OMB Attachment B1:
JUSTIFICATION OF THE FEMALE QUESTIONNAIRE

ALPHABETICAL LIST OF ACRONYMS

ACASI	Audio Computer-Assisted Self Interviewing (also Audio CASI)
ACF	Administration for Children and Families, DHHS
AIDS	Acquired Immune Deficiency Syndrome
ASPE	(Office of the) Assistant Secretary for Planning and Evaluation, DHHS
CAPI	Computer-Assisted Personal Interviewing
CDC	Centers for Disease Control and Prevention
CRQ	CAPI Reference Questionnaire
DHAP	Division of HIV/AIDS Prevention (of CDC/NCHHSTP)
DHHS	Department of Health and Human Services
DRH	Division of Reproductive Health (of CDC)
DSTDP	Division of STD Prevention (of CDC/NCHHSTP)
GSS	General Social Survey
HIV	Human Immunodeficiency Virus, the virus that causes AIDS
NCHHSTP	National Center for HIV/AIDS, Viral Hepatitis, STD, and Tuberculosis Prevention
NCHS	National Center for Health Statistics (of CDC)
NICHD	Eunice Kennedy Shriver National Institute of Child Health and Human Development (of NIH)
NIH	National Institutes of Health, DHHS
NORC	National Opinion Research Center
NSAM	National Survey of Adolescent Males (conducted in 1988 and 1995)
NSFG	National Survey of Family Growth
NSFH	National Survey of Families and Households (conducted 1987 and 1993)
OPA	Office of Population Affairs, DHHS
PSU	Primary Sampling Unit
PRWORA	Personal Responsibility and Work Opportunity Reconciliation Act (of 1996)
STD or STI	Sexually Transmitted Disease(s) or Infection(s)

OVERVIEW

Since its inception in 1973, the mission of the National Survey of Family Growth (NSFG) has been to collect information on pregnancy, childbearing and maternal and reproductive health. In 1973-1995 (Cycles 1-5), the survey interviewed only females, but beginning with the 2002 NSFG ("Cycle 6"), data were collected from males as well to help complete the picture of family formation, growth, and dissolution in the United States.

It is important to note that for most NSFG respondents, the events that form the core of the NSFG – marriage, having and raising children – are the most positive and salient events in

their lives. Thus, these are things that most respondents enjoy recalling and answering questions about. We recognize, however, that for some, the interview may broach difficult topics and must be handled in a way that minimizes potential sensitivity. This attachment describes how the NSFG accomplishes this goal, while still collecting the data needed by a wide range of cosponsoring agencies. Please note that **no new questions are proposed** for the period June 2009-December 2010. If new questions are requested for 2011-12, a change package will be submitted.

NOTE: In this attachment, the term "Cycle 7" refers specifically to interviews conducted in 2006-10 and the activities necessary to produce and release the data files for those interviews. "The continuous NSFG" extends from those interviews to include interviewing under a new contract, in 2011-2018.

The most sensitive questionnaire content is collected using Audio Computerized self-administered interviewing (ACASI) (See: Female Section J and Male Section K). ACASI affords respondents greater privacy when answering the questions, and the audio component helps respondents of lower literacy participate in the survey. Respondents in the 2002 and 2006-2008 NSFG's have generally liked ACASI in part because it gave them control over the interview. ACASI has been found to improve the reporting of sensitive, private, or stigmatizing behaviors such as abortions, substance use, and HIV/STD risk behaviors (Fu et al., 1998; Turner et al. 1998).

The ACASI data are made available in separate data files from the main public use data files. Researchers wishing to use the ACASI data describe their proposed use of the data and sign a User Agreement stating that they will uphold NCHS standards for protecting the confidentiality of NSFG respondents. The reports already prepared based on the ACASI data from the 2002 NSFG (Anderson et al., 2005, 2006; Mosher et al., 2005), as well as the range of analyses proposed thus far with the 2002 ACASI data, provide strong support for the collection of the ACASI data. For example, several researchers are using the ACASI information on substance use, STD experience, and HIV risk behaviors to study infertility among African-American women. Others are using the data to examine contraceptive method choice. The questions on sexual activity other than vaginal intercourse are being used to understand better the risks faced by all persons 15-44 for HIV and other STD.

This attachment provides detailed information about why topics are included in the NSFG female questionnaire, and explains how the data are used. Most of these topics have been covered in previous cycles of the NSFG, and this attachment gives particular attention to the justification for questions that are new or refined for the female questionnaire in the continuous NSFG.

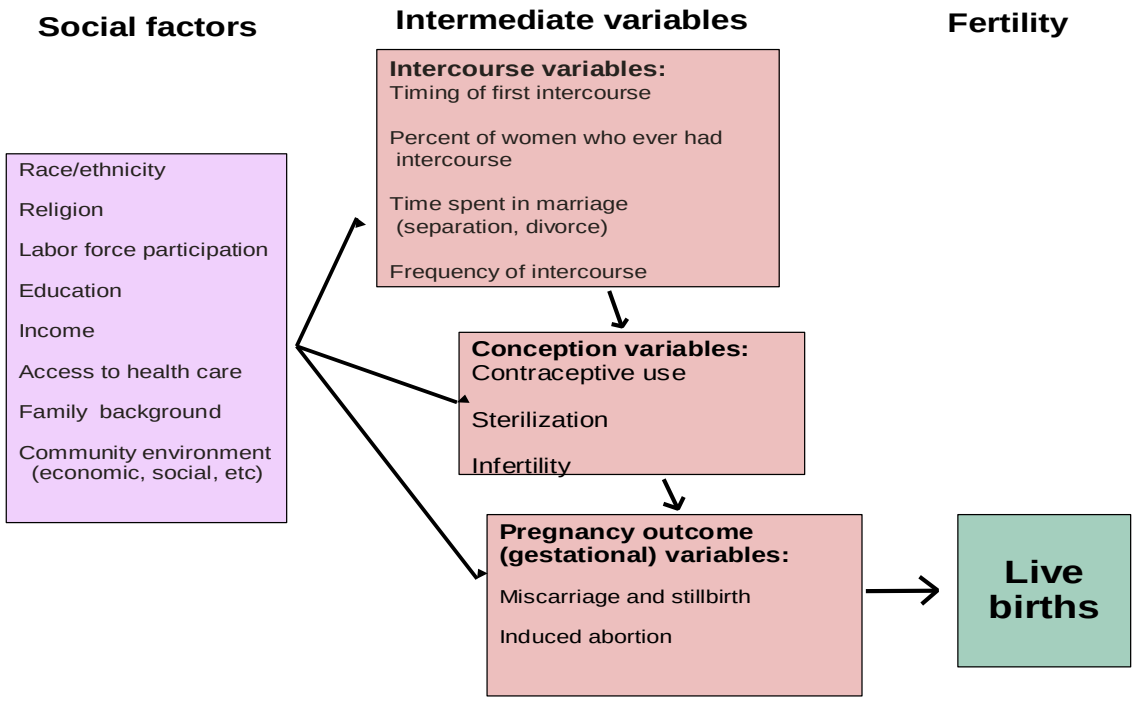
Attachment B2 gives justifications for topics included in the male questionnaire. In many instances where the same series of questions is asked of both females and males, and the rationales for inclusion are similar, Attachment B2 includes a reference to the appropriate sections of this attachment to avoid redundancy. A list of selected references cited in these justifications is shown at the end of Attachments B1 and B2.

BACKGROUND

The series of national fertility surveys that led to the NSFG was begun in 1955, when demographers, economists and others sought to explain the Baby Boom and predict when it would end. Statistics from the birth registration system gave the basic data on how many births were occurring, but no one knew why the Boom was taking place, or how long it might last, and the surveys in 1955 and 1960 were designed to shed light on that issue (Freedman et al., 1959; Whelpton et al., 1966).

As soon as these surveys began, however, researchers in many fields realized how valuable they were for a variety of uses. These surveys filled in substantial gaps in data left by birth certificates, marriage and divorce certificates, and the Census.

Acknowledging that three events typically precede the birth of a child, insemination (most commonly through sexual intercourse), conception, and delivery of a live born child, a conceptual model is depicted in the figure below. The connection between social and economic factors and the number of children born is mediated by three categories of "intermediate variables," also known as "proximate determinants" of fertility.



These intermediate variables include the age when intercourse begins, frequency of intercourse, use of contraception and sterilization, infertility, breastfeeding, miscarriage and stillbirth, and abortion (Bongaarts, 1978; Davis & Blake, 1956). The primary role of the NSFG surveys is to

provide data on all of these intermediate variables, including the health and sociodemographic factors related to them.

The NSFG and its predecessor surveys are still the only source of national data that measure all of these variables in the same survey. In the 1970s, 1980s and 1990s, a number of changes in American society occurred that led to the need for changes in the survey. Thus, the survey has had to keep adapting its contents to an altered social environment and therefore to new policy and program concerns–while maintaining continuity to monitor trends reliably. More recently NSFG data have been used extensively to monitor trends and inform policy on such issues as unintended pregnancy and childbearing, teenage pregnancy and sexual activity, family formation, infertility and impaired fecundity, family planning service use, risk of sexually transmitted diseases and HIV, and several others.

In 2002, the NSFG conducted our first national survey of males 15-44 years of age, to increase our understanding of fatherhood, male fertility, men's reproductive health, and the way men experience and think about fatherhood and their fertility. The success of the 2002 survey led us to implement continuous interviewing of both men and women in 2006.

For nearly 4 decades, the female NSFG has been widely used by federal, state and local agencies, academic institutions, public health departments, policymaking organizations, and many more. Some examples are:

1. The NSFG provides *data that supplements vital statistics* data on birth, infant mortality, and fetal death by estimating pregnancy rates. NCHS staff have written and published a series of analyses using data from the 1982, 1988, 1995, and 2002 cycles of the NSFG to explain trends and differences in pregnancy rates by age and race. For example, these studies helped to explain why teenage pregnancy rates remained high in the 1980's despite increased use of condoms, and how changes in use of contraception and sexual activity were reflected in declining pregnancy rates among teens during the late ‘90s and early 2000s (Abma et al., 2004; Abma et al., 1997; Chandra et al., 2005; Darroch et al., 1999a; Kahn et al, 1999; Moore et al., 1998; Ryan et al., 2005; Santelli et al., 2007; Ventura et al., 2000, 2004, 2008). No other source has provided national data to explain trends and differences in the entire reproductive age span.

2. The NSFG provides data on both the *individual and contextual factors* that affect pregnancy rates and maternal and child health (for example, see Averett, Daniel & Argys, 2002; Billy, Brewster & Grady, 1994; Brewster, 1994a, 1994b; Mosher et al., 2003; Santelli et al., 2007).

3. NSFG data are used to answer questions from Congress, the media, and the general public. The survey offers a rich, flexible resource that allows NCHS to answer a wide range of *data requests* (see **Attachment E1** in which Jeffrey Lancashire, Public Affairs Officer for NCHS, describes these requests). The new “Key Statistics from the NSFG” on the NSFG website (http://www.cdc.gov/nchs/about/major/nsfg/abclist.htm) gives data users an efficient tool to access NSFG data on the most frequently requested topics from the survey.

4. The NSFG supplies data used in *national public health planning,* most notably the Healthy People 2010: National Health Promotion and Disease Prevention Objectives. NSFG data are the main or only source for most of the objectives in Focus Area 9 – Family Planning, of HP2010 (**Attachment E2**), and for some objectives in the areas of STD and HIV prevention (US DHHS, 2006).

5. The NSFG serves the *needs of other federal agencies* that support the NSFG, such as the National Institute for Child Health and Human Development (NICHD), the Office of Population Affairs (OPA), and the Division of HIV/AIDS Prevention (DHAP) of the Centers for Disease Control and Prevention (CDC), as explained in **Attachments E1-E9**.

BRIEF OUTLINE OF THE FEMALE QUESTIONNAIRE

The questionnaire to be fielded for continuous interviewing beginning in June 2009 is the same as the one fielded in 2008. Following a brief outline below, the remainder of this attachment discusses topics in the female survey questionnaire in turn, emphasizing their program and policy uses.

Section A collects basic demographics such as marital and cohabitation status, Hispanic origin and race, education, a household roster, and summary questions about whether she lived with both parents, one, or none, and characteristics of her parents or parent-figures.

Section B collects a detailed pregnancy history, including greater detail for recent pregnancies and births (such as prenatal care, smoking during pregnancy, and breastfeeding). Questions are also about any adopted, foster, or step-children she has raised, children she placed for adoption, and her pursuit of adoption (current and past).

Section C obtains a detailed marital and relationship history including information on each husband, cohabiting partner, and recent sexual partner. Greater detail is collected for the respondent's *first* sexual partner, her current husband or partner, or any current sexual partners. Respondents 15-24 are asked about sex education. All women are asked specific questions for up to 3 sexual partners in the last year. The number of lifetime sexual partners is also asked.

Section D asks about sterilization operations, non-surgical sterility, and impaired fecundity. Married or cohabiting women are also asked about their husband or partner's fecundity.

Section E obtains information on the respondent's contraceptive history and wantedness of each of her pregnancies. Month-by-month sexual activity status and contraceptive method use are collected for approximately the last 4 years. The first contraceptive method *ever* used, contraceptive use at *first sex*, and use with recent partner(s) are also collected. Attitudes toward the pregnancy, including wantedness at time of conception, are also collected.

Section F collects information on family planning and medical services received by women in the last 12 months. For each of these services, respondents are asked about their provider and form of payment. A computerized clinic database is used to classify clinics by whether they receive Title X funding.

Section G asks about birth expectations and desires.

Section H obtains information on medical care for infertility; reproductive health conditions, including pelvic inflammatory disease; HIV testing experience and knowledge or use of the HPV vaccine (Gardasil).

Section I obtains selected address information, work status, health insurance, and religion. Questions are also asked about child care. A series of questions on attitudes toward contraception, gender roles, marriage, cohabitation, and parenthood is also asked.

Section J (Audio CASI) is self-administered. Female respondents are asked to report their total numbers of pregnancies by outcome. Questions on substance use in the last 12 months are followed by questions on sexual experience and STD/HIV risk behaviors with people of the opposite sex, and then people of the same sex. The section concludes with questions on individual and family earnings and sources of income, and receipt of public assistance.

JUSTIFICATION OF THE FEMALE QUESTIONNAIRE BY SECTION AND TOPIC

Social, Economic and Demographic Characteristics

All co-sponsors of the NSFG need to be able to classify women by their social, economic, and demographic characteristics. From a policy and program point of view, probably the most important of these characteristics are education, income (expressed as a percentage of the poverty level), race and Hispanic origin, age, and marital status.

In studies based on the NSFG, these and other variables, such as labor force participation, employment status, religious affiliation, and religiosity have been shown to have important effects on fertility and family size, sexual activity, contraceptive prevalence and efficacy, the use of reproductive health services, pregnancy wantedness, and pregnancy outcomes (e.g., Santelli et al., 2000; Abma et al., 1997; Brewster, 1994a,b; Brown & Lichter, 2004; Brown et al., 2003; Chandra, 1998; Chandra et al., 2005; Chandra & Stephen, 1998, forthcoming 2008; Cooksey et al., 1996; Malat et al., 2000; Martinez et al., 2006; Mosher & Bachrach, 1996; Kallan, 1993; Kost et al., 2008; Kramer et al., 2007; Lehrer, 2004; Peterson et al., 1998; Piccinino & Mosher, 1998; Ranjit et al., 2001; Stephen & Chandra, 2000; Weeden et al., 2006). The identification of sociodemographic groups in need of program assistance requires the collection of data by those sociodemographic characteristics.

Some of these social and demographic characteristics collected for the respondents are also collected for the respondents' spouses, cohabiting partners, and male sexual partners (See Section C).

These social, economic, and demographic characteristics are collected in Section A and Section I of the female questionnaire, with the exception of income. Because income questions have been shown in other national surveys to be sensitive, judging by high levels of nonresponse, they were placed in the Audio-CASI portion of the NSFG interview beginning with the 2002 NSFG. Below, each social, economic and demographic topic is addressed within the section it appears.

SECTION A

Hispanic origin and race

Data collected on race and Hispanic origin allow the identification of health disparities between racial and ethnic populations in the US and, thereby, facilitate Healthy People 2010's goal of eliminating health disparities. Many of the health measures provided by the NSFG vary by race and Hispanic origin. For example, compared to the non-Hispanic white population, racial and ethnic minority populations in the United States tend to have earlier ages at first sex, lower contraceptive use, and higher rates of teen pregnancy, nonmarital childbearing, and unintended births (e.g., Chandra et al. 2005; Finer & Henshaw, 2006; Gaydos et al., 2006; Logan et al., 2007; Ventura & Bachrach, 2000; Ventura et al., 2008; Wu et al., 2001). Racial and ethnic differences have also been noted in patterns of cohabitation, marriage, and divorce which could lead to adverse health and socioeconomic outcomes (e.g., Bratter & King, 2008; Bramlett & Mosher, 2002). Collection of Hispanic origin and race enables funders, program designers, public health providers, and researchers to understand the extent of these differentials and to be able to identify groups most at risk.

The inclusion of questions regarding Hispanic origin and race adhere to legislative priorities and guidelines set forth by the Public Health Service Act and by the Office of Management and Budget (OMB) (e.g., Public Law 94-311 and OMB Directive No. 15). The OMB issued the "Race and Ethnic Standards for Federal Statistics and Administrative Reporting" in 1977 that provided guidelines for the collection of race and ethnic data in federal surveys. The Hispanic origin and race questions in the continuous NSFG reflect the updated questions which appear on the 2000 Census and conform to the revised 1997 OMB guidelines. These allow respondents to report multiple races, a strategy adopted by the 2000 Census (Office of Management and Budget "Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity": Federal Register Notice).

For the 3-4 percent of NSFG respondents who report multiple races, we ask them to indicate their primary race, if they wish. This information is necessary to maintain comparability over time and between the NSFG and other datasets. First, it facilitates using the NSFG for long-term trend analysis by allowing categories to be constructed that are comparable to those published in Cycles 1-5. It is also possible to categorize race according to the new classification that distinguishes single-race-reporting from multiple-race reporting. The need for bridging between the old and new classifications of race is not unique to the NSFG. It is also needed by other surveys that have been conducted over time, for example, the NHIS, and it is estimated that Vital Statistics will need to bridge through at least 2010 when it is hoped that all states will be collecting data using the new race categories. Because we make comparisons of NSFG estimates on births with Vital Statistics, it would be beneficial to maintain this bridging measure as long as it is needed by Vital Statistics. Second, it is useful for producing trend data on standardized key indicators needed by our funding agencies. Third, many researchers inside and outside NCHS wish to use these categories for long-term trend analyses spanning several decades (e.g., Stephen & Chandra, 2006; Mosher et al., 2004; Teachman, 2008). Finally, having these data makes it possible for NSFG data to match other datasets (such as vital statistics, the

CPS, and others) when we perform non-response adjustments and post-stratification.

Event Histories

The 1995 NSFG (Cycle 5) was unique in that it included extended histories of school attendance, childhood family living arrangements, and employment. The 2002 NSFG represented a return to summary measures of education, work, and childhood family background, with an emphasis on milestones, current status, and recent experience. The continuous NSFG (beginning in 2006) continues this summary design, described below where each topic is addressed. This streamlining occurred in the interests of better reserving respondent energy for the "core" event histories that the NSFG has collected since its beginning in the 1970s: pregnancy, contraception, marriage, and cohabitation, as well as the more recently added content on HIV and STD risk.

Life-History Calendar

As in most past cycles, a life history calendar (LHC) is used in the 2009-2012 NSFG for females because it has been shown to help female respondents in remembering dates of fertility-related events and organizing events chronologically (Belli, 1998; Freedman et al., 1988; Martyn et al., 2002). The continuous-interviewing LHC focuses on the 3 years leading up to the interview. In this way it is designed to maximize usefulness only for the time period for which the most detailed questions are asked. These questions are at the core of the NSFG content: the month-by-month accounting of contraceptives used, and a month-by-month accounting of whether she had sexual intercourse in the month. Since these questions are detailed, and since important analyses (such as impaired fecundity and contraceptive efficacy) hinge on their accuracy, the need for the calendar's visual memory cues, or "anchors" is greatest for them (e.g. Kost et al, 2008). Questions asked about events happening prior to this 3-year period are less detailed, and the calendar's full grid is not necessary for recording them. The only exceptions are pregnancies and date of first sexual intercourse, which the respondent records on the calendar even if they occurred prior to the 3 years before the interview.

Education

The questions capturing educational credentials including the date of high school degree (or last high school attendance) and the date of the bachelor’s degree, are direct measures of a respondent's human capital, which affects their productivity in the labor force, and thus, their employment and earnings; their ability to provide resources for their children; and, their social peers and life goals. Education is also an indicator of general health literacy, which has been associated with better access to health care services and lower levels of health-risking behaviors (need to add refs). It is well-documented that educational attainment has important effects on fertility behavior and events such as the age at first birth and the timing of subsequent births, the occurrence of unwanted pregnancies, completed family size, effective use of contraception, and the use of reproductive health services (See references cited in the 2nd paragraph under Social, Economic, Demographic Characteristics). Educational attainment in the NSFG is asked in a way that allows coding comparable to the Current Population Survey item used in 1992 and later

(Kominski & Adams, 1992, 1993; Stoops, 2004). For adolescents, information on whether they are currently attending school is particularly important because school attendance accounts for a major use of time and is the vehicle through which a substantial amount of education about AIDS, sex and family life may be provided.

