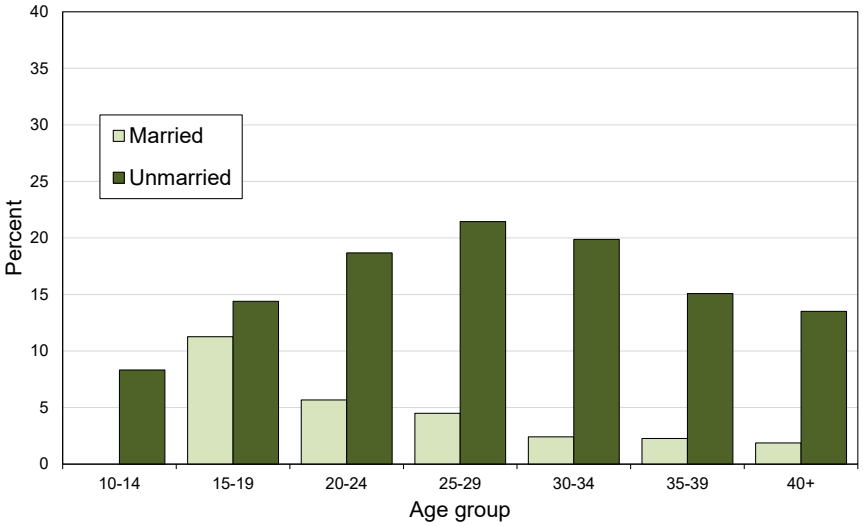
For three decades, the federal Office of Disease Prevention and Health Promotion has developed 10-year national objectives for improving health.(4) One of the Healthy People 2020 objectives is to increase the nationwide percentage of mothers who did not use tobacco during pregnancy to 98.6%. In 2017, the percentage of mothers who used tobacco in Oregon remained below this objective at 91.0%.

Among married women, the percentage of mothers who reported smoking during pregnancy generally decreased with age. Married mothers age 40 or older also reported the lowest percentage of smokers (1.9%), followed by married mothers ages 35–39 (2.3%).

In contrast, the percentage of tobacco use among unmarried women was more than five times that of married women (18.8% vs. 3.4%). For unmarried women, smoking rates peaked in the mid-20s and fell after age 25. The highest percentage of tobacco use during pregnancy in 2017 was among unmarried mothers ages 25–29 (21.4%) and unmarried mothers ages 30–34 (19.9%). For the youngest mothers, ages 10–14 years, 8.3% reported smoking during pregnancy (see Figure 2-5).

Smoking prevalence as reported on birth certificates also varied among racial and ethnic groups. In 2017, non-Hispanic American Indian women (18.6%) and non-Hispanic women reporting multiple races (15.4%) had the highest reported

Figure 2-5.
Percentage of mothers who smoked during pregnancy
by age and marital status, Oregon residents, 2017



proportion for smoking during pregnancy, while non-Hispanic Asian women (1.1%) and Hispanic women (3.2%) reported the lowest (see Table 2-25).

Maternal weight and weight gain

Appropriate maternal weight gain has been shown to be positively correlated with infant birthweight. Low maternal weight gain is associated with poor fetal growth, lower birthweight and the chance of a baby being born prematurely. High maternal weight gain is associated with higher infant birthweight and cesarean delivery. Excessive weight during pregnancy is often accompanied by chronic disease and is a health risk factor for both the mother and child.

