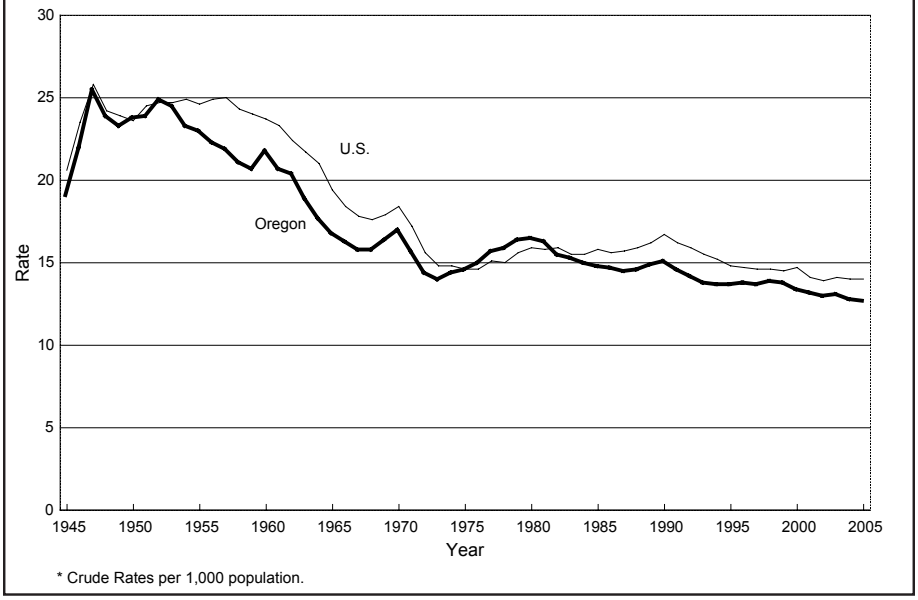
Natality

In 2005, Oregon recorded **45,905 resident births**. There were 245 more resident births than in 2004 and the **crude birth rate** (the number of babies born divided by the total state population) decreased slightly, from 12.7 to 12.6 per 1,000 population. (See Table 1-2.) Oregon's crude birth rate peaked in 1947 at 25.4 per 1,000 population. For the past 25 years, however, Oregon's rates have held in the mid-teens, ranging from a high of 16.4 in 1980 to a low of 12.6 in the current year. Except for the period between 1976 and 1981, Oregon's crude birth rate has remained lower than the national rate for the past 50 years. In 2005, Oregon's rate was 10 percent lower than the nation's (12.6 vs. 14). (See Figure 2-1.)

