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Plan and Operation of the 1995 National Survey of Family Growth

October 1997

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics

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October 1997
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Abstract

Objectives

This report describes how the 1995 National Survey of Family Growth (NSFG) was designed, planned, and implemented. The NSFG is a national survey of women 15–44 years of age designed to provide national estimates of factors affecting pregnancy and birth rates and the health of women and infants. Planning for the 1995 NSFG began in 1990 at a formal conference with the survey's data users. Suggestions for substantial changes and improvements in the survey were made there and carried out by NSFG staff and the NSFG contractor—the Research Triangle Institute (RTI).

Methods

The survey was converted from paper and pencil interviewing to Computer-Assisted Personal Interviewing (CAPI) to improve the quality, consistency, and timeliness of the data. At the same time, event histories of the respondent's work, education, family background, cohabitation, and sexual partners were added to lend explanatory power to the survey. These changes made the interview and the CAPI program long—average interview length was 103 minutes—and complex, but the CAPI program worked very well.

Results

About 260 female interviewers were trained for 7 days in January 1995. These interviewers completed a total of 10,847 interviews with women 15–44 years of age, for a response rate of 79 percent. This report describes how the survey was planned and designed and how the data were collected, edited, and processed for public use. This report may be of interest to NSFG data users and to those planning other computer-assisted surveys.

Keywords: *survey methodology • computer-assisted interviewing • interviewer training • fieldwork • (interviewing)*

Plan and Operation of the 1995 National Survey of Family Growth

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Planning and Development of Cycle 5 of the National Survey of Family Growth

Introduction

The National Survey of Family Growth (NSFG) is a survey conducted by the National Center for Health Statistics (NCHS). NCHS is one of the Centers for Disease Control and Prevention (CDC). The NSFG is designed to make national estimates of factors affecting birth and pregnancy rates in the United States.

NCHS has conducted the NSFG since 1973. Interviewing for the first NSFG (called Cycle 1) was conducted in 1973; 9,797 women 15–44 years of age were interviewed. For the second NSFG (Cycle 2), 8,611 interviews were completed in 1976. The 1973 and 1976 NSFG surveys were restricted to women who were currently or formerly married (separated, divorced, or widowed).

After Cycle 2, the NSFG was redesigned to include women who had never been married. The third NSFG (Cycle 3) was conducted in 1982; 7,969 interviews were obtained from women 15–44 years of age regardless of marital status. The fourth NSFG was conducted in 1988 and yielded 8,450 interviews. Interviews in Cycles 1, 2, and 3 averaged about 60 minutes, and in Cycle 4, interviews averaged about 70 minutes. From these surveys, more than 200 reports and articles were published on sexual activity, contraceptive use, the effectiveness of contraceptives, cohabitation, marriage and divorce, infertility, use of family planning and other health services, and many other topics (1–3).

These statistics have been very useful for many purposes, but changes in society and advances in research raised new questions for fertility surveys to answer. Thus, in the late 1980's, the agencies and individuals who used NSFG data concluded that major improvements in the NSFG were needed if the survey was going to meet the data needs of the 1990's and beyond.

This report describes the planning of the 1995 NSFG and how the survey was carried out. The information in this report may be useful to those interested in applying the experience of the NSFG in planning other major surveys, as well as those who have a substantive interest in the topics covered by the NSFG. The technical terms used in this report are defined in appendix I.

The planning, development, and execution of Cycle 5 of the NSFG was

The 1995 National Survey of Family Growth was jointly planned and funded primarily by the National Center for Health Statistics, the National Institute for Child Health and Human Development, and the Office of Population Affairs, with additional support from the Administration for Children and Families. Other agencies and individuals also provided helpful advice and assistance.

a 7-year process that required the efforts of many people and organizations working together. This report cannot identify all of the persons or organizations involved, but NCHS extends its thanks to all of them. The brief summary of the planning for Cycle 5 given in this report will only attempt to note some of the major developments in the study, particularly in connection with the formal meetings that NCHS staff held with other organizations and individuals. A great deal of informal communication and consultation took place between these formal meetings. Major funding for the 1982, 1988, and 1995 NSFG's was provided by three parts of the U.S. Department of Health and Human Services (DHHS):

- the National Center for Health Statistics (NCHS)
- the Office of Population Affairs (OPA)
- the National Institute for Child Health and Human Development (NICHHD)

In addition, funding for questions on adoption was obtained from the Administration for Children and Families.

A Brief Chronology

In the late 1980's, the agencies cosponsoring the NSFG decided that a thorough assessment of the role and content of the survey was needed. On February 5–6, 1990, NCHS convened a 2-day conference on "The National Survey of Family Growth: Mission for the 1990's" with about 50 invited participants drawn from several DHHS agencies, universities, and private research organizations. The purpose was to solicit advice on the direction the survey should take in the 1990's (figure 1).

During 1990 and 1991, NSFG staff reviewed the recommendations of the February 1990 Conference and began to draft a questionnaire for Cycle 5. Figure 2 is a partial list of those involved in Cycle 5 planning, beginning with the conference in February 1990. Not all NCHS staff listed were present throughout the period, and not all persons consulted are listed in figure 2.

Feb. 5–6, 1990:	Conference on "The National Survey of Family Growth: Mission for the 1990's," with 50 invited participants from government, universities, and private research organizations.
1990–91:	NSFG Staff assesses Workshop recommendations and drafts a Cycle 5 Questionnaire.
April 5, 1991:	1-day meeting with 16 invited participants to discuss the draft paper and pencil questionnaire prepared by NSFG staff.
May 15, 1992:	1-day meeting with 15 invited participants for a final review of the Cycle 5 paper and pencil questionnaire before it was submitted to the NCHS Institutional Review Board (IRB) and the Office of Management and Budget (OMB).
Sept.–Oct. 1992:	Contract for NSFG Cycle 5 awarded to the Research Triangle Institute (RTI). On October 7, NCHS and RTI staff met formally to begin discussing contract tasks, especially the design of the pretest and the specification and programming of the CAPI questionnaire.
Oct. 92–Sept. 1993:	Questionnaire specification, refinement and improvement of questions, questionnaire testing, preparation of manuals and training materials.
Oct.–Dec. 1993:	PRETEST: 500 interviews conducted in 3 States. CAPI program worked very well. Incentives improved response rates, reduced cost per completed interview, and increased abortion reporting.
Jan. 18–19, 1994:	2-day workshop with 7 NCHS staff and 11 others to review the results of the pretest and make recommendations for the Main Study.
Jan.–Mar. 1994:	NCHS and RTI assess workshop recommendations, and agree on a revised schedule to implement selected recommendations.
January 1995:	Interviewer training. Interviewing begins.
October 31, 1995:	NSFG interviewing ends.
Nov. 95–Jan. 1997:	Data preparation, tape documentation.

Figure 1. Chronology of Cycle 5 of the National Survey of Family Growth

Throughout the planning and development of the 1995 NSFG, NSFG staff had several interrelated tasks: to assess data needs, to make decisions about the relative priority of the many questions or changes requested, and to decide on the best ways to implement them to ensure that the NSFG's substantive objectives were met. NSFG staff based these decisions on the comments of outside experts, their own knowledge of the field, their contacts with interested government agencies and with researchers inside and outside government, and their experience using the NSFG for research.

On April 5, 1991, NCHS hosted a 1-day meeting with 6 NCHS staff and 10 invited experts to discuss a draft questionnaire prepared by NCHS staff. Revisions were made in the months following that meeting, and on May 15, 1992, a 1-day meeting with 15 invited participants was held to conduct the final review of the Cycle 5 questionnaire before it was submitted to the NCHS Institutional Review Board (IRB) and to the Office of Management and Budget (OMB) for clearance.

In September 1992, the contract for Cycle 5 was awarded to the Research Triangle Institute (RTI) of Research Triangle Park, North Carolina. In the following year (October 1992—September 1993), the specifications for the questionnaire were developed, the CAPI questionnaire was programmed, tested extensively by both RTI and NCHS, and preparations for the pretest were made. During October–December 1993, 500 interviews were conducted with women in three

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Figure 2. Principal people involved in the design and planning of Cycle 5 of the National Survey of Family Growth

States in the NSFG Pretest. The CAPI program worked very well in the pretest, despite an average interview length of nearly 2 hours. The pretest was designed as an experiment; the results showed that incentives for respondents improved response rates, reduced survey costs, and increased abortion reporting (4–6). (See the section on "The National Survey of Family Growth Pretest" for more details.)

On January 18–19, 1994, a 2-day workshop with 7 NCHS staff and 11 others was held to review the results of the pretest and make recommendations for the main study. While no major changes were made in the *content* of the survey, a large number of technical improvements were recommended. RTI and NCHS evaluated the workshop recommendations and decided on a revised schedule. (See the section on "Questionnaire Development" for more details.)

In January 1995, 253 interviewers were trained for the NSFG, and interviewing began nationwide. Interviewing continued until the end of October 1995. Interviews were completed with 10,847 women, including 1,553 Hispanic women, 2,446 black women, 6,483 white women, and 365 others. The mean length of interview in the main study was 103 minutes (or 1 hour and 43 minutes). The final response rate was 79 percent. The two principal causes of nonresponse were refusals (11 percent) and inability to locate sampled women who had moved since the 1993 National Health Interview Survey (NHIS) (5 percent). (See "Interviewer Materials," "Interviewer Training," and "Data Collection" for more details.)

The NSFG staff spent 1996 working with the contractor on such data preparation tasks as coding "other (specify)" responses; resolving inconsistencies in the data; constructing, reviewing, and editing "recoded" variables; imputing missing data; constructing sampling weights for each case; and preparing documentation for the data file—such as variable labels, value labels, descriptions of which respondents were asked each question, and a detailed user's guide to accompany the codebook. Tables were run on several preliminary data files to test the quality and consistency of the data. Apparent inconsistencies were identified and corrected where necessary. Highest priority was given to releasing a high-quality data set as soon as possible. (See "Data Preparation" for additional details.)

Major Changes in Cycle 5 of the National Survey of Family Growth

The 1995 NSFG includes at least 10 major changes when compared with the 1988 survey. This section reviews those major changes and some of the factors that were considered in making them.

1. Event Histories

Virtually all those consulted for Cycle 5 recommended a dramatic increase in the number and depth of independent (or predictor) variables on the NSFG. It was suggested that 50 percent of the survey should be independent variables and that most of those should be collected as event histories. An event history is simply a list of all the occurrences of some event, with the beginning and ending dates of each and other significant details. Event histories are useful because they help to sort out the temporal order, and thus the causal sequences, in the data. That makes it possible to test theories about the causes of outcomes—such as early sexual activity, effective and ineffective contraceptive use, teenage pregnancy, and unwanted births.