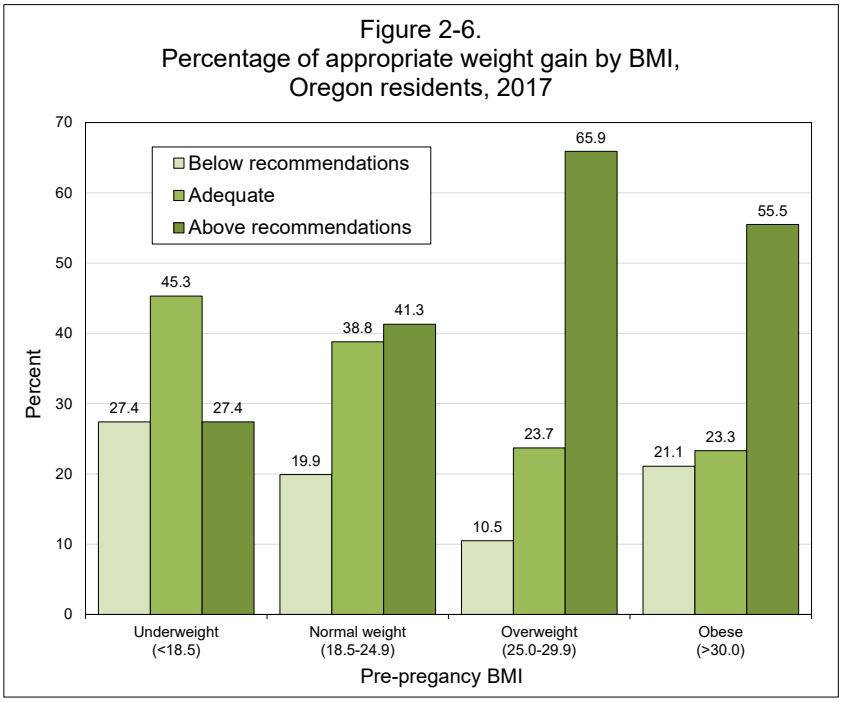
In 2008, Oregon began collecting data on birth certificates about mothers' pre-pregnancy weight, weight at delivery and height. These new data allow for the calculation of body mass index (BMI) and provide a better picture of pre-pregnancy BMI and gestational weight gain. In 2009, the Institute of Medicine (IOM) revised its guidelines for weight gain during pregnancy; the guidelines express ideal weight gain in pregnancy as a range for each category of pre-pregnancy BMI (see sidebar Table 2-E).

Table 2-E. Institute of Medicine guidelines for weight gain during pregnancy

Pre-pregnancy BMI (kg/m^2)	Weight gain (lbs)
Underweight (<18.5)	28-40
Normal weight (18.5-24.9)	25-35
Overweight (25.0-29.9)	15-25
Obese (>30.0)	11-20

In 2017, 51.0% of Oregon mothers gained more weight during pregnancy than recommended by the IOM guidelines. Additionally, 51.1% of Oregon women entered pregnancy overweight or obese, and had the highest percentage of weight gain above the guidelines (65.3% and 54.9%, respectively; see Figure 2-6). In contrast, women who were underweight at the

Figure 2-6.
Percentage of appropriate weight gain by BMI,
Oregon residents, 2017



start of their pregnancy had the highest percentage of weight gain below the IOM recommendations (27.8%) and had the highest percentage of low birthweight infants (12.6%).

Medical risk factors

Maternal medical risk factors influence pregnancy complications and infant health and vary greatly based on the mother's age, race and ethnicity. In 2017, the most frequently reported medical risk factors were previous cesarean delivery (13.2%), gestational diabetes (8.7%) and pregnancy-associated hypertension (8.2%) (see Table 2-23, Table 2-26).

Medical services utilization

Prenatal care

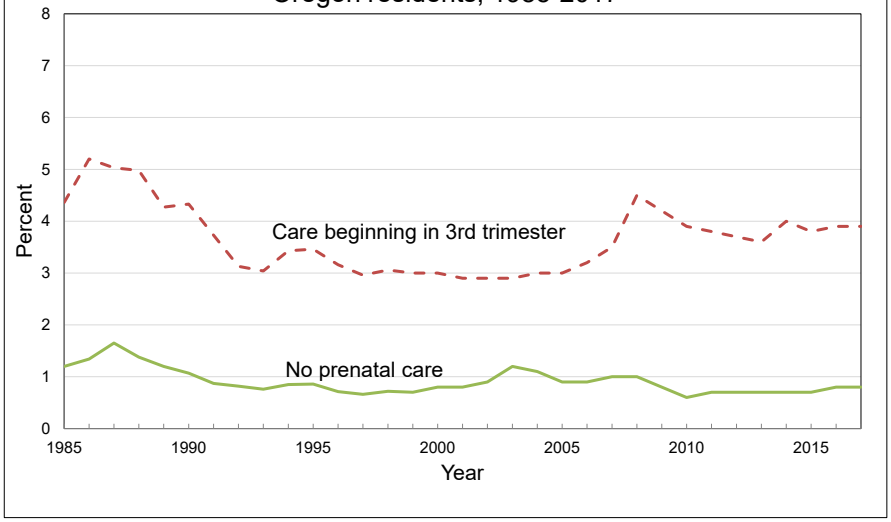
National Healthy People 2020 objective

Percentage of infants whose mothers received prenatal care beginning in the first trimester

2020 national target:	*77.9 %*
2017 Oregon actual:	*79.9 %*

Public health workers and private care providers seek to minimize the risk of death and disability among infants. Additionally, they seek reductions in costs associated with low birthweight among infants by providing comprehensive prenatal care. The two ways Oregon measures prenatal care are:

Figure 2-7.
Percent of mothers with late prenatal care and no prenatal care,
Oregon residents, 1985-2017



- "Inadequate prenatal care," defined as no care until the third trimester or fewer than five total prenatal visits, and
- "First trimester care," defined as care beginning in the first 12 weeks of pregnancy, regardless of the number of total prenatal visits.

