

## Appendix B: Technical notes - methodology

*"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.

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

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 only as careful approximations and interpreted only within the framework of statistical safeguards developed to take sampling variability into account.

Some rates in this 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. This may greatly affect the estimation of rates. To minimize the potential bias inherent in such estimates, unknown events in some cases (Table 4-1) are assigned to the categories of analysis proportional to the distribution of known events. In this way, rates calculated for subsets (e.g., “abortions per thousand teen females”) are, on average, less affected by incomplete data.

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

This figure is estimated by tracing the abortion experience of a specific cohort of females over an extended time period. In the table on the previous page, an approximation of the “cumulative total” of first-time abortions by one of the cohorts may be obtained by summing the figures in the boxed area.

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:

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

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 figure 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**

Pregnancy estimates are based upon the estimated number of teen births and induced terminations among Oregon teens; they do not include the number of fetal deaths or miscarriages (spontaneous abortions) which occur. The estimation of teen births is considered to be relatively complete and includes births to resident teens even when they occur out-of-state. The estimation of teen abortions is based on all reported abortions to teenage residents of Oregon; 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, estimates of teen abortions and teen pregnancies should be considered minimal in nature.

Furthermore, because estimates of abortion for teens 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 Termination 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 county on an annual basis. Because estimated rates based on a small population may vary greatly due to chance factors, rates of teen pregnancy, birth, and abortion were calculated for these age groups only if there were 50 or more female residents of the appropriate age group in the county. Similarly, rates for 15- to 19-year-olds were calculated whenever a county had 50 or more female residents in this age group.

Great caution must be taken in the use of pregnancy statistics associated with females under 15 years of age. This is due to the fact that 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 1990, Oregon’s birth rate for all teens (regardless of race or ethnic affiliation) was 9 percent lower than that of the U.S. and, among all 50 states, it had the 24th 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 7 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.

<b>Teen Birth Rates, U.S. vs. Oregon, Ages 15-19, 2008</b>		
<b>Race/Ethnicity</b>	<b>Birth Rate <sup>1</sup></b>	
	<b>U.S.</b>	<b>Oregon</b>
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.