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## Appendix B: Technical notes - methodology

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*“That, sir, is the good of counting; it brings everything to a certainty, which before floated in the mind indefinitely.”*

—Samuel Johnson

### **Induced termination of pregnancy**

The induced termination of pregnancy data in this report represents nearly all abortions performed in Oregon during the current data year. Missing data is due to incomplete reporting by providers. Another consideration is the place of occurrence (Oregon) versus the mother’s place of residence (residence could be anywhere). That is, the data constitute events associated with the place of occurrence rather than the “residence data” used in estimating births. This is necessary because many abortions obtained out-of-state by Oregon residents are not reported to Oregon’s Center for Health Statistics. It reflects the great variation in abortion reporting procedures among states (e.g., some states do not record the patient’s residence) as well as the fact that a comprehensive data collection network among all states, similar to that used in reporting births, does not exist in regard to abortions.

In using “occurrence” data rather than “residence” data to estimate abortion rates for Oregon residents, an implicit assumption is made that the number of Oregon residents who leave the state to obtain an abortion equals the number of out-of-state residents who obtain an abortion in Oregon. In formulating generalizations which involve trends or long-term behavioral patterns, annual totals are treated as sample values generated by ongoing social, economic, or political processes and thus subject to “chance” variability. For most purposes, numbers offered in this report should be viewed as careful approximations and interpreted only within the framework of statistical safeguards developed to take sampling variability into account.

Some rates in the Induced Terminations of Pregnancy section are based on relatively few events, and for most comparisons may be used only with extreme caution—due to the chance fluctuations associated with small numbers. A small percentage of abortion reports lack certain data items.

### Estimation of the cumulative proportion of females who have experienced an abortion

This estimate is computed by tracing the abortion experience of a specific cohort of females over an extended time period. In the table below, an approximation of the “cumulative total” of first-time abortions by one of the cohorts may be obtained by summing the numbers in the boxed area.

Number of First-Time Abortions By Year and Age Group, Oregon Occurrence, 1991-2005						
YEAR	AGE GROUPS					
	15-19	20-24	25-29	30-34	35-39	40-44
91	2584	2678	1190	716	402	122
92	2137	2396	1067	655	380	117
93	2267	2393	1176	598	357	117
94	2370	2379	1233	693	376	135
95	2510	2486	1402	755	463	144
96	2511	2566	1416	771	468	152
97	2679	2794	1502	835	501	151
98	2525	2679	1496	786	495	175
99	2426	2776	1482	803	503	163
00	2270	2888	1499	827	487	176
01	2194	3018	1445	826	481	149
02	1840	2665	1383	836	443	181
03	1839	2575	1270	749	420	165
04	1607	2370	1232	710	396	152
05	1605	2307	1261	729	427	178

To obtain this value, it is necessary to sum the number of first-time abortions for 15- to 19-year-olds from 1991 to 1995 and those of 20- to 24-year-olds from 1996 to 2000 with those of 25- to 29-year-olds from 2001 to 2005.

This provides an estimate of the numerator in the following equation:

$$\text{Cumulative proportion of females who have had an abortion} = \frac{\text{Total number of first time abortions among a specific cohort of females}}{\text{Number of females in cohort}}$$

The denominator may be estimated by averaging the size of the cohort during 1991 to 1995. Table A-1 lists the annual estimate of the number of females within each cohort. For example, in 1991, the number of 15- to 19-year-old females

was estimated to be 93,043; in the next year, it was 95,064. The average size of this age group from 1991 to 1995 was 98,540. Similarly, the number of 20- to 24- year-old women between 1996 and 2000 was 104,214 on average; the number of 25- to 29-year-olds averaged 93,065 between 2001 and 2005. Thus, between 1991 and 2005 the cohort of interest had an average population size of 98,606.

Substituting into the formula given above:

$$C_p = \frac{\text{Sum of First Abortions}}{N} = \frac{32,162}{98,606} = 0.326 \text{ or } 32.6 \text{ percent}$$

This number approximates the proportion of females in the 25- to 29-year-old cohort who, by 2005, had ever had an abortion. This method of estimation assumes factors such as deaths and migration have not altered the composition of the female population in Oregon—that is, the women who left the state displayed the same characteristics as those who have moved into Oregon. It also assumes patients with a history of previous abortions do not report the current procedure as a first abortion.