Overall, 79.9% of women who gave birth during 2017 received early prenatal care (see Table 2-17, Table 1-5), which is nearly unchanged from the 2016 rate of 79.7%. Oregon's rate remains better than the Healthy People 2020 objective of 77.9%.

In 2017, 6.1% of women giving birth received inadequate prenatal care, and 20.1% received no first trimester care. The percentage of low birthweight infants was much higher for women who received inadequate prenatal care (13.3%) than for women who received adequate prenatal care (6.4%). The percentage of mothers who received no prenatal care was unchanged from the previous year (0.8%). Mothers who initiated care in the third trimester also stayed the same between 2016 and 2017 at 3.9% (see Figure 2-7).

Mother's race/ethnicity, residence, marital status, education and age continue to influence rates of accessing prenatal care (see tables 2-17, 2-18, 2-19 and 2-21). For example, the highest percentage of inadequate care is found among non-Hispanic Hawaiian and Pacific Islander women (31.7%) and non-Hispanic women of other or unknown race (16.6%). Non-Hispanic White and non-Hispanic Asian women had the lowest percentages of inadequate care (5.0% and 5.2%, respectively; see Table 2-18).

Only one of Oregon's 36 counties had first trimester care rates significantly higher than the statewide rate in 2017: Washington County (84.1%). Seven counties had rates significantly lower than the state: Tillamook (65.4%), Morrow (65.5%), Curry (66.9%), Malheur (67.3%), Klamath (72.0%), Umatilla (74.0%) and Lane (75.8%) (see Table 2-20).

The **Adequacy of Prenatal Care Utilization Index** is an alternate measure of prenatal care based on the month prenatal care began and the number of prenatal visits, adjusting for gestational age. Care is determined to be intensive (exceeding recommended care by a ratio of expected visits to actual visits by at least 110%), adequate, intermediate or inadequate (see sidebar, Table 2-F). As with other measures of prenatal care, more women under the age of 20 received inadequate prenatal care, while more women age 40 and older received intensive prenatal care. Women with medical risk factors such as diabetes and hypertension also were more likely to receive intensive prenatal care.

Place of delivery and birth attendant

Hospital births. Hospitals were the most frequent place of birth, accounting for 96.4% of births within Oregon. Most in-hospital births were planned to occur in the hospital (99.3%); 280 births were planned out-of-hospital at the onset of labor but subsequently delivered in the hospital. Medical doctors or osteopathic doctors delivered 78.5% of planned hospital births; certified nurse midwives delivered 21.1%, and other licensed medical professionals delivered 0.4% (see Table 2-38).

Table 2-F. Adequacy of Prenatal Care Utilization Index Oregon, 2011-2017

Year	Intensive	Adequate	Intermediate	Inadequate
2011	34.8	41.3	11.8	12.2
2012	33.6	40.9	13.6	12.0
2013	32.5	41.7	13.5	12.3
2014	32.5	42.7	12.0	12.1
2015	33.4	43.6	10.9	11.5
2016	32.8	43.5	11.5	11.4
2017	32.3	43.1	12.5	11.3

Out-of-hospital births. In 2017, 3.6% of Oregon births occurred outside of a hospital. As in past years, most out-of-hospital births occurred in the mother's home (57.8%). Of those home births, 92.4% were planned home births, while the remaining 7.6% were not intended to occur at home. Freestanding birthing centers accounted for 637, or roughly two-fifths of out-of-hospital births.