The following event histories were suggested:

- a school attendance history (separately for regular school, general equivalency diploma (GED), and vocational schooling)
- a work history (periods working and not working, but not occupations)
- a history of the parents or guardians the woman lived with during her childhood
- a cohabitation history and a sexual partner history to complement the marriage and divorce history

A life history calendar was also suggested to collect and organize this information.

It was understood that these histories would make the interview longer than the 60–70 minutes in Cycles 1–4. But a consensus was reached that complete event histories on a wide range of independent variables were necessary in order to make the survey maximally useful for both academic and policy research in the years ahead. The NSFG staff, funding agencies, and outside researchers agreed that the cost and effort required would be justified by the increased usefulness of the data. As shown in figure 3, all of these event histories were added to the NSFG Questionnaire.

The event histories had at least three important effects on the 1995 NSFG:

- The survey became much more useful for academic and policy research.
- The length of the interview and the size of the data file increased dramatically.
- Specifying, programming, and testing these multiple event histories became very challenging.

A.	*Education history *History of childhood and young adult living arrangements (living with mother, father, grandparents) *Work history *Smoking (ever and current)
B.	Pregnancy and birth history *Smoking in each pregnancy Adoption, stepchildren, foster children
C.	Marriage history *Cohabitation history *First intercourse, first partner *Partner history: 1991–95
D.	Sterilization operations: type, date, reasons, reversals Impaired fecundity: impossible versus difficult
E.	Contraceptive use, all methods ever used, first method used, methods used recently Wantedness of all pregnancies
F.	Use of family planning (birth control) services Use of other medical services Title X clinic use
G.	Births expected in the future
H.	Infertility services Diseases related to fertility (PID, STD's, others) HIV-related behavior, HIV tests
I.	Residence, religion, race/ethnicity Occupation, income, insurance
J.	*Audio self-administered: abortion, other items
K.	Re-contact information

*New in Cycle 5.

Figure 3. Outline of the 1995 National Survey of Family Growth Questionnaire

2. National Health Interview Survey Variables

A second step in enriching the NSFG for explanatory research was to add some variables from the 1993 NHIS on the women sampled in the NSFG. This was possible because the sampling frame for the 1995 NSFG was the 1993 NHIS.

NSFG staff and other experts concluded that having NHIS variables on the NSFG file could be useful because (a) the detailed background data on the NHIS allows for more precise nonresponse adjustments than in an independent sample, and thus more accurate weights; (b) studies using linked NHIS and NSFG data may be useful for demographic and sociological research on the family; (c) studies of health issues (including the effects of changes in the health care system) may be enhanced by using NHIS and NSFG data in the same analyses; and (d) combining NHIS data from 1993 and NSFG data from 1995 lends a longitudinal aspect to the NSFG. As a result, most of the data from the NHIS core questionnaire were added to the NSFG data file. These variables measure health and demographic characteristics of the NSFG respondent, her husband (if she was married at the time of the NHIS), and her household. This ''linkage'' between the NHIS and the NSFG had very significant effects on how the NSFG was conducted. Those effects are discussed in the sections on ''Tracing'' and ''Fieldwork'' in this report. In addition, some characteristics of the NSFG interviewer were added, permitting another set of factors to be considered in causal models of response.

3. Data on Men

Since Cycle 1 in 1973, the NSFG has collected a marriage and divorce history that included characteristics of the woman's husband(s). In those two decades, however, births to unmarried women have increased, many women have postponed marriage, unmarried cohabitation has increased, the age at first intercourse has dropped, and interest in men's roles in teenage pregnancy, child care, and child support has increased. These changes made it necessary for the NSFG to collect data on the characteristics of the respondent's male sexual partners, regardless of her marital status. To enhance the reliability of the answers and reduce respondent burden, however, questions on husbands, cohabiting partners, and noncohabiting sexual partners were limited in two ways:

- Basic demographic characteristics of the male were limited to his age, race, Hispanic origin, education, religion, the importance of religion to him, and the type of relationship they had when they began having intercourse (just met, just friends, going together, going steady, engaged, married).
- The history of sexual partners was limited to the 4 years immediately before the interview (January 1991 to the interview date).

Similar questions were also asked about the woman's partner at her first voluntary intercourse. A question was also added on the age of the man who fathered each of the woman's pregnancies. These questions will fill some critical information gaps on the role of men in fertility and contraception.

It was also clear that data were needed on the roles of fathers in family life. New data were collected on the dates, if any, when the respondent lived with her father when she was growing up, and if he left the household, why he left (separation, divorce, death, illness, other). Data were also added on receipt of child support for the respondent's children under 18, and on the man's role in providing child care and health insurance.

4. Contextual Data

A final and crucial step in the effort to increase the number and range of predictor variables in the NSFG was to create a file of contextual (community level) variables—measured at the State, county, census tract, and block group level. Many of those consulted requested that NCHS prepare a contextual data file. The term ''Contextual'' data refers to data on the social ''context,'' or environment, in which survey respondents live. Some contextual variables such as the unemployment rate, the percent of the population that lives in households below the poverty level, or the number of family planning clinics in the area, can be changed by public policy, so contextual data are of great practical importance. In addition, it has been shown that contextual variables do affect outcomes such as age at first intercourse, contraceptive use, and marriage and divorce (7,8).

Some contextual data come from the summary tape files of the 1990 U.S. Census, which contain data at the county, census tract, and block group level. Other contextual data measure crime rates, rates of certain diseases, and government policies and expenditures, and may be coded at the State or county level. Consultants suggested that, if possible, the respondent's address should be coded at the time of the 1990 Census as well as at the date of interview in 1995, and this was done in the NSFG contextual data file. Because of the confidentiality concerns they raise (9), the contextual data will not be part of the public-use data file. Qualified researchers who want to use the contextual data should contact NCHS to discuss how to apply for access.

5. Computer-Assisted Personal Interviewing (CAPI)

Many paper and pencil questionnaires, especially those for complex surveys, have ambiguous concepts and routings. These ambiguous features can create occasional confusion and the potential for inconsistent responses that have to be dealt with in coding and editing after the interviewing is over. CAPI software programs cannot tolerate this kind of ambiguity, and CAPI programmers must ask survey designers to specify how to deal with every contingency.

This ''questionnaire specification'' process clarifies the intent and logic of questions and decreases misinterpretations. These clearer specifications and the automation of skip patterns and routing through the questionnaire increase the quality of the data. Higher data quality and the automation of most coding permit faster processing of the data file after the interviewing is completed.

However, specifying, programming, and testing a CAPI questionnaire requires more labor before interviewing can begin than does a paper and pencil questionnaire. The more complex the questionnaire, the greater the time, effort, and cost that must be devoted to specifying and testing the questionnaire program.

As noted previously, a consensus was reached that comprehensive event histories were necessary in the 1995 NSFG. However, specifying and programming these histories was a formidable task. For example, the questionnaire program had to allow for up to:

- 11 periods of college attendance
- 11 periods of GED attendance (4 was the most reported)
- 11 periods of vocational school attendance
- 10 periods of employment
- 10 periods of unemployment
- 12 periods of living with her mother; 12 periods of living with her father; and 12 periods of living with her grandparents
- 10 periods of living alone (8 was the most reported)
- 10 periods of living with parents again after living ''on your own'' (9 was the most reported)
- 15 pregnancies
- 20 children the woman raised who were not born to her
- 5 marriages
- 9 cohabitations (including the current one)
- 36 sexual partners in the 5 years before the survey

- 4 contraceptive methods used in the month prior to each of the 15 pregnancies
- 4 contraceptive methods used in each of 58 months in the method calendar (January 1991–October 1995).

As a result of this complexity, *types of academic and policy research are now possible that were not possible* in any previous NSFG, but *specification, programming, and testing of the CAPI questionnaire became very large jobs. The interviews averaged 103 minutes in length* and varied from 20 minutes to 4 hours, *increasing refusal rates* compared with previous cycles of the NSFG. *Also, the data file grew enormously.* For example, the respondent part of the Cycle 5 data file has a record length of over 13,000 compared with 2,753 in Cycle 4—a fivefold increase.

6. Abortion Reporting

The NSFG is a survey about pregnancy. Comparisons with vital statistics suggest that reporting of live births in the NSFG is very good. Comparisons with other surveys suggest that reporting of miscarriages and stillbirths is also good. But respondents in almost all fertility surveys, including the NSFG, do not report all of their abortions. Comparisons with external data suggested that in the 1976 and 1982 NSFG's, married women reported only about one-half of the abortions they had had. In the 1988 survey, it appeared that women reported only about one-third of their abortions (10,11). The Cycle 5 contractor, RTI, suggested using a self-administered interview delivered over headphones to attempt to collect more complete data on abortion. This technique is called Audio Computer-Assisted Self-Interviewing, or Audio CASI. Data from the NSFG Pretest suggested that using both Audio CASI and $20 incentives increased reporting—but reporting was, apparently, still not complete (4–6).

A pilot study for the NSFG, conducted by the National Opinion Research Center (NORC) in Chicago for NCHS, investigated some other possible ways to increase reporting. That study confirmed that self-administered questionnaires increased the reporting of sensitive behavior, but did not identify any other techniques that appeared to increase reporting. After further refinement, however, the techniques used in the pilot study may increase reporting of sensitive data in future surveys if operationalized differently (12).

7. Sample Size

Budget shortfalls made it necessary to reduce sample size in both 1982 and 1988, but it was clear that these sample sizes were making it impossible to do certain kinds of analysis. In particular, much larger samples of Hispanic women, teenage women, and adult white women were requested. Some recommended much larger samples of teenagers; for example, a sample of 2,500 women 15–19 years of age would be necessary to compute reliable estimates for white, black, and Hispanic teenagers by single years of age—15, 16, 17, 18, and 19. Others urged NCHS to increase the number of adult white women in the sample substantially in order to study issues such as delayed childbearing, infertility, use of infertility treatment, adoption, the timing of births by parity, and other topics.

In response to these requests, NCHS took the following steps:

- Efforts were made to raise funds to increase the NSFG sample size to 18,000, but these fundraising efforts were not successful.
- Given that the sample size could not be increased across the board, NCHS decided to oversample black and Hispanic women by selecting all households containing black and Hispanic women 15–44 years of age in the 1993 NHIS for the NSFG.
- Given the difficulty of tracing women in the pretest who moved, NCHS directed RTI to select a reserve sample of 875 eligible women. Thus, the number of women eligible for the NSFG was increased from 13,125 to 14,000 to increase the chances that the target sample size of 10,500 completed interviews would be met.
- NCHS decided to extend the NSFG fieldwork period from July 31, 1995, to October 31, 1995, to allow for more time for tracing and refusal conversion.

These efforts did meet the goal of at least 10,500 interviews: the final sample size was 10,847, a 28-percent increase over the 8,450 interviews in Cycle 4. This overall size included 1,553 Hispanic women, 2,446 non-Hispanic black women, 6,483 non-Hispanic white women, and 365 women of other races and origins.