In addition to these measures, education information collected includes: receipt of high school degree and/or GED (high school equivalence), the highest college or university degree received, and the highest grade of regular school completed (for those not in school who do not have a high school diploma).

Household Roster

The household roster is critical for enumerating other key household members, such as husband or partner, resident biological or nonbiological children, parents, other family members, etc. Household members' basic information is collected in the screener preceding the interview. The screening procedures reflect the most efficient and effective means of identifying eligible respondents and members within their households, based on the results of a pretest experiment conducted in the Cycle 6 pretest. The household roster series within the interview is a chance for the respondent to verify the information provided in the screener earlier and add or subtract household members if necessary, and report the relationships of household members to herself.

This series also does the following: 1) establishes the respondent's as well as any spouse or partner's relationship to all children (individuals under 19 years of age) living in the household; 2) generates family size, which is used in computing the ratio of family income to the poverty level, and 3) if the respondent reports being married but not separated, or cohabiting, and the spouse or partner is not living in the household, an additional question is asked to determine the spouse or partner's residence. One reason for this question is to get an estimate of the number of male spouses or partners who are in the military, in prison, or in other institutions, and who would thus would be excluded from the household-based sample of men.

Childhood Background

Sexual, contraceptive and reproductive behaviors and family formation patterns are influenced by the type of family in which a woman grew up. Section 101 of the 1996 Welfare Reform Act cites extensive data showing the detrimental effects of single parenthood on both the parent and the child. Women who spent their childhoods in an "intact family", that is, two parents from birth until leaving home, have a lesser likelihood of early sexual activity and early and nonmarital births than do women who did not grow up in an intact family (Albrecht & Teachman, 2003; Chandra et al., 2005; Hill, Yeung & Duncan, 1997; McLanahan & Bumpass, 1988; Moore et al., 1998; Thornton & Camburn, 1987; Wu, 1996; Wu & Martinson, 1993). They are also less likely to cohabit before marriage, and less likely to divorce once married (Bramlett & Mosher, 2002; Teachman, 2002, 2003, 2004).

Research has also shown strong links between family disruption (such as widowhood, divorce, and remarriage) and children's *attitudes* toward premarital sex, cohabitation, marriage, childbearing, and divorce (Axinn & Barber, 1997; Axinn & Thornton, 1996).

As in the 2002 NSFG, the continuous NSFG (2006-present) collects summary information on childhood living arrangements. The items chosen constitute the most efficient means of capturing just the essential information, while minimizing burden.

Questions in this series ask the respondent whether she lived with both biological or adoptive parents from birth until the time she moved away, or until age 18 (if she had not moved away before the 18th birthday), or until the interview if she has not moved away. It also captures whether her parents were married at her birth. Finally, it asks for family living arrangements at age 14, permitting (limited) time-series analysis of this important predictor of risk behaviors during the teenage years. Data like these could inform service programs for families as well as family-related legislation, such as Welfare Reform.

Selected characteristics of parents or parent-figures are also collected in this section, including education. Studies of NSFG and other data have shown education of parents to be strongly related to reproductive behaviors, including the age at first sexual intercourse, contraceptive use, and age at first birth (e.g., Abma et al., 2004; Chandra et al., 2005; Martinez et al., 2006; Moore et al., 1998). Respondents are also asked for their mothers' age at first birth, number of children ever born, and work status during respondent's childhood. The age at which a teen girl's mother had her first child also affects her own age at first sex and at first birth (e.g., Moore et al., 1998).

SECTION B

Pregnancy and Birth History

One of the primary purposes of the NSFG, as mandated by the authorizing legislation for NCHS, is to provide data that help to explain "family formation, growth, and dissolution," including trends and variations in birth and pregnancy rates. The NSFG obtains a complete birth and pregnancy history – that is, each pregnancy the woman has ever had up to the survey date – and how many more births she expects. Birth registration data and provider-based data (e.g., hospital discharge and surveillance systems) have been used extensively to document a wide range of demographic and clinical aspects of pregnancy and childbirth in the U.S. and to monitor progress toward Healthy People 2000 and 2010 objectives (e.g., Berg et al., 1996; Frisbie et al., 1996; Martin et al., 2007; Mathews & Hamilton, 2005; Mathews & Ventura, 1997; Mathews et al., 1998; Menacker et al, 2004; Sutton & Mathews, 2004; Ventura et al., 1995, 2000, 2001, 2004, 2008). NSFG and natality data together have also been used to estimate the economic burden associated with various pregnancy behaviors and complications. For example, one report estimated that in 1995 the total costs attributable to smoking during pregnancy were 1.4 billion dollars (Adams et al., 1997).

While the birth certificate and provider-based data systems include a rich array of clinical data, they are somewhat limited with regard to background characteristics of the mother and father of the baby (Chandra, 1995; Chandra et al., 2005). These and other pertinent data, such as employment status and wantedness of the birth at time of conception, are best collected directly from the woman through survey interviews. Some data, such as maternity leave and breastfeeding, can *only* be collected reasonably through survey interviews after the delivery.

In addition to differences in the *types* of information included, the NSFG data differ from the birth registration data in two major ways:

1) NSFG data are not limited to live births: for each pregnancy, we ask when it ended and how it ended (live birth, miscarriage, stillbirth, ectopic pregnancy, and abortion), and this allows us to analyze all reported[1] pregnancies, or analyze, for example, spontaneous fetal loss (miscarriage, ectopic pregnancy, and stillbirth) as an outcome. We also obtain information on smoking during pregnancy for pregnancies that resulted in spontaneous loss.

2) The NSFG collects a pregnancy *history* and is not just the record of a single birth or pregnancy. This allows NCHS and other analysts to report the effects of previous pregnancy outcomes on women's current birth rates, infertility, and expectations for future births.

NSFG pregnancy and birth data, in conjunction with other data collected in the survey, have enabled researchers for NCHS, NICHD, OPA, ASPE, and others to address policy-relevant issues such as:

– The behavioral and demographic correlates of pregnancy outcome, including the subgroups of pregnant women (e.g., teens, poor women) who are at higher risk of adverse outcomes (Menacker et al, 2004). The maternal characteristics associated with smoking during pregnancy and other health-risking behaviors have also been documented (Chandra, 1995; Chandra et al., 2005; Gillum & Sullins, 2008; Kost et al., 1998; Mathews, 2001; Page et al., 2008; Ventura et al., 2003).

– How variables such as short inter-pregnancy intervals predispose women to such costly outcomes as preterm labor and low birth weight babies (Kallan, 1992, 1993)

– The individual and contextual (community-level) factors that are related to how pregnancies are resolved among unmarried women (Murray, 1995)

– The implications of premarital pregnancies and births for women's future fertility, marriage, and cohabitation (Bennett et al., 1995; Lichter & Graefe, 2007; Wu et al., 2001)

1 As with all survey data, the NSFG is affected by under-reporting of pregnancies (Fu et al., 1998, Jones & Forrest, 1992, Jones & Kost, 2007, and Ventura et al., 2000, 2008), particularly those ending in abortion, but the NSFG provides important data for pregnancies that do not end in live birth, particularly those ending in miscarriage.

– Whether racial differences in teen fertility are explained by socioeconomic and contextual factors (Brewster, 1994a, 1994b; Kahn & Anderson, 1992)

– Whether the recent increases in births at ages 30-44 portend another baby boom, and if so, in what groups? What risks of infertility, miscarriage, and health complications do these trends pose? (Ventura et al., 1995 and 2000)

– The risk of miscarriage and other adverse pregnancy outcomes for minorities, teens, and the poor, compared to affluent whites (Guendelman et al., 1994; Mosher & Pratt, 1982)

– How factors such as religious affiliation and participation are associated with family size, union formation, and contraceptive use, and how these relationships have changed over time. The NSFG is one of very few sources that allows examination of contraception and family size according to religion and religiosity (Hayford & Morgan, 2008; Lehrer, 2004; Mosher, Williams, & Johnson, 1992; Page et al., 2008; Zhang, 2008).

Breastfeeding

Since these surveys began in 1955, every questionnaire has included questions on breastfeeding. The original purpose of these questions was to measure roughly the length of the sterile period following pregnancy, also known as post-partum amenorrhea (Bongaarts, 1978; Davis & Blake, 1956). Breastfeeding is a factor affecting the average time it takes to become pregnant after a prior delivery when contraception is not being used.

Breastfeeding has numerous benefits for infant health and development, as well as for the mother-child bond (e.g., American Academy of Pediatrics, 1997, 2005; Dewey et al., 1995; Neville & Neifert, 1983); in fact, breastfeeding has been found to reverse the effects of poor perinatal outcomes (e.g., Lucas et al., 1997).

The seven Cycles of the NSFG to date provide a long time trend of national estimates of breastfeeding by a number of characteristics, such as race, education, region of residence, and source of health care (such as prenatal care or family planning services). The NSFG data cover the decline in breastfeeding initiation rates in the 1950s and 1960s, and the increase in all groups since the 1970s (Hirschman & Hendershot, 1979; NCHS, 2007; Pratt et al., 1984; Ryan et al., 1991). Based on data from the 2002 NSFG, about 67 percent of babies born in 1997-2000 were breastfed (Chandra et al., 2005). As in prior years, breastfeeding was substantially more common among white mothers, college-educated mothers, older mothers, and mothers having intended births (Abma et al., 1997; Chandra et al., 2005; Forste et al., 2001; Taylor & Cabral, 2002; Taylor et al., 2006, 2008).

Maternity Leave

In the continuous NSFG (2006-present), as in the 2002 survey, we continue to collect information on maternity leave following a birth, focusing on overall duration of maternity leave for births within the past 5 years, to minimize respondent burden and recall problems. There is

considerable interest in the relationship between maternal employment before and after pregnancy, particularly with respect to breastfeeding practices and child care arrangements. An analysis of the 1988 NSFG data examined the potential incompatibilities between breastfeeding and maternal employment (Lindberg, 1996) – women employed part-time were significantly more likely to initiate and sustain breastfeeding than women working full-time. NSFG data collected in 2002 indicate large differences in maternity leave by education and parity (Chandra et al., 2005). For example, nearly 58% of college graduates reported taking maternity leave following their most recent birth, compared with 39% of those with a high school education and 17% of those with less than a high school education.

Among women who had their most recent birth in 1997-2002, 40 percent were not employed during their pregnancy, and 42 percent took maternity leave of some duration. The remaining 18 percent did not take leave because their work schedules did not necessitate taking formal leave, because maternity leave was not offered or allowed by their employers, or because of some other reason (Chandra et al., 2005).

Cesarean Delivery upon Maternal Request

The rates of cesarean delivery in the U.S. have increased by over 40% between 1996 and 2004, to 29.1% among live births in 2004, representing 1.2 million annually (Menacker et al., 2006), and continued to rise through 2006 (Hamilton et al., 2007). This increase reflects an increase in primary cesareans (a woman's first cesarean delivery) as well as a reduction in vaginal deliveries after a cesarean (abbreviated VBAC). Given the significantly higher health care costs of cesarean delivery (nearly double the cost of vaginal deliveries), as well as the higher risk of maternal and neonatal complications, research has been directed at the clinical, economic, legal, and maternal factors that may affect the decision to have a cesarean delivery. Beginning in Year 2 of continuous interviewing (2007), at the request of one of our funding agencies (NICHD), the NSFG female questionnaire included questions to measure the extent of primary cesarean delivery upon maternal request among recent births. These questions will help determine whether it plays a role in the recent increases in the rate of primary cesarean delivery. This topic was the focus of a recent NIH "State of the Science" Consensus Conference (NIH, 2006). The NSFG provides a good vehicle for addressing this particular question, in the context of the full pregnancy history collected from each female respondent and the other social and behavioral variables available in the survey. The new questions, based on those used in the Listening to Mothers Survey (DeClercq et al., 2006), were placed after questions about payment for delivery that are asked for all recent births and will be limited to primary cesareans in the last 5 years. The key elements for defining this "maternal request" measure are:

- No medical indication for the cesarean
- Planned before labor began
- Initiated by the mother

Given the expected rarity of these types of cesarean deliveries, it is likely that multiple years of NSFG data will need to be pooled in order to yield statistically reliable estimates. Therefore these questions will continue to be asked.

Adoption and Relinquishment of Children

Data on adoption and relinquishment have become increasingly important to policy makers in recent years because of the concern about teenage abortions and unintended pregnancies on the one hand, and the inability of infertile couples to find children to adopt, on the other. The NSFG data on adoption are collected for and sponsored by the Children's Bureau of the Administration for Children and Families (see **Attachment E5**). The NSFG is among the few sources of nationally representative data available to answer the following kinds of questions:

– How many women have adopted a child? What are the demographic characteristics of women who have adopted? What are the characteristics of adopted children? Cycle 6 NSFG data showed that about 1 percent of women 18-44 years of age had adopted a child, and the prevalence was higher for older women and women with fertility problems (Chandra et al., 2005; Jones, 2008).

– What percentage of babies is placed for adoption? What are the characteristics of women who place babies for adoption? Among children born to never-married women under age 45, the percent who were relinquished for adoption fell from 9 percent in the period before 1973 to 1 percent for the period 1989-95; among white women, the percent fell from 19 percent to 2 percent between the 2 periods (Bachrach et al., 1992; Chandra et al., 1999). Analyses of Cycle 6 data indicate relinquishment for adoption has not changed significantly since the period 1989-1995 (Jones, 2008).

– How many women are currently seeking to adopt a child? What are their characteristics? What steps have they taken to adopt a child? What are the characteristics of the children they would prefer or be willing to adopt (e.g., race, disability status, age)? Continuing the time series from earlier NSFG Cycles (Abma et al., 1997; Bachrach et al., 1991; Chandra et al., 1999), the Cycle 6 NSFG data indicate that 35 percent of women 18-44 years of age in 2002 (roughly 19 million women) had ever considered adoption at some time in their lives, and 0.6 percent (roughly 300,000 women 18-44) were currently seeking to adopt (Chandra et al., 2005; Jones, 2008).

Since the inclusion of never-married women for the first time in the 1982 round of the NSFG, there has been steady expansion and improvement of the data collected from women on adoption, adoption-seeking, and relinquishment. Carrying forward information collected in the 1995 NSFG, the 2002 NSFG contained a detailed series of questions related to adoption demand and the care of non-biologic children (e.g., relative care, foster care). In 2002, 13 percent of women 18-44 had ever cared for a nonbiological child, about 5 percent had cared for a child of relative, and about 5 percent had cared for a child related in some other way; about 1 percent of these women 18-44 had ever formally adopted a child (Chandra et al., 2005; Jones, 2008).

In the 2002 NSFG and in the continuous survey (2006-present), the NSFG female survey includes questions on foster care and other informal arrangements for the care of children that women did not give birth to, including the extent to which these lead to legal adoption (Abma et

al., 1997; Berrick & Barth, 1994; Chandra et al., 1999; Courtney et al., 1996; Chandra et al., 2005; Jones, 2008).

Another key issue on which the NSFG currently provides the only national data is transracial adoption. Despite efforts by previous administrations and various child welfare organizations to facilitate the adoption of children across racial lines, transracial adoption remains a controversial practice, in part because of concerns about self-esteem and racial identity (Abdullah, 1996; Alexander & Curtis, 1996; Penn & Coverdale, 1996; Silverman, 1993; Simon & Alstein,1996). In the NSFG female questionnaire, the respondent reports her own race as well as the race of her adopted child using the following categories (American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, Black or African American, White). Therefore, to the extent possible with the small numbers of women who have ever adopted a child, it is also possible with the NSFG to look at transracial adoption other than white/black.

There has been particular interest in the NSFG data on preferences for the characteristics of the adopted child among adults considering adoption. The NSFG provides not only an estimate of the prevalence of transracial adoption in the U.S., but also an indication of the numbers of people who would be willing to adopt children of a different race. For example in 2002, among white women currently seeking or planning to adopt a child not previously known to her, 35 percent would *prefer* to adopt a white child, but 84 percent would *accept* a black child

and 95 percent would accept a child of another race, neither black nor white (Chandra et al., 2005).

SECTION C

Marriage History and Cohabitation

Because marriage has traditionally been the principal social unit in which children are born and raised, marital history information has been essential in the NSFG and the surveys that preceded it. In addition, policy interest in promoting marriage (PWORWA, 1996, renewed 2006) makes these issues more salient in recent years. The timing of the entry into marriage and marital dissolution, along with the timing of sexual activity and childbirth, has implications for nonmarital childbearing, which has increased over the last several decades (Bramlett & Mosher, 2001, 2002; Ventura & Bachrach, 2000; Wu, Bumpass & Musick, 2001). Over half of children born today will spend some portion of their lives in a single-parent household before reaching adulthood (Bumpass & Lu, 2000). Nonmarital childbearing has been linked to adverse outcomes for the health and well-being of mothers and their children and have public policy implications for child care, health care, and income support (Bird et al., 2000; Terry-Humen et al., 2001). Racial differences in marriage and fertility behaviors may also have an impact on differences in socioeconomic status and well-being among whites, blacks and other racial and ethnic groups (Bramlett & Mosher, 2002; Lichter & Graefe, 2007; Graefe & Lichter, 2002;Manning, 2001; Raley, 2001).

Over the last several decades, cohabitation has increased as an alternative social unit in which to bear and raise children (Bumpass & Lu, 2000; Bumpass & Sweet, 1989; London, 1991). Based on the 2002 NSFG, 50 percent of women 15-44 had ever cohabited, and 9 percent were currently cohabiting; 13-16 percent of women in their 20s were currently cohabiting (Chandra et al., 2005). In 2002, 2.9 million children under age 15 lived with a single parent and his/her unmarried partner (Fields, 2003). It has been estimated that about two-fifths of all children will spend some time in a cohabiting household before age 16 (Bumpass & Lu, 2000). Differences have also been found in the sexual and reproductive behaviors of cohabiting women compared to non-cohabiting women as well as in attitudes regarding marriage and family (Bachrach, 1987; Clarkberg, Stolzenberg & Waite, 1995; Forste & Tanfer, 1996; Lindberg & Singh, 2008; Rao & Demaris, 1995).

Several studies in recent years have considered the extent to which cohabitation may account for trends in nonmarital fertility and the determinants of childbearing decisions among couples of all relationship and coresidential statuses (Manning, 2001; Wu et al., 2001). Particularly given record-high nonmarital birth rates shown by recent vital statistics data (Hamilton et al., 2007; Martin et al., 2007), it is an interesting and important question as to what proportion of those births occur within a cohabiting union.

The 1982 and 1988 NSFG surveys obtained some cohabitation data, and the 1995 and 2002 NSFG obtained a complete marriage and cohabitation history. These data have helped to address such policy-related concerns as:

– Are women who cohabit before marriage more likely to separate and divorce than other women? Once divorced, are cohabitors more or less likely to remarry?

– How long do cohabiting couples live together, on average?

– How do family background factors, such as having divorced or cohabiting parents, affect marriage, separation, divorce, and remarriage? How does prior fertility or marriage affect the likelihood of future union formation?

– What are the determinants of childbearing decisions among cohabiting couples, as compared with married and non-coresidential couples? To what extent does cohabitation account for trends in nonmarital fertility?

In order to address two key gaps in prior NSFG data, questions were added in 2007 and 2008, and these are described below.

Partner-specific fertility: In prior NSFG questionnaires, the number of children a woman had with each husband or partner was inferred by comparing dates of birth against dates of her marriages and other relationships. For many women, this was an adequate approach, but for those with more complex histories, particularly those who had nonmarital births or potentially overlapping relationships, it was not sufficiently accurate. In 2007 (year 2 of continuous interviewing), a question was added to ask directly about biological children with

each husband or cohabiting partner reported by the respondent. These direct questions strengthen the NSFG's measures of partner-specific fertility by providing direct information on the numbers of biological children the respondent has had with each of the men she has ever married or cohabited with, which has been called for by several federal statistical initiatives—and more recently by users funded by two of our funding agencies, the NICHD and the Office of Population Affairs. Also, these new items can be used in conjunction with the existing pregnancy, marriage, and cohabitation data to more accurately define marital and cohabiting status at time of pregnancy conception and outcome. They can also be used to measure the extent of multi-partnered fertility, which until now could only be analyzed for men in the NSFG (Guzzo & Furstenberg, 2007; Manlove et al., 2008). In prior NSFG instruments, these measures could only be defined by comparing birth dates of children with marriage and cohabitation dates (Bumpass & Lu, 2000). Given the potential for overlapping sexual relationships, this contributed to unforeseen inconsistencies among the NSFG's public-use recoded variables on this topic. In light of the data needs for several NSFG sponsors and our users, it is important to improve our measures of the circumstances in which children are conceived and born (Chandra et al., 2005; FIFCFS, 1998, 2001; Martinez et al., 2006; Raley, 2001).