Table 2-G. Out-of-hospital births Oregon occurrence		
Year	Deliveries	Rate[1]
1985	1,772	43.5
1986	1,520	37.9
1987	1,361	34.0
1988	1,217	29.4
1989	1,117	26.2
1990	1,077	24.2
1991	979	22.2
1992	996	22.8
1993	936	21.6
1994	979	22.5
1995	967	21.7
1996	979	21.4
1997	970	21.5
1998	914	19.8
1999	948	20.6
2000	1,047	22.4
2001	1,007	21.7
2002	947	20.6
2003	1,000	21.3
2004	1,003	21.6
2005	1,058	22.6
2006	1,134	23.1
2007	1,267	25.4
2008	1,431	29.0
2009	1,404	29.4
2010	1,574	34.3
2011	1,680	36.9
2012	1,739	38.2
2013	1,702	37.3
2014	1,878	40.7
2015	1,798	39.0
2016	1,772	38.5
2017	1,582	35.8

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 capture planned place of birth and birth attendant. Every mother who delivered in the hospital was asked:

- Whether she planned to deliver at a private home or in a freestanding birthing center, and
- The planned primary attendant type at the time she went into labor.

Overall, 1,758 births were planned out-of-hospital (4.0%). Of these, 280 (15.9%) planned out-of-hospital births ultimately delivered in hospital. Transfers of newborn infants to a medical facility within 24 hours of birth were slightly more likely among women who planned an out-of-hospital birth (1.7% versus 1.3%; see Table 2-40). Women who planned out-of-hospital births tended to be 30 or older (61.0%), White non-Hispanic (84.6%), married (79.7%) and college-educated (48.5%) (see Table 2-39.)

Women who planned out-of-hospital births generally experienced fewer medical interventions than those who planned hospital births. Medical intervention rates among planned out-of-hospital births included induction and augmentation of labor (11.3%), epidural or spinal anesthesia (9.8%), operative vaginal birth (0.7%) and cesarean section (4.8%). A woman planning to deliver in hospital was more than four times as likely to have a primary cesarean section than a woman who planned to deliver out of hospital (17.8% vs. 4.3%). In 2017, 17.4% of women planning out-of-hospital births did not have a Group B streptococcal test compared to 3.5% for women planning a hospital birth (see Table 2-40).

Women who planned out-of-hospital births were more likely to deliver term infants (obstetric estimate of gestation of 37 completed weeks or more) and less likely to deliver low birthweight infants.

Birth attendant. There are three 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 Oregon regulations. Lay midwives who are not licensed in Oregon may also certify births, but they must register with the Center for Health Statistics. A major shift during the past few decades has been the increasing prevalence of births attended by certified nurse midwives. In 2017, 21.1% of planned hospital deliveries were CNM-attended. Women who planned out-of-hospital births reported the following planned attendants: CNMs (31.2%), LDMs (45.2%), naturopathic physicians (13.5%) and other midwives (7.7%; see Table 2-38). Non-medical attendants such as spouses or emergency first responders delivered 128 babies in total, including 7.4% of out-of-hospital births (see Table 2-36).

Method of delivery

In 2017 the rate of cesarean delivery was 28.1%, which was below the 2016 national rate of 31.9%. Among all births, 2.3% were vaginal deliveries after a previous cesarean delivery, and 10.9% were repeat cesarean deliveries. Most births (69.6%) continue to be vaginal deliveries without prior cesarean (see Table 2-37). Cesarean rates peaked in 2009, accounting for 29.4% of resident births. In 2017, 27.1% of births were by cesarean delivery. The current proportion is 4.4% lower than in 2009 but represents a 3.3% increase from the previous year.

Infant health characteristics

Period of gestation

Preterm births (infants born prior to completion of 37 weeks' gestation) accounted for 8.3% of total births in 2017, lower than the provisional national rate for the year (9.9%; see Table 2-25). Proportions of preterm births were higher for non-Hispanic American Indian women (15.0%) and for non-Hispanic Hawaiian and Pacific Islanders (12.5%). Non-Hispanic Asian women had the lowest proportion of preterm births (7.5%; see Table 2-25).

Table 2-H. Certified nurse midwife deliveries, Oregon occurrence

Year	Deliveries		
	Total	In-hospital	Out-of-hospital
1985	2,022	1,661	390
1986	1,984	1,607	400
1987	1,843	1,483	385
1988	2,345	2,133	259
1989	2,886	2,706	244
1990	3,660	3,539	226
1991	4,262	4,096	166
1992	4,498	4,319	179
1993	4,784	4,618	173
1994	4,931	4,772	159
1995	5,601	5,441	160
1996	6,019	5,871	148
1997	5,853	5,734	119
1998	6,152	6,004	148
1999	6,357	6,193	164
2000	6,740	6,591	149
2001	6,848	6,721	127
2002	6,837	6,747	90
2003	6,838	6,721	117
2004	6,586	6,472	114
2005	6,487	6,386	101
2006	7,102	6,996	106
2007	7,631	7,507	124
2008	8,004	7,820	184
2009	7,711	7,579	132
2010	7,476	7,257	219
2011	7,496	7,245	251
2012	7,454	7,156	298
2013	8,279	7,929	350
2014	8,456	8,059	397
2015	9,238	8,894	344
2016	9,649	9,335	314
2017	9,444	9,050	394