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

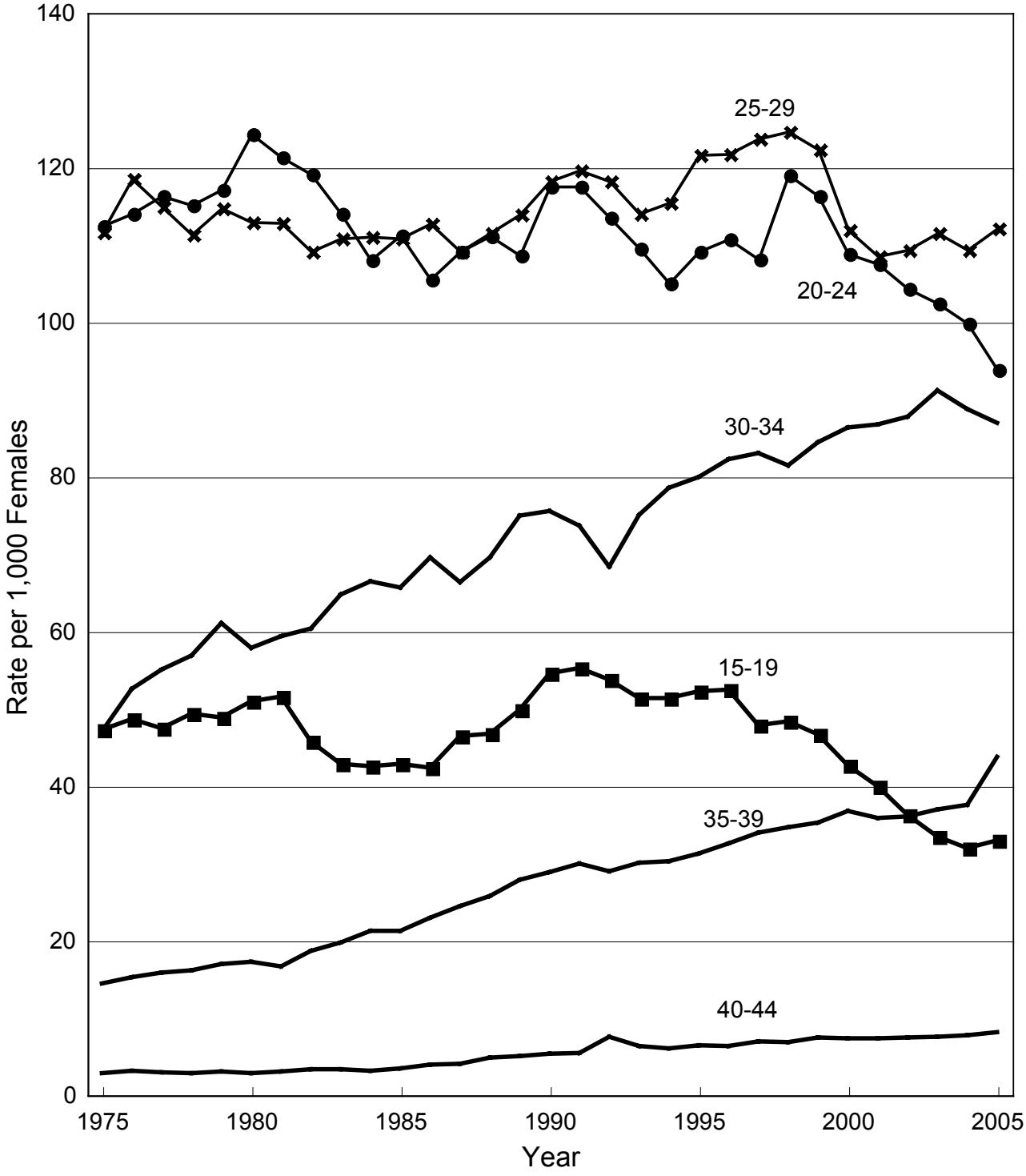
Oregon's **fertility rate** increased to 62.2 per 1,000 women age 15-44. (See sidebar, pages 2-3; Table 2-2.) The fertility rate is based on the number of births per 1,000 women ages 15-44. The fertility rate is a more precise measurement of changes in behavioral patterns because it consists only of women who are of childbearing age while the crude rate is based on the entire population. Age-specific **birth rates** increased for women of all age groups, except 20-24 and 30-34 year-olds. The largest percentage decrease was among women ages 20-24 (-6.0 percent). (See Table 2-2, Figure 2-2.) The youngest mother in 2005 was 11 years old; the oldest was 55. The median age of mothers for all births was 27 and the mean age was 27.5. The median age at first birth was 25 and the mean age was 25.4. The **first birth rate** increased slightly from the previous year to 24.7 first births per 1,000 women age 15-44, 6.4 percent lower than the national rate of 26.5. The propor-

Figure 2-1.
Live Birth Rates*,
Oregon and the U.S., 1945-2005



* Crude Rates per 1,000 population.

Figure 2-2.
Age-Specific Birth Rates,
Oregon Residents, 1975-2005



tion of first births among total births has been stable for the past decade. In 1995, 41.8 percent of births were first births; in 2005, 39.6 percent were first births.

The mean age for fathers was 30.4 years and the median age was 30. The **birth rate per 1,000 men** ages 15-54 was 44 in 2005 for Oregon resident births. Information on the father was missing from almost 10 percent of birth certificates. Unknown father age was distributed in the same manner as national data. (See Technical Notes - Definitions for details, Appendix B.) The national birth rate for men in 2005, was 48.8 per 1,000 men.

Fertility Rates Per 1,000 Females 15-44, Oregon & U.S.

Year	Oregon	U.S.
1980	69.3	68.4
1981	68.1	67.3
1982	65.2	67.3
1983	64.1	65.7
1984	62.8	65.5
1985	62.2	66.3
1986	61.8	65.4
1987	60.9	65.8
1988	61.8	67.3
1989	63.3	69.2
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