### **Teen pregnancy**

Teen pregnancy counts include live births and induced terminations of pregnancies; they do not include fetal deaths or miscarriages (spontaneous abortions).

- Birth counts include births to teens whose primary residence is in another state.
- Teen abortion counts are based on all reported abortions to teenage Oregon residents; however, because states often do not report abortions obtained within their borders to the state of residence, as occurs with vital events such as birth and death, an unknown number of Oregon teens obtain abortion services out-of-state. As a consequence, counts of Oregon resident teen abortions and pregnancies should be considered incomplete.

Furthermore, because teen abortion counts are based on “residence data,” figures given in Chapter 4 do not correspond exactly to those in Chapter 3, which are based on “occurrence data.” (See Induced Terminations of Pregnancy methodology section.) The estimation of rates requires an estimate of the size of the appropriate

population. Such estimates are now available for 15- to 17-year-olds and 18- to 19-year-olds for each Oregon county on an annual basis.

Rates based upon a small population increase the likelihood of variation in the data due to the influence of chance factors. For this reason, rates of teen pregnancy, birth, and abortion were calculated only if each age category contained at least 50 female residents of the specified county.

Great caution must be taken in the use of pregnancy statistics associated with females under 15 years of age. This is because relatively few events are recorded each year for this group. Also, rates are based on the estimated population cohort of 10- to 14-year-old females—many of whom are physiologically not yet at risk of pregnancy. Thus, any direct comparison of rates between this group and another age group—e.g., 15- to 17-year-olds—would be inappropriate.

### Demographics

The extent to which Oregon's demographic composition may affect its national ranking is indicated by comparisons shown in the sidebar. In 2008, Oregon's birth rate for all teens (regardless of race or ethnic affiliation) was 7.5 percent lower than that of the U.S., and among all 50 states, it had the 20th lowest teen birth rate. Yet, if comparisons were made in terms of births to non-Hispanic white teens only, Oregon would have been 36th and the rate would have been 19 percent higher than that of the U.S. This results from the fact that 87 percent of 15- to 19-year-old females in Oregon were non-Hispanic whites and only seven percent were either Hispanic or non-Hispanic African Americans. By comparison, 70 percent of the U.S. female population of that age were non-Hispanic whites, and 26 percent were Hispanics or non-Hispanic African Americans.

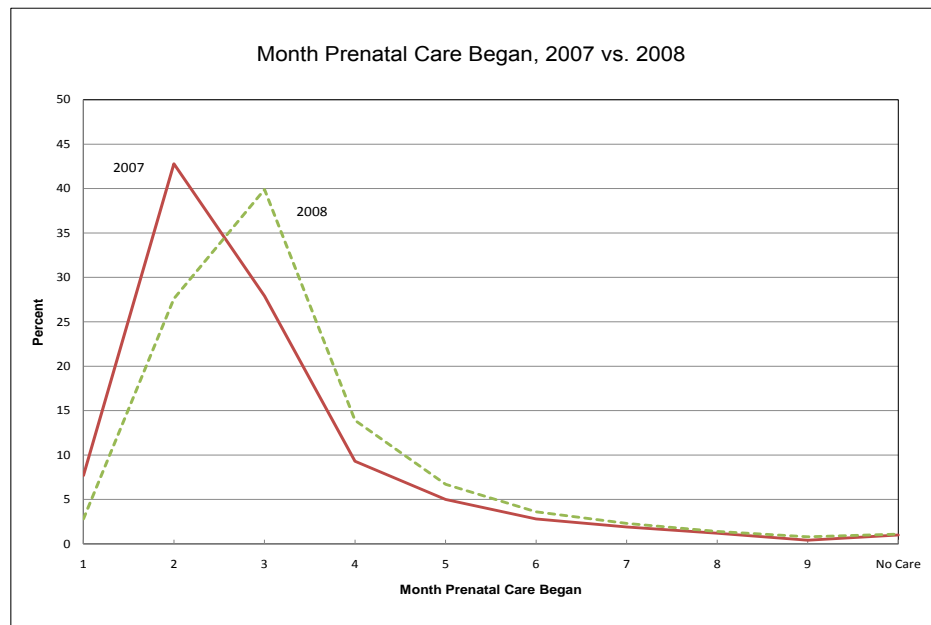
### Prenatal Care

In 2008, information on the timing of prenatal care was based on the difference between the date of first prenatal visit and the date of last normal menses. When the data of last normal menses is missing or invalid, the clinical estimate of gestation is used. This change has made direct comparison between 2007 data and 2008 data unreliable.

