

# Detailed Methodology for Calculating 2002 Women in Need

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This report describes the methodology used to estimate the number of women in need of contraceptive services and supplies, as well as those in need of publicly supported contraceptive care, according to age, income level and race/ethnicity, for all U.S. states and counties. These updated tabulations are based on population estimates from the U.S. Census Bureau and on characteristics of women from the 1995 National Survey of Family Growth (NSFG). The latter have been supplemented with more recent data on teenage sexual activity from the Youth Risk Behavior Surveys (YRBS).

## Key Definitions

### *Women in need of contraceptive services and supplies*

As in earlier estimates,<sup>1</sup> women are defined as “in need of contraceptive services and supplies” during a given year if they are aged 13–44 and meet three criteria:

- (1) they are sexually active, that is, they have ever had sexual intercourse;
- (2) they are fecund, meaning that neither they nor their partners have been contraceptively sterilized, and they do not believe that they are infecund for any other reason; and
- (3) during at least part of the year, they are neither intentionally pregnant nor trying to become pregnant.

In similar Alan Guttmacher Institute (AGI) reports through 1990, the term “women at risk of unintended pregnancy” was used to describe the population now termed “women in need of contraceptive services and supplies.” The current term (used first for 1995 data) is a more appropriate description of the population to which it refers, and use of this term helps to distinguish this subset of women from the somewhat different subset of women whom demographers and researchers define as “at risk of unintended pregnancy” in analyses of national survey data.

Because the objective here is to estimate the current annual need for contraceptive services and supplies, the estimates differ from other estimates of “women at risk of unintended pregnancy” by excluding women relying on contraceptive sterilization to prevent pregnancy. In addition, these estimates consider a woman’s contraceptive and pregnancy status over a full year rather than considering only her status at the time of the survey, in order to reflect the annual number of women who might seek contraceptive services.

### *Women in need of publicly supported services*

Some women who need contraceptive services and supplies have difficulty obtaining care because they cannot afford private-sector prices or they have special needs, such as a requirement for confidentiality. As in the past, women aged 20 or older who need contraceptive services and supplies and whose family incomes are below 250% of the federal poverty level, and women younger than 20 of any family income level, are considered to be “in need of publicly supported contraceptive care.”

Estimates of the number of women who need publicly supported contraceptive services and supplies are shown for women younger than 18, aged 18–19 and aged 20–44, according to various

poverty status cutoffs: <100%, 100–132%, 133–184% and 185–249%. These disaggregated numbers allow estimates of the need for publicly supported services to be calculated for poverty levels different from the one used here.

## **Methodology for Estimation**

### ***Calculating the Proportion of Women in Need of Contraceptive Services***

The proportions of women who were sexually active, fecund and neither intentionally pregnant nor trying to become pregnant were calculated from a special analysis of the 1995 NSFG, a representative survey of 10,808 women aged 15–44. For women younger than 20, we have adjusted the proportions sexually active calculated from the NSFG on the basis of more recent information on adolescent sexual behavior from the YRBS.

The estimated proportions of women in need are then applied to county-level estimates of the number of women in each of the population subgroups. However, simply applying the national proportion of women aged 13–44 who are in need to the population of a specific state or county will be inaccurate if the local population differs from the national population in characteristics associated with contraceptive need, such as age, marital status, income, race and ethnicity. Therefore, the estimates presented here take into account differences in levels of need across key demographic subgroups as well as the characteristics of the population of each state and county.

The population subgroups used in the estimation procedure are age (13–14, 15–17, 18–19, 20–29 and 30–44), marital status (married and living with spouse vs. all other categories), race/ethnicity (non-Hispanic white, non-Hispanic black, Hispanic and other/multiple races) and family income as a percentage of the federal poverty standard (<100%, 100–132%, 133–184%, 185–249%, and =250%). Geographic subgroups were county metropolitan status (metropolitan vs. nonmetropolitan) and census region (Northeast, Midwest, South and West). For each of the subgroups, we estimated the following three percentages: the proportion who had ever had intercourse; the proportion of those who had ever had intercourse who were fecund; and the proportion of sexually active, fecund women who during some portion of the year were neither pregnant nor trying to get pregnant.

Because of the large number of subgroups, a stable, separate estimate for each was not possible using cross-tabulations, even with a survey as large as the NSFG. Where feasible, we therefore used log-linear analysis, a statistical procedure by which significant relationships can be distinguished from the ones that are relatively unimportant, to predict the likelihood that the women in a subgroup were sexually active, fecund and neither pregnant nor trying to become pregnant.<sup>2</sup> The log-linear procedure fits a model to the data using the most important relationships among the variables and estimates the relevant proportions for each subgroup.

We simplified the variables by collapsing poverty into four categories: <100%, 100–184%, 185–249% and =250%. Similarly, race and ethnicity were combined into three groups: Hispanics, non-Hispanic blacks, and non-Hispanics of white and other races. We undertook separate log-linear analyses to estimate the proportions of unmarried teenagers and of unmarried adults who were sexually active, the proportions of unmarried adults and of married adults who were fecund, and the proportions of unmarried women and of married women who were neither pregnant nor trying to become pregnant. When log-linear analysis was not appropriate, we estimated proportions from other similar subgroups, or from other information.