Expectations for Marriage and Cohabitation: In the 2002 NSFG and in 2006-2008, the survey included a question on marriage expectations among respondents who are cohabiting with an opposite-sex partner. The 3 new questions added in 2008 provide information for NCHS, NICHD, and OASPE on expectations to marry or cohabit among those who are <u>not</u> currently married or cohabiting. Expectations and attitudes regarding cohabitation are probably changing, given that cohabitation increasingly occurs before, or instead of, marriage. Results from the Toledo Adolescent Relationships Study (TARS) indicated that nearly a third of adolescents in their sample expected to cohabit in the future (Manning et al., 2007). Among men and women 15-44 years of age, NSFG data indicate that over 40% cohabited prior to marriage (Chandra et al., 2005; Martinez et al., 2006) Although marriage continues to be desired across demographic groups, *expectations* regarding marriage vary across subgroups (e.g., race groups, socioeconomic statuses, single mothers) (Lichter et al., 2004; Manning et al., 2007; Manning & Smock, 2002).

In conjunction with the other attitude items that were added in 2008 (year 3 of continuous interviewing), these new data on expectations for marriage and nonmarital cohabitation will allow NCHS, NICHD, and ASPE staff and their grantees to better interpret the stunning rise in nonmarital fertility, which comprised about 39% of all births in 2006 (Hamilton et al., 2007). How many of these nonmarital births occur to cohabiting couples rather than women living alone? Along with NSFG data on the stability of cohabitations, the implications of these births for child well-being can be assessed. Similar questions have been asked in surveys focused on respondents younger than 30 years, such as the National Longitudinal Survey of Youth (NLSY97) and the TARS. Given that there are no new nationally representative data tapping such central issues related to fertility and family change in the full reproductive-age range, the NSFG is the ideal vehicle for filling this gap.

Collecting Data on the Sexually Active/Sexually Experienced Population

The NSFG includes questions on sexual behavior to fulfill one of its core missions: to monitor and study the risk of pregnancy and sexually transmitted diseases (STDs) in the population of males and females of reproductive age. The sexually experienced population refers to those who have had sex at least once. The sexually active population refers to those who have had sex recently, frequently defined as "in the 3 months prior to the survey." In many studies, one of these two sub-populations serves as the denominator for these risk behaviors (e.g., Ventura et al, 2008).

The importance of understanding the sexually active/experienced population is one of the reasons the NSFG has included women of all marital statuses, instead of only ever-married women, since 1982. On average, U.S. women are spending longer amounts of time sexually active and unmarried, as the duration between first sexual intercourse and first marriage has increased (Finer, 2007). Premarital sex is virtually universal in the U.S. (Finer, 2007). For most women, the interval between first sex and first marriage is over 5 years (Chandra et al., 2005, table 42).

Nonmarital childbearing has thus become more common, increasing from 11% of all live births in 1970 to 39% of all live births in 2006 (Hamilton et al., 2007). Nonmarital childbearing varies widely between subgroups: in 2006, 25% of births to non-Hispanic white women were nonmarital, compared to 48% for Hispanics and 70% for non-Hispanic black women. Pregnancies to unmarried women are much more likely to end in abortion: in 2004 35% of pregnancies to unmarried women ended in abortion, compared to 6% among married women (Ventura et al., 2008).

Data on the sexually active population are essential for many program uses, including:

– Estimates for NICHD and NCHS of factors that affect the risk of pregnancy and the need for contraception, among both married and unmarried women.

– OPA's Office of Adolescent Family Life needs to monitor trends in teenage sexual activity and use of contraception to assess needs for education, research, and service programs.

– OPA's Office of Family Planning needs data on sexual activity, use of contraception, and use of family planning services among women of all marital statuses and within all the reproductive years.

To answer these data needs, direct questions are necessary on both lifetime sexual experience, and recent sexual activity.

Lifetime sexual experience is measured by questions on:

– whether the woman has *ever had intercourse* (asked directly only of never married, never-cohabiting, and never pregnant women); and

– the *age and date of first intercourse* (see also section on First Sexual Intercourse) and (if necessary) the age and date of first intercourse after menarche (to measure the start of exposure to pregnancy, the AIDS virus, and STDs)

Recent sexual activity is measured by questions on:

-- Date of *last intercourse* and date(s) of last intercourse with (up to 3) partners in the past 12 months

– *frequency of intercourse* in a relatively recent period to measure those at risk of pregnancy in a standard period of time, especially among the unmarried. In the continuous NSFG, frequency of intercourse in the month prior to the interview is asked. In previous cycles of the NSFG, coital frequency has been measured in the "last 3 months before interview" and in the month before the interview month. Recent sexual activity affects the choice of contraceptive methods, and the effectiveness of those methods (Peterson et al., 1998; Piccinino & Mosher, 1998).

– *numbers of different sexual partners* in a recent period (see separate section on "numbers of partners").

-- Whether she had intercourse during each month in the past 3 years.

The term "sexually active" is commonly used to mean *having had intercourse at least once in the 3 months prior to the survey*. This measure of sexual activity serves as a snapshot of the population currently exposed to the risk of pregnancy and STDs. This measure has been consistently defined across prior cycles of the NSFG so has served as a reliable indicator for monitoring trends (Abma et al., 2004) comparable to that in other data systems such as the Youth Risk Behavior Survey (CDC, 2008). Particularly for teens, sexual intercourse can be sporadic, so that even if sexually experienced, an individual may not be currently sexually active. Among women of the full reproductive age range (15-44), a substantial percentage is sexually active: a recent study of Cycle 6 data showed that among unmarried women 70 % had sexual intercourse in the past 3 months (Lindberg & Singh, 2008).

The sexually active population also serves as a denominator for an important measure of contraceptive use: the proportion using contraception at last sex within the past 3 months (see "Section E". Contraceptive Behavior). Several objectives of the Family Planning Chapter of the Healthy People 2010 initiative require tracking this subpopulation of sexually active adolescents (U.S. Department of Health and Human Services, 2006).

The number of the past 12 months during which women had sexual intercourse is another commonly used measure of "recent sexual activity" (Kost & Forrest, 1992; Lindberg & Singh, 2008).

All of these data have been collected successfully in the 1982, 1988, 1995, and 2002 Cycles of the NSFG. Item nonresponse rates (either "don't know" or "refused") were close to zero (less than 1 percent for most items in 2002), so in the context of the NSFG interview, these questions are not overly sensitive. Questions on sexual activity are essential to nearly all other analyses of NSFG data, including:

– trends in pregnancy rates and birth rates among both teenagers and adults (Manlove et al., 2000; National Campaign to Prevent Teen Pregnancy (Science Says no.22), 2006a; Santelli et al., 2007; Terry-Humen et al., 2006; Ventura et al., 2008)

– the population at risk of pregnancy and sexually transmitted diseases (Forrest & Singh, 1990; Henshaw, 1998; Kost & Forrest, 1992; Potter & Anderson, 1993);

– contraceptive use (Abma et al., 2004; Chandra et al., 2005; Franzetta et al., 2006; Goldscheider & Mosher, 1991; Mosher et al., 2004; Mosher & McNally, 1991; Peterson, 1995b; Piccinino & Mosher, 1998);

– the effectiveness of contraceptive methods (Kost et al., 2008);

-- pregnancy risk among women discontinuing contraceptives (Vaughan et al., 2008)

– condom use for disease prevention (Chandra et al., 2005); and

– use of family planning and other reproductive health services (Chandra et al., 2005; Frost, 2008; Mosher et al., 2004).

First sexual intercourse: The initiation of sexual intercourse signals the approximate beginning of exposure to the risk of pregnancy and sexually transmitted diseases. Policymakers and researchers have long been concerned with the correlates of early, and conversely, delayed sexual initiation among adolescents. In the 1960s, 70s and 80s, the average age at first intercourse declined, followed by a period of stability, then among male teens and younger female teens, in the early 2000's, first intercourse occurred at older ages. One of the NSFG's most important functions is to allow continued tracking of trends in the timing of first intercourse (e.g., Abma et al., 2004; Abma & Sonenstein, 2001; Chandra et al., 2005; Martinez et al., 2006; Hogan et al., 2000; Manlove et al., 2000; Terry-Humen et al., 2006).

Younger ages at first intercourse translate to higher risks of pregnancy and sexually transmitted diseases. Young women who have sexual intercourse at earlier ages, particularly before age 16, are physiologically and behaviorally more vulnerable to STDs (Eng & Butler, 1997; Morris et al., 1993). Physiologically, younger teens' developing reproductive tracts make them more susceptible to infections when exposed to disease, for example, due to greater cervical ectopy. Behaviorally, those who first have intercourse at younger ages have higher numbers of both recent and lifetime sexual partners, more frequent sexual activity, and lower likelihood of using contraception at first intercourse (Abma et al., 2004; Chandra et al., 2005; Flanigan, 2001; Manlove et al., 2003, 2004; Terry-Humen et al., 2006). Intercourse at younger

ages is more likely to be nonvoluntary, which may lessen the chances that contraception is used (Abma et al., 2004; Abma et al., 1997; Child Trends, 2008; Moore et al., 1989). As a result of all of these factors, teens are also more likely to suffer pelvic infections (Aral et al., 1991; Chandra et al., 2005) and have higher rates of gonorrhea than any other age group (Aral et al., 1988). Many of these studies were done with the data from the NSFG.

Because one of the principal missions of OPA is to promote research on abstinence among unmarried teenagers, OPA requested that the NSFG ask women who have never had sexual intercourse their reasons for not having had intercourse yet. These questions are also relevant for Section 912 of the PRWORA of 1996 (renewed in 2006) which sets aside $250 million over 5 years for abstinence education. NSFG data will help to evaluate recent trends in age at first intercourse, for both females and males.

Given the importance of understanding the dynamics surrounding first sexual intercourse, since the 1995 NSFG has asked for selected characteristics about women's first sexual partners. In more recent Cycles this includes the nature of the date of last sex with him, the relationship at first sex, his education, race and Hispanic origin, and the nature of the current relationship, if ongoing. These data have been used in conjunction with data on contraceptive use at first sex (See Section E) to further understanding of the conditions under which contraception is likely to be used at first sex (Manning et al., 2000; Manlove & Terry-Humen, 2007).

Number of sexual partners: Questions on numbers and outcomes of marriages and cohabitation are structured so that they lead naturally into questions on the *lifetime* number of sexual partners, and the number of *recent* sexual partners. These questions have been asked in the NSFG for two major reasons:

1) Numerous studies have shown that having multiple sexual partners is associated with higher occurrence of a wide range of health problems, including HIV/AIDS, sexually transmitted diseases (such as Chlamydia, gonorrhea, and genital herpes), pelvic inflammatory disease (PID), cervical cancer, and infertility (e.g., Adimora et al., 2002; Chandra et al., 2005; Leichliter & Aral, 2008; Mosher et al., 2005).

2) Questions on number of sexual partners help to clarify and amplify the marriage and cohabitation data collected in the survey.

In the 2002 NSFG, women were asked their numbers of male sexual partners:

- in their lifetimes;
- in the past 12 months;
- before their first marriage (if ever married)

In CAPI, the interviewer-administered portion of the interview, women reported male partners with whom they have had vaginal intercourse. In ACASI, the self-administered portion of the interview, women were asked about all types of sexual activity, including vaginal intercourse, oral sex, and anal sex. (See Section J: Audio CASI)

Many of the analyses of the 1988, 1995, and 2002 NSFG have found that the number of lifetime or recent sexual partners is closely associated with other variables. To cite a few more recent examples:

– In the 2002 NSFG, 3 percent of women with 1 lifetime partner had ever been treated for PID, compared with 11 percent of those with 10 or more lifetime partners (Chandra et al., 2005).

– A higher proportion of unmarried women than of cohabiting or married women have had 2 or more partners in the past year (Lindberg & Singh, 2008).

– Unmarried women with 2 or more partners in the last 3 months were much more likely than unmarried women with 1 partner in the last 3 months to report using condoms for preventing disease (Mosher & Pratt, 1993; Piccinino & Mosher, 1998). This association with condom use exists for the number of partners over the past 12 months as well (Chandra et al., 2005).

The success of the sexual activity questions in previous rounds of the NSFG confirms their importance for measuring the health and behavior of women. In the continuous NSFG, we are again asking respondents to report their numbers of partners in their lifetime, in the last 12 months, and before first marriage (if ever-married). As in the 2002 survey, they are asked in Audio CASI to report numbers of partners (in the last 12 months and in their lifetimes) with whom they engaged in any type of sex (including oral and anal sex as well as vaginal intercourse). This is important information to collect in order to assess the level of risk for health problems mentioned above, as it provides a more complete measure of STD and HIV risk behavior in addition to risk for pregnancy (Anderson et al., 2006; Mosher et al., 2005). Given the sensitivity of these topics to the respondent, it is important to collect these data within the privacy of Audio CASI. This is discussed in more detail in "Section J: Audio Computer-Assisted-Self-Interview".

Questions on the number of partners in the prior 12 months also serve as a filter question for a series asking for specific information about these partners (up to 3 of them), similar to the information gathered about the first partner (described earlier in "First Sexual Intercourse"). Collection of dates of first and last sex with multiple recent partners allows analysts to go beyond sheer number of partners and distinguish serial monogamous partnerships from concurrent partnerships. It is important to monitor the prevalence of concurrent partnerships because it is associated with more rapid transmission of STIs through a population (Adimora et al., 2002).

Measurement of partner characteristics also makes possible the comparison of female and male partners' ages at first and last sex. The health care and policy and research communities have been interested in the repercussions of sexual intercourse between teen females and older males. This age differential has been shown to be associated with a greater likelihood of nonvoluntary intercourse, less consistent contraceptive use, more casual relationship with the male, and giving birth as a teen, compared to situations involving individuals of more similar

ages (Manlove et al., 2005; Manlove et al., 2008). (Also see section on "Section J"). Since the NSFG captures contraceptive use with partners in the prior 12 months (See "Section E"), this makes it possible to examine partner and relationship characteristics with contraceptive use or nonuse in a recent period.

Sex Communication and Education

Since the 1982 NSFG, data have been collected on whether female respondents talked with parents and whether they received formal instruction (at school, church, or a community center) on pregnancy, sexually transmitted diseases, and birth control. Talking with parents about these topics has been shown to influence the sexual and contraceptive behavior of adolescents (Albert, 2007; National Campaign to Prevent Teen and Unplanned Pregnancy, 2006b; Resnick et al., 1997). Studies have also found that formal instruction on contraception and avoiding sex affects chances that a teenage female will become sexually experienced and the chances that she will use a contraceptive at first intercourse (Mauldon & Luker, 1996; Kohler et al., 2008; Mueller et al., 2008;). Given these effects it is important to monitor the proportion of teenagers in the U.S. who receive formal sex education. (Abma et al., 2004; Lindberg et al., 2006)

The series on sex communication and education was improved for the continuous NSFG, beginning in 2006:

– To minimize burden and maximize data quality, questions on sex communication and education are asked of respondents under 25. The 2002 NSFG provided information for ages 15-19 and the 1995 and earlier surveys provided information on these topics for the full age range of women (15-44).

– Questions about formal sex education include 4 topics: "how to say no to sex," "methods of birth control," "preventing HIV/AIDS," and "sexually transmitted diseases." Those who report receiving instruction in these topics are asked what grade they were in when they first received the instruction and, if not apparent (and if they have ever had sexual intercourse), whether it occurred before or after their first sexual intercourse. This sequencing is important when assessing whether such communication and instruction leads teens to postpone first intercourse and reduce sexual risk behaviors.

– The series ends with a question asking whether the respondent had ever taken a "public or written pledge to remain a virgin until marriage".

SECTION D

Surgical Sterilization

Data on surgical sterilizations are needed to measure the population at risk of pregnancy, the population using contraception, the population in need of family planning services, and

changing preferences for sterilization compared with other contraceptive methods (Bumpass et al., 2000; Chandra, 1998; Chandra et al., 2005; Mosher et al., 2004; Peterson, 1995b; Piccinino & Mosher, 1998). These data are particularly important for OPA, the CDC's Division of Reproductive Health, and for private groups interested in family planning services.

In addition to the prevalence of sterilizing operations such as tubal sterilization, hysterectomy, and vasectomy, the NSFG provides one of the few nationally representative sources of data on:

– reasons for sterilizing operations (e.g., contraceptive versus medical reasons),

– sociodemographic characteristics of surgically sterile individuals,

– method of payment for operations, and

– desire for reversal among those with tubal ligations or vasectomies.

Some of the findings on these topics have been summarized in a report based on the 1973-1995 cycles of the NSFG (Chandra, 1998), and other findings from the 2002 survey have also been published (Borrero et al., 2007, 2008a, 2008b; Chandra et al., 2005; Mosher et al., 2004). The questions on surgical sterilization have remained largely the same for the continuous NSFG as they were in the 2002 survey.

Impaired Fecundity and Infertility

Along with data on contraceptive use, data on infertility and fecundity impairments are among the most requested data the NSFG produces (Chandra & Stephen, 1998; Mosher & Pratt, 1982; Mosher & Pratt, 1990b). Media coverage of NSFG data on infertility has been extensive, and a steady stream of requests on this subject continues. In September 1996, NSFG staff provided testimony on the measurement of infertility to the Presidential Advisory Committee on Gulf War Veterans' Illnesses. In addition, the data are used:

– by the CDC's Division of Reproductive Health, to plan research programs and to brief professional associations on infertility and infertility-related medical care;

– to measure several objectives for the Healthy People 2010 Initiative;

– to estimate the potential demand for infertility-related medical services (Guzick & Swan, 2006; Stephen & Chandra, 1998, 2006); and

– to explore the implications of trends in sexually transmitted diseases and pelvic infections on the prevalence of infertility (Andersen et al., 2005; Cates et al., 1990, 1994; Eng & Butler, 1997; Kelly-Weeder & Cox, 2006; WHO, 1995).

SECTION E

Contraceptive Behavior and the Planning of Pregnancies

The NSFG is the only continuing source of national data providing detailed information on women's use of methods to prevent, space, and plan pregnancies, and to prevent sexually transmitted diseases (e.g., Kost et al., 2008; Mosher et al., 2004; Moreau et al, 2007; Wu et al., 2008). Contraceptive use and unintended pregnancy are key topics for the research programs of NICHD and OPA, the two major sources of outside funds for the survey. The NSFG serves as a principal source of data to measure Healthy People 2000 and Healthy People 2010 objectives on condom use and unintended pregnancy (see Appendix E2). Every Cycle of the NSFG updates the list of contraceptive methods asked about to reflect currently available methods.

Studies have documented continuing effects of religion, income, and other individual socioeconomic characteristics, as well as neighborhood characteristics, on contraceptive use (Abma et al., 2004; Abma & Sonenstein, 2003; Brewster et al., 1998; Chandra et al., 2005; Godecker et al., 2001; Goldscheider & Mosher, 1991; Hogan & Kitigawa, 1985; Mosher, et al., 2004; Mosher, Deang & Bramlett, 2003; Mosher & McNally, 1991). This reinforces the continuing relevance of the model depicted in the Figure on page 3, of factors affecting contraceptive use, and ultimately, birth and pregnancy rates.

The NSFG and its predecessor surveys have documented trends in contraceptive practice since 1955. These surveys have demonstrated that contraception is the most important factor influencing the trend in birth and pregnancy rate, and often, differentials in birth and pregnancy rates (Glei, 1999; Mosher & Pratt, 1990a; Peterson et al., 1998; Pratt et al., 1984; Santelli et al., 2007; Ventura et al, 2008). The NSFG has documented the rise of the pill until 1973, its fall from 1973-82, recovery until 1988, decrease between 1988 and 1995, and a rise from 1995 to 2002 (Abma et al., 2004; Chandra et al., 2005; Mosher et al., 2004). NSFG data has also revealed the persistent rise in female sterilization until 1988 (Chandra, 1998); and the rise and fall of IUD use. In recent reports, attention has focused on the increase in condom use from 1982-2002 (Abma et al., 1997; Abma et al., 2004; Bankole et al., 1999; Chandra et al., 2005; Mosher, 1990; Mosher et al., 2004; Peterson, 1995b; Piccinino & Mosher, 1998). The NSFG has also documented the decline in use of the diaphragm in this era of HIV.

The NSFG continues to be an essential source for tracking the extent to which newly introduced methods are adopted. The 2002 NSFG showed that significant percentages of women, particularly younger females, had used more recently introduced methods such as injectable contraception and emergency contraception (Abma et al 2004; Chandra et al 2005; Mosher et al, 2004). Although emergency contraception has been included in the questionnaire since 1995, questions were added to the continuous NSFG in 2006 asking where it was obtained, if it was used within a recent time period. Interest in national data on how emergency contraception is obtained grew following the FDA's approval for women over 18 to obtain the pills without a prescription in August 2006. Since the use of emergency contraception is still rare, these questions will remain in the NSFG questionnaire to allow for continuing accumulation of cases. This information responds to the needs of the Office of Population

Affairs who can use the data as part of their monitoring of family planning service receipt and women's behaviors surrounding delaying and avoiding pregnancy during changing times.

Trends in contraceptive use and sterilization are often estimated by tracking "contraceptive status" at the time of the survey. Toward this goal, the NSFG has always provided a series of questions on sterilization operations, birth control methods currently used, if any, and whether the woman is currently pregnant or trying to become pregnant.