8. Contraceptive Use and Wantedness

The role of condom use in preventing the transmission of the human immunodeficiency virus (HIV), the rising numbers of births to unmarried teens and their connections with welfare, and other factors strengthened interest in better measures of contraceptive use and unintended pregnancy. Estimating the probability of having an unintended pregnancy (''failure rates'') for users of various contraceptive methods has always been one of the more important uses of NSFG data (1,11).

It was agreed that the NSFG needed to continue the basic trend data on contraceptive use and efficacy, and also collect new data to measure three increasingly important aspects of contraceptive use: (a) the consistency of contraceptive use (whether contraceptives are used at each act of intercourse); (b) multiple method use (using more than one method at a time, or alternating methods with different partners or according to the monthly cycle); and (c) whether birth control methods are being used to prevent pregnancy, to prevent sexually transmitted diseases, or for medical uses such as treatment of menstrual pain. In addition, the existing time series on unintended pregnancy was continued, while new data were added to measure the strength and consistency (or ambivalence) in women's feelings about their pregnancies (13).

9. First Intercourse

There was an urgent need for recent national data on the circumstances under which first intercourse occurs. Questions distinguishing whether the first intercourse was voluntary or nonvoluntary and the characteristics of the first partner were recommended. While some disagreed, most of those consulted said that the information on whether the first intercourse was voluntary could be collected reliably, citing the experience of the National Survey of Children (14).

Ultimately, the NSFG staff decided to collect the demographic characteristics of the first voluntary partner—his age, race, education, marital status, and the type of relationship (just met, just friends, going out once in a while, going steady, engaged, or married)—and to measure the ''voluntariness'' of intercourse in three different ways: (a) by having the respondent rate how much she wanted her first intercourse to happen at that time on a scale of 1 to 10, (b) to classify her first intercourse as ''voluntary'' or ''not voluntary,'' and (c) to ask a separate self-administered question on whether she had ever been ''forced by a man to have sexual intercourse against your will.''

10. Use of Family Planning Services

OPA is required to report to Congress annually on the number of women in need of family planning services, the number and proportion of those in need who are being served, and the demographic and health characteristics of those who use the Title X family planning program. The NSFG data on the populations using Title X clinics, other clinics, and private doctors for family planning services are, therefore, important and useful data. As a result, the NSFG staff and RTI devoted considerable effort to improving the questions on the source of family planning services. This effort included a written cognitive appraisal of the questions, revision and testing of the questions in the NCHS and RTI survey methods laboratories, and use of an external, national computerized database of family planning clinics. (See ''Data Collection'' and ''Data Processing'' for more details.)

Changes That Were Not Made

Many other recommendations were made that could not be implemented in Cycle 5—because of budgetary reasons, because of practical difficulties in carrying them out, or because they were judged to be less urgent than those described previously. Among these were:

- requests for a further increase in sample size, which was postponed because of its cost
- requests for longitudinal data, postponed because of the costs and practical difficulties of collecting valid data with good response rates
- including women 13–14 years of age and 45–54 years of age in the survey, which was postponed because it was judged a lower priority than increasing the sample size of women 15–44 years of age, and less urgent than the innovations that were implemented in Cycle 5
- conducting the survey more frequently, postponed because of its cost
- including men in the survey, which was postponed because of the difficulty and cost of specifying what information should be collected and the need for research on ways of obtaining good response rates and high data quality from male respondents.

These and other innovations will be considered for later cycles of the NSFG.

Summary

Compared with Cycle 4, a long list of major improvements were made in Cycle 5 of the NSFG. The principal changes discussed in this section were:

1. event histories
2. data from the NHIS
3. data on husbands, cohabiting partners, and other male sexual partners
4. contextual data
5. Computer-Assisted Personal Interviewing (CAPI)
6. Audio CASI to improve data on abortion and other sensitive topics
7. increased sample size
8. improved measures of contraceptive use and wantedness
9. new data on first intercourse
10. efforts to improve data on use of family planning services

For Cycle 5, 10,847 interviews were completed, including 1,553 with Hispanic women; 2,446 with black women; 6,483 with white women; and 365 women of other races and origins. The mean length of interview was 103 minutes (or 1 hour and 43 minutes). The final response rate was 78.6 percent. The two principal causes of nonresponse were refusals (11 percent) and inability to locate sampled women who had moved since the 1993 NHIS (5 percent).

In Cycle 5 of the NSFG, a good response rate was obtained, and high-quality data were collected, processed, and released in a timely fashion, despite a very large increase in the length and complexity of the questionnaire and the introduction of CAPI and Audio CASI technology. The rest of this report describes how this landmark study was conducted. It is hoped that users of NSFG data and those interested in survey methodology will benefit equally from this account of the NSFG experience.

The National Survey of Family Growth Pretest

After the NSFG Cycle 5 contract was awarded in fall 1992, work proceeded on two major tasks: specifying, programming, and testing the CAPI questionnaire (described in the section on ''Questionnaire Development'') and designing the pretest. This section describes briefly how the NSFG pretest was designed, what was learned from it, and how that learning was used in the 1995 main study. More detailed reports on the 1993 NSFG pretest have been published elsewhere (4–6,15).

The Cycle 5 pretest was designed to test a number of significant innovations in the study. These included:

- computer-assisted personal interviewing (CAPI)
- audio computer-assisted self-interviewing (Audio CASI)
- interviewing sample women at neutral sites
- incentives.

To test the effect of these innovations on the quality of the data and the cost of data collection, sample women were assigned to one of the following five groups:

- in-home CAPI administration of the entire questionnaire—no incentive
- in-home CAPI administration of the entire questionnaire—$20 incentive
- in-home CAPI administration with one Audio CASI section—no incentive
- in-home CAPI administration with one Audio CASI section—$20 incentive
- CAPI administration of the questionnaire (no Audio CASI) at a neutral site—$40 incentive.

Because of concerns about the length of the questionnaire, sample women were administered one of two sampled versions of the questionnaire. Also, a few question wording and question ordering experiments were embedded in the questionnaire. The proper version of the questionnaire and the question wording and ordering experiments were predetermined and accessed when the interviewer keyed the case identification number into her laptop computer.

The pretest was designed to be implemented in three pairs of sites. Each site was all or part of a primary sampling unit (PSU) of the NHIS. The sample women were selected from households that had previously participated in the NHIS. The selection of sites was designed to match an urban area with a suburban or rural area. The paired sites were New York City with Nassau/Suffolk Counties, New York; Dallas with Austin, Texas; and Greensboro/Winston-Salem with Hoke/Moore Counties, North Carolina. A total of 803 sample women 15–44 years of age were selected as shown in table A. An oversample of 201 non-Hispanic black women were selected along with 602 sample women of other races.

Experimental groups were assigned to NHIS clusters and, therefore, to all women in a cluster. Consequently, all women within a cluster were assigned to the same CAPI, Audio CASI, or neutral site group; question wording and ordering experiments were also assigned by cluster; to avoid any problems or effects from unequal payment of incentives to neighbors, the $0 and $20 incentive treatments were assigned by pretest site.

Interview Mode Effects

One of the major purposes of the pretest was to determine whether the complex NSFG questionnaire—one that made significant use of event histories, routing patterns, edit checks, and complex structures such as arrays and tables—had been converted successfully to a CAPI format. The number of problems with the CAPI program was surprisingly low for such a long and complex interview (approximately 1,600 uniquely defined questions). The quality of both the questionnaire and the CAPI program resulted in very low rates of missing data, which were defined as questions with either a ''don't know'' or ''refused'' response.

The pretest was also designed to test the effect of Audio CASI and neutral site interviews on the reporting of sensitive behaviors. Approximately one-third of the sample women were interviewed at a neutral site outside of the sample women's homes in an attempt to reduce any discomfort associated with reporting sensitive behaviors. Another third of the sample completed a short Audio CASI interview that asked about abortion and contraceptive use after they had completed the regular CAPI interview in their homes. The remaining third of the sample women were interviewed in their homes with CAPI only.

Both the Audio CASI and the neutral site interview modes produced a significant increase in the number of women who reported ever having had an abortion compared with the CAPI-only mode. There was no significant difference between the Audio CASI and neutral site modes in either the proportion of women reporting that they had ever had an abortion or in the number of abortions reported.

Incentive Effects

Sample women were assigned to one of three incentive treatment groups: no incentive payment, a $20 payment, or a $40 payment. Women receiving no incentive and the $20 incentive were interviewed in their homes; those interviewed at the neutral site were paid the $40 incentive to help offset the additional burden associated with having

Table A. Number of women eligible for the National Survey of Family Growth Pretest, by interview mode and incentive

Interview mode	Incentive			Total
	None	$20	$40	
All CAPI at home[1]	171	113	–	284
CAPI with Audio CASI[2]	167	120	–	287
CAPI at a neutral site, $40 incentive	–	–	232	232
Total	338	233	232	803

– Quantity zero.
[1]CAPI is Computer-Assisted Personal Interviewing.
[2]Audio CASI is Audio Computer-Assisted Self-Interviewing.

Table B. Response rates for the Pretest, by amount of incentive

Status	Amount of incentive						Total	
	None		$20		$40			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
A Total cases assigned	338	100.0	233	100.0	232	100.0	803	100.0
B Ineligible cases								
1 SW not 15–44 years*	1	0.3	1	0.4	2	0.9	4	0.5
2 SW not female	1	0.3	–	0.0	–	0.0	1	0.1
3 SW out of country	2	0.6	4	1.7	2	0.9	8	1.0
4 SW deceased	1	0.3	1	0.4	1	0.4	3	0.4
5 Total	5	1.5	6	2.5	5	2.2	16	2.0
C Total eligible cases	333	100.0	227	100.0	227	100.0	787	100.0
D Cases completed								
1 Interview completed	196	58.9	153	67.4	151	66.5	500	63.5
2 SW untraceable	6	1.8	7	3.1	7	3.1	20	2.6
3 SW moved	29	8.7	10	4.4	13	5.7	52	6.6
4 SW final refusal	48	14.4	23	10.1	21	9.3	92	11.7
5 Breakoff	–	0.0	–	0.0	–	0.0	–	0.0
6 Parental consent refused	4	1.2	–	0.0	3	1.3	7	0.9
7 Parental consent unattainable	–	0.0	–	0.0	–	0.0	–	0.0
8 SW unavailable	19	5.7	10	4.4	13	5.7	42	5.3
9 SW unlocatable	23	6.9	14	6.2	13	5.7	50	6.4
10 SW physically/mentally incapable	1	0.3	2	0.9	–	0.0	3	0.4
11 SW language problem, Spanish	6	1.8	5	2.2	5	2.2	16	2.0
12 SW language problem, other	1	0.3	3	1.3	1	0.5	5	0.6
13 Other noninterview	–	0.0	–	0.0	–	0.0	–	0.0
14 Total	333	100.0	227	100.0	227	100.0	787	100.0
E Unadjusted response rate**	. . .	58.9	. . .	67.4	. . .	66.5	. . .	63.5
F Adjusted response rate***	. . .	65.8	. . .	72.2	. . .	72.2	. . .	69.5

. . . Category not applicable.