Demographics

Maternal race/ethnicity

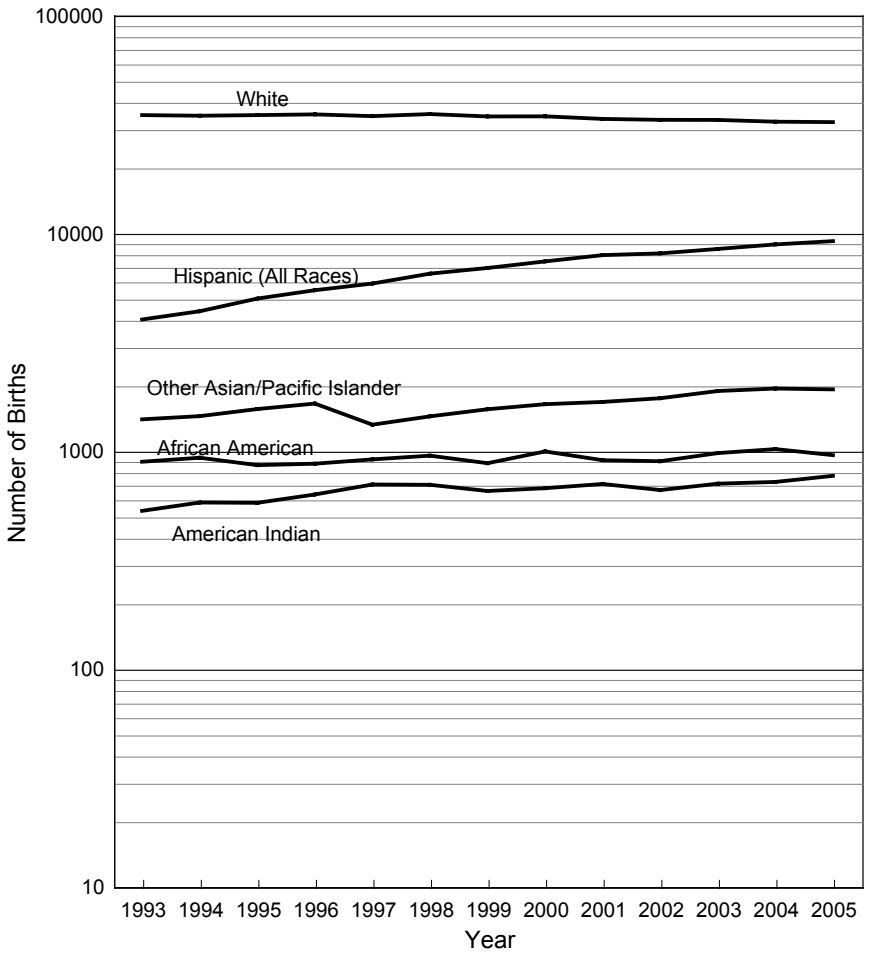
Birth rates for racial and ethnic groups are not calculated in this report because precise population data by racial and ethnic groups are available only for census years. Instead, this report focuses on the race and ethnicity of women who gave birth as a proportion of total births. Since 1989, the number of births to women of Hispanic ethnicity has more than quadrupled to 20 percent of total births. (See Table 2-7, Figure 2-3.) From 1981 to 1988, "Hispanic" was a race category on the birth certificate. Since 1989, information regarding Hispanic ethnicity is reported separately from race. This change addressed the complexity of race and ethnicity, and increased the accuracy when self-reporting. Differences by race and ethnicity of mother persist. Non-Hispanic American Indians and Hispanic African Americans were far more likely to receive inadequate prenatal care than other groups. Chinese and Japanese women (Hispanic and non-Hispanic) were least likely to receive inadequate care (2.8 percent and 4.2 percent respectively). (See Table 2-18.)

Marital status of mother

Historically, unmarried women as a group have had poorer birth outcomes than married women. They generally have a greater proportion of babies with low birthweight and low Apgar scores than do their married counterparts. Their infants also are more likely to require neonatal intensive care, to have congenital anomalies, or to die before age one. Between 1975 and 2005, the ratio of births to unmarried mothers more than tripled in Oregon. (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 birth outcomes between married and unmarried women continues.

In 2005, 33.3 percent 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

Figure 2-3.
Number of Births by Race and Ethnicity of Mother,
Oregon Residents, 1993-2005