Contraceptive effectiveness: With every new cycle of the NSFG, a study is done to compute the effectiveness of each of the major methods of birth control. These studies rely on the NSFG's detailed data on women's method use and their sexual intercourse patterns, during the several years preceding the survey. Specifically, these questions cover:

(a) whether the woman had intercourse at all, during each month; and

(b) what contraceptive method(s), if any, the woman or her partner used each month.

The series also collects dual method use and multiple method use (e.g., use of the pill and condom at the same act of intercourse, or use of the condom with one partner and the diaphragm with another partner) during each specific month. This allows the NSFG to produce unique national estimates of contraceptive effectiveness by contraceptive method and characteristics of women (Fu et al., 1999; Kost et al., 2008; Ranjit et al., 2001). In the continuous NSFG, this period is limited to the past 3 to 4 years (the beginning of the window is January, 3 years prior to the interview year) for both contraceptive method use and sexual intercourse. This reduces respondent burden and recall error while still allowing reliable analyses of contraceptive effectiveness. Method use linked to specific sexual partners within the 12 months before the interview will continue to be collected, as it was in the 2002 NSFG.

From the 2002 NSFG, researchers determined that the 1-year chance of pregnancy during typical contraceptive use was 12 percent—ranging from 7 percent for injectable contraception to 17 percent for the condom and 25 percent for rhythm (periodic abstinence). Failure rates were higher for women under 30 years old, black women, lower-income women, and cohabiting women. (Kost et al., 2008).

The data on contraceptive effectiveness have implications for education and counseling about the proper use of birth control methods, and they help to explain the popularity of sterilization as a method of birth control.

Consistency and continuity of contraceptive use: Under a special contract with NCHS, researchers Deborah Oakley and Linda Potter developed recommendations for a series of questions on contraceptive consistency, based on review of research, and focus group and cognitive laboratory testing. These recommendations guided the development of questions in section E on consistency of condom use, and these questions have been retained for the continuous NSFG.

Another way in which the NSFG addresses contraceptive behavior is to measure continuity of use. If women actively discontinue a contraceptive method or switch methods as a result of experiencing problems with a method, their level of contraceptive protection changes, or they may put themselves at risk of unprotected intercourse between methods. Researchers have found nontrivial amounts of contraceptive switching among unmarried women (Grady et al., 2002; Vaughan et al., 2008). With the 1995 NSFG researchers found 31% of women discontinued a method within 6 months of starting, for method-related reasons (Trussell & Vaughan, 1999). Recent analysis of 2002 data revealed substantial increases in method discontinuation since 1995 (Vaughan et al., 2008).

Beginning with Cycle 6, the NSFG has included questions asking whether women have *ever* discontinued specific contraceptive methods due to dissatisfaction, and asking for the reasons for having discontinued selected methods. Understanding why women discontinue contraceptives is essential to health care providers for improving women's continuity of use. Cycle 6 data showed that the diaphragm and cervical cap had the highest discontinuation rates while the condom had the lowest, and that the most common reason for discontinuing hormonal methods was side effects (Moreau et al., 2007).

Wantedness/Planning of pregnancies: The NSFG is the only source of national data providing estimates of unwanted and unintended pregnancies among U.S. women of the full reproductive age range, 15-44. Unintended pregnancies and births remain common (Boardman et al., 2006; Chandra et al., 2005; David, 2006; Finer & Henshaw, 2006; Trussell & Wynn, 2008) and are associated with negative health and developmental consequences for women and children (Institute of Medicine, 1995; Barber et al., 1999; Dye et al., 1997; Pulley et al., 2002; Williams et al., forthcoming).

Since 1965, a series of questions has been integrated into the contraception questions in the NSFG to measure the proportion of pregnancies that were intended, mistimed, or unwanted by the woman at the time she became pregnant. The earliest surveys showed that between 1965 and 1982, the proportion of recent births to married couples that were unintended dropped from two-thirds to one-third, as the pill and sterilization became popular family planning methods among married couples (Pratt et al., 1984). Analysis of data from the 2002 NSFG, however, suggests that since the 1970's, there has been no substantial reduction in the proportion of births that are unintended. About one-third of births and one-half of all pregnancies are still unintended. (Chandra et al., 2005; Finer & Henshaw, 2006; Mosher et al., forthcoming 2009).

Unintended pregnancies have long been a focus of public health policymakers and researchers, and also of the NSFG. In preparation for the 2002 NSFG, NCHS awarded a Professional Services Contract for an analysis of these questionnaire items, and sought other expert recommendations through literature reviews, professional associations and expert meetings. Based on all this input (recounted in Peterson and Mosher, 1999 and Campbell and Mosher, 2000), we incorporated selected items on these topics:

- strength of efforts to prevent pregnancy;
- strength of wanting to get pregnant or to avoid pregnancy,
- reasons for unplanned pregnancy, including problems with contraceptive use, and

- whether a pregnancy was wanted/not wanted with that particular partner.

These items have all been retained for the continuous NSFG. Considerable study is currently being conducted by teams of researchers at NCHS, the Guttmacher Institute, the National Campaign to Prevent Teen and Unplanned Pregnancy (www.thenc.org), and academic researchers. Among the applications of these data are that they inform service providers and research, public education and policy organizations (including the OPA, one of the NSFG's principal sponsors, and the National Campaign) about what improvements are needed in services aimed at helping women of all ages avoid pregnancies that they do not want.

Questions on reasons for non-use of contraception have also been added and enhanced. According to 2002 data, about half of all unintended pregnancies occurred to women who were not using contraception at the time they became pregnant (Finer & Henshaw, 2006). The NSFG addresses this topic in two ways:

1) (since the 2002 survey): within the pregnancy history, by asking women who were not using contraception at the conception of each unintended pregnancy, why they were not using contraception, and

2) (in the 2006-present survey): by asking all women who are not currently using contraception and are not seeking pregnancy, why they are not using contraception.

The NSFG helps understand the absence of contraceptive use among those at risk of unintended pregnancy, for a national sample of women of all reproductive ages (Gaydos et al, 2006; Kramer et al., 2007; Wu et al., 2008). This continues to be a critical service for all our sponsors, including NCHS, OPA, NICHD, ASPE, and CDC's DRH. In addition, it will inform the efforts of the National Campaign to Prevent Teen and Unplanned Pregnancy, an organization formed in 1996 to help reduce the number of teen pregnancies in the U.S., and recently expanded to include reduction of unwanted pregnancies as a goal. Understanding nonuse of contraception is an important part of the Campaign's mission; and the Campaign often works for and with the NSFG's funding agencies.

SECTION F: **Use of Family Planning and Medical Services**

Questions on use of family planning (birth control) services in the 12 months before the survey and the type of place where those services were received have distinctly practical uses in federal programs. OPA has responsibility for funding family planning clinic services for low-income women under Title X of the Public Health Service Act. OPA has an especially great interest in the data from Section F of the Female Questionnaire–because they can be used to develop statistical profiles of the demographic and health characteristics of Title X clinic users compared with those using other kinds of clinics, those using private doctors, and those who have not used family planning services. NCHS has provided special tabulations to OPA on several occasions that contained this kind of statistical portrait of the populations they serve.

Some of these profiles have also been published (e.g., Chandra et al., 2005, tables 86-96; Mosher et al., 2004, tables 15-18).

These NSFG data and other information have suggested that Title X clinics are now being pressed by their clients' needs to offer services in addition to birth control–services such as screening for sexually transmitted diseases (STDs) and HIV, Pap smears and breast exams for cancer screening, screening and referral for infertility, and even general primary health care for women who have no other source of medical care. This additional demand for other services faced by family planning providers shows that new data are needed at more frequent intervals on the population in need of family planning services. New data are also needed to understand the-role Title X clinics, other clinics, and private doctors play in providing family planning and other health services to teenagers, the poor, and minorities (Abma et al., 1997; Chandra et al., 2005; Frost, 2001, 2008; Mosher et al, 2004).

Key data obtained in section F include:

(1) Use of birth control and other medical services in the 12 months before the interview; and

(2) Where women received those services in the last 12 months, and how they paid for them.

(3) From 15-24 year-old women, data on the first services they ever received; and

(4) From Clinic users, whether the specific clinic they visited is their regular source for medical care.

We obtain data on what type of clinic the respondent used by looking up her clinic's name in an updated computerized data base of public clinics in the U.S. The name and address of clinics used in the last 12 months will be checked against a list to classify the clinic by type (Title X or other public clinic). The name and address of the clinic is <u>not</u> kept on the data file.

<u>SECTION G</u>: Birth Desires and Intentions

Questions on expected future births and their timing are relevant to short-term birth projections and indicate probable differences in completed family size among various socioeconomic groups (Abma et al., 1997; Chandra et al., 2005; Peterson, 1995a).

The NSFG questionnaire collects data on women's birth expectations or intentions, to help strengthen our ability to forecast future birth rates. A woman is asked whether she (and her husband or cohabiting partner, if applicable) intend to have a birth in the future. In addition, a woman is asked if she *wants* to have a baby in the future, as well as whether her husband *wants* to have a baby in the future. Thus, the NSFG asks separately the woman's preferences for future births and her views of her husband's or cohabiting partner's preferences. This is an attempt to get a more complete reporting of when the woman and her husband disagree about whether to

have a baby. It is also an attempt to capture "wanting" children in addition to actually "intending" to have them. "Wanting" measures the preference for children, while the intent may be a compromise with the partner or with economic reality–for example, as in a woman who says "I want to have another, but my husband doesn't think we can afford it, so I don't intend to have any more children."

The questions on birth expectations are also used to classify childless women by whether the woman expects to be temporarily or permanently childless, and if permanent, whether her childlessness is voluntary or nonvoluntary. In NSFG reports (Mosher and Bachrach, 1982; Abma and Martinez, 2006), women are said to be "voluntarily childless" if they have no children, do not expect to have any children in the future, and have no known fecundity impairment. In the last 3 decades there has been an increase in the number of women who are voluntarily childless. The NSFG data allows us to study this group of women and to learn how they differ from those who have children and those who expect to have children in the future (Abma & Martinez, 2006).

SECTION H

Infertility Services

The NSFG is the only nationally representative source of information on the receipt of medical help for infertility problems in the U.S. In the 1982-2002 cycles of the NSFG, women were asked about medical help they may have received either to help them become pregnant or to help them prevent pregnancy loss. Apart from analyses based on these 4 cycles, most studies of infertility services have been limited to self-selected samples of patients receiving such medical help. As noted above in Section D, NSFG data on infertility service use are among the most requested information from the survey. In addition to measuring several objectives for the Healthy People 2010 Initiative, the NSFG data on infertility services have been used:

- to estimate the need for infertility services and to document differentials in use of medical services for infertility (Anderson et al., 2008; Chandra & Stephen, 1998; Mosher & Pratt, 1990; Schmidt & Munster, 1995; Staniec & Webb, 2007; Stephen & Chandra, 1998, 2000; Vahratian, 2008a; Wilcox & Mosher, 1993, 1994);

- to help explain changes in the incidence of multiple births and adverse pregnancy outcomes (Doyle, 1996; Kiely et al., 1992; Martin, 1997; Martin, et al., 2005);

- to investigate the possible consequences, both economic and health-related, of specific infertility treatments (Bates & Bates, 1996; Farr et al., 2008; Griffin & Panak, 1998; Spirtas et al., 1993); and

- to examine the impact of changes in insurance coverage on the use of infertility services (Bitler & Schmidt, 2006).

Pelvic Inflammatory Disease (PID)

PID is a major cause of infertility, ectopic pregnancy, and pelvic pain in women. Between 1992 and 1994, almost half of gynecology visits to emergency departments were related to reproductive tract infections; the annual rate for PID-related visits to emergency rooms was 5.8 per 1000 women aged 15-44, and rates were disproportionately higher among younger women (15-24 years) and black women (Curtis et al., 1998). "Direct medical expenditures for PID and its sequelae were estimated at $1.88 billion in 1998," including costs for PID, chronic pelvic pain, ectopic pregnancy, and infertility associated with PID (Rein et al., 2000).

A study of the 1988 NSFG found that 11 percent of women aged 15-44 had ever been treated for PID (Aral et al., 1991). In 1995 and 2002, the percentages ever treated for PID had declined to 8 percent and 6 percent, respectively (Abma et al., 1997; Chandra et al., 2005), perhaps because of CDC and other program efforts to prevent PID through more effective STD testing and treatment.

PID is often caused by STDs such as gonorrhea or Chlamydia, although other behavioral factors, such as use of the intrauterine device for contraception and vaginal douching, have been associated with higher likelihood of PID as well (Cates et al., 1990, 1994; Cramer et al., 1985; Daling et al., 1985; Hillis et al., 1997). Because of the substantial costs of PID and its relation to STDs and infertility, data will continue to be collected on PID in the continuous NSFG.

Douching: Data on vaginal douching will continue to be collected in the NSFG, as douching is a recognized risk factor for sexually transmitted infections, PID, and adverse pregnancy outcomes (Aral et al., 1992; Brotman et al., 2008; Fiscella et al., 1998; Scholes et al., 1998; Zhang et al., 1997). PID and douching data are needed, and requested, by the CDC's Divisions of Reproductive Health and Sexually Transmitted Disease Prevention, and staff in those Divisions have assisted NSFG staff in improving the clarity of the douching and PID questions.

HIV Testing: Data on HIV testing among men and women in the primary reproductive age range of 15-44 years are an important component guiding prevention programs for HIV and other sexually transmitted diseases. See further justification under Section J (Audio CASI). Based on analyses of these data from the 2002 NSFG (Anderson et al., 2005; Anderson & Sansom, 2006), the series of question on HIV testing was modified in the following ways for the continuous NSFG, which also address data needs of the NSFG cosponsors:

- question was added on "rapid testing" (including allowance for non-blood HIV tests)
- topics of post-test counseling have been refined to make them more interpretable
- selected "other (specify)" fields were added to inform future years of data collection (e.g., place of HIV testing, other topics covered in post-test counseling)
- entire series was made more comparable to NHIS questions

HPV Vaccine (Gardasil): At the request, and with the funding, of the CDC's Division of Sexually Transmitted Disease Prevention (DSTDP), questions were added in June 2007 ("year 2" of continuous interviewing) on Human Papillomavirus (HPV) and HPV vaccine

knowledge, and to ask about HPV vaccine experience. The Office of Population Affairs has also expressed strong support for this series.

Genital HPV infection is the most common sexually transmitted infection (STI) in the United States (U.S.) today. Over half of sexually active women and men are infected with HPV at some point in their lives and approximately 20 million Americans 15 to 49 years of age (about 15% of the population) are currently infected with HPV. In most cases, infections with HPV are not serious and resolve without treatment. However, in some individuals, HPV infections result in genital warts, Pap test abnormalities, or, cervical cancer. Although Pap testing has significantly reduced the incidence of cervical cancer in the United States, an estimated 12,000 U.S. women are diagnosed with cervical cancer every year and 4,000 women die of cervical cancer (U.S. Cancer Statistics Working Group, 2007).

Clinical trials have shown significant efficacy and safety of two candidate vaccines that each protect against the two HPV strains responsible for about 70% of all cervical cancers in the U.S. One of these vaccines, Gardasil ™, was licensed by the FDA and recommended for routine use among 9-26 year old females in 2006 (CDC, 2007). In light of extensive marketing and public health campaigns to implement Gardasil™, it is important to monitor issues related to HPV awareness and HPV vaccine uptake.

In addition, media and research indicate that parents and others are concerned about an increase in sexual risk-taking following vaccination against an STD (Mays et al., 2004; Stanberry & Rosenthal, 2005; Washam, 2005). Other speculation is that vaccination may create a lower perceived risk of cervical cancer among women and result in a decreased reproductive and sexual health care. Other unknown consequences of an HPV vaccine program are possible.

The new questions added to the NSFG, in conjunction with existing questions already asked by NSFG, offer an opportunity to gauge changes in sexual risk-taking and sexual health-care seeking that may accompany an HPV vaccine. Monitoring unintended changes in sexual or healthcare seeking behavior possibly resulting from availability of an HPV vaccine is necessary to allow for possible intervention to curb such changes before they lead to other negative health consequences

SECTION I

(Also see "Social, Economic, and Demographic Characteristics", on page 6)

Access to Health Care and Health Insurance Coverage

In assessing the need for and the utilization of health services, policymakers and program managers must understand the factors which enable individuals to gain access to the health services they need. Two widely recognized factors are having a regular source of health care and having health insurance coverage. The questions in this subsection are adapted from the 1993 Access to Care and 1998 Health Insurance Surveys of the National Health Interview

Survey, and the NSFG data have been compared to NHIS in a published report (Jones & Cohen, 2007).

Home ownership

Each respondent is asked whether she rents or owns the residence, or is occupying the residence without payment of cash rent (a proxy for publicly-subsidized housing). Owning vs. renting may be less sensitive and less subject to error than income. It also augments the information on the socioeconomic status of the respondents.

Employment

Along with education, employment determines access to health insurance and other material and social resources that influence the respondent's orientation toward health, reproduction, and the family (Hansen & Garey, 1998; Kraft & Coverdill, 1994). Research has documented important effects of employment on factors such as breastfeeding, unwanted pregnancies, birth timing, family size, contraception, and the use of reproductive health services.

Questions about employment ascertain whether the respondent has ever worked full-time for a period lasting 6 months or longer, and the date of the first such employment. Respondents are also asked about any paid work within the past 12 months. Together these questions should capture essential summary information about work experience for adults and for adolescents.

Residence and place of birth

Social scientists have found that neighborhoods have important influences on the sexual, contraceptive and marital behavior of young adult men and women (Anderson, 1989; Averett et al., 2002; Billy et al., 1994; Billy & Moore, 1992; Brewster, 1994a, 1994b; Brewster et al., 1993; Grady et al., 1993; Hogan et al., 1985; Hogan & Kitagawa, 1985; Ku et al., 1993; Lloyd & South, 1996; Mosher et al., 2003; Mosher & McNally, 1991; Sucoff & Upchurch, 1998). In past cycles of the NSFG, the collection of a minimal residential history has permitted researchers to analyze data for those women who lived in an area long enough to be influenced by their surroundings. Census and other small-area data are merged with NSFG data to analyze the context in which decisions about family size, contraceptive use, and sexual activity are made. As in the 1995 and 2002 NSFG's, a contextual file containing detailed information on characteristics of the neighborhoods in which NSFG respondents live, will be prepared. This file will enable analysis of small-area data for communities in which respondents live.

Respondent's current residence is captured from listing and screening procedures, so does not need to be asked directly, but will become part of the (confidential) data file. To be able to link to contextual data from the 2000 Census, exact residence in April 2000 is

ascertained. The series also captures the date the respondent moved to the U.S. to stay, if foreign-born. Duration of residence in the U.S. is important for studying the association between immigrant status and exposure to U.S. culture regarding fertility and union formation. It is also important for comparing survey-based estimates of birth rates to vital statistics.

Religion

Questions about religious affiliation and attendance have been asked in all cycles of the NSFG since 1973, and in all the predecessor surveys back to 1955 with excellent respondent cooperation. In the 1995 NSFG, questions asking about the importance of religion to the respondent were added to the survey and will be retained for 2009-12. The NSFG has never asked respondents to describe specific religious beliefs or attitudes.

This section will briefly describe
(a) what religion questions are asked,
(b) the uses of the data for understanding fertility and contraception, and
(c) their contributions to the growing literature on religion and health.

The questions—The NSFG questions on religious affiliation and religiosity are questions IC-1 to IC-10 (most respondents are not asked all of them). They include the religious affiliation, if any the respondent was raised in, and their current affiliation (or denomination); frequency of attendance at services currently (and for those 15-24, at age 14); how important religion is in the respondent's life; and which of several labels (such as "Born again Christian," and "Fundamentalist,") if any, the respondent identifies with.

The questions on religious affiliation are sequenced so that the religious affiliation of about 85 percent of respondents can be classified using the first list of religions which includes: Catholic, Jewish, Southern Baptist, Baptist, Methodist or African Methodist, Lutheran, Presbyterian, Episcopal or Anglican, and Church of Jesus Christ of Latter Day Saints (LDS/Mormon). The other 15 percent of respondents can be classified by the categories in the second list. Along with a number of Protestant or Christian denominations, the second list includes Greek and other Orthodox, Unitarian- Universalist, Muslim, Buddhist, and Hindu.

The question about "religion in which one was raised" was added in the 1995 NSFG, and kept for the 2002 survey and the continuous NSFG, for two reasons: first, to determine the effects of religious background on reproductive behaviors, particularly among teens and young adults (15-24); and second, because of the significant number of respondents who were raised in one religion, and then changed to a different religion at either adulthood or at marriage. This question has been asked on other national surveys (such as the General Social Survey) with good respondent cooperation.

Religion, fertility, and contraceptive use--For at least 5 decades, religious affiliation and attendance have been found to be strongly related to family size and contraceptive use as well as the age at first premarital intercourse, and the NSFG has been a major source of the data in those studies (Goldscheider & Mosher, 1984, 1991; Mosher & McNally, 1991; Mosher, Williams &

Johnson, 1992; Zhang, 2008; Hayford and Morgan, 2008). More recently, NSFG measures of the religious background have been shown to be strong independent predictors of the sexual behavior of teenagers, including oral and vaginal sex and contraceptive use (Brewster and Tillman, 2008; Regnerus, 2007).