– Quantity zero.

0.0 Quantity more than zero but less than 0.05.

*SW = Sample woman.

**The unadjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases.

***The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases less the sample women who had moved more than 120 miles from any pretest primary sampling unit and the sample women who spoke only Spanish. Because of the limited number of pretest primary sampling units and the lack of a Spanish questionnaire in the Pretest, cases in these two categories had no opportunity to be interviewed.

NOTE: Final pretest data collection status report, 1995 National Survey of Family Growth-Pretest.

to go to another location for the interview. Table B provides the response rates for the pretest by incentive treatment: the response rates were 59 percent for the no-incentive group and 67 percent for the $20 and $40 (neutral site) groups.

Main Study Design Decisions

Based on the results of the pretest, it was decided that a CAPI questionnaire, supplemented by an Audio CASI section (with questions on abortion and a few other sensitive items) should be used during the main study. The Audio CASI technology was shown during the pretest to be reliable; it was also accepted well by both interviewers and respondents, and it apparently increased abortion reporting. These findings suggested that Audio CASI was cost-effective. Using the neutral sites increased abortion reporting to the same levels as Audio CASI and also seemed to improve reporting on other sensitive items, but it also raised costs substantially. This increase in cost appeared to be prohibitive for a nationwide study.

Paying all respondents a $20 cash incentive for their participation was also recommended. The pretest results showed that the incentive actually paid for itself, because it raised the response rate and saved interviewers time and travel costs. The incentive also increased abortion reporting. In addition, it seemed justified by the burden placed on respondents by the length, complexity, and sensitivity of the Cycle 5 questionnaire.

Sample Design

Overview

This section describes how the NSFG main study sample was designed and selected. The NSFG sample was drawn from the 1993 National Health Interview Survey (NHIS), so this section begins with a brief summary of the NHIS sample design and then describes the NSFG

sampling procedures. It concludes with a summary of sample sizes, response rates, and design effects. (For more details on the topics covered in this section, and a discussion of imputation and variance estimation, see reference 16.)

For Cycle 5 of the NSFG, a national probability sample of 14,000 women 15–44 years of age was selected from among households that responded to the 1993 NHIS. The NHIS is a continuous multistage household survey conducted by NCHS that covers the U.S. civilian noninstitutionalized population. Data are collected for each household member on health conditions, doctor visits, hospitalizations, disabilities, and other health-related topics, as well as demographic and economic data for the household and household members. In 1993, the NHIS was conducted in 198 PSU's, where a PSU is a county or group of adjacent counties. PSU's were located in nearly every State and included all of the largest metropolitan areas in the United States.

NCHS provided RTI with data files containing household-level and person-level data for all persons in households responding to the 1993 NHIS. To obtain a sufficient number of black and Hispanic women for the NSFG from the NHIS sample, all households with black and Hispanic women in the 1993 NHIS had to be included in the NSFG. This required the NSFG to interview in all 198 NHIS PSU's. About 43 percent of the ''white and other'' women from the NHIS were selected for the NSFG sample. Thus, black and Hispanic women were sampled at a higher rate than other women for the NSFG.

Sampled women who had moved since the NHIS interview were traced to their new address, and an interviewer conducted the interview at the new address. Because of the stratification and unequal sampling rates, sampling weights must be used to calculate accurate numbers, percents, and other statistics or to compute accurate sampling errors. The weights adjust for:

1. the different sampling rates for Hispanic, black, and other women;
2. for nonresponse; and
3. for undercoverage by age, race, and parity. See reference 16 for more discussion of weights and their effects on analysis.

Design of the National Health Interview Survey

The National Health Interview Survey (NHIS) is a stratified multistage household survey that covers the civilian noninstitutionalized population of the United States. The NHIS design is revised each decade using data from the most recent census. Cycle 5 of the NSFG used the NHIS sample based on the design developed for the period 1985 to 1994. A complete description of the NHIS design is given in reference 16.

For the NHIS, the geographic area of the United States was divided into about 1,900 areas called primary sampling units (PSU's). A PSU consists of an individual county, a small group of contiguous counties, or a metropolitan statistical area (MSA). The 1,900 PSU's were stratified using socioeconomic and demographic variables. The sample was selected with probability proportional to the population size (pps) within a stratum. The 1985–94 NHIS sample contained 198 PSU's. Under the pps design, the 52 largest PSU'S are all selected into the sample. These PSU'S are called self-representing PSU'S. The remainder of the PSU'S were grouped into 73 strata, and two PSU'S were selected from each stratum. That is, the final NHIS sample of 198 PSU'S consists of 52 self-representing PSU'S and 146 nonself-representing PSU'S.

Each PSU was divided into geographically defined ''area segments.'' Area segments with a higher proportion of black persons formed a stratum that was sampled at a higher rate than the other area segments in the PSU. These strata were called ''area segments—oversampled for blacks'' and ''area segments—not oversampled for blacks,'' respectively.

In addition to the area frame, a separate new-construction frame was used in most PSU'S. The new-construction frame consisted of housing units constructed after the 1980 Census. Building permits provided the source information for constructing this frame. These segments formed a third sampling stratum, called the ''permit'' stratum. An NHIS PSU may contain a sample of segments from all three strata, from two of the three strata, or from only one stratum.

Within each stratum, sample area segments were selected systematically, and then clusters of housing units were selected within the sample segments. The clusters were spread over a small geographical area (that is, they were ''noncompact clusters''), and the expected cluster size was eight housing units. NCHS selected a systematic sample of building permit segments.

The NHIS sample is divided into 51 (or sometimes 52) weekly interviewer assignment samples; each weekly sample represents a national probability sample of housing units. NCHS can then form national samples by combining weekly samples.

In 1993, budget restrictions required NCHS to field only 7 of the 13 weekly samples in the second quarter (April–June), so the 1993 NHIS sample contained 46 weekly samples (that is, 6 of the 52 weekly samples were dropped). The 1993 NHIS respondent sample included data for 109,671 persons in 43,007 households. In addition, the households interviewed during the first two quarters of the 1993 NHIS were administered only the core NHIS questionnaire.

National Survey of Family Growth Sampling Design

The NSFG sample design required at least 10,500 completed interviews. Assuming an 80 percent response rate, 13,125 women would need to be selected. Assuming a 75 percent rate, 14,000 would need to be selected. Only one woman per household was selected. All households containing Hispanic or non-Hispanic black women were included in the NSFG, but not all households of mixed or other race were included. Because the design required the selection of all households

containing Hispanic and non-Hispanic black women, the probability sampling design consisted mainly of selecting the remainder of the sample of households (and women) among the PSU'S and selecting the households within each PSU. The subsample of households was selected with probability proportional to the number of women in the household so that each sampled woman would have an equal probability of selection (and equal weight) for the NSFG.

The 1993 NHIS consisted of 46 weekly samples. The 1995 NSFG sampling frame included 25,534 women 15–44 years of age in 21,168 households (1.21 women per household). The ages are based on the estimated midpoint of the NSFG data collection period (April 1, 1995), so a woman was included in the NSFG sampling frame if she was born between April 1, 1950, and March 31, 1980, inclusive.

The sampling frame contained 2,684 Hispanic women, 4,042 non-Hispanic black women, and 18,808 women of other races/ethnicities (called ''other women''). A total of 2,135 households contained one or more Hispanic women (called a Hispanic household); 3,206 contained one or more non-Hispanic black women, but no Hispanic women (called a non-Hispanic black household); and 15,827 contained only women of other race/ethnicities (called ''other households'').

The sample design requirements specified that the sampling variance for weighted estimates should be minimized, and the NSFG was to be linked to the NHIS. These requirements constrained the NSFG sample design. The design effect is the increase (or decrease) in the sampling variance attributable to the sampling design compared with the sampling variance of a simple random sample of the same size from the same population. The stratification, clustering, and disproportionate sampling in the NHIS mean that the NSFG will have larger sampling errors than a simple random sample. Also, the NSFG's higher sampling rates for Hispanic and non-Hispanic black women contribute to the total NSFG design effect.

Table C displays design effects and sample sizes for all women and black women by cycle. The nominal sample size is the actual number of women who were interviewed. It is labeled the ''nominal'' sample size because a statistic based upon this many interviews from a complex survey has a larger sampling error than a statistic from a simple random sample and the same number of interviews. The effective sample size is the nominal sample size divided by the design effect—the sample size for a simple random sample with the same precision. Table C shows that the design effect for Cycle 5 of the NSFG (1.46) is less than one-half the design effect for Cycle 3 (3.00). *The effective sample size for Cycle 5 (7,429) is 2.8 times the effective sample size in Cycle 3 and 1.4 times the effective sample size in Cycle 4 (5,382). Thus, Cycle 5 data have smaller sampling errors than those of Cycle 4, and much smaller sampling errors than Cycle 3.*

Sampling Procedure and Allocations

The NHIS sampling frame was divided into parts, or strata, based on the characteristics of the households in the NHIS clusters. (An NHIS cluster is a portion of an area segment or a permit segment.) These strata are

- 1,015 clusters containing only Hispanic or non-Hispanic black households (called the minority stratum)
- 1,518 clusters containing Hispanic or non-Hispanic black households and other households (called the mixed stratum)
- 2,250 clusters containing three or more other households (called the high-density stratum)
- 2,160 clusters containing only one or two other households (called the low-density stratum)

See table D for the number and classification of NHIS households in these strata.

The sampling design for Cycle 5 specified that all NHIS households with Hispanic or non-Hispanic black women were to be selected with certainty (that is, included in the sample). Therefore, field interviewers went to all NHIS clusters in the minority stratum and the mixed stratum. For the other households, less than one-half of the households were selected. One household was expected to be selected from clusters in the high-density stratum. For the low-density stratum, approximately one-half of the clusters would be selected and approximately one household would be selected in the cluster.

As a source of potential cost reduction in data collection, the households in the low-density stratum were undersampled to reduce the number of NHIS clusters with only one household. The households in the mixed stratum and the high-density stratum were oversampled by 10 percent. This design results in only a slight increase (less than 5 percent) in the design effect attributable to unequal weighting; the cost-reduction effect was considered to be more important.

In order to compute unbiased variance estimates, sampling theory

Table C. Estimated design effects and sample sizes for National Survey of Family Growth Cycles 3, 4, and 5

Size and effect	Cycle 3 (1982)		Cycle 4 (1988)		Cycle 5 (1995)	
	Total	Black	Total	Black	Total	Black
Nominal sample size	7,969	3,201	8,450	2,811	10,847	2,511
Effective sample size	2,656	1,131	5,382	1,479	7,429	1,504
Design effect	3.00	2.83	1.57	1.90	1.46	1.67

NOTE: For definitions of terms, see text and appendix I.