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

Unmarried Mothers by Race/Ethnicity, Oregon Residents, 2005

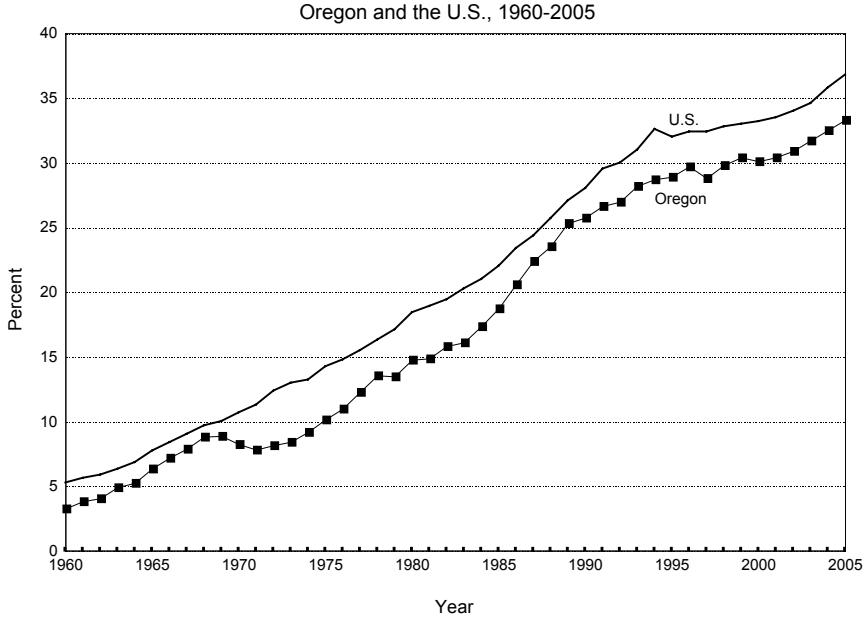
Race/Ethnicity	Unmarried
Total	**33.3%**
Non-Hispanic	
African American	64.6%
American Indian	58.7%
White	29.5%
Asian	16.1%
Hispanic	45.7%

births to unmarried women than the nation; Oregon's rate in 2005 was 9.5 percent lower. (See Figure 2-4.)

Among women giving birth in 2005, the percentage of women who were unmarried varied widely by ethnic and racial group (see sidebar). Non-Hispanic African American women had the highest rate of non-marital births (64.6 percent), followed by non-Hispanic American Indian women (58.7 percent), and Hispanic women (45.7 percent). Non-Hispanic Asian women were least likely to be unmarried (16.1 percent). (See Table 2-12.)

Young mothers also were likely to be unmarried since persons younger than age 17 cannot get married in Oregon. More than three-fourths of the teens ages 15-19 who gave birth in 2005 were unmarried (78.6 percent), compared to 51.0 percent for women ages 20-24 and 26.1 percent for women ages 25-29. Mothers ages 30-34 (15.9 percent) and 35-39 (15.3 percent) were least likely to be unmarried, while 17.5 percent

Figure 2-4.
Percent of Births to Unmarried Women,
Oregon and the U.S., 1960-2005



of mothers ages 40-44 were unmarried. (See Table 2-3.) Eleven of Oregon's 36 counties had proportions of non-marital births that were statistically significantly higher than the state average. (See Table 2-9.) Among counties with statistically significant differences, Lincoln had the highest percentage (55.2 percent) followed by Jefferson (49.5 percent), and Malheur (41.9 percent). (See Appendix B: Technical Notes for information on statistical significance.) Six Oregon counties had percentages of non-marital births that were statistically significantly lower than the state average. Benton County had the lowest percentage of non-marital births (20.8 percent). 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 likely will result in significant differences in non-marital births.

Educational attainment

A mother's level of education was closely related to prenatal care patterns. Women with less than a high school education were least likely to obtain first trimester prenatal care, while those who had college degrees or higher were most likely to have obtained first trimester care. (See sidebar and Table 2-19.)

More than three-fourths of women who gave birth in 2005 had 12 or more years of schooling (79.6 percent) and 26.3 percent had 16 or more years of formal schooling. Non-Hispanic Asian (91.3 percent) and non-Hispanic white (89.2 percent) mothers were most likely to have completed 12 or more years of education. Hispanic mothers of Mexican origin were least likely to have completed at least 12 years of formal schooling (40.8 percent). (See Table 2-12.)