Given that child care, transportation, and other issues can interfere with attendance, and given that the religious participation of teens living with their parents may not be voluntary, a question on the importance of religion was added in the 1995 survey. This question is strongly related to many NSFG outcomes—both behaviors and attitudes. (Chandra et al, 2005; Martinez et al, 2006).

As in the 2002 NSFG, the continuous NSFG also includes a question asking about fundamentalist religious affiliation. Studies have shown that over time, fundamentalism has become more strongly associated with family size, contraceptive use, and sexual activity. The use of the measure in the 2002 NSFG was limited by a coding problem, but it is expected to be an additional useful correlate of NSFG measures.

Religion and health--There is an already large and rapidly growing literature on religion, religious participation, and health (e.g., Koenig et al., 2001; Strawbridge et al., 1997). In general, this literature has found that those who attend services or for whom religion is more important have lower mortality and less illness than others, and that some (but not all) of this relationship is related to healthier habits such as less smoking, more social contacts, and staying married. Two recent published studies using data from the 2002 NSFG show that religious participation and importance, and affiliation are related to cigarette smoking, alcohol consumption, and use of marijuana during pregnancy, after controlling for known confounders (Gillum & Sullins, 2008; Page et al., 2008).

Respondent's and Partner's Current/last Job Information

Fertility, marriage and cohabitation are affected by the employment status and the nature of employment, and the earnings of an individual's spouse or partner. This series of questions is adapted from the Current Population Survey's series on labor force participation and income.

Child Care

Child care is one of the most important links between childbearing and employment for women. Access to quality and affordable child care diminishes barriers to participation in the labor market. Child care use and adequacy may also affect subsequent childbearing decisions (Blau & Robins, 1989). As in the 2002 survey, this series ascertains whether childcare was used in the past four weeks and type(s) of childcare used.

Attitudes

On the urging of a number of consultants and researchers, a short series of attitude questions was included in the 2002 female and male questionnaires to measure associations between values and reproductive outcomes of interest, including: age at first intercourse; teen pregnancy; pregnancy resolution; cohabitation, marriage, separation, divorce, and remarriage; and the importance of children and parenthood. This series was retained for the Continuous NSFG and expanded slightly at the request of NICHD. Questions in this section ask about attitudes toward:

- premarital sex,
- parenthood,
- nonmarital childbearing and parenting,
- gender roles,
- marriage and cohabitation,
- divorce, and
- condom use.

These items will serve as indicators of values, in both the male and female questionnaires. They will also help to elucidate some current policy concerns about values surrounding sexual behavior, childbearing and the family, and their relationship with individual behavior. Collecting family-related attitudes is consistent with the recommendations of the "Counting Couples" interagency initiative to improve family-related data (Federal Interagency Forum on Child and Family Statistics, 1998; Federal Interagency Forum on Child and Family Statistics, 2001).

The questions will also be useful for ASPE's research program on families, as well as NCHS statistical reports. Some studies have collected similar questions from samples of teens and young adults (e.g., National Longitudinal Study of Youth and the Toledo Adolescent Relationships Study), but not from a national survey collecting fertility information from the wide reproductive-age range as available in the NSFG. The disassociation of childbearing from marriage is continuing (Manning et al., 2007), with childbearing to unmarried women rising to record high levels (39% of all births in 2006). Only for age groups 25-29 and above do marital births outnumber nonmarital births (Hamilton et al., 2007) and these are precisely the ages that previous studies do not interview.

Cohabitation is increasingly more common among older adults (Brown et al., 2006) and young respondents as an alternative or a precursor to marriage (Smock et al., 2005). It is also becoming an acceptable family structure in which to raise children–over 40% of single mothers are in cohabiting unions (Chandra et al., 2005). Therefore, it is important to capture attitudes towards nonmarital childbearing, cohabitation, and marriage, especially given the relevance to NICHD and ASPE programming.

Most of these items have been adapted from other national surveys. Some of the attitude items are comparable to those which appeared on the earliest fertility surveys, while others are adapted from more recent national surveys including the National Survey of Adolescent Males

(NSAM), the National Survey of Families and Households (NSFH), and the General Social Survey (GSS).

SECTION J: AUDIO COMPUTER-ASSISTED-SELF-INTERVIEW (Audio CASI)

This section collects the most sensitive data in the questionnaire, so it allows the respondent to enter her answers directly into the computer, rather than telling them to the interviewer. To do this, the questions and answer categories have been kept relatively simple and straightforward.

Height and Weight

All respondents are asked for their height and weight, which can be used to define body mass index (BMI). In the 2002 NSFG ACASI file documentation, users are instructed on how to define BMI and advised to define it only for non-pregnant adult women, given interpretation issues with BMI among teenagers and pregnant women. Several studies have been published with 1995 and 2002 NSFG data to document the prevalence of overweight and obesity among women of childbearing age (Vahratian, 2008b), as well as the association of BMI with oral contraceptive failure, unintended pregnancy, and sexual behavior (Boehmer et al., 2007; Brunner & Hogue, 2005; Brunner-Huber & Toth, 2007; Kaneshiro et al., 2008a,b).

Pregnancy Reporting

Under-reporting of abortion has long been a challenge facing fertility surveys such as the NSFG (Fu et al., 1999; Jagannathan, 2001; Jones & Forrest, 1992; Jones & Kost, 2007). In addition, women may be reluctant to report to an interviewer that she placed a child for adoption.

For both of these reasons, the continuous NSFG's Audio CASI includes a series of questions that ask about the respondent's number of pregnancies in a recent period (last 5 years), by each type of pregnancy outcome:

– live birth
– spontaneous pregnancy loss (miscarriage, stillbirth, ectopic pregnancy)
– induced abortion

The series is designed to give each respondent an opportunity, in a non-punitive and private manner, to report other pregnancies she may not have reported to the interviewer. The choice of a recent timeframe for these questions is intended to a) minimize recall errors, and b) facilitate comparison with other data sources on pregnancy and abortion reporting. Lessons learned from earlier cycles of the NSFG, as well as advice from key users of these data, have been incorporated with the expectation of improving reporting of abortions in particular.

Cigarette Smoking

Tobacco use has been the leading preventable cause of premature death in the United States, accounting for over 400,000 deaths each year (CDC, 2005). Smoking is a risk factor for infertility, PID, cervical cancer, and other health problems (Chollat-Traquet, 1992), particularly when combined with use of hormonal birth control (Hatcher et al., 2004). Smoking in pregnancy significantly increases the likelihood of low birthweight, miscarriage, and pregnancy complications. In the context of adolescence, tobacco is also considered a "gateway" drug to use of potentially more dangerous, more addictive and illegal substances (U.S. DHHS, 1994).

The NSFG data have been used for the Healthy People 2000 and 2010 Objectives on smoking among reproductive age women, teen women, oral contraceptive users, and currently pregnant women. Questions on cigarette smoking are asked in the context of a series on substance use in the Audio CASI, including a question on age at first cigarette smoking. Questions about cigarette smoking *during pregnancy* are in Section B's pregnancy history, and, as in the 2002 survey, these will be asked in the continuous NSFG for all recent pregnancies (i.e., those within the last 5 years). Data from the 2002 survey on these topics have been published in several reports (Chandra et al., 2005; Gillum & Sullins, 2008; Page et al., 2008).

Other Substance Use

The focus of the series on substance use is frequency of use within the last 12 months, as this has been shown to be most closely correlated with other risk behaviors and adverse outcomes. After questions about cigarettes and alcohol, including a question on "binge drinking," the Audio CASI questionnaire in the 2002 NSFG asked about use of marijuana, cocaine, crack, and illegal injected drugs (Anderson et al., 2005, 2006). In the continuous NSFG survey, a question was added in Audio CASI on crystal meth (methamphetamines) in response to its increased prevalence since 2002.

School Suspension and Expulsion

In 2007 (year 2 of continuous interviewing), two questions on school suspension and expulsion that were previously included in the Cycle 6 Pretest (conducted in 2001) were restored in the ACASI portion of the survey for males and females 15-24 years of age. These questions were previously deleted from the instrument due to interview length. Once it was clear that interview length was below the desired targets, the questions were restored because suspension/expulsion from school: is an adverse experience that constitutes a stressful life event and may indicate academic and social problems; and it is a measure reflecting educational problems that is appropriate for young people who have not finished school. These conclusions are explained in the following paragraph.

It is well-documented that school performance and educational attainment have important effects on a host of outcomes measured by the NSFG: the effectiveness of contraceptive use, the timing of first sexual intercourse, age at the first birth, the occurrence of

unwanted pregnancies, the use of reproductive health services, and risk of contracting sexually transmitted infections (STIs) (Bankole et al., 1999; Brown et al., 2003; Ford et al., 2005; Santelli et al., 2000). However, since adolescents and some young adults have not yet completed schooling, "amount of education attained" is not meaningful for them in the way it is for older persons. Therefore, experience with suspension and expulsion is a measure of educational problems, within the level of school relevant for, or recently experienced by, this age group. Suspension or expulsion may be accompanied by lifestyles that include risk-taking and substance use among individuals in need of greater intervention. This is relevant for both males and females and adding this to the female questionnaire will provide comparable data for them.

Age of sexual partner at first sex, for minor respondents

Sexual intercourse between minors and non-minors is of interest to the research and public policy community because it constitutes statutory rape, with the exact ages and age differences varying from state to state. Section 906 of the 1996 Welfare Reform Act directs the Department of Justice to initiate a program "that studies the link between statutory rape and teenage pregnancy, particularly by predatory older men committing repeat offenses." Individual instances of statutory rape disclosed in the NSFG ACASI are not reportable to any agencies or authorities, due to confidentiality laws covering NCHS survey respondents. However, the NSFG staff provided aggregated tabulations of data from the 1995 NSFG to the Department of Justice for this program. Regardless of specific ages, the issue of sexual partnerships between older males and younger female teens continues to be of interest because of associations with negative outcomes (Manlove et al., 2005). The age of the first partner, as well as the ages of any current sexual partners, is asked in the ACASI portion of the interview for minor respondents (those aged 15-17 years) in order to address concerns about the potential reportability of these age differences.

Nonvoluntary Sexual Intercourse

In addition to knowing when sexual intercourse is initiated, it is important to understand the circumstances surrounding the initiation of sexual intercourse. Starting in 1995, the NSFG has included questions to assess whether first intercourse was voluntary or nonvoluntary. Through this and previous surveys we know that a nontrivial amount of nonvoluntary intercourse occurs; it is strongly related to young age at first sex (Abma et al., 1998, 2004), and as recent analyses of the 2002 NSFG data show, strongly related to older age of the male partner (Manlove et al., 2005). Nonvoluntary sexual intercourse increases the risk of adolescent pregnancy and the acquisition of sexually transmitted diseases, including HIV (Boyer & Fine, 1992). Nonvoluntary sexual activity increases these and other risks in part by leading to more risky sexual behavior, such as increased numbers of partners (Boyer & Fine, 1992; Browning & Laumann, 1997; Elliott et al, 2002; Roosa et al., 1997; Small & Kerns, 1993). Women who have experienced nonvoluntary intercourse are also at greater risk of marital dissolution (separation and divorce) (Bramlett & Mosher, 2002) and unintended first birth (Williams et al.,

forthcoming). In addition, it is important to measure the prevalence of *ever* having been forced to have intercourse, which remains relatively common among women in the U.S. (Child Trends, 2008).

Audio CASI contains the following question, developed with the help of experts on nonvoluntary sexual experiences: to what degree first intercourse was wanted, whether it was voluntary or not voluntary, and whether the respondent has ever been forced to have intercourse, and if so, at what age it first occurred. The questions have follow-up items asking about the type of force used, if any. The NSFG staff obtained legal advice from the CDC Office of General Counsel about the series on nonvoluntary sexual intercourse. To avoid any concerns about the reporting of these events to state authorities, the General Counsel recommended that we limit all of the questions on nonvoluntary sexual intercourse to respondents 18 years and older, and we have done so in Cycles 6 and 7.

Sexually Transmitted Disease (STDs)

STDs affect almost 12 million Americans each year, 86 percent of whom are aged 15 through 29. About one-fifth of all young people, by the time they reach 21, have needed treatment for an STD. In addition to increasing the risk of HIV infection and AIDS, the most serious complications of STDs are PID, sterility or impaired fecundity, ectopic pregnancy, blindness, and cancer associated with human papilloma virus (e.g., cervical cancer). STDs are also related to fetal and infant death, birth defects, blindness, and mental retardation in babies born to infected mothers. For new cases of STDs occurring among 15-24 year olds alone in 2000, the total estimated burden was $6.5 billion (Chesson et al., 2004); the total for all age groups was probably about double that figure. The health and economic consequences of STDs continue to be a major concern (Eng & Butler, 1997).

At the request of CDC's STD Division and NICHD, questions were included in the 1988 and 1995 on whether the woman had ever been told by a doctor that she had gonorrhea, Chlamydia, genital herpes, or syphilis. Despite the probable under-reporting of STDs in self-reported surveys, these infections have been found to be significantly associated with a number of important variables measured in the NSFG, including:

- Responses to the AIDS epidemic (Campbell & Baldwin, 1991; McNally & Mosher, 1991; Mosher & Pratt, 1993);
- PID (Aral et al., 1991 ; Petersen et al., 1991);
- Health screening (Hewitt et al., 2002; Wilcox & Mosher, 1993);
- Testing for HIV and STD (Anderson et al., 2005; Mosher et al., 2005); and,
- HIV/STD risk behaviors (Anderson et al., 2006; Mosher et al., 2005)

These uses have convinced NCHS and the sponsors that questions on STDs should be continued. These questions are asked in the Audio CASI to enhance privacy for the respondents. In keeping with the focus in Audio CASI on behaviors within a recent period, these questions on STDs are generally limited to the last 12 months. Due to the chronic nature of certain STDs, respondents are asked about genital herpes, genital warts, and syphilis over their lifetimes. A

question on testing for Chlamydia in the past year has also been added to this question series in the Cycle 7 Audio CASI. This item is already being used to track progress towards a national health objective that all sexually active women be tested annually for this often-asymptomatic infection (Tao et al., 2007), which is linked to reproductive health problems, including PID and infertility.

STD/HIV/AIDS-related Behavior

The increasing numbers of heterosexual men and women infected with HIV, the AIDS virus, and the number of young women exposed to STDs by the risky behavior of themselves or their partners have increased the need to update frequently the information on women of reproductive age who are exposed to the risk of HIV infection (Anderson et al., 2000, 2006; Darroch et al., 1999b; Finer et al., 1999; Holmes et al., 1990; McNally & Mosher, 1991; Miller et al., 1999; Mosher et al, 2005). Data for HIV/AIDS cases (in 33 areas with confidential name-based reporting) in 2002 suggest that 49 percent of HIV cases diagnosed in 2002 were transmitted by same-sex sexual contact among males, another 34 percent by heterosexual vaginal intercourse, 15 percent by injection drug use, and the other 2 percent by other or unknown means (Centers for Disease Control and Prevention, 2002). Therefore, roughly 83 percent of cases were acquired through sexual behavior.

Furthermore, educational campaigns in recent years have encouraged teenagers to delay sexual activity, and some concern has been raised that teenagers may be responding to this message by engaging in oral or anal sex, which they may view as a means of retaining their virginity and preventing pregnancy. (Brewster & Tillman, 2008; Halpern-Felsher et al., 2005; Mosher et al., 2005; Child Trends, 2005; Remez, 2000; Sanders & Reinisch, 1999; Schuster et al., 1996). There is evidence, however, that certain diseases can be transmitted through oral sex, including gonorrhea, Chlamydia, chancroid, syphilis, and herpes (ACOG, 2008; Edwards & Carne, 1998; Hawkins, 2001), and some groups may also be at elevated risk of HIV transmission through oral sex, including men who have sex with men and certain drug users (Rothenberg, et al., 1998).

While questions on oral and anal sex were included in the 2002 NSFG and in 2006-2008 under continuous interviewing, it was not possible from those questions to determine to what extent oral sex may occur before the young person has ever had vaginal intercourse. Therefore in

2007, a question was added for all persons 15-24 years of age who have had both vaginal intercourse and oral sex to determine which occurred first. This information will help gauge exposure to sexually transmitted infections (STIs) and HIV prior to first intercourse.

In the NSFG since 1988, questions on behavior that affect the risk of contracting the AIDS virus were asked at the request of the NICHD and the CDC's Division of STD/HIV Prevention. Questions on HIV testing were included for the first time in the 1990 Telephone Reinterview. Much of these data have been published in several reports (Abma et al., 1997; Anderson et al., 1996, 2005, 2006; Chandra et al., 2005; Mosher et al., 2005; Mosher & Pratt,

1993; Wilson, 1993). Questions on HIV testing and HIV risk behaviors were significantly expanded in the 2002 NSFG to reflect evolving data needs of the CDC, NCHS, and NICHD, and to improve the precision and usefulness of the behavioral risk data. In addition to the new questions on whether vaginal intercourse or oral sex occurred first, in 2007, questions were added on the numbers of opposite-sex partners in the last 12 months, by type of sexual contact (oral, vaginal, or anal sex).

Previous research, with the NSFG and other data sources (Anderson et al., 2006; Leichliter et al. 2007; Lindberg et al, 2008; Mosher et al., 2005), indicates that sexual activity other than vaginal intercourse is an important component of risk for sexually transmitted infections (STI), including HIV, among heterosexuals. Beginning with the 2002 NSFG, the survey has begun monitoring the lifetime prevalence of oral and anal sex with opposite-sex partners. The relatively high prevalence of these behaviors and their association with STI acquisition suggest that it is important to know not just lifetime prevalence but recent experience. Given the variability of STI-preventive behaviors (such as condom use) in connection with different sexual behaviors and with different partners, the NSFG, upon request of our funding partners at CDC's Division of HIV-AIDS Prevention (DHAP) and Division of Sexually Transmitted Disease Prevention (DSTDP), has added separate questions in Audio CASI to ask the number of opposite-sex partners with whom the respondent has engaged in vaginal, oral, or anal sex in the last 12 months. These data will strengthen the NSFG's ability to obtain a more current measure of HIV and STI risk in the general population.

Sexual Orientation, Attraction, and Behavior

Questions on sexual attraction (JH-2) and sexual orientation (JH-3) are placed near the end of the self-administered section of the questionnaire. Previous research by Laumann, Michael, and others (1994; see also Mosher et al, 2005; Turner et al., 2005) suggests that sexual orientation, attraction, and behavior are correlated but not perfectly correlated dimensions, and that it is necessary in surveys to collect all three to get accurate measures of sexual behavior and their related risk groups.

Thus, these questions are asked for several reasons: first, to provide national estimates of populations (15-44 years of age) that are at increased risk of sexually transmitted infection (including HIV) (Anderson et al., 2006). Second, they are asked as a correlate or explanatory factor for the sexual behavior data collected in the rest of the questionnaire (Jeffries, 2007; Jeffries & Dodge, 2007; Tao, 2008). Third, they are asked to provide data that will help to assess the adequacy of HIV testing, STI testing, health insurance coverage, and other factors (Anderson

et al., 2005; Chandra et al., 2005; Martinez et al., 2006; Mosher et al, 2005, AD 362, tables 18-22). For example, a number of Healthy People 2010 objectives have been specified for groups based on sexual orientation, and these measures could also respond to some of those data needs.

A detailed report on sexual orientation, attraction, and behavior was published by NCHS in September of 2005 (Mosher et al, 2005). That report found higher than expected percentages of women, particularly young women, reporting that they have had female-female sexual

contact. The vast majority of these women, however, have also had sex with men. The STI implications of this behavior deserve further study. That report also found 3.9% of respondents reporting that their sexual orientation was something other than heterosexual, homosexual, or bisexual; for black and Hispanic respondents, this was over 7 percent. The report suggests that some respondents may not understand these three terms or may need other terms to choose from.

Based on our own study of the sexual orientation data from Cycles 6 and 7, and some research in the NCHS Questionnaire Design Research Laboratory, the response choices for the sexual orientation question has been revised to offer the following response categories:

"Heterosexual or straight",
"Homosexual, gay or lesbian" (for men, "homosexual or gay"), or
"*Bisexual."*

Income

The justification for asking income in the survey was explained above under "Social, Economic and Demographic Characteristics." Because of their sensitive nature, the income questions were moved into ACASI in the 2002 NSFG and in the continuous survey (2006-present). Moving the income questions to ACASI in 2002 reduced the level of missing data among female respondents by one-third, indicating greater respondent comfort with this mode.

Questions on the respondent's own earnings (to complement information on family income) are included, as had been done in most previous cycles. These questions on earnings and income were adapted from the Current Population Survey's series of questions on income and public assistance.

REFERENCES

Abdullah SB. 1996. Transracial Adoption is Not the Solution to America's Problems of Child Welfare. Journal of Black Psychology 22(2):254-61.

Abma J, Chandra A, Mosher W, Peterson L, Piccinino L. 1997. Fertility, Family Planning, and Women's Health: New Data from the 1995 National Survey of Family Growth. Vital and Health Statistics 23(19). Hyattsville, MD: National Center for Health Statistics.

