Unintended pregnancy in the American states

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Extended abstract

The overall U.S. unintended pregnancy rate was stagnant between 1994 and 2001, but this constancy masked major differentials, and trends over time, among socioeconomic subgroups. These differentials suggest that there may be differences across the 50 U.S. states; state rates would also be of considerable value to public health officials and policymakers. Using newly available birth data from the Pregnancy Risk Assessment Monitoring System and data on the incidence of abortion from nationwide surveys, we will calculate the percentage of all pregnancies that are unintended and the unintended pregnancy rate for each state as a whole and key demographic subgroups. In this PAA presentation, we will present preliminary results for 2007 by state for the 39 states with PRAMS data. We will also discuss the relative levels of unintended pregnancy in PRAMS and the National Survey of Family Growth, and propose several approaches for calculating rates in non-PRAMS states.

This effort will involve several steps. First, we will use existing Guttmacher methodologies[1] to calculate unintended pregnancy levels in the states that participate in PRAMS.[2] Because PRAMS surveys and the NSFG obtain somewhat different measures of the intendedness of births, we will make the necessary comparisons and adjustments to ensure consistency between existing national estimates and the new state-level estimates that we will be developing. As of 2007, the most recent year for which data have been collected, 39 states, representing 89% of the female reproductive-age population and about the same percentage of all births, participate in PRAMS. (California has its own survey, which is based on PRAMS; the above figures include California.) The 2007 data are expected to be made available this fall.

For the states that do not participate in PRAMS, we will make two separate estimates using two approaches, a state-level model and an individual-level model. We will then assess which model is a better predictor of the actual levels in the PRAMS states, and use that model to make estimates for the non-PRAMS states.

Below we briefly detail the methodology for states with and without PRAMS data.

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[1] Finer LB and Henshaw SK, Disparities in rates of unintended pregnancy in the United States, 1994 and 2001, *Perspectives on Sexual and Reproductive Health*, 2006, 38(2): 90–96.

[2] At the state level, PRAMS (rather than the NSFG) provides the intention status of births, but we also need Guttmacher's state-specific abortion data in order to calculate unintended pregnancy rates for each state.

States with PRAMS data

For states with PRAMS data, calculations would be modeled on the established methodology used by Guttmacher to calculate unintended pregnancy at the national level: Data on the *intendedness* of pregnancies that end in birth or fetal loss (abortions are assumed to be unintended) are combined with *numbers* of births, fetal losses and abortions and *population data* for women of reproductive age.

Pregnancy intention: State-level data on the intendedness of pregnancies that end in birth are available from the Pregnancy Risk Assessment Monitoring Survey, an ongoing CDC data collection effort that collects state-specific, population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy. As of 2007, the most recent year for which data are available, 39 states, representing 89% of the female reproductive-age population and about the same percentage of all births, participate in PRAMS. (California has its own survey, which is based on PRAMS; the above figures include California.) Because PRAMS data are individual-level data, they could potentially be used to calculate intention for population subgroups.

Births: The number of births in each state is available from U.S. vital statistics reports. State births by demographic subgroup could be obtained from vital statistics and/or the NSFG. We may have to make adjustments for differences between PRAMS births and NCHS birth statistics.

Fetal losses: Estimates of the number of fetal losses by state could be made two ways. Our national estimate of the number of fetal losses relative to births (based on the NSFG) could be applied directly to each state; or we could use the formula of 20% of births plus 10% of abortions.

Abortions: The number of abortions in each state is available from two sources: the Guttmacher Institute's periodic survey of abortion providers, and annual abortion surveillance reports from the CDC. State abortions by demographic subgroup could be obtained from CDC surveillance, although adjustments might have to be made due to underreporting to the CDC.

Population denominators: State populations of women 15–44 are available from the Census Bureau. Subgroup populations could be obtained from the Census or the Current Population Survey.

States without PRAMS data

For the states that do not participate in PRAMS, we will make two separate estimates using two approaches, a state-level model and an individual-level model. We will then assess which model is a better predictor of the actual levels in the PRAMS states, and use that model to make estimates for the non-PRAMS states.

Approach 1: A state-level model
For the 39 states with PRAMS data, a linear regression model predicting either the unintended pregnancy rate or the proportion of pregnancies that are unintended would be fitted. The

dependent (outcome) variable would be the number of unintended pregnancies, the unintended pregnancy rate or the percentage of pregnancies that are unintended. Independent variables would be those which may be expected to correlate with unintended pregnancy, such as the number of women in each age, marital and income group and some measure of contraceptive use.

Once the model is fitted for the states that have PRAMS data, and the model coefficients will be used to produce predicted values first for PRAMS states; these predicted values could be compared to the actual values, standard errors could be calculated, and an assessment could be made of how much of the overall variance is accounted for by the predictors. Once we are able to confirm that the model is a reasonably good fit, it could be used to predict (i.e., estimate) unintended pregnancy for the non-PRAMS states based on their values for the predictor variables.

Approach 2: An individual-level model

This approach would analyze births and abortions separately. For births, we would use those characteristics which are on birth certificates to predict the probability that each birth in a non-PRAMS state was intended. The U.S. standard birth certificate contains a wide range of information about mother and father, including age, education, race, marital status, smoking, etc., as well as information about the baby, such as birthweight. Assuming PRAMS collects this information as well, we would use all available PRAMS data to develop a regression model predicting the probability a birth was unintended given the mother's (and father's) characteristics. In order to control for state-level differences, a second set of state-level contextual variables, such as demographic representation and political orientation, would also be included in the model.

This model would then be applied to individual-level vital statistics data in those states *without* PRAMS in order to predict the intendedness of each birth. Births would be summed to obtain the total estimated number of intended and unintended births. This model would also theoretically permit the calculation of rates for population subgroups within each state, since the individual births could be summed by demographic group and because we have subgroup data on abortions by state.

Abortions would be considered unintended pregnancies. The number and intendedness of fetal losses would be calculated formulaically based on the number and intendedness of births and abortions.