No First Trimester Care by Mothers' Education, Oregon Residents, 2005

Years of Education	No First Trimester Care
<12	34.6%
12	22.5%
>12	10.2%

Maternal lifestyle and health characteristics

Tobacco

Oregon Benchmark for the Year 2010

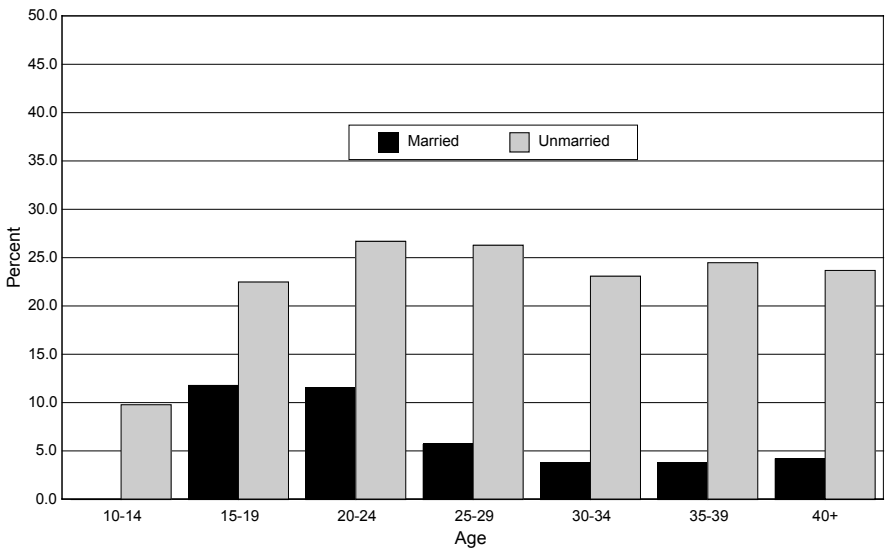
Percentage of infants whose mothers did not use tobacco during pregnancy (self-reported).

Year 2010 target:	*98 percent*
2005:	*88 percent*

Women who smoked had a low birthweight rate of 95.9 per 1,000.

Women who smoke when pregnant have a far higher incidence of low birthweight babies than nonsmokers. Low birthweight infants are more likely to experience serious health problems, including increased rates of infant mortality. In 2003, the Oregon infant mortality rate during the first 27 days of life (neonatal) was 46.4 per 1,000 live births for low birthweight (less than 2,500 grams) infants compared to 0.9 per 1,000 for infants with birthweights of 2,500 grams or more. In 2005, women who smoked had a low birthweight rate of 95.9 per 1,000 live births, compared to 55.7 per 1,000 among women who did not smoke. One out of eight mothers (12.4 percent) reported using tobacco during pregnancy, a proportion that has declined 30.3 percent since 1995 and 8.1 percent since 2000. Unmarried women were more than four times more likely to smoke than married women (24.8 percent vs. 6.1 percent). For unmarried women, the smoking rate was highest among women ages 20-24 (26.7 percent), and 25-29 (26.3 percent) while for married women the lowest smoking prevalence rates were for women ages 30-34 and ages 35-39 (both 3.8 percent). (See Figure 2-5.)

Figure 2-5.
Percentage of Mothers Who Smoked During Pregnancy
by Age and Marital Status, Oregon Residents, 2005



Smoking prevalence as reported on birth certificates also varied among racial and ethnic groups. In 2005, non-Hispanic American Indian women (23.8 percent) and non-Hispanic African American women (18.5 percent) had the highest reported proportions for smoking during pregnancy, while Hispanic women (3.1 percent) and non-Hispanic Asian women (3.4 percent) reported the lowest. (See Table 2-24.)

Weight gain

Maternal weight gain has been shown to have a positive correlation with the birthweight of the infant. The median weight gain during pregnancy was 30 pounds in 2005. The amount of weight gained by mothers varied by period of gestation, race and ethnicity. For all births, Hispanic women (50.6 percent) and non-Hispanic African American women (44.3 percent) were least likely to gain more than 25 pounds during pregnancy. (See Table 2-33.) Non-Hispanic African American women had the highest percent of low birthweight infants (11.6 percent). Hispanic women, despite the lower weight gain, had the lowest percentage of low birthweight infants (5.7 percent). (See Table 2-34.) Non-Hispanic whites were most likely to gain more than 25 pounds during pregnancy (65.7 percent) and had the second lowest percentage of low birthweight infants. Although the standard recommendation is 25 to 35 pounds for women of normal weight, pre-pregnancy weight is not collected on the birth certificate, so percentages of mothers who had appropriate weight gains cannot be calculated.

Medical risk factors

Maternal medical risk factors influence pregnancy complications and infant health, and vary greatly with the age, race and ethnicity of the mother. In 2005, the most frequently reported medical risk factors were anemia (5.4 percent) and pregnancy-associated hypertension (5.1 percent). (See Table 2-25 and Table 2-26.)