Abma J, A Driscoll & K Moore. 1998. Differing Degrees of Control over First Intercourse and Young Women's First Partners: Data from the 1995 National Survey of Family Growth. Family Planning Perspectives 30(1):12-18.

Abma JC, Martinez GM. 2006. Childlessness among older women in the United States: Trends and Profiles. Journal of Marriage and Family 68 (4): 1045-1068.

Abma J, Martinez G, Mosher W, Dawson B. 2004. Teenagers in the United States: Sexual Activity, Contraceptive Use, and Childbearing, 2002. Vital and Health Statistics 23(24). Hyattsville, MD: National Center for Health Statistics.

Abma JA, Sonenstein F. 2001. Sexual Activity and Contraceptive Practices among Teenagers in the United States, 1988 and 1995. National Center for Health Statistics. Vital and Health Statistics 23(21).

Adams EK, G. Solanki, L. S Miller. 1997. Medical Expenditures Attributable to Cigarette Smoking during Pregnancy–United States, 1995. Morbidity and Mortality Weekly Report 46(44):1048-50.

Adimora AA, VJ Schoenbach, DM Bonas, FEA Martinson, KH Donaldson & TR Stancil. 2002. Concurrent Sexual Partnerships among Women in the United States. Epidemiology 13:320-327.

Albert B. 2007. With One Voice: America's Adults and Teens Sound Off About Teen Pregnancy. Washington, DC: National Campaign to Prevent Teen Pregnancy.

Albrecht C & JD Teachman. 2003. Childhood Living Arrangements and the Risk of Premarital Intercourse. Journal of Family Issues 24(7):867-894.

Alexander R, Jr. & CM Curtis. 1996. A Review of Empirical Research Involving the Transracial Adoption of African American Children. Journal of Black Psychology 22(2):223-35.

American Academy of Pediatrics. 1997. Breastfeeding and the Use of Human Milk (policy statement RE9729). Pediatrics 100(6):1035-9.

American College of Obstetrics & Gynecology, 2008. Press release "ACOG directs attention to health risks of noncoital sexual activity." http://www.acog.org/from_home/publications/press_releases/nr09-01-08-2.cfm (accessed 10/3/08).

American Academy of Pediatrics. 2005. "Breastfeeding and the Use of Human Milk." Policy statement. Pediatrics 115(2):496-506. Specific citation: page 499.

Andersen BA, L Ostergaard, E Puho, MV Skriver & HC Schonheyder. 2005. Ectopic Pregnancies and Reproductive Capactiy after Chlamydia Trachomatis Positive and Negative Test Results: A Historical Follow-Up Study. Sexually Transmitted Diseases 32(6):377-381.

Anderson E. 1989. Sex Codes and Family Life among Poor Inner-City Youths. Annals of the American Academy of Political and Social Science 501(Jan):59-78.

Anderson JE, R Brackbill & W Mosher. 1996. Condom Use for Disease Prevention among Unmarried U.S. Women. Family Planning Perspectives 28(1):25-28.

Anderson JE, JW Carey & S Taveras. 2000. HIV Testing among the General US Population and Persons at Increased Risk: Information from National Surveys, 1987-1996. American Journal of Public Health 90(7):1089-1095.

Anderson JE, Chandra A, Mosher WD. 2005. HIV Testing in the United States, 2002. Advance Data Number 363. Hyattsville, MD: National Center for Health Statistics. November 8, 2005. 32 pages.

Anderson JE, Farr SL, Jamieson DJ, Warner L, Macaluso M. 2008. Infertility services reported by men in the United States: national survey data. Fertility and Sterility 2008. April 24 epub ahead of print.

Anderson JE, L McCormick & R Fichtner. 1994. Factors Associated with Self-reported STDs: Data from a National Survey. Sexually Transmitted Diseases 21(6):303-8.

Anderson JE, Mosher WD, Chandra A. 2006. Measuring HIV Risk in the US Population aged 15-44: Results of the 2002 NSFG. Advance Data No. 377. October 23, 2006. Hyattsville, MD: National Center for Health Statistics.

Anderson, John E, and Stephanie Sansom. 2006. HIV Testing Among U.S. Women During Prenatal Care: Findings from the 2002 National Survey of Family Growth. Maternal and Child Health Journal 10(5):413-417, Sept 2006.

Aral S, W Mosher & W Cates, Jr. 1991. Self-reported Pelvic Inflammatory Disease in the United States, 1988. Journal of the American Medical Association 266(18):2570-2573.

Aral S, W Mosher & W Cates, Jr. 1992. Vaginal Douching among Women of Reproductive Age in the United States: 1988. American Journal of Public Health 82(2):210-214.

Aral S, J Schaffer, W Mosher & W Cates, Jr. 1988. Gonorrhea Rates: What Denominator is Most Appropriate? American Journal of Public Health, 78(6):702-703.

Averett SL, DI Rees, & LM Argys. 2002. The Impact of Government Policies and Neighborhood Characteristics on Teenage Sexual Activity and Contraceptive Use. American Journal of Public Health 92(11):1773-1778.

Axinn W & J Barber. 1997. Living Arrangements and Family Formation Attitudes in Early Adulthood. Journal of Marriage and the Family 59(3):595-611.

Axinn W & A Thornton. 1996. The Influence of Parents' Marital Dissolutions on Children's Attitudes towards Family Formation. Demography 33(1):66-81.

Bachrach C. 1987. Cohabitation and Reproductive Behavior in the United States. Demography 24(4):623-628.

Bachrach CA, KA London & PL Maza. 1991. On the Path to Adoption: Adoption Seeking in the U.S., 1988. Journal of Marriage and the Family 53(3):705-718.

Bachrach CA, K Stolley & KA London. 1992. Relinquishment of Premarital Births: Evidence from National Survey Data. Family Planning Perspectives 24(1):27-32.

Bankole A, JE Darroch & S Singh. 1999. Determinants of Trends in Condom Use in the United States, 1988-1995. Family Planning Perspectives 31(6):264-271.

Barber J, WG Axinn, & A Thornton. 1999. Unwanted Childbearing, Health, and Mother-Child Relationships. Journal of Health and Social Behavior 40: 231-257.

Bates GW & SR Bates. 1996. The Economics of Infertility: Developing an Infertility Managed-care Plan. American Journal of Obstetrics and Gynecology 174(4):1200-7.

Beck S, et al. 1991. Religious Heritage and Premarital Sex: Evidence from a National Sample of Young Adults. Journal for the Scientific Study of Religion 30(2):173-180.

Belli, R. F. (1998). The structure of autobiographical memory and the event history calendar: Potential improvements in the quality of retrospective reports in surveys. *Memory, 6*, 383-406.

Bennett NG, Bloom D, Miller CK. 1995. The Influence of Nonmarital Childbearing on the Formation of First Marriages. Demography 32(1):47-62.

Berg CJ, Atrash, HK, Koonin, LM, Tucker M. 1996. Pregnancy-related Mortality in the United States, 1987-1990. Obstetrics and Gynecology 88(2):161-7.

Berrick JD & RP Barth. 1994. Research on Kinship Foster Care: What Do We Know? Where Do We Go From Here? Children and Youth Services Review 16(1-2):1-5.

Billy JOG, KL Brewster & WR Grady. 1994. Contextual Effects on the Sexual Behavior of Adolescent Women. Journal of Marriage and the Family 56:387-404.

Billy J & D Moore. 1992. A Multilevel Analysis of Marital and Nonmarital Fertility in the U.S. Social Forces 70(4):977-1011.

Bird S, A Chandra, T Bennett, & S Harvey. 2000. Beyond Marital Status: Relationship Type and Duration and the Risk of Low Birth Weight. Family Planning Perspectives 32(6): 281-287.

Bitler M, Schmidt L. 2006. Health disparities and infertility: Impacts of state-level insurance mandates. Fertility and Sterility 85(4): 858-65.

Blau D & P Robins. 1989. Fertility, Employment, and Child-Care Costs. Demography 26:287-299.

Boardman LA, Allsworth J, Phipps MG, Lapane KL. 2006. Risk Factors for Unintended versus Intended Rapid Repeat Pregnancies Among Adolescents. Journal of Adolescent Health 39(4):597.e1-8. Epub 2006 Jul 10.

Boehmer U, Bowen DJ, Bauer GR. 2007. Overweight and Obesity in Sexual-Minority Women: Evidence from Population-Based Data. American Journal of Public Health. 97(6): 1-7.

Bongaarts J. 1978. A Framework for Analyzing the Proximate Determinants of Fertility. Population and Development Review 4(1):105-132.

Borrero S, Schwarz, EB, Reeves, MF, Best, JE, Creinin, MD, Ibrahim, SA. 2007. Race, Insurance Status, and Tubal Sterilization. Obstetrics & Gynecology 109 (1): 94-100, Jan 2007.

Borrero S, Schwarz, EB, Reeves, MF, Best, JE, Creinin, MD, Ibrahim, SA. 2008a. Race, Insurance Status, and Desire for Tubal Sterilization Sterilization. Fertility and Sterility 90 (2): 272-277, Aug 2008.

Borrero S, Schwarz EB, Reeves MF, Bost JE, Creinin MD, Ibrahim SA. 2008b. Does vasectomy explain the difference in tubal sterilization rates between black and white women? Fertility and Sterility 2 April 2008 Epub ahead of print.

Boyer D & D Fine. 1992. Sexual Abuse as a Factor in Adolescent Pregnancy and Child Maltreatment. Family Planning Perspectives 24:4-11, 19.

Bramlett MD & WD Mosher. 2002. Cohabitation, Marriage, Divorce, and Remarriage in the United States. National Center for Health Statistics. Vital and Health Statistics 23(22).

Bramlett MD & WD Mosher. 2001. First Marriage Dissolution, Divorce, and Remarriage: United States. Advance Data from Vital and Health Statistics No. 323. Hyattsville, MD: National Center for Health Statistics.

Bratter JL, RB King. 2008. "But Will It Last?": Marital Instability among Interracial and Same-Race Couples. Family Relations 57(April):160-171.

Brotman RM, Klebanoff MA, Nansel TR, Andrews WW, Schwebke JR, Zhang J, Yu KF, Zenilman JM, Scharfstein DO. 2008. A longitudinal study of vaginal douching and bacterial vaginosis - A marginal structural modeling analysis. American Journal of Epidemiology 168(2):188-96.

Brewster KL. 1994a. Neighborhood Context and the Transition to Sexual Activity among Young Black Women. Demography 31(4):603-614.

Brewster KL 1994b. Race Differences in Sexual Activity among Adolescent Women: The Role of Neighborhood Characteristics. American Sociological Review 59:408-424.

Brewster KL, JOG Billy & WR Grady. 1993. Social Context and Adolescent Behavior: The Impact of Community on the Transition to Sexual Activity. Social Forces 71(3):713-740.

Brewster KL, EC Cooksey, DK Guilkey & RR Rindfuss. 1998. The Changing Impact of Religion on the Sexual and Contraceptive Behavior of Adolescent Women in the U.S. Journal of Marriage and the Family 60(2):493-504.

Brewster KL, Tillman KH. 2008. Who's Doing It? Patterns and Predictors of Youths' Oral Sexual Experiences. Journal of Adolescent Health 42(1): 73-80.

Brown JB & DT Lichter. 2004. Poverty, Welfare, and the Livelihood Strategies of Nonmetropolitan Single Mothers. Rural Sociology 69(2):282-301.

Brown JW, AM Villarruel, D Oakley & C Eribes. 2003. Exploring Contraceptive Pill Taking among Hispanic Women in the United States. Health Education & Behavior 30(6): 663-682.

Browning CR, & EO Laumann. 1997. Sexual Contact between Children and Adults: A Life Course Perspective. American Sociological Review 62:540-560.

Brunner LR, Hogue CJ. 2005. The role of body weight in oral contraceptive failure: results from the 1995 national survey of family growth. Annals of Epidemiology 15(7):492-9, Jan 2005.

Brunner-Huber LR, Toth JL. 2007. Obesity and Oral Contraceptive Failure: Findings from the 2002 National Survey of Family Growth. American Journal of Epidemiology 166(11):1306-1311.

Bumpass L & H-H Lu. 2000. Trends in Cohabitation and Implications for Children's Family Contexts in the United States. Population Studies 54:29-41.

Bumpass L, E Thomson & A Godecker. 2000. Women, Men, and Contraceptive Sterilization. Fertility and Sterility 73(5):937-946.

Bumpass LL & JA Sweet. 1989. National Estimates of Cohabitation. Demography 26(4):615-625.

Campbell A & W Baldwin. 1991. The Response of American Women to the Threat of AIDS and Other Sexually Transmitted Diseases. Journal of Acquired Immune Deficiency Syndromes 4(11):1133-1140.

Campbell A & W Mosher. 1999. Options for Measuring Unintended Pregnancy in Cycle 6 of the NSFG. Family Planning Perspectives 31(5):253-254.

Cates, W Jr, RT Rolfs Jr, & SO Aral. 1990. Sexually Transmitted Diseases, Pelvic Inflammatory Disease, and Infertility: An Epidemiologic Update. Epidemiologic Reviews 12:199-220.

Cates W Jr, JN Wasserheit & PA Marchbanks. 1994. Pelvic Inflammatory Disease and Tubal Infertility: The Preventable Conditions. Annals of the NY Academy of Sciences 709:179-95.

Centers for Disease Control and Prevention. 2008. Trends in HIV-related risk behaviors among high school students—United States, 1991-2007. MMWR 2008;57:817-822.

Centers for Disease Control and Prevention. Quadrivalent Human Papillomavirus Vaccine: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2007;56(No. RR-2).

Centers for Disease Control and Prevention. 2005. Annual smoking-attributable mortality, years of potential life lost, and productivity losses - United States, 1997-2001. *MMWR* 2005; 54(25):625-8.

Centers for Disease Control and Prevention. 2002. HIV/AIDS Surveillance 14:1-40. Oct 27, 2003 http://www.cdc.gov/hiv/stats/hasr1402.htm.

Chandra A. 1995. Health Aspects of Pregnancy and Childbirth: United States, 1982-1988. Vital and Health Statistics 23(18). Hyattsville, MD: National Center for Health Statistics.

Chandra A. 1998. Surgical Sterilization in the United States: Prevalence and Characteristics, 1965-1995. Vital and Health Statistics 23(20). Washington, D.C.: National Center for Health Statistics.

Chandra A, J Abma, P Maza & C Bachrach. 1999. Adoption, Adoption Seeking, and Relinquishment for Adoption in the United States. Advance Data from the Vital and Health Statistics, No. 306. Hyattsville, MD: National Center for Health Statistics May 11, 1999.

Chandra A, GM Martinez, WD Mosher, JC Abma & J Jones. 2005. Fertility, Family Planning, and Reproductive Health of U.S. Women: Data from the 2002 National Survey of Family Growth. Vital and Health Statistics 23(25). Hyattsville, MD: National Center for Health Statistics.

Chandra A, Stephen E. 1998. Impaired Fecundity in the United States: 1982-1995. Family Planning Perspectives 30(1):34-42.

Chandra A, Stephen E (forthcoming 2008). Infertility service use among U.S. Women: 1995 and 2002. *Fertility and Sterility.*

Chesson HW, JM Blandford, TL Gift, G Tao & KL Irwin. 2004. The Estimated Direct Medical Cost of Sexually Transmitted Diseases among American Youth, 2000. Perspectives on Sexual and Reproductive Health 36(1):11-19.

Child Trends, Inc. 2005. New Data on Oral Sex Among Teens. Child Trends DataBank Indicator. Child Trends, Inc., Washington, DC.

Child Trends, Inc. 2008. E-Newsletter: Nearly One in Five Young Women Have Experienced Forced Intercourse. (research conducted by Child Trends for Know More initiative that examines the reproductive health consequences of sexual coercion and violence). Sep 2008. http://www.childtrends.org/_docdisp_page.cfm?LID=C3C22FC4-C67A-49BB-AB6D3670DAFD48B3

Chollat-Traquet C. 1992. Women and Tobacco. Geneva: World Health Organization.

Clarkberg M, RM Stolzenberg & LJ Waite. 1995. Attitudes, Values, and Entrance into Cohabitational Versus Marital Unions. Social Forces 74(2):609-32.

Cooksey E, R Rindfuss & D Guilkey. 1996. The Initiation of Adolescent Sexual and Contraceptive Behavior during Changing Times. Journal of Health and Social Behavior 37(1):59-74.

Cooper LG, NL Leland & G Alexander. 1995. Effect of Maternal Age on Birth Outcomes among Young Adolescents. Social Biology 42(1-2):22-35.

Courtney ME, RP Barth, JD Berrick, D Brooks, B Needell & L Park. 1996. Race and Child Welfare Services: Past Research and Future Directions. Child Welfare 75(2):99-137.

Cramer DW, I. Schiff, Schoenbaum, S. C. M Gibson, S. Belisle, B. Albrecht, R. J.Stillman, M. J.Berger, E.Wilson, B. V.Stadel, M.Seibel. 1985. Tubal Infertility and the Intrauterine Device. New England Journal of Medicine 312(15):941-947.

Curtis KM, SD Hillis, BA Kieke Jr, KM Brett, PA Marchbanks & HB Peterson. 1998. Visits To Emergency Departments For Gynecologic Disorders in the United States, 1992-1994. Obstetrics and Gynecology 91(6):1007-12.

Daling J, N. S. Weiss, B. J Metch, W. H.Chow, R. M.Soderstrom, D.E. Moore, L. R.Spadoni, B. V. Stadel. 1985. Primary Tubal Infertility in Relation to the Use of the Intrauterine Device. New England Journal of Medicine 312(15):937-940.

Darroch J, D Landry & S Oslak. 1999a. Pregnancy Rates among US Women and their Partners in 1994. Family Planning Perspectives 31(3):122-136.

Darroch J, D Landry & S Oslak. 1999b. Sexual Partnership Patterns as a Behavioral Risk Factor for Sexually Transmitted Diseases. Family Planning Perspectives 31(5):228-236.

David, Henry P. 2006. Born Unwanted, 35 Years Later: The Prague Study. Reproductive Health Matters 14 (27): 181-190.

Davidson J, NB Moore & KM Ullstrup. 2004. Religiosity and sexual responsibility: relationships of choice. American Journal of Health Behavior 28(4): 335-46.

Davis K & J Blake. 1956. Social Structure and Fertility: An Analytic Framework. Economic Development and Cultural Change 4(3):211-235.

Declercq ER, Sakala C, Corry MP, Applebaum S (2006). *Listening to Mothers II:Report of the 2nd National U.S. Survey of Women's Childbearing Experiences.* New York: Childbirth Connection.

Dewey KG, MJ Heinig & LA Nommsen-Rivers. 1995. Differences in Morbidity betweeen Breast-fed and Formula-fed infants. Journal of Pediatrics 126:696-702.

Doyle P. 1996. The Outcome of Multiple Pregnancy. Human Reproduction 11(Suppl 4):110-7, discussion 118-20.

Dye, [find co-authors] 1997. Unintended Pregnancy and Breast-feeding Behavior. American Journal of Public Health . 87(10):1709-1711.

Edwards S & C Carne. 1998. Oral Sex and the Transmission of Non-viral STIs. Sexually Transmitted Infections 74:95-100.

Elliott GC, Avery R, Fishman E, Hoshiko B. 2002. The Encounter with Family Violence and Risky Sexual Activity among Young Adolescent Females. Violence and Victims 17 (5):569-592.

Elo IT, RB King & FF Furstenburg. 1999. Adolescent Females: Their Sexual Partners and the Fathers of Their Children. Journal of Marriage and the Family 61(1):74-84.

Eng TR & WT Butler, eds. 1997. The Hidden Epidemic: Confronting Sexually Transmitted Diseases. Washington, DC: Institute of Medicine and National Academy Press.

Farr SL, Anderson JE, Jamieson DJ, Warner L, Macaluso M. 2008. Predictors of pregnancy and discontinuation of infertility services among women who received medical help to become pregnant, National Survey of Family Growth, 2002. Fertility and Sterility 2008 Mar 14 Epub ahead of print.

Federal Interagency Forum on Child and Family Statistics. 1998. Nurturing Fatherhood: Improving Data and Research on Male Fertility, Family Formation and Fatherhood. Washington, D.C.: The Federal Interagency Forum on Child and Family Statistics.

Federal Interagency Forum on Child and Family Statistics. 2001. Counting Couples: Improving Marriage, Divorce, Remarriage, and Cohabitation Data in the Federal Statistical System. Washington, D.C.: Federal Interagency Forum on Child and Family Statistics.

Fields J. 2003. Children's living arrangements and characteristics: March 2002. Current Population Reports, P20-547. US Census Bureau, Washington, DC.

Finer, LB. 2007. Trends in Premarital Sex in the United States, 1954-2003. Public Health Reports 112(1): 73-8, Jan-Feb 2007.

Finer LB and Henshaw SK. 2006. Disparities in Rates of Unintended Pregnancy in the United States, 1994 and 2001. Perspectives on Sexual and Reproductive Health 38(2): 90-96, June 2006.

Finer L, JE Darroch & S Singh. 1999. Sexual Partnership Patterns as a Behavioral Risk Factor for Sexually Transmitted Diseases. Family Planning Perspectives 31(5):228-236.