*Sexual activity.* The proportion of unmarried women aged 15–19 who had had intercourse was estimated from the log-linear analysis. The model indicated that the proportion was highest among older teenagers (18–19 vs. 15–17), blacks, Hispanics, teenagers with a low family income and teenagers living in regions other than the South.

For women aged 13–14, we estimated that 18.6% of blacks, 16.1% of Hispanics and 9.9% of non-Hispanic teenagers of races other than black were sexually active, based on data from the NSFG on age at first intercourse. These proportions were assumed to vary according to poverty status and region in the same manner as those estimated by log-linear analysis for 15–17-year-olds.

Finally, we calculated the change in the proportion of teenagers of different ages who were sexually active between 1995 and 2000, using data from the YRBS.<sup>3</sup> To obtain stable estimates of teenage sexual activity from these data, we combined 2–3 years of data on the proportion of high school females who reported having ever had intercourse. For 1995, we averaged data from three YRBS surveys conducted in 1993, 1995 and 1997. For 2000, we averaged data from two YRBS surveys conducted in 1999 and 2001. Between these two time periods (1993–1997 and 1999–2001), the percentage point drop in the proportion of females who had ever had intercourse was 1.8 percentage points for 9<sup>th</sup> graders, 3.9 percentage points for 10<sup>th</sup> graders, 3.5 percentage points for 11<sup>th</sup> graders and 1.8 percentage points for 12<sup>th</sup> graders. We assumed that the 13–14-year-olds were similar to 9<sup>th</sup> graders and that the 18–19-year-olds were similar to 12<sup>th</sup> graders and adjusted sexual activity for each age/race/ethnicity subgroup by subtracting 1.8 percentage points from the original 1995 NSFG proportions. We assumed that 15–17-year-olds were typically 10<sup>th</sup> and 11<sup>th</sup> graders, and adjusted sexual activity for each subgroup of 15–17-year-olds by subtracting the average of the two grades, 3.7 percentage points, from the subgroup proportions calculated using the 1995 NSFG. The YRBS indicated little change between 2000 and 2002, so no additional adjustment was made.

A separate log-linear analysis was used to estimate the proportion of unmarried women aged 20–44 who were sexually active. Their level of sexual activity was generally associated with the same variables and in the same direction as was the level for women aged 15–19. Regional differences were small, with the South and West having slightly lower proportions sexually active than the Northeast and Midwest.

*Fecundity.* Sexually active women were considered to be infecund (unable to become pregnant) if they said they were sterile because of an operation or for any other reason, if their husband or cohabiting partner was sterile or if they were subfecund (they said it was difficult for them to become pregnant). The proportion of a subgroup that is infecund generally reflects the degree to which contraceptive sterilization is utilized by that subgroup. A report of subfecundity, however, may not mean that it is impossible for a woman to become pregnant. Indeed, 51% of women who said it was difficult for them to become pregnant were using a reversible contraceptive. Therefore, subfecund women were considered to be in need of contraceptive services and supplies if they were using a contraceptive method.

The proportions of sexually active teenagers who were infecund were too low for log-linear analysis, so the overall proportion of all sexually active unmarried women aged 15–19 who were fecund (97.3%) was applied to all subgroups of unmarried women aged 15–19; the proportion of all married teenagers who were fecund (89.8%), was applied to all married women aged 15–19. All women younger than 15 were treated as fecund.

Separate log-linear analyses were used to estimate the proportions of married women aged 20–44 and of sexually active unmarried adults who were fecund. The analyses showed that, among both groups, the proportion infecund was highest among women aged 30–44 (versus those aged 20–29); blacks,

especially those of low income; all low-income women; women living in a nonmetropolitan county; and those living in the South (versus those living in the Northeast).

*Pregnant or trying to become pregnant.* Overall, 14% of fecund married women and 4% of fecund, sexually active unmarried women were intentionally pregnant or seeking pregnancy. According to log-linear analysis, the proportion of married women who were intentionally pregnant or trying to become pregnant was above average among younger women, those with incomes over 250% of the poverty level and those who lived in metropolitan counties. The proportion was lower among black women than among the other racial or ethnic groups. Among unmarried women, it was above average among high-income women and below average among black women; there was little association with age.

Although the time that women are infertile because of pregnancy and the immediate postpartum period lasts less than 12 months, some women spend a number of months trying to get pregnant. For these women, the period during which they are not in need of contraceptive services and supplies spans the entire year. The proportions of fecund women who were pregnant or seeking pregnancy at the time of the NSFG interview, however, would be greater than the proportion in this category for a 12-month period.