Low birthweight

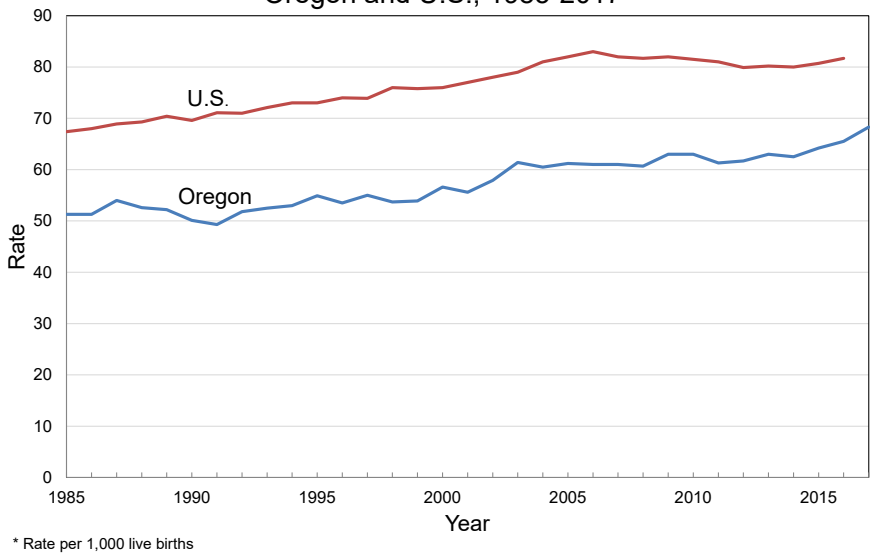
National Healthy People 2020 objective

Percentage of live births resulting in low birthweight infant

2020 national target:	*7.8 %*
2017 Oregon actual:	*6.8%*

Low birthweight is the major predictor of infant death, which is a fundamental measure of the health of a population. Infants with low birthweight are more likely to need extensive medical treatment and to have lifelong disabling conditions. (For more information, see "Chapter 7: Infant and fetal mortality" in *Oregon Vital Statistics Annual Report 2017, Volume 2: Mortality.*) The low birthweight rate is the proportion of infants who weigh less than 2,500 grams (5 pounds, 8 ounces) at birth. In 2017, 2,981 babies with low birthweight were born to Oregon mothers (see Table 2-27). One of the National Healthy People 2020 objectives is to reduce the percentage of low birthweight infants nationwide to 7.8%. In 2017, the percentage of low birthweight births in Oregon remained well below this objective at 6.8%, or 68.3 per 1,000 live births. This rate is 3.0% higher than the previous year's. While annual changes have been small in the last 20 years, there has been a slight upward trend in low birthweight infants (see Table 1-5, Figure 2-8). Nevertheless, Oregon's low birthweight rates are typically 25% lower than national rates and, in 2016, Oregon's rate was 19.8% lower than the national rate (65.5 vs. 81.7 per 1,000 births).

Figure 2-8.
Low birthweight rates*,
Oregon and U.S., 1985-2017



High birthweight

Birthweight is an important factor in the health of a newborn. Excessive birthweight, or fetal macrosomia, is a health risk factor for both the mother and child and is commonly defined as birthweight greater than 4,000 grams (8 pounds, 13 ounces).(5)

Among Oregon resident births in 2017, the prevalence of fetal macrosomia was 9.9%. As maternal age increases, the risk of fetal macrosomia tends to increase (see Table 2-24). Among women age 35 and older giving birth, 10.5% delivered infants weighing more than 4,000 grams. This is 5.9% greater than the state average (9.9%) and 64.1% higher than the rate for women under 20 years of age (6.4%; see Table 2-27).

Among Oregon resident births in 2017, the biggest baby born was 14 lbs, 7 oz.

In 2017, the prevalence of macrosomia was highest among non-Hispanic White women (10.9%). The lowest rates of macrosomia were found in non-Hispanic Asian women (4.5%) and non-Hispanic women of other or unknown race (6.5%; see Table 2-25).