Table D. Distribution of National Health Interview Survey clusters and households, by cluster composition strata

Composition strata	NHIS clusters[1]	Households			Households per cluster
		Total	Minority	Other	
Total	6,943	21,168	5,341	15,827	3.05
Minority only	1,015	2,920	2,920	–	2.88
Mixed	1,518	5,844	2,421	3,423	3.85
Nonminority only	4,410	12,404	–	12,404	2.81
High density	2,250	9,114	–	9,114	4.05
Low density	2,160	3,290	–	3,290	1.52

– Quantity zero.
[1]NHIS is National Health Interview Survey.

requires that the households, and the woman in each household, be selected independently in each PSU. This allocation was done in three steps. First, the number of eligible noncertainty households in each PSU was reviewed to ensure that each PSU would have some respondents; 16 noncertainty households in 3 small PSU's were selected with certainty. Second, only one woman could be selected in each household; 1,480 households were included with certainty because they had more than one eligible woman. Third, the remaining sample cases (7,163 women) not selected with certainty were allocated to the PSU's based on the weighted count of women in each PSU in the three cluster strata (minority, mixed, and nonminority).

For the sample selection of households within each PSU, Chromy's procedure (17) was used with the weighted number of women in a household as the size measure. The sampling frame in each PSU was stratified by the cluster type (mixed and high-density clusters and low-density clusters). The sampling frame within each stratum was then ordered using the NHIS cluster and metropolitan status (in a MSA, central city; in a MSA, not in the central city; and not in a MSA, where MSA is a Metropolitan Statistical Area) and the NHIS cluster. After the household was selected, one woman was randomly selected from each household.

Initially, a sample of 14,000 women was selected and a random subsample of 875 women was set aside as a reserve sample. Because of the high number of cases that could not be located, NCHS decided to field the full sample of 14,000 sampled women.

Sample Sizes, Selection Probabilities, and Response Rates

Table E shows the number of cases selected from the 1993 NHIS and the average selection probability, average weight, and the relative variance of the sampling weights. The average selection probabilities for Hispanic and non-Hispanic black women are much higher than for the other race/ethnicity group because of the oversampling of Hispanic and black women. In addition, the NSFG requirement to select only one woman per household resulted in lower selection probabilities (and larger full-sample sampling weights) for women in larger households than for women in smaller households. This occurred almost exclusively in the households with Hispanic or non-Hispanic black women, because all

Table E. Sample size, probability of selection, average weight, and relative variance of weights, by race/ethnicity and number of eligible women: 1995 National Survey of Family Growth

Race/ethnicity and number of eligible women	Sample size	Average probability of selection	Average weight[1]	Relative variance
All women 15–44 years of age	14,000	0.00026124	3,828	0.20
Race/ethnicity[2]				
Hispanic	2,097	0.00036788	2,718	0.30
Non-Hispanic black	3,205	0.00046559	2,148	0.41
Other	8,698	0.00021211	4,715	0.06
Number of eligible women in household				
1	10,546	0.00028619	3,494	0.20
2	2,841	0.00022330	4,478	0.11
3	526	0.00015977	6,259	0.08
4	73	0.00012545	7,971	0.07
5 or more	14	0.00009648	10,365	0.14

[1]The weight is the sampling weight before any nonresponse or poststratification adjustments.
[2]Race/ethnicity based on data from the National Health Interview Survey.

Table F. Response rates for Cycle 5 of the National Survey of Family Growth among completed cases in the National Health Interview Survey, by race/ethnicity and age: 1995 National Survey of Family Growth

Race/ethnicity and age	Sample sizes	Located cases	Location rate	Eligible women[1]	Completed interviews	Response rate
All women 15–44 years	14,000	13,243	94.6	13,795	10,847	78.6
Race/ethnicity						
Hispanic	2,097	1,926	91.8	2,030	1,613	79.5
Non-Hispanic	3,205	2,939	91.7	3,169	2,464	77.8
Other	8,698	8,378	96.3	8,596	6,770	78.8
Age (April 1, 1995)						
15–17 years	1,040	1,001	96.3	1,020	841	82.5
18–24 years	2,622	2,452	93.5	2,586	2,122	82.1
25–29 years	2,339	2,146	91.7	2,310	1,722	74.5
30–34 years	2,815	2,656	94.4	2,783	2,172	78.0
35–39 years	2,751	2,632	95.7	2,723	2,127	78.1
40–44 years	2,433	2,356	96.8	2,373	1,863	78.5

[1]Unlocatables were assumed to be eligible.

NOTE: Race/ethnicity and age are based on data from the National Health Interview Survey.

of these households were selected into the sample with certainty. The race/ethnicity classification in table E is based on the NHIS-reported data, which were subject to revision in the NSFG interview.

The number of completed interviews and the location and response rates are shown in table F. The location rates are based on the total number of cases in the sample (14,000 in total). Of the 14,000 sampled cases, 13,243 cases (94.6 percent) were located. Of the 13,795 eligible women, 10,847 were interviewed (78.6 percent). In the race/ethnicity groups in table F, all three populations had approximately the same overall response rates. For the black and Hispanic women, the location rates were lower (about 92 percent) than for white and other women (96 percent). This difference in location rates was offset by higher response rates among black and Hispanic women who were located. Sampled women under 24 years of age had the highest overall response rates (about 82 percent), and women 25–29 years old had the lowest overall response rate (74.5 percent). Sampled women 25–29 years of age had both the lowest location rate (91.7 percent) and the lowest response rate among located cases. Race/ethnicity and age are based on NHIS data in table F.

Table G shows clustering and the variation in the weights among completed interviews. The number of clusters with one or more completed interviews was 5,377, 71 percent more than the 3,143 used in Cycle 4. The average number of completed interviews per cluster was 2.01 compared with 2.69 in Cycle 4 (18). In other words, the Cycle 5 sample was considerably more dispersed than the Cycle 4 sample. This dispersion probably increased data collection costs, but reduced variances.

Tracing

Introduction

A key feature of Cycle 5 was the linkage of the NSFG sample to the NHIS. Many large surveys are done with area frame samples that require listing and screening the housing

Table G. Clustering and weight variation for completed interviews by race/ethnicity and age: 1995 National Survey of Family Growth Cycle 5

Race/ethnicity and age[1]	Completed interviews	Number of clusters with 1 or more completes	Average number of completes per cluster
All women 15–44 years of age	10,847	5,377	2.01
Race/ethnicity			
Hispanic	1,553	1,020	1.52
Non-Hispanic black	2,446	1,316	1.86
Other	6,848	4,064	1.69
Age (April 1, 1995)			
15–17 years	828	786	1.05
18–24 years	2,106	1,800	1.17
25–29 years	1,716	1,473	1.16
30–34 years	2,165	1,875	1.15
35–39 years	2,125	1,814	1.17
40–44 years	1,907	1,655	1.15

[1]Race/ethnicity and age based on the National Survey of Family Growth interview.

Table H. Tracing steps in the 1995 National Survey of Family Growth

Step	Date	Number of cases sent	Number of cases updated/ located
1. NCOA submission[1]	07/01/94	33,521	5,537
2. Mailing to postmasters for Rural Route addresses	07/22/94	[2]NA	NA
3. Telematch submission	07/22/94	[3]32,876	4,608
4. Telephone tracing	8/1/94–10/31/94	14,000	11,787
5. Tracing contractor submission	8/29/94–11/21/94	1,599	863
6. NCOA resubmission	12/01/94	[3]33,704	1,287
7. Postcard mailing	12/19/94	14,000	NA
8. Field tracing by field interviewers	1/14/95–10/31/95	14,000	13,273
9. DMV requests[4]	1/14/95–10/31/95	952	545
10. Database searches	1/14/95–10/31/95	2,459	1,512
11. U.S. Bureau of the Census tracing	8/1/95–9/30/95	641	149

[1]NCOA is National Change of Address.
[2]NA is not ascertained.
[3]Includes reference persons (head of household) and contact persons given in NHIS interview.
[4]DMV is the Department of Motor Vehicles.

units in an area to identify people who will be in the sample. In contrast, Cycle 5 of the NSFG was based on a list sample—a list of women in households interviewed in the NHIS in 1993. If those women moved between the time of the NHIS interview in 1993 and their NSFG interview in 1995, an effort was made to locate them at their new address to ask them for an NSFG interview. In other words, tracing for the Cycle 5 main study was simply an effort to find the current address and telephone number for a woman in the sample so that she could be asked for an interview. No other information about her was sought except in the interview itself.

The tracing effort depended primarily on three factors that made tracing more difficult for the NSFG sample than it would be for some other studies:

1. The sample list was almost 2 years old by the time the NSFG interview was done.
2. Some of the information needed to locate movers was missing in about one-third of all cases.
3. More than one in five women 15–44 years of age move every year—some more than once—and some also changed their names. For example, 22 percent of persons 15–44 years of age move each year (19).

Despite these difficulties, considerable success was obtained using the procedures described.

Tracing of Sampled Women

Pretest—Before the NSFG main study data collection effort, a multistage tracing process was designed and implemented to confirm the address of each sample woman. This process was developed in response to the higher-than-expected percentage (9 percent) of sample women who could not be located in the NSFG pretest in 1993. The 9 percent nonlocation rate occurred because the pretest sample addresses were 2 years old, the U.S. Postal Service National Change of Address (NCOA) records identified fewer movers than expected, too much time lapsed between tracing and pretest data collection, and the short pretest data collection period did not allow enough time for a complete tracing effort. The age of the NHIS locator information was the most important of these problems. Most of the address information provided for the pretest was over 2 years old, with some as old as 28 months.

Main study—The main study sample was selected from all of the 1993 NHIS—that is, January–December 1993. When interviewing began in January 1995, the NHIS addresses were 13–24 months old. To obtain more recent addresses for the sampled women before data collection, these advance tracing steps were implemented:

- the addresses were submitted to the U.S. Postal Service's NCOA system
- the telephone numbers were submitted to a telephone look-up service called Telematch
- the RTI Telephone Survey Unit called each phone number to verify it
- a small percentage who could not be located were submitted to a tracing contractor
- the addresses were submitted again to NCOA before mailing the advance letter
- a final postcard mailing was done to identify undeliverable addresses and request change of address information.

These steps as well as field tracing steps are outlined, and, to the extent possible, the results are summarized in table H. The following information from the NHIS was used in tracing:

- sample woman's name, address, telephone number, Social Security number, date of birth, race, and marital status
- NHIS reference person's (head of household) name, address, telephone number, Social Security number, and relationship to sample woman
- NHIS contact person's name, address, telephone number, and relationship to sample woman
- whether the sample woman was the NHIS respondent
- date of NHIS interview.

These items are referred to as ''locator information'' in this report.