Fiscella K, P Franks, JS Kendrick & CF Bruce. 1998. The Risk of Low Birth Weight Associated with Vaginal Douching. Obstetrics & Gynecology 92(6):913-17.

Flanigan C. 2001. What's Behind the Good News: The Decline in Teen Pregnancy Rates during the 1990's. Washington, DC: The National Campaign to Prevent Teen Pregnancy.

Ford C, BW Pence, WC Miller, MD Resnick, LH Bearinger, S Pettingell, and M Cohen. 2005. Predicting Adolescents' Longitudinal Risk for Sexually Transmitted Infection: Results from the National Longitudinal Study of Adolescent Health. *Archives of Pediatrics and Adolescent Medicine*. 159(July).

Forrest J & S Singh. 1990. The Sexual and Reproductive Behavior of American Women, 1982-1988. Family Planning Perspectives 22(5):206-214.

Forste R & K Tanfer. 1996. Sexual Exclusivity among Dating, Cohabiting, and Married Women. Journal of Marriage and the Family 58:33-47.

Forste R, J Weiss & E Lippincott. 2001. The Decision to Breastfeed in the United States: Does Race Matter? Pediatrics 108(1):291-296.

Franzetta K, Terry-Humen E, Manlove J. 2006. Trends and Recent Estimates: Contraceptive Use Among US Teens. Child Trends Research Brief, August 2006. Available at: http://www.childtrends.org/

Freedman D, A. Thornton, D.Camburn, D.Alwin, L.Young-Demarco. 1988. The Life History Calendar: A Technique for Collecting Retrospective Data. In: C.C. Clogg (ed.) Sociological Methodology 18:37-68. San Francisco: Jossey-Bass.

Freedman R et al. 1959. Family Planning, Sterility, and Population Growth. New York: McGraw-Hill.

Frisbie WP, D Forbes & SG Pullum. 1996. Compromised Birth Outcomes and Infant Mortality among Racial and Ethnic Groups. Demography 33(4):469-81.

Frost J. 2001. Public or Private Providers? US Women's Use of Reproductive Health Services. Family Planning Perspectives 33(1): 4-12.

Frost, J. 2008. Trends in U.S. Women's Use of Sexual and Reproductive Health Care Services, 1995-2002. American Journal of Public Health. Vol. 98 (10):1-4.

Fu H, JE Darroch, SK Henshaw & E Kolb. 1998. Measuring the Extent of Abortion Underreporting in the 1995 NSFG. Family Planning Perspectives 30(3):128-33, 8.

Gaydos L, Hogue CJ, Kramer MR. Riskier than we thought: revised estimates of noncontracepting women risking unintended pregnancy. Public Health Reports 121(2):155-9, March/April 2006.

Gillum RF, Sullins DP. 2008. Cigarette Smoking During Pregnancy: Independent Associations with Religious Participation. Southern Medical Journal. 101(7): 686-692, July 2008.

Glei D. 1999. Measuring Contraceptive Use Patterns among Teenage and Adult Women. Family Planning Perspectives 31(2):73-80.

Godecker A, E Thomson & L Bumpass. 2001. Contraceptive Failure in the First Two years of Use: Differences across Socioeconomic Subgroups. Family Planning Perspectives 33(1):19-27.

Goldscheider C & WD Mosher. 1991. Patterns of Contraceptive Use in the United States: The Importance of Religious Factors. Studies in Family Planning 22(2):102-115.

Grady WR, JOG Billy, and DH Klepinger. 2002. Contraceptive Method Switching in the United States. Perspectives on Sexual and Reproductive Health 34 (3): 135-145, May/June, 2002.

Grady W, D Klepinger & JOG Billy. 1993. The Influence of Community Characteristics on the Practice of Effective Contraception. Family Planning Perspectives 25(1):4-11.

Graefe DR & DT Lichter. 2002. Marriage among Unwed Mothers: Whites, Blacks and Hispanics Compared. Perspectives on Sexual and Reproductive Health 34(6): 286-293.

Griffin M & WF Panak. 1998. The Economic Cost of Infertility-related Services: An Examination of the Massachusetts Infertility Insurance Mandate. Fertility and Sterility 70(1):22-9.

Guendelman S, G Chavez & R Christianson. 1994. Fetal Deaths in Mexican-American, Black, and White Non-Hispanic Women Seeking Government-funded Prenatal Care. Journal of Community Health 19(5):319-30.

Guzick DS, Swan S, 2006. The Decline of Infertility: Apparent or Real? Fertility and Sterility 86(3): 524-526.

Guzzo KB, Furstenberg FF. 2007. Multipartnered Fertility Among American Men. Demography 44(3): 583-601. 2007.

Halpern-Felsher BL, JL Cornell, RY Kropp & JM Tschann. 2005. Oral versus Vaginal Sex among Adolescents: Perceptions, Attitudes, and Behavior. Pediatrics 115:845-851.

Hamilton BE, JA Martin, & SJ Ventura. 2007. Births: Preliminary Data for 2006." National Vital Statistics Report 56(7). Hyattsville, MD. National Center for Health Statistics.

Hansen K & A Garey. 1998. Families in the U.S. Philadephia, PA: Temple University Press.

Hatcher RA, et al. 2004. Contraceptive Technology. Eighteenth Revised Edition. New York, NY: Ardent Media, Inc.

Hawkins DA. 2001. Oral Sex and HIV Transmission. Sexually Transmitted Infections 77:307-308.

Hayford SR, Morgan SP. 2008. Religiosity and fertility in the United States: The role of fertility intentions. Social Forces 86(3):1163-1188.

Henshaw SK. 1998. Unintended Pregnancy in the United States. Family Planning Perspectives 30(1):24-9, 46.

Hewitt M, Devesa S, Breen N. 2002. Papanicolaou Test Use Among Reproductive-Age Women at High Risk for Cervical Cancer: Analyses of the 1995 National Survey of Family Growth. American Journal of Public Health 92(4):666-669.

Hill MS, WJ Yeung & GJ Duncan. 1997. Parental Family Structure across Childhood and Young Adult Behavior. Paper presented at the Annual Meetings of the American Sociological Association, Toronto, Canada, August 9-13, 1997.

Hillis SD, LM Owens, PA Marchbanks, LF Amsterdam & WR MacKenzie. 1997. Recurrent Chlamydial Infections Increase the Risks of Hospitalization for Ectopic Pregnancy and Pelvic Inflammatory Disease. American Journal of Obstetrics and Gynecology 176 (1 Pt 1):103-7.

Hirschman C & G Hendershot. 1979. Trends in Breast Feeding among American Mothers. Vital and Health Statistics Series 23(3). Hyattsville, MD: National Center for Health Statistics.

Hogan DP, NM Astone & EM Kitagawa. 1985. Social and Environmental Factors Influencing Contraceptive Use among Black Adolescents. Family Planning Perspectives 17(4):165-169.

Hogan D & E Kitagawa. 1985. The Impact of Social Status, Family Structure, and Neighborhood on the Fertility of Black Adolescents. American Journal of Sociology 90:825-855.

Hogan DP, R Sun & GT Cornwell. 2000. Sexual and Fertility Behaviors of American Females Aged 15-19 Years: 1985, 1990, and 1995. American Journal of Public Health 90(9):1421-1425.

Holmes K, J. M. Karon, Kreiss, J. 1990. The Increasing Frequency of Heterosexually Acquired AIDS in the United States, 1983-1988. American Journal of Public Health 80(7):858-862.

Institute of Medicine. 1995. The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families. Washington, DC: National Academy Press.

Jagannathan R. 2001. Relying on Surveys to Understand Abortion Behavior: Some Cautionary Evidence. American Journal of Public Health 91(11):1825-1831.

Jeffries WL, Dodge B. 2007. Male Bisexuality and Condom Use at Last Encounter: Results from a National Survey. Journal of Sex Research 44(3): 278-289, Aug 2007.
Jeffries WL 4th. 2007. A comparative analysis of homosexual behaviors, sex role preferences, and anal sex proclivities in Latino and non-Latino men. Archives of Sexual Behavior 2007 Oct 30 Epub.

Jenkins RR & T Raine. 2000. Helping Adolescents Prevent Unintended Pregnancy. Contemporary Pediatrics 17(5):75-99.

Jones J. 2008. Adoption experiences of women and men and demand for children to adopt by women 18–44 years of age in the United States, 2002. National Center for Health Statistics. Vital Health Stat 23(27). Hyattsville, MD: National Center for Health Statistics.

Jones J, Cohen RA. 2007. A Comparison of Estimates of Health Insurance Coverage, by Type of Coverage from the National Survey of Family Growth (2002) and the National Health Interview Survey (April 2002–March 2003). (Health E-Stats) Hyattsville, MD: NCHS. June 21, 2007. Available at: http://www.cdc.gov/nchs/products/pubs/pubd/hestats/comparisoninsur/comparisoninsur.htm

Jones E & JD Forrest. 1992. Underreporting of Abortion in Surveys of U.S. Women: 1976 to 1988. Demography 29(1):113-126.

Jones RK, Kost K. 2007. Underreporting of Induced and Spontaneous Abortion in the United States: An Analysis of the 2002 National Survey of Family Growth. Studies in Family Planning 38(3): 187-197. September 2007.

Kahn JG, CD Brindis & DAGlei. 1999. Pregnancies Averted among US Teenagers by the Use of Contraceptives. Family Planning Perspectives 31(1):29-34.

Kahn JR & KE Anderson. 1992. Intergenerational Patterns of Teenage Fertility. Demography 29(1):39-57.

Kallan J. 1992. Effects of Interpregnancy Intervals on Preterm Birth, Intrauterine Growth Retardation, and Fetal Loss. Social Biology 39(3-4):231-245.

Kallan J. 1993. Race, Intervening Variables, and Two Components of Low Birth-Weight. Demography 30(3):489-506.

Kaneshiro B, Edelman A, Carlson N, Nichols M, Jensen J. 2008a. The relationship between body mass index and unintended pregnancy: Results from the 2002 National Survey of Family Growth. Contraception 77:234-238.

Kaneshiro B, Jensen JT, Carlson NE, Harvey SM, Nichols MD, Edelman AB. 2008b. Body mass index and sexual behavior. Obstetrics and Gynecology 112(3): 586-592.

Kelly-Weeder S, Cox CL (2006). The impact of lifestyle risk factors on female infertility. Women and Health 44(4):1-23.

Kiely JL, JC Kleinman & M Kiely. 1992. Triplets and Higher-order Multiple Births: Time Trends and Infant Mortality. American Journal of Diseases in Children 146:862-868.

Klerman LV & LVPulley. 1999. Approaches to Studying the Intendedness of Pregnancy in Cycle 6 of the National Survey of Family Growth. Paper prepared for the staff of the National Survey of Family Growth. Hyattsville, MD: National Center for Health Statistics.

Koenig HG, McCullough ME, Larson DB. 2001. Handbook of Religion and Health. NY: Oxford University Press.

Kohler PK, Manhart LE, Lafferty WE. 2008. Abstinence-Only and Comprehensive Sex Education and the Initiation of Sexual Activity and Teen Pregnancy. Journal of Adolescent Health. 42(4):344-351.

Kominski R & A Adams. Educational Attainment in the United States: March 1992 and 1993. Current Population Reports; Series P-20, No. 476. Washington, DC: U.S. Department of Commerce.

Kost K & JD Forrest. 1992. American Women's Sexual Behavior and Exposure to Risk of Sexually Transmitted Diseases. Family Planning Perspectives 24(6):244-54.

Kost K, DJ Landry & JE Darroch. 1998. Predicting Maternal Behaviors during Pregnancy: Does Intention Status Matter? Family Planning Perspectives 30(2):79-88.

Kost K, Singh S, Vaughan B, Trussell J, Bankole A. 2008. Estimates of Contraceptive Failure from the 2002 National Survey of Family Growth. Contraception 77 (1): 10-21.

Kraft J & J Coverdill. 1994. Employment and the Use of Birth Control by Sexually Active Single Hispanic, Black, and White Women. Demography 31(4):593-602.

Kramer MR, Rowland Hogue CJ, Gaydos LMD. 2007. Noncontracepting Behavior in Women at Risk for Unintended Pregnancy: What's Religion Got to Do with It? Annals of Epidemiology. 17(5): 327-334, May 2007.

Ku L, FL Sonenstein & JH Pleck. 1993. Neighborhood, Family and Work: Influences on the Premarital Behaviors of Adolescent Men. Social Forces 72(2):479-503.

Laumann EO, Gagnon JH, Michael RT, and Michaels S. 1994. The Social Organization Sexuality: Sexual Practices in the United States. Chicago: University of Chicago Press.

Lehrer EL. 1996. The Determinants of Marital Instability: A Comparative Analysis of First and Higher-Order Marriages. Research in Population Economics 8:91-121.

Leichliter JS, Aral SO. Black women in the United States decrease their number of recent sex partners: Temporal trends from the National Survey of Family Growth. Sexually Transmitted Diseases (E-Pub ahead of publication), August 21, 2008.

Leichliter JS, Chandra A, Liddon N, Fenton KA, Aral SO. 2007. Prevalence and Correlates of Heterosexual Anal and Oral Sex in Adolescents and Adults in the United States. Journal of Infectious Diseases 196 (15 December): 1852-1859.

Lichter DT, Graefe DR. 2001. Finding a Mate? The Marital and Cohabitation Histories of Unwed Mothers. Pages 317-342 in L Wu and B Wolfe (editors), Out of Wedlock: Causes and Consequences of Nonmarital Fertility. New York: Russell Sage Foundation.

Lichter DT, Graefe DR. 2007. Men and Marriage Promotion: Who Marries Unwed Mothers? Social Service Review 81(3): 397-421, September 2007.

Lichter DT, Batson CD, Brown JB. (2004). Welfare Reform and Marriage Promotion: The Marital Expectations and Desires of Single and Cohabiting Mothers. *Social Service Review* 78(1): 2-25.

Lindberg LD. 1996. Women's Decisions about Breastfeeding and Maternal Employment. Journal of Marriage and the Family 58:239-251.

Lindberg LD, Jones R, Santelli JS. 2008. Noncoital sexual activities among adolescents. Journal of Adolescent Health, 43(3): 231-238.

Lindberg LD, Santelli JS, Singh S. 2006. Changes in Formal Sex Education: 1995-2002. Perspectives on Sexual and Reproductive Health 38 (4): 182-189.

Lindberg LD, Singh S. 2008. Sexual Behavior of Single Adult American Women. Perspectives on Sexual and Reproductive Health 40(1):27-33.

Lloyd SM & SJ South. 1996. Contextual Influences on Young Men's Transition to First Marriage. Social Forces 74(3):1097-1119.

Logan C, Holcombe E, Manlove J, Ryan S. (2007). The consequences of unintended childbearing: A white paper. Retrieved October 2, 2008, from http://www.thenationalcampaign.org/resources/pdf/consequences.pdf

London KA. 1991. Cohabitation, Marriage, Marital Dissolution, and Remarriage: United States, 1988. Advance Data from Vital and Health Statistics; No. 194. Hyattsville, MD: National Center for Health Statistics.

Lucas A, MS Fewtrell, PS Davies, NH Bishop, H Clough & TJ Cole. 1997. Breastfeeding and Catch-up Growth in Infants Born Small for Gestational Age. Acta Paediatrica 86(6):564-9.

Malat J. 2000. Racial Differences in Norplant Use in the United States. Social Science & Medicine 50:1297-1308.

Manlove J, Logan C, Ikramullah E, Holcombe E. 2008. Factors associated with multiple-partner fertility among fathers. Journal of Marriage and Family 70(2):536-548.

Manlove J, K Moore, J Liechty, E Ikramullah & S Cottingham. 2005. Sex between Young Teens and Older Individuals: A Demographic Portrait. Research Brief. Washington, DC : Child Trends, Inc.

Manlove J, E Terry, L Gitelson, A Papillo & S Russell. 2000. Explaining Demographic Trends in Teenage Fertility, 1980-1995. Family Planning Perspectives 32(4):166-175.

Manlove J, S Ryan & K Franzetta. 2004. Patterns of Contraceptive Use within Teens' Most Recent Sexual Relationships. Perspectives on Sexual and Reproductive Health 36(6):265-275.

Manlove J, S Ryan & K Franzetta. 2003. Patterns of Contraceptive Use within Teenagers' First Sexual Relationships. Perspectives on Sexual and Reproductive Health 35(6):246-255.

Manlove J, Terry-Humen E. 2007. Contraceptive Use Patterns Within Female' First Sexual Relationships: The Role of Relationships, Partners, and Methods. Journal of Sex Research 44(1): 3-16, February 2007.

Manning WD. 2001. Childbearing in Cohabiting Unions: Racial and Ethnic Differences. Family Planning Perspectives 33(5):217-223.

Manning WD, MA Longmore & PC Giordano. 2000. The Relationship Context of Contraceptive Use at First Intercourse. Family Planning Perspectives 32(3):104-110.

Manning WD, MA Longmore, & PC Girodano. 2007. The Changing Institution Of Marriage: Adolescents' Expectations To Cohabit And To Marry. Journal of Marriage and Family 69: 559-575.

Manning WD & PJ Smock. 2002. First Comes Cohabitation and Then Comes Marriage? Journal of Family Issues 23(8):1065-1087.

Martin JA. 1997. Triplet Births: Trends and Outcomes, 1971-94. Vital and Health Statistics Series 21(55). Hyattsville, MD: National Center for Health Statistics.

Martin JA, Hamilton BE, Sutton PD, Ventura S, Menacker F, Kirmeyer S, Munson M. 2007. Births: Final Data for 2005. National Vital Statistics Reports 56(6). Hyattsville, MD: National Center for Health Statistics.

Martinez GM, Chandra, A, Abma JC, Jones J, Mosher WD. 2006. Fertility, Contraception, and Fatherhood: Data on Men and Women from the 2002 National Survey of Family Growth. Vital and Health Statistics, Series 23, Number 26. Hyattsville, MD: National Center for Health Statistics.

Martyn, K. K., & Belli, R. F. (2002). Retrospective data collection using event history calendars. *Nursing Research*, *51*, 270-274.

Mathews TJ. 2001. Smoking during Pregnancy in the 1990s. National Vital Statistics Reports 49(7). Hyattsville, MD: National Center for Health Statistics.

Mathews TJ & BE Hamilton. 2005. Trend Analysis of the Sex Ratio at Birth in the United States. National Vital Statistics Reports 53(20). Hyattsville, MD: National Center for Health Statistics.

Mathews TJ & SJ Ventura. 1997. Birth and Fertility Rates by Educational Attainment: United States, 1994. Monthly Vital Statistics Report 45(10) (Suppl).

Mathews TJ, SJ Ventura, SC Curtin & JA Martin. 1998. Births of Hispanic Origin, 1989-95. Monthly Vital Statistics Report 46(6) (Suppl).

Mauldon J & K Luker. 1996. The Effects of Contraceptive Education on Method Use at First Intercourse. Family Planning Perspectives 28(1):19-24.

Mays RM, Sturm LA, Zimet GD. Parental perspectives on vaccinating children against sexually transmitted infections. *Social Science and Medicine* 2004; 58:1405–1413.

McLanahan S & L Bumpass. 1988. Intergenerational Consequences of Family Disruption. American Journal of Sociology 94(1):130-152.

McNally J & W Mosher. 1991. AIDS-Related Knowledge and Behavior among Women 15-44 Years of Age: United States, 1988. Advance Data from Vital and Health Statistics No. 200. Hyattsville, MD: National Center for Health Statistics.

Menacker F, Declercq E, Macdorman MF (2006). Cesarean delivery: Background, trends, and epidemiology. *Seminars in Perinatology 30:235-41.*

Menacker F, JA Martin, MF MacDorman & SJ Ventura. 2004. Births to 10-14 Year-old Mothers, 1990-2002: Trends and Health Outcomes. National Vital Statistics Report 53(7):1-18. Hyattsville, MD: National Center for Health Statistics.

Miller HG, VS Cain, S. M.Rogers, J. N.Gribble, C. F. Turner. 1999. Correlates of Sexually Transmitted Bacterial Infections among US Women in 1995. Family Planning Perspectives 31(5):228-236.

Moore K, A Driscoll & L Lindberg. 1998. A Statistical Portrait of Adolescent Sex, Contraception, and Childbearing. Washington, DC: National Campaign to Prevent Teen Pregnancy.

Moore KA, CW Nord & JL Peterson. 1989. Nonvoluntary Sexual Activity among Adolescents. Family Planning Perspectives 21(3):110-114.

Moreau C, Cleland K, Trussell J. 2007. Contraceptive Discontinuation Attributed to Method Dissatisfaction in the United States. Contraception 76(4): 267-272.

Morris L, C Warren & S Aral. 1993. Measuring Adolescent Sexual Behaviors and Related Health Outcomes. Public Health Reports 108(suppl 1):31-41.

Mosher W. 1990. Contraceptive Practice in the United States, 1982-1988. Family Planning Perspectives 22(5):198-205.

Mosher W, D. P. Johnson, M. C. Horn. 1986. Religion and Fertility in the United States: The Importance of Marital Status and Hispanic Origin. Demography 23(3):367-379.

Mosher W, Abma J, Jones J (forthcoming 2009). Wanted and Unwanted Births in the United States: Trends and New Measures. National Health Statistics Report, forthcoming in 2009.