Medical services utilization

Prenatal care

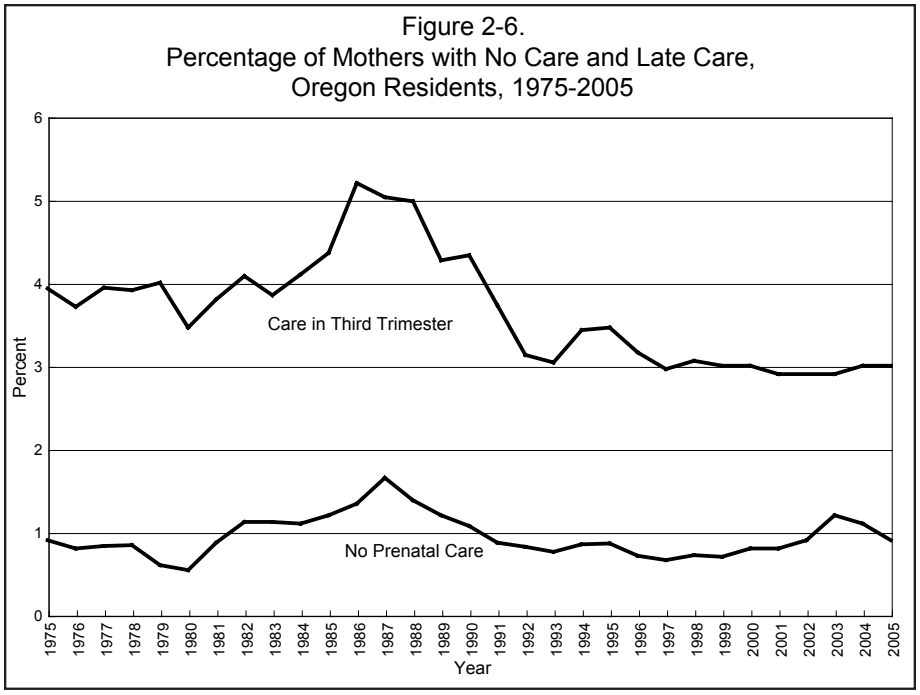
Oregon Benchmark for the Year 2010

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

Year 2010 target:	*90 percent*
2005:	*81 percent*

Public health services and private care providers seek to minimize the risk of death and disability, and to reduce costs associated with low birthweight infants by providing com-

Figure 2-6.
Percentage of Mothers with No Care and Late Care,
Oregon Residents, 1975-2005



prehensive prenatal care. Two ways to measure prenatal care are: 1) "inadequate prenatal care," defined as no care until the third trimester or fewer than five total prenatal visits; or 2) "first trimester care," defined as care beginning during the first three months of pregnancy, regardless of the number of total prenatal visits. First trimester care has been adopted as an Oregon Benchmark with a goal to ensure that at least 90 percent of women begin prenatal care within the first three months of their pregnancies. Overall, 81.0 percent of women who gave birth during 2005 received early prenatal care, lower than the national number of 83.9 percent. (See Table 2-17; Table 1-5.) However, this is slightly higher than the 2004 rate of 80.4 percent. (See Table 1-6.)

In 2005, 5.8 percent of women giving birth received inadequate prenatal care and nearly 20 percent received no first trimester care. Women who received inadequate prenatal care were more than twice as likely to give birth to a low birthweight child as those who received adequate prenatal care, 11.7 percent compared to 5.8 percent. The proportion that received no prenatal care or only third trimester care remained about the same as previous years (0.9 percent and 3.0 percent respectively). (See Figure 2-6.) Age, marital status, education and race/ethnicity continue to show important differences in accessing prenatal care. (See Tables 2-14, 2-17, 2-18, 2-19.)

Four of Oregon's 36 counties had first trimester care rates significantly lower than the statewide rate: Malheur, Marion, Morrow and Umatilla. Five counties had rates significantly higher than the statewide rate: Benton, Clackamas, Columbia, Deschutes and Washington. (See Table 2-20.)

Adequacy of Prenatal Care Utilization Index Oregon 2000-2005				
Year	Intensive	Adequate	Intermediate	Inadequate
2000	24.9	44.5	18.3	11.4
2001	27.9	46.1	14.1	11.1
2002	26.5	46.7	14.9	11.0
2003	26.9	45.8	15.1	11.1
2004	25.8	44.1	17.4	11.6
2005	24.2	44.3	19.4	11.3

The **Adequacy of Prenatal Care Utilization Index** is an alternative measure that is also 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 by at least 110 percent), adequate, intermediate or inadequate. (See table, above.) As with other measures of prenatal care, women under the age of 20 were least likely to receive adequate care, while women age 40 and over were most likely to receive intensive prenatal care. Women with medical risk factors such as diabetes and hypertension, also were more likely to receive intensive prenatal care. For 2005, Oregon's proportion of 11.3 percent of births with inadequate care was very similar to the most recent national proportion of 11.2 percent in 2004.

Birth attendant and place of delivery

Hospital births. A major shift during the past few years has been the increasing prevalence of births attended by Certified Nurse Midwives (CNM). In 2005, 14.0 percent of hospital deliveries were CNM-attended, a slight decrease from 2004 (14.2 percent) but almost three times the proportion in 1988 (5.3 percent). This is almost twice the national proportion of births attended by CNM (2005 = 7.5 percent). Most in-hospital births (81.8 percent) were delivered by MDs. (See Table 2-28.)