Table J. Summary of missing locator information from the National Health Interview Survey in the sample for the 1995 National Survey of Family Growth

Problems with NHIS data[1]	Number	Percent
Total number of cases	14,000	100
Sample woman's name was missing or invalid	320	2
Reference person's name missing	217	2
Date of birth imputed	412	3
No contact person listed	3,455	25
Social Security number missing	4,329	31

[1]NHIS is National Health Interview Survey.

Completeness of Locator Information

The planning and preparation for the advance tracing operation assumed that the locator information from the NHIS would be nearly complete. However, about one-third of the 14,000 cases selected for the NSFG had missing locator information. As shown in table J, the NHIS file had 320 sample women with missing or invalid names (for example, Jane Doe, Mrs. Refused, Person 1, etc.); 217 women for whom the name of the ''reference person'' was missing; for 412 women (3 percent), no date of birth was recorded; 3,455 sample women (25 percent) had no contact person identified; and 4,329 (31 percent) had no Social Security number recorded. These missing data made tracing more difficult and more costly. Clearly, it is difficult to locate a woman if her name is unknown, even if her age, race, and former address are known. The lack of a contact person greatly reduces the chance of locating the woman's address if she moves. A missing Social Security number makes it impossible to do large database searches, which is the most economical and most effective way to update addresses and telephone numbers.

Results of Advance Tracing

Table K shows the overall results of the advance tracing operation. At the end of these activities—NCOA, Telematch, telephone tracing, and contractor tracing—addresses and/or telephone numbers had been confirmed for 12,650 sample women (90 percent). An additional 87 sample women were located (1 percent) but refused to participate in the telephone tracing confirmation process. These procedures did not locate 977 sample women (7 percent) before the start of data collection. Another 210 sample women (2 percent) were located, but could not be contacted to confirm the address.

Field Tracing

The advance tracing procedures were designed to provide the field interviewers with a current address and telephone number for each sample woman. When data collection began in January 1995, 977 sample women (7 percent of the entire sample) had not yet been located or confirmed. All of these cases were assigned to the field for in-person followup, although they were not worked immediately by the interviewer. Instead, initial data collection efforts focused on sample women who had been located during advance tracing.

If, during her initial contact, an interviewer found that the sample woman had moved, she assigned a pending tracing code to the case and began tracing. At the start of data collection, interviewers were instructed to follow these tracing steps:

- ask the current resident or neighbors if they have an address or phone number for the sample woman
- submit an Address Information Request Form to the area postmaster
- call directory assistance and ask for the sample woman's phone number
- call the NHIS contact person listed on the Case Assignment Folder (CAF) to ask for an address or phone number.

Interviewers wrote down the efforts they made to locate the woman's address on the CAF.

Early in the data collection period, two main types of tracing problems were discovered. First, some addresses that had been confirmed or obtained during the advance tracing operation were already out of date. Second, interviewers had particular difficulty locating sample women with incomplete contact information from the NHIS, such as missing or partial names, missing or partial addresses, missing contact persons, and imputed birthdates. A profile of cases requiring field tracing indicated that black and Hispanic women, those with lower family incomes, and those with incomplete tracing information were more difficult to locate. The profile in table L shows that 3.8 percent of those with complete locator information (that is, complete sample woman name, Social Security number, and contact person name) could not be located, compared with 8.6 percent of those with incomplete locator information. This differential was found among Hispanic, white, and black women, and also among both low- and high-income women.

In response to these tracing difficulties, several decisions were made to improve success in locating sample

Table K. Final results of advance tracing operation: August–November, 1994

Result	Number	Percent
Located	12,650	90
Unable to locate	[1]977	7
Located, refused	87	1
Unable to contact	210	2
Ineligible	66	–
Deceased	6	–
Language barrier	4	–
Total sample	14,000	100

– Quantity zero.

[1]Includes 736 women not located by the tracing contractor, and 241 women not located by telephone tracing because their names were not listed or were imcomplete.

Table L. Percent not located in the 1995 National Survey of Family Growth, by completeness of locator information and selected characteristics

Characteristic	Number in the sample			Percent not located		
	Total	Complete	Incomplete	Total	Complete	Incomplete
All women	14,000	9,306	4,694	5.4	3.8	8.6
Race/ethnicity						
Hispanic	2,097	1,259	838	8.2	5.9	11.6
Non-Hispanic Black	3,205	2,038	1,167	8.3	6.2	12.0
Non-Hispanic Other	8,698	6,009	2,689	3.7	2.6	6.1
Family income						
Under $20,000	3,954	2,872	1,082	8.9	7.2	13.5
$20,000 or more	7,916	5,539	2,377	2.5	1.9	3.9
Not reported	2,130	895	1,235	9.8	5.0	13.3

NOTE: "Complete" locator information means that the NSFG sampled woman's name, Social Security number, and contact person are all known. "Incomplete" means that one or more of these items was/were missing.

women and ensure that the required 10,500 interviews would be completed.

First, the reserve sample of 875 eligible women was released and data collection was extended from mid-June through the end of July. Second, a sample of unlocatable cases was reviewed by a tracing expert to identify additional steps that could be taken to find the sample women. As a result of this review, the field staff were given additional ideas for locating sample women, and in some instances, cases were returned to interviewers for additional contact attempts. Third, a series of conference calls with all of the field supervisors was held to address the tracing problems and to discuss ways to improve the location rate. Supervisors were asked to hold similar calls with their interviewers to discuss these issues. Fourth, memoranda were mailed to the field staff to offer suggestions for tracing sample women, and interviewers were encouraged to report techniques they had found to be especially effective in locating the sample women or producing new tracing leads.

Central Office Tracing

Several central office tracing steps were implemented to help field interviewers locate sample women. These included Department of Motor Vehicles (DMV) record checks for all tracing cases and TransUnion interactive database searches.

To conduct the DMV record searches, lists of all tracing cases were first generated from the control system and sorted by State. The lists were then mailed to the appropriate State DMV office, along with a letter from NCHS explaining the purpose of the request. Replies from the DMV's were generally received within 2 weeks of the request.

As shown in table M, a total of 952 addresses were requested from 40 State DMV offices. Addresses were returned for 545 cases, for a return rate of 57 percent. The DMV's indicated the last known address for the sample women, based on their driver's licenses. However, for an unknown percentage of these cases, the address returned by DMV was the same as the one already on file. The addresses were mailed to the field staff for in-person followup of new or different addresses.

As shown in table M, addresses were obtained for 1,058 of 1,259 sample women, for a return rate of 84 percent when the interviewer had the Social Security number compared with 38 percent when they did not. This success rate demonstrates the importance of having the Social Security number as a tracing tool. As with the DMV records, however, an unknown percentage of the addresses and telephone numbers obtained through these searches matched those already on file for the sample woman.

Using names and addresses as the search criteria, records for 454 of 1,200 sample women were obtained, for a return rate of only 38 percent (table M). The names and addresses of sample women were used to access crisscross directories and other TransUnion databases when:

Table M. Results of central office tracing efforts: 1995 National Survey of Family Growth

Central office tracing activity	Number	Percent
DMV record searches		
Records found	545	57
Records not found	407	43
Total records requested	952	100
TransUnion database searches with SSN[1]		
Address/phone returned	1,058	84
No address/phone returned	201	16
Total records searched	1,259	100
TransUnion address database searches without SSN		
Address/phone returned	454	38
No address/phone returned	746	62
Total records searched	1,200	100

[1]SSN is Social Security number.

Table N. Results of U.S. Bureau of the Census tracing, by final field interview status

Census result	Final RTI field interview status			Total number	Total[2] percent
	Interview complete	Final unable to locate	Final other noninterview[1]		
	Number				
Sample woman located	49	56	44	149	24
Unable to locate sample woman	2	327	–	329	51
New lead from DMV[3]	–	14	2	16	2
New lead from phone disk searches	14	75	19	105	17
New lead for reference, contact, or other person	4	22	5	31	5
Refusal	–	4	4	8	1
Total cases traced by Census	69	498	74	641	100

– Quantity zero.
[1]Includes cases with these final dispositions: sample woman moved outside of geographic range, final unavailable, language barrier, other noninterview, final ineligible, and final refusal.
[2]Percentages may not add due to rounding.
[3]DMV is Department of Motor Vehicles.

1. the sample woman's Social Security number was missing from the NHIS file;
2. no new information was found through the credit database search; or
3. the address returned through the credit database was not successful in locating the sample woman.

U.S. Bureau of the Census Tracing

As another means of locating the sample women, an agreement was reached with the U.S. Bureau of the Census to trace some remaining unlocated women. Bureau of the Census interviewers had conducted the original NHIS interviews with the sampled households. To allow time for the Census Bureau's 12 Regional Offices to do the tracing, data collection was extended an additional 3 months, through October 1995.

In early August 1995, all unlocatable cases were retrieved from the NSFG field interviewers, reviewed by the project staff, and forwarded to the appropriate U.S. Bureau of the Census Regional Office. The Regional Offices were asked to complete their tracing activities by the end of September. The tracing activities undertaken varied by Regional Office but included field tracing by Bureau of the Census interviewers, DMV record searches, and phone disk searches.

As shown in table N, the Bureau of the Census traced a total of 641 sample women. They reported the following results: 149 sample women located (23 percent), 329 sample women not located (51 percent), 16 new leads from DMV record searches (3 percent), 108 new leads from phone disc searches (17 percent), 31 new leads for reference persons, contact persons, or other locating sources (5 percent), and 8 refusals (1 percent). In many cases, the "new lead" was an address, phone number, or contact person that had previously been obtained through other sources, but had not led to the sample woman.

Cases with "new leads" were returned to the field interviewers for followup as they became available. All new addresses and telephone numbers were attempted. Using the information leads provided by the U.S. Bureau of the Census, the field interviewers located and interviewed 69 sample women (11 percent of the 641 sent to the Bureau); 5 sample women (1 percent) were located and found to be ineligible; 42 (7 percent) were located but refused to participate in the survey; the 27 remaining located women did not participate for some other reason (unavailable during survey period, language barrier, etc.). The Bureau of the Census could not locate 498 of the sample women traced (78 percent), including 171 for which the Census Bureau provided a new address, phone number, or contact person.

Table H, shown earlier, summarized the 11 steps in the entire tracing process. Steps 1–7, which were done before fieldwork began, were called "Advance tracing." Steps 8–11 were called "Field and Central Office tracing," which refers to tracing steps taken after NSFG interviewing began in January 1995. Table O presents the final results of the combined field and central office tracing operation for the NSFG main study. Of the 3,605 sample women who were traced at some point during the field period, 2,153 (60 percent) were located and interviewed; 56 (2 percent) were located and found to be ineligible; 439 (12 percent) were located and refused to participate in the survey; 230 (6 percent) were located but did not participate for some other reason (unavailable during survey period, language barrier, etc.), and 727 (20 percent) could not be located.