Apgar scores

The Apgar score is composed of measurements of five infant characteristics: heart rate, respiratory effort, muscle tone, reflex irritability and color. Each characteristic is rated 0–2, and the scores are totaled. Total scores below 7, five minutes after birth, indicate poor to intermediate health at birth. In Oregon during 2017, 2.6% of infants had 5-minute Apgar scores below 7 (see tables 2-24 and 2-25). This percentage is nearly unchanged from 2016 (2.7%).

Abnormal conditions and congenital anomalies

The most frequently reported conditions on birth certificates were admission to the neonatal intensive care unit, assisted ventilation required immediately after delivery, and assisted ventilation required for more than six hours (see tables 2-33 and 2-34). Congenital anomalies reported on birth certificates are shown in Table 2-35. Although Oregon occurrences of some anomalies were somewhat higher than national rates, congenital anomalies are believed to be underreported at the national level because their presence and severity at birth is difficult to recognize. Data users are advised to use caution in comparing annual occurrences for relatively small numbers.

Multiple births

Although 3.6% of births in Oregon during 2017 were part of multiple births, the proportion varied widely by age, race and ethnicity. During 2017, mothers age 45 and older had the highest percentage of multiple births. The percentage of multiple births

Table 2-I. Percentage of infants born weighing more than 4,000 grams, Oregon residents

Year	Percent	Largest infant born (in grams)
1990	14.2	6040
1991	13.9	6265
1992	13.8	5990
1993	13.8	6010
1994	13.8	5810
1995	13.5	6265
1996	13.1	6156
1997	12.8	6060
1998	13.0	6139
1999	12.8	6293
2000	12.8	6151
2001	12.4	5981
2002	11.8	5896
2003	11.5	6180
2004	10.9	5925
2005	10.9	6497
2006	10.7	5982
2007	10.5	7000
2008	10.7	7711
2009	10.7	6804
2010	10.4	6454
2011	10.9	6401
2012	10.6	6350
2013	10.6	5845
2014	10.7	5954
2015	10.4	5970
2016	10.3	6294
2017	10.3	6549

Table 2-J. Primary source of payment for delivery, Oregon residents

Year	Private insurance	Self-pay	Medicaid/ OHP
	%	%	%
1990	60.4	8.7	28.7
1991	58.2	6.5	33.2
1992	57.2	5.8	35.2
1993	56.2	5.9	36.2
1994	57.5	5.6	34.9
1995	57.9	4.9	35.5
1996	58.3	5.7	35.0
1997	60.8	6.3	31.9
1998	62.2	6.3	30.7
1999	61.1	5.9	32.4
2000	61.6	5.4	32.8
2001	61.2	4.3	34.3
2002	58.7	3.5	37.8
2003	58.9	3.5	37.6
2004	56.5	3.2	40.3
2005	55.6	3.0	41.4
2006	55.1	3.2	41.3
2007	56.1	3.5	40.4
2008	53.6	3.2	40.9
2009	52.3	2.5	42.3
2010	50.9	2.4	45.1
2011	50.8	2.2	45.5
2012	51.5	2.2	44.8
2013	52.7	2.3	43.5
2014	52.2	1.9	44.7
2015	51.7	1.5	45.5
2016	52.2	2.0	44.4
2017	51.5	2.0	45.1

Note: Denominator excludes births with unknown payor source, and multiple payor source.

for each age group ranged from 1.2% for mothers ages 15–19 to 16.0% of births to mothers age 45 and older. The percentage of multiple births generally increases with age (see Table 2-24). Non-Hispanic women of other or unknown race had the highest percentage of multiple births at 5.0% (see Table 2-25).

Infertility treatment

Many infertility treatments increase a woman's chance of having twins, triplets or other multiples. Multiples are at higher risk for prematurity and low birthweight. During 2017, mothers age 45 and older had the highest rate of infertility treatment (410.0 per 1,000 births; see Table 2-23).

Source of payment

The source of payment is reported as the expected primary payment source at the time of labor and delivery. Primary source of payment for delivery is noted on Oregon birth certificates under five categories: public insurance (Medicaid/Oregon Health Plan), private insurance, self-pay (no insurance), Indian Health Services, and other and unknown payment source. In 2017, reported birth certificate data indicated that private insurance companies paid for the majority of deliveries in Oregon (51.5%), down from 52.2% in 2016 (see sidebar Table 2-J). Medicaid programs (e.g., the Oregon Health Plan) paid for 45.1% of Oregon resident births. Note that delivery costs were more likely to be paid for by public insurance if the woman was under age 18 (see Table 2-14).

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