Out-of-hospital births. In 2005, 2.3 percent of Oregon births occurred out-of-hospital. Oregon generally has a higher proportion of out-of-hospital births than the U.S. as a whole. In 2005, Oregon's proportion of out-of-hospital births was double that of the 2005 U.S. proportion of 1 percent. As in past years, the majority of out-of-hospital births occurred in the mother's home (75 percent). Freestanding birthing centers accounted for 206 births, approximately one-fifth of the births occurring out-of-hospital. Outcomes generally have been positive for out-of-hospital births. In 2005, only 19 infants born out-of-hospital in Oregon had low birthweights (1.8 percent). Ten infants (0.9 percent) were reported to have a congenital anomaly, which is lower than the percentage for in-hospital births (1.5 percent).

Out-of-Hospital Births Oregon Occurrence		
Year	Deliveries	Rate
1982	2,069	49.2
1983	2,060	50.2
1984	1,786	43.7
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

Certified Nurse Midwife Deliveries, Oregon Occurrence

Year	Deliveries		
	Total	In-Hospital	Out-of-Hospital
1984	1,912	1,567	374
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

The type of attendant varied by birth setting. Licensed Direct Entry Midwives (LDM) were predominant in out-of-hospital births, delivering nearly one half (49.5 percent) of those births in 2005. LDMs are lay midwives who have volunteered for state licensure to provide natality care for Oregon women. In addition, both Certified Nurse Midwives and naturopathic physicians delivered approximately one in 10 out-of-hospital births (9.5 percent and 13.5 percent, respectively). Non-medical attendants, including non-licensed lay midwives, delivered 275 babies, 26 percent of the out-of-hospital births. (See Table 2-28.)

Method of delivery

In 2005, the rate of cesarean delivery was 28.2 per 100 births, well below the national rate of 30.2 per 100 births. The rate for vaginal delivery after a previous cesarean was only 1.3 while repeat cesarean was 11.4 per 100 births. The majority of births (70.5 per 100) continue to be vaginal deliveries without prior cesarean. (See Table 2-27.) However, the number of vaginal deliveries (without prior cesarean) has declined 1.5 percent from 2004, and 10.1 percent from 1994. Cesarean rates increased 4.4 percent from 2004 (27.0 per 100 births) and 60.2 percent from 1994 (17.6 per 100 births).

Infant health characteristics

Period of gestation

Preterm births, (born prior to completion of 37 weeks), comprised 8.2 percent of total births in 2005, much lower than the U.S. rate in 2005 (12.7 percent). (See Table 2-23.) Similar to national trends, proportions of preterm births are higher for non-Hispanic African Americans (10.7 percent) as well as non-Hispanic American Indians and Hispanic women from Central or South America, both at (10.1 percent). (See Table 2-24.)

Low birthweight

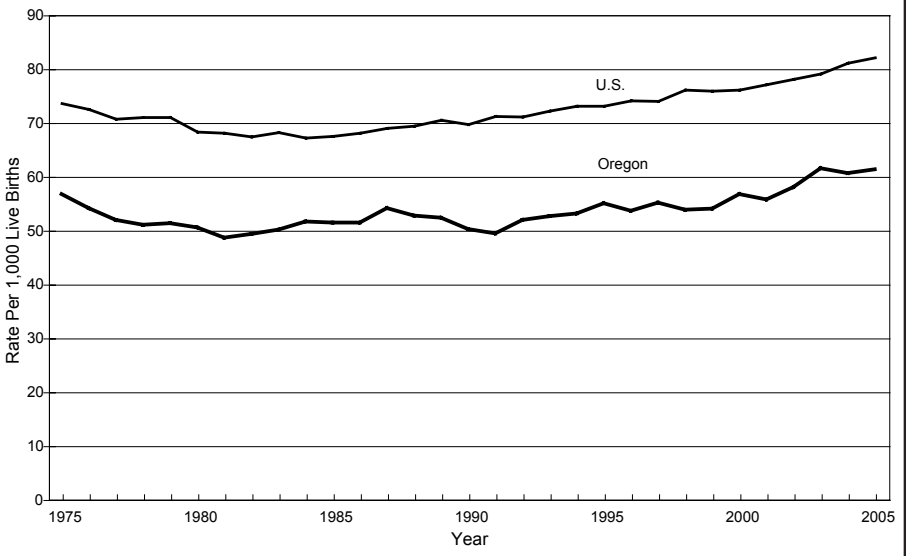
National Healthy People 2010 Objective

Reduce low birthweight to an incidence of no more than 5 percent of live births.