Table O. Final results of field tracing: 1995 National Survey of Family Growth

Final result	Number	Percent
Located, interviewed	2,153	60
Located, ineligible	56	2
Located, refused	439	12
Located, other final noninterview	230	6
Unable to locate	727	20
Total sample members traced in field	3,605	100

Table P. Unweighted sample sizes in the 1995 National Survey of Family Growth, by race/ethnicity and age

Race/ethnicity and age	Sample count	Eligible	Located	Eligible and located	Completed interview
Total	14,000	13,795	13,243	13,038	10,847
15–17 years	1,040	1,020	1,001	981	828
18–24 years	2,622	2,586	2,452	2,416	2,106
25–29 years	2,339	2,310	2,146	2,117	1,716
30–34 years	2,815	2,783	2,656	2,624	2,165
35–39 years	2,751	2,723	2,632	2,604	2,125
40–44 years	2,433	2,373	2,356	2,296	1,907
Hispanic					
Total	2,097	2,030	1,926	1,859	1,553
15–17 years	139	133	134	128	126
18–24 years	443	434	402	393	344
25–29 years	416	399	365	348	284
30–34 years	444	432	404	392	313
35–39 years	380	369	358	347	278
40–44 years	275	263	263	251	208
Non-Hispanic white					
Total	8,166	8,084	7,885	7,803	6,483
15–17 years	628	620	613	605	483
18–24 years	1,486	1,469	1,417	1,400	1,215
25–29 years	1,237	1,232	1,165	1,160	948
30–34 years	1,583	1,571	1,531	1,519	1,259
35–39 years	1,692	1,681	1,652	1,641	1,339
40–44 years	1,540	1,511	1,507	1,478	1,239
Non-Hispanic black					
Total	3,205	3,169	2,939	2,903	2,446
15–17 years	221	217	207	203	178
18–24 years	597	592	541	536	470
25–29 years	606	601	545	540	437
30–34 years	670	667	617	614	526
35–39 years	584	581	533	530	437
40–44 years	527	511	496	480	398
Non-Hispanic other					
Total	532	512	493	473	365

After all advance tracing and field tracing activities, 727 women could not be located (5 percent); 13,273 women were located, for a final location rate of 95 percent.

Summary

NSFG sample sizes are shown in table P. In summary, we began with 14,000 sample cases; 205 of those were determined to be ineligible, leaving 13,795 eligible women. A total of 13,243 were located (“traced”) (94.5 percent unweighted), including 13,038 who were located and eligible. Of the 13,038 located and eligible, 10,847 were interviewed. The unweighted response rate for the 13,795 eligible women was 78.6 percent. The comparable unweighted response rate was 76.5 percent for Hispanic women, 80.2 percent for white women, 77.2 percent for black women, and 71.3 percent for non-Hispanic women of other races. Further data on screening, tracing, and response rates are shown in detailed table 1 of reference 16.

Questionnaire Development

Overview

This section describes the questionnaire development, programming, and testing operations for the main study computer-assisted personal interviewing (CAPI) and audio computer-assisted self-interviewing (Audio CASI) questionnaires. It also describes the Spanish translation process for the CAPI and Audio CASI programs.

The questionnaire specification task began soon after the contract was awarded in 1992. NCHS staff had drafted a paper-and-pencil questionnaire. From this, an initial draft of specifications, including skip patterns and variants, was drafted and reviewed. These specifications were given to programmers, who wrote the program code. The programs were tested, and, if necessary, revised through more specification and programming.

The pretest was then conducted, pretest interviews were observed, the results of the pretest data file were examined, and the views of outside experts were obtained to determine what should be revised for the main study. With this information, NSFG staff and

the contractor modified the specifications for the main study questionnaire. These new specifications were given to programmers, who revised the program code. This semifinal questionnaire was tested extensively. As a result of this testing, additional revisions were made to the program code. Finally, interviewing began for the main study. During fieldwork, a few errors were discovered, and corrections were sent out electronically to each interviewer.

Pretest Questionnaire Development

Questionnaire Assessment and Specification

Shortly after the contract began, the draft Cycle 5 questionnaire provided by NCHS was assessed by the contractor to determine if it could be programmed. As with most paper-and-pencil questionnaires for complex surveys, further specification and clarification were necessary before the questionnaire could be given to CAPI programmers. This task was complicated by the significant expansion of the questionnaire from Cycle 4 to Cycle 5.

In converting the survey to an electronic instrument, a number of issues had to be resolved simultaneously. Many paper-and-pencil questionnaires, especially those for complex surveys, have ambiguous concepts and routings that cause missing or inconsistent data and are handled in coding and editing after the interviewing is over. CAPI programming, however, demands that the routing and variants in a question must be specified clearly and in full detail before interviewing begins. To move the interviewer accurately to the next appropriate question or section, detailed specifications identifying the question(s) and answer(s) that determine the correct path must be written and then programmed. To ensure that the interviewer read the appropriate wording of a question, all possible wording variations for a question were programmed. The program chose the appropriate wording based on answers given to previous questions. As with routing patterns, this process required extensive specifications and programming. Thus, when converting a complex, ambitious survey questionnaire from paper and pencil to CAPI, it is common to have to ask many questions to clarify concepts, routings, and question variants, and to clarify how to handle unusual situations.

In addition to these considerations, findings from cognitive research were used to improve the questions. When this contract began in 1992, a small but growing field of study used cognitive psychology to analyze questionnaires (20–22). However, a cognitive analysis of the NSFG questionnaire had never been done. Two technical reviews of the questionnaire were conducted to characterize the response tasks inherent in the question-answering process and to identify question characteristics that may make it difficult for respondents to provide accurate answers. For example, a formal analysis of a draft of the questions on family planning services found that several technical terms were used, along with complex reference sets, shifts in the reference period, and long recall periods (23). These are common features of questionnaires on health care and other technical topics, but they make the respondents' job more difficult. Questions in the NSFG that had these characteristics were identified and resolved by NCHS and contractor staff. The result was higher quality data.

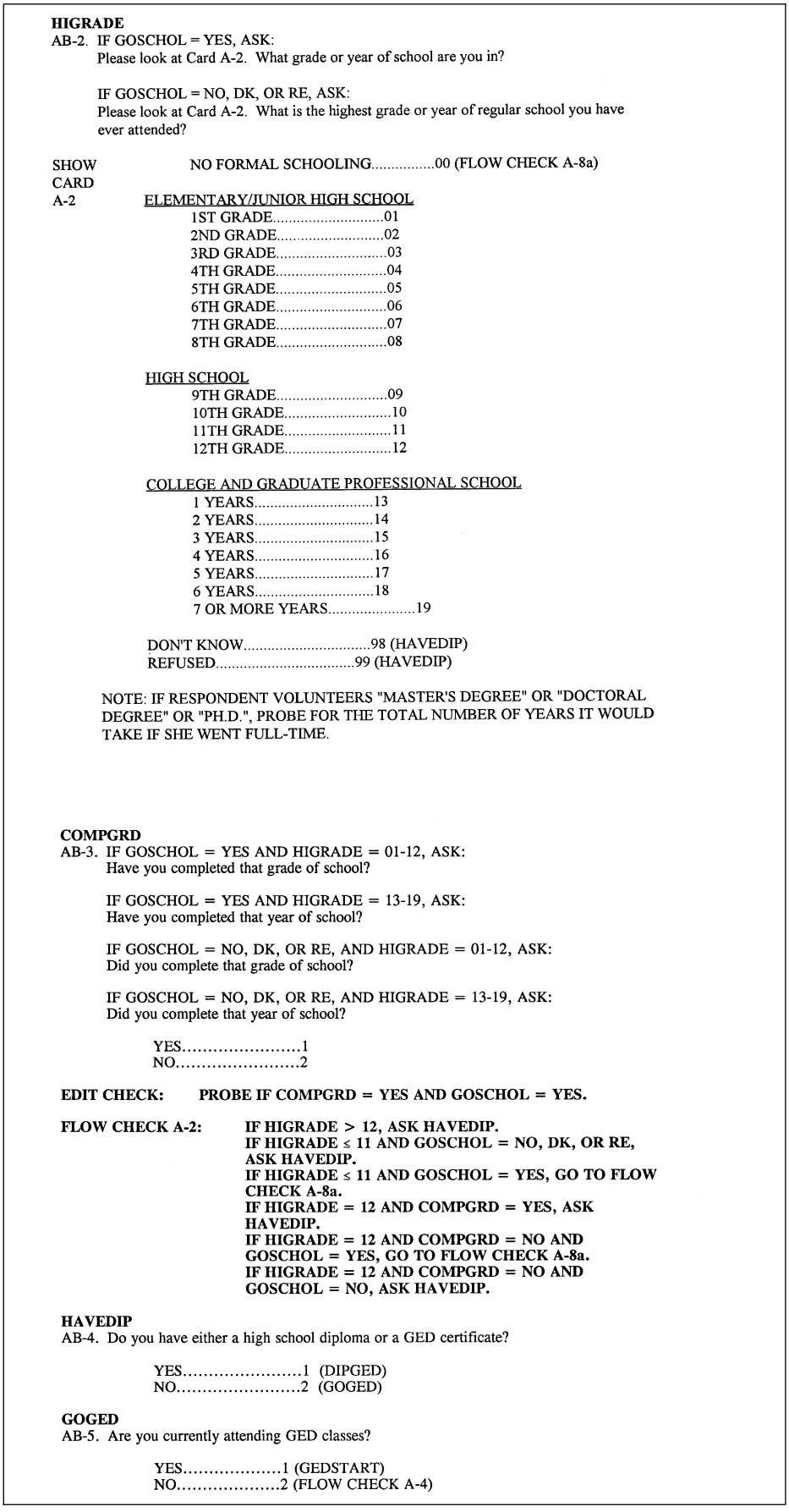
In order to document questionnaire concepts, routings, and revisions, a detailed CAPI Reference Questionnaire (CRQ) was developed to direct the CAPI programming. The CRQ development is described in the next section.

Development of the CAPI Reference Questionnaire

The CRQ was developed from the draft Cycle 5 paper-and-pencil questionnaire and from the ongoing process of discussion and clarification between NCHS and RTI staff. The CRQ described the content of the CAPI interview program and served as a specifications document for the programming staff. It was developed through an interactive process in which the paper-and-pencil questionnaire was used to draft CRQ specifications for a section, the section was reviewed, comments were incorporated, and the section was finalized. The CRQ development task was a collaborative effort in which close communications were maintained via telephone, electronic mail, written correspondence, and face-to-face meetings.

The CRQ contained all of the question and answer choices, transition statements, routing instructions, and edit and range checks implemented in the CAPI and Audio-CASI programs. It also contained all the wording variations for each question, and specified routing statements in a way that facilitated programming. In addition, the CRQ specified a substantial number of edit checks, based on a review of the most common edit problems in Cycle 4. Variable names were assigned to each question along with a unique question number, reflecting the questionnaire section in which the question appeared. Where routing paths were unusually complicated, the reviewers were also given narrative descriptions detailing how the CAPI program would handle a question or series of questions. All of these elements are illustrated in figure 4, which is extracted from the CRQ. The entire CRQ is about 385 single-spaced pages in length, so it is not practical to show all of it in this report. Instead, a detailed outline of the questionnaire is shown in appendix II. Readers who wish to obtain a paper or electronic copy of all or part of the questionnaire should contact the Family Growth Survey staff at NCHS, Room 820, 6525 Belcrest Road, Hyattsville, MD 20782.