Mosher W & C Bachrach. 1996. Understanding U.S. Fertility: Continuity and Change in the National Survey of Family Growth, 1988-1995. Family Planning Perspectives 28(1):4-12.

Mosher W, A Chandra & J Jones. 2005. Sexual Behavior and Selected Health Measures: Men and Women 15-44 Years of Age, United States, 2002. Advance Data from Vital and Health Statistics, No. 362.

Mosher W, LP Deang & MD Bramlett. 2003. Community Environment and Women's Health Outcomes: Contextual Data. Hyattsville, MD: National Center for Health Statistics. Vital and Health Statistics 23(23).

Mosher W, Martinez G, Chandra A, Abma J, Willson S. 2004. Use of Contraception and Use of Family Planning Services in the United States, 1982-2002. Advance Data No. 350, December 10, 2004. Hyattsville, MD: National Center for Health Statistics.

Mosher W & J McNally. 1991. Contraceptive Use at First Premarital Intercourse: United States, 1965-1988. Family Planning Perspectives 23(3):108-116.

Mosher W & W Pratt. 1982. Reproductive Impairments among Married Couples: U.S. Hyattsville, MD: National Center for Health Statistics. Vital and Health Statistics 23(11).

Mosher W & W Pratt. 1990a. Contraceptive Use in the United States, 1973-1988. Advance Data from Vital and Health Statistics, No. 182. Hyattsville, MD: National Center for Health Statistics.

Mosher WD & WF Pratt. 1990b. Fecundity and Infertility in the United States, 1965-1988. Advance Data from Vital and Health Statistics, No. 192. Hyattsville, MD: National Center for Health Statistics.

Mosher WD & WF Pratt. 1993. AIDS-related Behavior among Women 15-44 Years of Age: United States, 1988 and 1990. Advance Data from Vital and Health Statistics, No. 239. Hyattsville, MD: National Center for Health Statistics.

Mosher W, L Williams & D Johnson. 1992. Religion and Fertility in the United States: New patterns. Demography 29(2):199-214.

Mueller T, Gavin L, Kulkarni, A. 2008. The Association between Sex Education and Youth's Engagement in Sexual Intercourse, Age at first Sex and Birth Control Use. Journal of Adolescent Health 42: 89-96.

Murray VM. 1995. An Ecological Analysis of Pregnancy Resolution Decisions among African American and Hispanic Adolescent Females. Youth and Society 26(3):325-50.

National Campaign to Prevent Teen Pregnancy. 2006a. Teens' Sexual Experience, 1995-2002. Science Says No. 22. March, 2006. Washington, DC. Available at: http://www.teenpregnancy.org/works/sciencesays.asp

National Campaign to Prevent Teen Pregnancy. 2006b. Parent-Child Communication about Sex and Related Topics. Science Says No. 25. May, 2006. Washington, DC.

National Center for Health Statistics. 2007. Health, United States, 2007, with Chartbook on Trends in the Health of Americans. Hyattsville, MD: Public Health Service. Table 19.

Nettleman M, Brewer, J, and Ayoola, A. 2007. Reasons for unprotected intercourse in adult women: A qualitative study. Journal of Midwifery & Women's Health 52(2):149-151.

Neville MC & MR Niefert (eds). 1983. Lactation: Physiology, Nutrition, and Breast-feeding. New York: Plenum Press.

NIH State-of-the-Science Conference Statement on Cesarean Delivery on Maternal Request. NIH Consensus Science Statement. 2006. Mar 27-29; 23(1) 1–29.

Page RL, Ellison CG, Lee J. 2008. Does Religiosity Affect Health Risk Behaviors in Pregnant and Postpartum Women? Maternal and Child Health Journal (E-Pub ahead of publication), August 7, 2008.

Penn ML & C Coverdale. 1996. Transracial Adoption: A Human Rights Perspective. Journal of Black Psychology 22(2):240-5.

Petersen H, C. K. Walker, J. G.Kahn, A. E.Washington, D. A. Eschenbach, S. Faro. 1991. Pelvic Inflammatory Disease: Key Treatment Issues and Options. Journal of the American Medical Association 266(18):2605-11.

Peterson LS. 1995a. Birth Expectations of Women in the U.S., 1973-1988. Hyattsville, MD: National Center for Health Statistics. Vital and Health Statistics 23(17).

Peterson LS. 1995b. Contraceptive Use in the United States: 1982-1990. Advance Data from Vital and Health Statistics, No. 260. Hyattsville, MD: National Center for Health Statistics.

Peterson L & W Mosher. 1999. Options for Measuring Unintended Pregnancy in Cycle 6 of the NSFG. Family Planning Perspectives 31(5):253-254.

Peterson L, D Oakley, L Potter & J Darroch. 1998. Women's Efforts to Prevent Pregnancy: Consistency of Oral Contraceptive Use. Family Planning Perspectives 30(1):19-23

Piccinino LJ & WD Mosher. 1998. Trends in Contraceptive Use in the United States. Family Planning Perspectives 30(1):4-10, 46.

Piccinino LJ & LS Peterson. 1999. Ambivalent Attitudes and Unintended Pregnancy. In W Miller& L Severy, eds. Advances in Population: Psychosocial Perspectives, Vol. 3. London: Jessica Kingsley Publishers.

Potter L & J Anderson. 1993. Patterns of Condom Use and Sexual Behavior among Never-married Women. Sexually Transmitted Diseases 20(4):201-8.

Pratt W, W. D. Mosher , C. A.Bachrach, Horn, M. C. 1984. Understanding U.S. Fertility: Findings from the National Survey of Family Growth, Cycle III. Population Bulletin 39(5). Washington, D.C.: The Population Reference Bureau.

Pulley L, LV Klerman, H Tang & BA Baker. 2002. The Extent of Pregnancy Mistiming and its Association with Maternal Characteristics and Behaviors and Pregnancy Outcomes. Perspectives on Sexual and Reproductive Health 34(4):206-211

Raley RK. 2001. Increasing Fertility in Cohabitating Unions: Evidence for the Second Demographic Transition in the United States? Demography 38(1):59-66.

Ranjit N, A Bankole, J Darroch & S Singh. 2001. Union Status, Marital History, and Female Contraceptive Sterilization in the United States. Family Planning Perspectives 33(1):35-41, 49.

Rao KV & A Demaris. 1995. Coital Frequency among Married and Cohabiting Couples in the United States. Journal of Biosocial Science 27(2):135-50.

Regnerus, MD. 2007. Forbidden Fruit: Sex and Religion in the Lives of American Teenagers. New York: Oxford University Press. 290 pages.

Rein DB, W Kassler, K Irwin & L Rabiee. 2000. Direct Medical Cost of Pelvic Inflammatory Disease and Its Sequelae: Decreasing, but Still Substantial. Obstetrics and Gynecology 95(3):397-402.

Remez L. 2000. Oral Sex Among Adolescents: Is it Sex or is it Abstinence? *Family Planning Perspectives* 32(6):298-304.

Resnick M, P. S. Bearman , R. W.Blum, K. E.Bauman, K. M. Harris, J. Jones, J. Tabor, T.Beuhring, R.E. Sieving, M. Shew, M. Ireland, L. H.Bearinger, J. R. Udry. 1997. Protecting Adolescents from Harm. Findings from the National Longitudinal Study on Adolescent Health. Journal of the American Medical Association 278(10):823-32.

Roosa MW, et al. 1997. The Relationship of Childhood Sexual Abuse to Teenage Pregnancy. Journal of Marriage and the Family 59:119-130.

Rothenberg RB, M Scarlett, C del Rio, D Reznik & C O'Daniels. 1998. Oral Transmission of HIV. Acquired Immune Deficiency Syndromes 12:2095-2105.

Ryan A, W. F. Pratt, J. L.Wysong, G.Lewandowski, J. W.McNally, F. W. Krieger. 1991. A Comparison of Breast Feeding Data from the National Survey of Family Growth and the Ross Laboratories Mothers Surveys. American Journal of Public Health 81(8):1049-1052.

Ryan S, K Franzetta & J Manlove. 2005. Hispanic Teen Pregnancy and Birth Rates: Looking Behind the Numbers. Research Brief. Washington, DC: Child Trends.

Sanders SA & JM Reinisch. 1999. Would You say You 'Had Sex' if…? Journal of the American Medical Association 281:275-277.

Santelli J, L. D. Lindberg, L. B.Finer, S. Singh. 2000. The Association of Sexual Behaviors with Socioeconomic Status, Family Structure, and Race/Ethnicity among U.S. Adolescents. American Journal of Public Health 90(10):1582-1588.

Santelli JS, R. Lowry, N. D.Brener, L. Robin. 2007. Explaining Recent Declines in Adolescent Pregnancy in the United States: The Contribution of Abstinence and Improved Contraceptive Use. American Journal of Public Health 97 (1): 150-156, Jan 2007.

Schmidt L & K Munster. 1995. Infertility, Involuntary Infecundity, and the Seeking of Medical Advice in Industrialized Countries 1970-1992: A Review of Concepts, Measurement and Trends. Human Reproduction 10(6):1407-18.

Scholes D, A Stergachis, LE Ichikawa, FE Heidrich, KK Holmes & WE Stamm. 1998. Vaginal Douching as a Risk Factor for Cervical Chlamydia Trachomatis Infection. Obstetrics and Gynecology 91(6):993-7.

Schuster MA, RM Bell & DE Kanouse. 1996. The Sexual Practices of Adolescent Virgins: Genital Sexual Activities of High School Students Who Have Never Had Vaginal Intercourse. American Journal of Public Health 86(11):1570-1576.

Silverman AR. 1993. Outcomes of Transracial Adoption. Future of Children 3(1):104-18.

Simon RJ & H Alstein. 1996. The Case for Transracial Adoption. Children and Youth Services Review 18(1-2):5-22.

Small SA & D Kerns. 1993. Unwanted Sexual Activity among Peers during Early and Middle Adolescence: Incidence and Risk Factors. Journal of Marriage and the Family 55:941-952.

Smock PJ, Manning WD, Porter M. 2005. Everything's There Except Money: How Economic Factors Shape The Decision To Marry Among Cohabiting Couples. Journal of Marriage and Family 67: 680-696..

Spirtas, R, SC Kaufman, & NJ Alexander. Fertility Drugs and Ovarian Cancer: Red Alert or Red Herring? Fertility and Sterility 59:291-3.

Stanberry LR, Rosenthal SL. Progress in vaccines for sexually transmitted diseases. *Infectious Disease Clinics of North America*. 2005; 19:477–490, xi.

Staniec FOJ, Webb NJ. 2007. Utilization of infertility services: How much does money matter? Health Services Research 42(3):971-989.

Steinman K & M Zimmerman. 2004. Religious Activity and Risk Behavior among African American Adolescents: Concurrent and Developmental Effects. American Journal of Community Psychology 33(3/4):151-161.

Stephen EH & A Chandra. 1998. Updated Projections of Infertility in the United States: 1995-2025. Fertility and Sterility 70(1):30-4.

Stephen E & A Chandra. 2000. Use of Infertility Services in the United States. Family Planning Perspectives 32(3):132-137.

Stephen EH, Chandra A. 2006. Declining estimates of infertility in the United States: 1982-2002. Fertility and Sterility 86(3): 516-523.

Stoops, N. 2004. Educational Attainment in the United States: 2003. Current Population Reports, P20-550. U.S. Census Bureau, Washington, DC.

Strawbridge WJ, Cohen RD, Shema SJ, Kaplan GA. 1997. Frequent attendance at religious services and mortality over 28 years. American Journal of Public Health 87(6):957-962.

Studer M & A Thornton. 1987. Adolescent Religiosity and Contraceptive Usage. Journal of Marriage and the Family 49:117-128.

Sucoff C & D Upchurch. 1998. Neighborhood Context and Childbirth Risk for Black Adolescents. American Sociological Review 63(4):571-585.

Sutton PD & TJ Mathews. 2004. Trends in Characteristics of Births by State: United States, 1990, 1995, and 2000-2002. National Vital Statistics Report 52(19):1-152. Hyattsville, MD: National Center for Health Statistics.

Tao G. 2008. Sexual Orientation and Related Viral Sexually Transmitted Disease Rates among US Women Aged 15 to 44 Years. American Journal of Public Health 98 (6): 1007-1009

Tao G, Tian LH, Peterman TA. 2007. Estimating Chlamydia Screening Rates by Using Reported Sexually Transmitted Disease Test for Sexually Active Women aged 16 to 25 Years in the United States. Sexually Transmitted Diseases 34(3): 180-2, Mar 2007.

Taylor JS, Cabral HJ. 2002. Are women with an unintended pregnancy less likely to breastfeed? Journal of Family Practice 51(5): 431-436.

Taylor JS, Geller L, Risica PM, Kirtania U, Cabral HJ. 2008. Birth order and breastfeeding initiation: Results from a national survey. Breastfeeding Medicine 3(1):20-27.

Taylor JS, Risica PM, Geller L, Kirtania U, Cabral HJ. 2006. Duration of breastfeeding among first-time mothers in the United States: Results of a national survey. Acta Paediatrica 95: 980-984.

Teachman JD. 2002. Childhood Living Arrangements and the Intergenerational Transmission of Divorce. Journal of Marriage and the Family 64(3):717-729.

Teachman JD. 2003. Childhood Living Arrangements and the Formation of Coresidential Unions. Journal of Marriage and the Family 65(3):507-524.

Teachman JD. 2004. The Childhood Living Arrangements of Children and the Characteristics of their Marriages. Journal of Family Issues 25(1):86-111.

Teachman J. 2008. Complex life course patterns and the risk of divorce in second marriages. Journal of Marriage and Family 70 (2): 294-305.

Terry-Humen E., JM Manlove & KA Moore. 2001. Births Outside of Marriage: Perceptions vs. Reality. Research Brief, Washington DC. Child Trends.

Terry-Humen E, Manlove J, Cottingham S. 2006. Trends and Recent Estimates: Sexual Activity among U.S. Teens. Child Trends Research Brief, June 2006. Available at: http://www.childtrends.org/Files/SexualActivityRB.pdf

Thornton A & D Camburn. 1987. The Influence of the Family on Premarital Sexual Attitudes and Behavior. Demography 24:323-340.

Thornton A & D Camburn. 1989. Religious Participation and Adolescent Sexual Behavior and Attitudes. Journal of Marriage and the Family 51:641-653.

Trussell J & B Vaughan. 1999. Contraceptive Failure, Method-related Discontinuation and Resumption of Use: Results from the 1995 NSFG. Family Planning Perspectives 31(2):64-72, 93.

Trussell J, Wynn LL. 2008. Reducing Unintended Pregnancy in the United States. Contraception 77(1): 1-5. January, 2008.

Turner C, L Ku, S Rogers, L Lindberg, JH Pleck & FL Sonenstein. 1998. Adolescent Sexual Behavior, Drug Use and Violence: New Survey Technology Detects Elevated Prevalence among U.S. Males. Science 280:867-73.

Turner CF, M Villarroel, J Chromy, et al. 2005. Same-Gender Sex among US Adults: Trends across the 20th Century and During the 1990s. Public Opinion Quarterly, 69(3):439-62.

U.S. Cancer Statistics Working Group. *United States Cancer Statistics: 2004 Incidence and Mortality.* Atlanta (GA): Department of Health and Human Services, Centers for Disease Control and Prevention, and National Cancer Institute; 2007.

U.S. Department of Health and Human Services. *Healthy People 2010 Midcourse Review*. Washington, DC: U.S. Government Printing Office, December 2006.

U.S. Department of Health and Human Services. 1994. Preventing Tobacco Use among Young People: A Report of the Surgeon General. Atlanta, Georgia: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.

Vahratian A. 2008a. Utilization of fertility-related services in the United States. Fertility and Sterility 2008 Feb 21 Epub ahead of print.

Vahratian A. 2008b. Prevalence of Overweight and Obesity among Women of Childbearing Age: Results from the 2002 National Survey of Family Growth. Maternal and Child Health Journal 2008 April 16 Epub ahead of print.

Vaughan B, J Trussell, K Kost , S Singh & R Jones. 2008. Discontinuation and Resumption of Contraceptive Use: Results from the 2002 National Survey of Family Growth. *Contraception* 78(4):271-83.

Ventura SJ, Abma JC, Mosher WD, Henshaw SK. 2008. Estimated Pregnancy Rates by Outcome for the United States, 1990-2004. National Vital Statistics Reports 56(15):1-28. Hyattsville, MD: National Center for Health Statistics. April 14, 2008. Available at: http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56_15.pdf.

Ventura SJ, JC Abma, WD Mosher & S Henshaw. 2004. Estimated Pregnancy Rates for the United States, 1990-2000: An Update. National Vital Statistics Report 52(23). Hyattsville, MD: National Center for Health Statistics.

Ventura SJ & CA Bachrach. 2000. Nonmarital Childbearing in the United States, 1940-99. National Vital Statistics Report 48(16). Hyattsville, MD: National Center for Health Statistics.

Ventura SJ, BE Hamilton, TJ Mathews & A Chandra. 2003. Trends and Variations in Smoking during Pregnancy and Low Birth Weight: Evidence from the Birth Certificate, 1990–2000. Pediatrics 111(5):1176-80.

Ventura SJ, TJ Mathews, & BE Hamilton. 2001. Births to Teenagers in the United States: 1940-2000. National Vital Statistics Reports 49(10). Hyattsville, MD: National Center for Health Statistics.

Ventura S, W Mosher, S Curtin & J Abma. 2000. Trends in Pregnancies and Pregnancy Rates by Outcome: Estimates for the United States, 1976-96. Hyattsville, MD: National Center for Health Statistics. Vital and Health Statistics 21(56).

Ventura, S, W Mosher, S Curtin, J Abma & S Henshaw. 2001. Trends in Pregnancy Rates for the United States, 1976-1997: An Update. Hyattsville, MD: National Center for Health Statistics. National Vital Statistics Reports 49(4).

Ventura S, S Taffel, W Mosher, J Wilson & S Henshaw. 1995. Trends in Pregnancies and Pregnancy Rates: Estimates for the United States, 1980-1992. Hyattsville, MD: National Center for Health Statistics. Monthly Vital Statistics Report 43(11) (Suppl).

Washam C. Targeting teens and adolescents for HPV vaccine could draw fire. *Journal of the National Cancer Institute* 2005; 97:1030–1031.

Weeden J, Abrams MJ, Green MC, & Sabini J. 2006. Do High-Status People Really Have Fewer Children: Education, Income, and Fertility in the Contemporary U.S. *Human Nature* 17(4): 377-392.

Whelpton PK, A Campbell & J Patterson. 1966. Fertility and Family Planning in the United States. Princeton, NJ: Princeton University Press.

Wilcox L & W Mosher. 1993. Health Screening among Reproductive-aged Women in the United States: 1988. Public Health Reports 108(1):76-86.

Wilcox LS & WD Mosher. 1993. Use of Infertility Services in the United States. Obstetrics and Gynecology 82(1):122-127.

Wilcox LS& WD Mosher. 1994. Characteristics Associated with Impaired Fecundity in the United States. Family Planning Perspectives 26(5):218-221.

Williams CM, KM Brett & JC Abma. Forthcoming. Coercive First Intercourse and Unintended First Births. Violence and Victims.

Williams L. 1991. Determinants of Unintended Childbearing among Ever Married Women in the United States: 1973-1988. Family Planning Perspectives 23(5):212-215, 221.

Williams L & W Pratt. 1990. Wanted and Unwanted Childbearing in the United States: 1973-1988. Advance Data from Vital and Health Statistics, No. 189. Hyattsville, MD: National Center for Health Statistics.

Wilson JB. 1993. Human Immunodeficiency Virus Antibody Testing in Women 15-44 Years of Age: U.S., 1990. Advance Data from Vital and Health Statistics, No. 238. Hyattsville, MD: National Center for Health Statistics .

World Health Organization. 1995. Tubal Infertility: Serologic Relationship to Past Chlamydial and Gonoccocal Infection. WHO Task Force on the Prevention and Management of Infertility. Sexually Transmitted Diseases 22(2):71-77.

Wu J, Meldrum S, Dozier A, Stanwood N, Fiscella K. 2008. Contraceptive Nonuse Among US Women at Risk for Unplanned Pregnancy. Contraception. 78(4):319-323.

Wu L. 1996. Effects of Family Instability, Income, and Income Instability on the Risk of a Premarital Birth. American Sociological Review, 61:386-406.

Wu L, L Bumpass & K Musick. 2001. Historical and Life Course Trajectories of Nonmarital Childbearing. Pages 3-48 in L Wu and B Wolfe (editors). Out of Wedlock: Causes and Consequences of Nonmarital Fertility. New York: Russell Sage Foundation.

Wu L & B Martinson. 1993. Family Structure and the Risk of a Premarital Birth. American Sociological Review 58(2):210-232.

Wu Z. 1996. Childbearing in Cohabitational Relationships. Journal of Marriage and the Family 58(2):281-92.

Zhang J, AG Thomas & E Leybovich. 1997. Vaginal Douching and Adverse Health Effects: A Meta-analysis. American Journal of Public Health 87(7):1207-11.

Zhang L. 2008. Religious affiliation, religiosity, and male and female fertility. Demographic Research 18(8):233-262.