Percentage of Oregon low birthweight births, 2005: 6.1 percent

Of the thousands of infants born each year, not all thrive and become healthy adults. Low birthweight is the major predictor of infant death, which, in turn, 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 the Fetal and Infant Mortality section published in Volume 2

Figure 2-7.
Low Birthweight Rates,
Oregon and the U.S., 1975-2005



of the Oregon Vital Statistics Annual Report.) The low birthweight rate is the proportion of infants who weigh less than 2,500 grams (5.5 pounds) at birth. In 2005, there were 2,808 low birthweight babies born to Oregon mothers. (See Table 2-22.) One of the National Healthy People 2010 Objectives is to reduce the percentage of low birthweight infants nationwide to 5 percent. In 2005, the percentage of low birthweight births in Oregon remained above this objective at 6.1 percent, or 61.1 per 1,000 live births. This rate is approximately the same as the 2004 rate (60.5 per 1,000 live births). While annual changes have been slight in the last 20 years, there has been an upward trend in low birthweight infants. (See Table 1-6; Figure 2-7.) Nevertheless, Oregon's low birthweight rates are typically 25 percent lower than the national rate and in 2005, Oregon's rate was 25.5 percent lower than the national rate (61.1 vs. 82.0 per 1,000 births).

Major factors contributing to the risk of having a low birthweight baby are multiple births, tobacco use and chronic hypertension. Other factors include: non-white race of mother, mother's age (younger than 18 or older than 34), lack of prenatal care, low income, single marital status, a previous fetal or infant death, low education, and short spacing between births. As an example of risk factors, women ages 35-39 have a higher than average rate of first trimester care (86.3 percent) compared to the state (81.0 percent). (See Table 2-17.) Nevertheless, women ages 35-39 continue to have a higher percentage of low birthweight babies, 6.9 percent compared to 6.1 percent for all births. (See Table 2-23.) In 2005, most women (64.9 percent) had at least one risk factor for their pregnancy. Statewide, 12.1 percent of the women had three or more risk factors.

Apgar scores

The Apgar score is composed of measurements of five characteristics of the infant: heart rate, respiratory effort, muscle tone, reflex irritability and color. Each characteristic is rated 0-2 and the score totaled. Scores below 7, five minutes after birth, indicate poor to intermediate health at birth. In Oregon during 2005, 1.5 percent of infants had Apgar scores below 7, the same as the 2004 national figure. (See Table 2-23 and Table 2-24.)

Abnormal conditions and congenital anomalies

The most frequently reported conditions on birth certificates were assisted ventilation of less than 30 minutes, birth injury, and assisted ventilation of more than 30 minutes. (See Table 2-35 and Table 2-36.) Congenital anomalies reported on birth certificates are shown in Table 2-37. Although Oregon occurrences are somewhat higher than national rates for some anomalies, congenital anomalies are believed to be underreported nationally due to factors such as recognizability and severity. Even at the national level, data users are advised to use caution in comparing annual occurrences for relatively small numbers.

Multiple births

Although nearly 3 percent of births in Oregon during 2005 were multiple births, the proportion varied widely by age, race and ethnicity. During 2005 mothers age 45 and older were most likely to have multiple births. The percentage of multiple births for each age group ranged from 1.5 percent for mothers ages 15 to 19 to 24.3 percent of births to mothers age 45 and older, increasing with each five-year age group. (See Table 2-23.) Non-Hispanic whites and non-Hispanic African Americans were most likely to have multiple births (3.3 percent and 3.1 percent respectively). (See Table 2-24.)

Primary Source of Payment for Delivery, Oregon Residents

Year	Private Insurance	Self Pay	Medicaid/ OHP
	%	%	%
1989	60.7	9.5	27.5
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	41.5

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

Source of payment

Primary source of payment for delivery is noted on Oregon birth certificates under four categories: 1) private insurance, 2) self-pay (no insurance), 3) public insurance (Medicaid/Oregon Health Plan), and 4) other public insurance. The specific type of private insurance coverage is not defined. Multiple payment sources can be indicated. Private insurance companies paid for the majority of deliveries in Oregon (55.6 percent), down from 56.5 percent in 2004 (see sidebar). Medicaid programs (e.g., the Oregon Health Plan) paid for two-fifths of Oregon resident births (41.5 percent). Delivery costs were more likely to be paid for by public insurance if the woman was under age 18. (See Table 2-14.)