Teen Birth Rates, U.S. vs. Oregon, Ages 15-19, 2008		
Race/Ethnicity	Birth Rate <sup>1</sup>	
	U.S.	Oregon
TOTAL*	41.5	34.0
Non-hispanic whites	26.7	26.7

<sup>1</sup> All rates per 1,000 females ages 15-19.  
\* All races and ethnicities combined.

Prenatal care information based on the revised system suggests a markedly less favorable picture of prenatal care utilization than data from 2007. In 2008, prenatal care began in the first month of pregnancy in 2.8 percent of births, while in 2007 prenatal care began in the first month in 7.7 percent of births. Most of this difference is likely attributable to the changes in data collection rather than changes in prenatal care utilization.



### Race and Ethnicity

In 2006, the state of Oregon Center for Health Statistics, in response to a reporting change at the National Center for Health Statistics, began allowing multiple race responses on each birth or death certificate. This change led to revised presentation of race and ethnicity in the annual report tables, starting with the 2007 annual report.

One change is the addition of tables presenting multiple race selections as well as tables presenting single-mention race. Examples of multiple race tables include 6-10 and 6-12 in Volume 2 of the annual report. In these two tables, individual decedents can be listed in more than one race category. If a decedent is listed as both white and black on the death certificate, that person would be included in the totals for both white and black in the multiple race tables. Because of this, the race category totals will not add up to the total number of deaths in multiple race tables. Multiple race tables (e.g., 6-10 and 6-12) can then be compared with

similar single-mention race tables (such as 6-9 and 6-11, respectively) for an idea of how “mark all that apply” race selection changes the total numbers for each race category. In tables presenting single-mention race, persons with two or more race selections are included in the “two or more races” total.

Other revisions include removing Hispanic numbers from the single-mention race categories in most tables. Persons of Hispanic ethnicity may belong to any race category (or categories), and this is still presented in some tables including 6-9 and 6-10. Footnotes on each table indicate when single-mention race categories are non-Hispanic only. Headers have also been added to several tables to indicate “Non-Hispanic Single Mention Race.” One reason for this change is because many Hispanic individuals identify their race as “Other” (in 2008, 77.3 percent of decedents with other or unknown race were Hispanic). Another reason is because “Non-Hispanic White” is often used as a reference category when doing statistical analysis.

## **Tobacco**

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### *Oregon Benchmark for the Year 2010*

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

Year 2010 target:	98 %
2008:	88.7 %

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Women who smoke when pregnant have a far higher incidence of low birthweight babies than nonsmokers. Low birthweight infants experience more serious health problems, including increased rates of infant mortality. In 2008, the Oregon infant mortality rate during the first 27 days of life (neonatal) was 51.8 per 1,000 live births for low birthweight (less than 2,500 grams) infants compared to 0.7 per 1,000 for infants with birthweights of 2,500 grams or more. Women who smoked had a low birthweight rate of 84.7 per 1,000 live births, compared to 57.1 per 1,000 among women who did not smoke. One of nine mothers (11.8 %) reported using tobacco during pregnancy, a proportion that is among the lowest observed in the last 20 years. (See sidebar 2-D, page 2-7.) The percentage of tobacco use among unmarried women was nearly four

times that of married women (22.9 % vs. 5.6 %). The highest percentage of tobacco use during pregnancy in 2008 was among unmarried mothers aged 20–24 and unmarried mothers aged 25–29 (24.7% and 24.3% respectively). Generally, the percentage of mothers who reported smoking during pregnancy decreased with age regardless of marital status. The lowest percentage of smokers was reported for married mothers aged 35-39 (2.9 %). (See Figure 2-5.)