To convert the point-in-time proportions to the proportion who are pregnant or seeking pregnancy for an entire calendar year, we used Dryfoos's estimates of the number of months required for each live birth, which take into account pregnancy loss and the time needed to conceive: 17.3 for women aged 15–19, 16.3 for those aged 20–29 and 21.7 for those aged 30–44.<sup>4</sup> Those categorized as pregnant or trying to conceive for an entire calendar year are those who began to seek pregnancy before the beginning of the year, so that their period of being pregnant or trying encompassed the entire 12 months. For women aged 15–19, this would include those who started trying during the 5.3 months before the year began; the proportion pregnant or trying for the entire year would be 5.3 divided by 17.3, or .306. Accordingly, the proportion of teenagers pregnant or trying at a point in time was multiplied by .306 and the results subtracted from 1.0 to get the proportion of women who, at some time during the year, were neither pregnant nor trying to conceive. The correction factor for women aged 20–29 was .264 and .447 for women aged 30–44.

### ***County Population Estimates***

The estimated proportion of women in need of contraceptive services and supplies for each subgroup was then applied to the number of women in each county in each age, racial/ethnic, marital status and poverty subgroup. In addition, proportions of women in need varied according to the region of the country and whether the county was classified by the U.S. Office of Management and Budget as metropolitan or nonmetropolitan.

To estimate the population of each subgroup in each county, we started with published Census Bureau county estimates of the number of women by age, race and ethnicity.<sup>5</sup> The age/race/ethnicity groups were then divided into married and not married in the same proportions as in the special tabulation of the 2000 census that was used to create the need estimates for 2000. To distribute the age/race/ethnicity/marital status groups according to poverty status, we started with the poverty distribution in the special census tabulation, which we then adjusted using the change between 1999 and 2002 in each county's mean per capita personal income as reported by the Bureau of Economic Analysis.<sup>6</sup> We used the base year 1999 because the 2000 census reported income in 1999. The poverty distribution was further adjusted to reflect the national change between 1999 and 2002 in the poverty status distribution found in the Current Population Survey.<sup>7</sup> We have not adjusted the population data for the census undercount, which especially affects minority populations.

As with all estimates, a certain amount of error in our figures is unavoidable. Although the population numbers on which the estimates are based should be generally accurate, minority groups in some areas were undercounted, as mentioned above. In addition, the estimated proportions of women who are fecund, sexually active and not pregnant or trying to become pregnant are based on national and regional data that may be somewhat high or low for a particular county.

## References

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<sup>1</sup> Dryfoos JG, A formula for the 1970s: estimating need for subsidized family planning services in the U.S., *Family Planning Perspectives*, 1973, 5(3):145–174; Dryfoos JG, Women who need and receive family planning services—estimates at mid-decade, *Family Planning Perspectives*, 1975, 7(4):172–179; The Alan Guttmacher Institute (AGI), *Data and Analyses for 1980 Revision of DHHS Five-Year Plan for Family Planning Services*, New York: AGI, 1981; AGI, *Current Functioning and Future Priorities in Family Planning Services Delivery*, New York: AGI, 1982; AGI, *Current Functioning and Future Priorities in Family Planning Services Delivery*, New York: AGI, 1983; AGI, *Women at Risk: The Need for Family Planning Services, State and County Estimates, 1987*, New York, AGI: 1988; Henshaw SK and Forrest JD, *Women at Risk of Unintended Pregnancy, 1990 Estimates: The Need for Family Planning Services, Each State and County*, New York: AGI, 1993; and Henshaw SK, Frost JJ and Darroch JE, *Contraceptive Needs and Services, 1995, with Selected Articles from Family Planning Perspectives*, New York: AGI, 1997.

<sup>2</sup> Knoke D and Burke PJ, *Log-Linear Models*, Beverly Hills, CA: Sage Publications, 1980.

<sup>3</sup> Centers for Disease Control and Prevention (CDC), Youth Risk Behavior Surveillance—Percentage of high school students who engaged in sexual behaviors, by sex, race/ethnicity, and grade—United States, *Morbidity and Mortality Weekly Reports*, 1993 (Table 20), 1995 (Table 26), 1997 (Table 26), 1999 (Table 30) and 2001 (Table 30); see <[http://www.cdc.gov/nccdphp/dash/yrbs/MMWR\\_summaries.htm](http://www.cdc.gov/nccdphp/dash/yrbs/MMWR_summaries.htm)>.

<sup>4</sup> AGI, op. cit., 1981 (see reference 1).

<sup>5</sup> U.S. Census Bureau, Population Division, County Population by Age, Sex, Race, and Hispanic origin: July 1, 2000 through July 1, 2002, [http://eire.census.gov/popest/data/counties/coasro\\_detail.php](http://eire.census.gov/popest/data/counties/coasro_detail.php), accessed December 23, 2003.

<sup>6</sup> U.S. Department of Commerce, Bureau of Economic Analysis, Annual local area per capita personal income estimates 2000-2002, interactive tables, <<http://www.bea.gov/bea/regional/reis/>>, accessed May 26, 2004.

<sup>7</sup> Current Population Surveys, March 1962-2003 [machine-readable data files]/Bureau of the Census for the Bureau of Labor Statistics. Washington: Bureau of the Census, 1962-2003. Santa Monica, CA: Unicon Research Corporation, 2003.