Draft versions of a CRQ section were reviewed, updated, and saved as an electronic text file (in WordPerfect) before the section was programmed. The CRQ was then used as a guide for developing and testing the program. Because the CRQ was the critical tool for testing the CAPI program, it was necessary to maintain an up-to-date version of the CRQ throughout the CAPI development and testing process. Thus, as revisions were made to the program, the CRQ was periodically updated and redistributed, both electronically and in hard copy.



HIGRADE
AB-2. IF GOSCHOL = YES, ASK:
Please look at Card A-2. What grade or year of school are you in?

IF GOSCHOL = NO, DK, OR RE, ASK:
Please look at Card A-2. What is the highest grade or year of regular school you have ever attended?

SHOW CARD A-2

NO FORMAL SCHOOLING.....00 (FLOW CHECK A-8a)

ELEMENTARY/JUNIOR HIGH SCHOOL
1ST GRADE.....01
2ND GRADE.....02
3RD GRADE.....03
4TH GRADE.....04
5TH GRADE.....05
6TH GRADE.....06
7TH GRADE.....07
8TH GRADE.....08

HIGH SCHOOL
9TH GRADE.....09
10TH GRADE.....10
11TH GRADE.....11
12TH GRADE.....12

COLLEGE AND GRADUATE PROFESSIONAL SCHOOL
1 YEARS.....13
2 YEARS.....14
3 YEARS.....15
4 YEARS.....16
5 YEARS.....17
6 YEARS.....18
7 OR MORE YEARS.....19

DON'T KNOW.....98 (HAVEDIP)
REFUSED.....99 (HAVEDIP)

NOTE: IF RESPONDENT VOLUNTEERS "MASTER'S DEGREE" OR "DOCTORAL DEGREE" OR "PH.D.", PROBE FOR THE TOTAL NUMBER OF YEARS IT WOULD TAKE IF SHE WENT FULL-TIME.

COMPGRD
AB-3. IF GOSCHOL = YES AND HIGRADE = 01-12, ASK:
Have you completed that grade of school?

IF GOSCHOL = YES AND HIGRADE = 13-19, ASK:
Have you completed that year of school?

IF GOSCHOL = NO, DK, OR RE, AND HIGRADE = 01-12, ASK:
Did you complete that grade of school?

IF GOSCHOL = NO, DK, OR RE, AND HIGRADE = 13-19, ASK:
Did you complete that year of school?

YES.....1
NO.....2

EDIT CHECK: PROBE IF COMPGRD = YES AND GOSCHOL = YES.

FLOW CHECK A-2: IF HIGRADE > 12, ASK HAVEDIP.
IF HIGRADE ≤ 11 AND GOSCHOL = NO, DK, OR RE, ASK HAVEDIP.
IF HIGRADE ≤ 11 AND GOSCHOL = YES, GO TO FLOW CHECK A-8a.
IF HIGRADE = 12 AND COMPGRD = YES, ASK HAVEDIP.
IF HIGRADE = 12 AND COMPGRD = NO AND GOSCHOL = YES, GO TO FLOW CHECK A-8a.
IF HIGRADE = 12 AND COMPGRD = NO AND GOSCHOL = NO, ASK HAVEDIP.

HAVEDIP
AB-4. Do you have either a high school diploma or a GED certificate?

YES.....1 (DIPGED)
NO.....2 (GOGED)

GOGED
AB-5. Are you currently attending GED classes?

YES.....1 (GEDSTART)
NO.....2 (FLOW CHECK A-4)

Figure 4. Example pages from the CAPI Reference Questionnaire

Laboratory Testing Before the Pretest

Throughout 1993 and 1994, considerable testing was done in both the NCHS Laboratory for the Cognitive Aspects of Survey Methodology and in RTI's Laboratory for Survey Methods and Measurement. This section describes only the testing done before the pretest.

As part of the pretest questionnaire design process, five rounds of laboratory testing were conducted at RTI to examine specific sections of the questionnaire. Think-aloud interviews were conducted with about six respondents in each of the five rounds to obtain their opinions about the Life History Calendar, the content of the interview, the FoxPro Computerized Method Calendar, and Audio-CASI. The laboratory interviews before the pretest had the following goals:

1. To examine the respondents' understanding and preference for different versions of computerized and hard-copy Life History Calendars.
2. To observe how the respondents used the calendar and what types of events they wrote on the calendar.
3. To ask how respondents answer questions about their living arrangements and sexual partners and to observe how respondents used the calendar when answering these questions.
4. To use the CAPI program and see how it works and how long it takes to administer.
5. To observe the respondents' reactions to the interview.
6. To get respondents' reactions to the Audio CASI interview.

These five rounds of interviews were very helpful because they provided both quantitative and qualitative data on how the questionnaire worked. Revisions were made and then tested again.

Pretest CAPI Programming

The pretest questionnaire was programmed as sections of the CRQ were completed. The 11 sections of the questionnaire were programmed in 11 programming units, which roughly

corresponded to the sections of the questionnaire shown in figure 3. Two software packages, Blaise 2.5 and FoxPro, were used. FoxPro was used to develop an on-screen ''Method Calendar,'' which contained a month-by-month record of contraceptive use from January 1989 until the Pretest interview in 1993. All other CAPI programs were written in Blaise 2.5, a computer-assisted interviewing system developed by The Netherlands' Central Bureau of Statistics. Originally, the CASES computer-assisted interviewing system was to be used, but in-depth testing of the two systems indicated that Blaise was a better choice for the NSFG, primarily because it handled rosters, or event histories, more efficiently.

The versions of CASES and Blaise available in 1992 were not powerful enough for a survey as large as the NSFG. Programming the entire questionnaire as one or two units would have been preferred, but the complexity and length of the questionnaire and the limitations of the software available at that time made it necessary to break the CAPI program into 11 units. Because of the 11 separate programming units, data had to be passed forward from unit to unit, because question wordings, flow checks, and edit checks depended on responses from previous questions.

For the Blaise sections, an authoring system was developed to translate the WordPerfect questionnaire specifications in the CRQ into first-stage Blaise code. The code was then manually edited by the programmers to implement the routing patterns, edit checks, arrays, and tables. Also, the Audio CASI section was manually edited to add audio capabilities.

The CAPI program was tested and corrected on an ongoing basis throughout the development process. The NSFG staff worked closely with RTI to ensure that the substantive objectives of the survey were met, and that the questions were clear and understandable. As sections were developed and tested, draft versions of the CAPI program were provided to NCHS. These drafts were reviewed and revised as necessary until they were ready for testing.

A systematic approach to testing was used, requiring an up-to-date version of the CRQ to be available at all times as a reference document. This systematic approach helped to maintain control over the testing process and ensured that the testing covered all parts of the program. The CRQ was critical to the testing process in that it documented all questions and answer choices, routing paths, and edit and range checks. The testing included checking:

- the routing for each response choice for each question,
- all wording variations and fills,
- all major routing points or flow checks, and
- all edit and range checks.

A computer-generated checklist was developed to help testers perform these checks.

Two cautionary notes may be gleaned from the NSFG's experience. First, while having a CRQ parallel to the CAPI program is beneficial for many reasons, it requires diligence to update the CRQ as changes are made to the CAPI program. Second, a CAPI conversion effort of the magnitude of the NSFG entails the likelihood that necessary modifications and corrections may be revealed at any time. These corrections can make the schedule somewhat unpredictable. For example, if modifications have to be made during the final phases of testing, interviewer training and interviewing could be delayed.

Revisions to the Questionnaire for the Main Study

NCHS staff analyzed information from the Pretest data file, from observations of Pretest interviews, from debriefings of Pretest interviewers, from the Workshop on the NSFG held in January 1994 (figure 1), and from other sources. This careful review led to a large number of suggestions for revisions to the CAPI program used in the Pretest.

Principal Revisions

These revisions were intended to improve the quality and usefulness of the data, not to change the content of the survey. Among the suggestions were:

1. Event histories—Suggestions for modifications to the event histories included asking separate education questions for regular college, vocational education, and General Equivalency Degree (GED) education; moving work history questions to be near the education and living arrangement questions; and restructuring the sexual partner questions. These changes required significant reprogramming but resulted in higher-quality, more useful data; less sensitivity; and less respondent burden.
2. Contraceptive use—The NSFG is a survey about pregnancy. Since contraceptive use is one of the most important determinants of birth and pregnancy rates, data on contraception are some of the most important data in the study. A decision was made to collect the method calendar information—the month-by-month data on contraceptive use and pregnancy—entirely in Blaise, and to drop the on-screen (''computerized'') method calendar that was used in the Pretest. Although this change required significant reprogramming, both respondents and interviewers found it much easier to use because the paper method calendar was easier for respondents to read. The Blaise format also made it easier for the interviewer to enter the data.
3. Family planning clinic database—A national family planning clinic database was added to the questionnaire program. This required additional programming and testing, but it simplified the task for the respondent. It was intended to improve the quality of the data on use of public family planning clinics.

Note: See questionnaire outline in Figure 3.

Section A:

1) Split education questions into separate series to collect attendance histories for GED, college, and vocational training

2) Move job history from Section I to Section A; restructure the questions to capture periods of working versus not working and periods of looking for work

3) Create new variables in the living situation history to control routing and select wording variations in subsequent questions

4) Change routing in several question series based on respondent's age (i.e., less than 25 years old)

Section B:

1) Allow for up to 15 pregnancies and up to 3 babies per pregnancy

2) Collect maternity leave history for each live birth

3) Remove the list of questions on medical conditions at the beginning of the section

4) Reorder Section B to place delivery and payment questions up front so they are asked once per pregnancy rather than once per baby

Section C:

1) Restructure "partners since 1991" series to capture data in an array

Section D:

1) Ask separate, direct questions for each type of sterilization operation

Section E:

1) Eliminate the question-wording experiments

2) Eliminate FoxPro method calendar; replace with Blaise module to collect month-by-month data on contraceptive methods used from January 1991 to October 1995

3) Restructure wantedness questions to read data captured in Blaise method use section

4) Revise specifications that determine who gets the method use questions

Section F:

1) Restructure questions on location of service, payment method, etc. for each reported service (e.g., ask location question for each service, then method of payment question for each service, etc., rather than location and method of payment questions for first service, then second service, etc.)

2) Add wording variations for several questions based on whether or not respondent has ever had intercourse

3) Add clinic database to search for names and addresses of the clinic where family planning services were received

Section G: No major modifications

Section H:

1) Revise wording and routing for some miscarriage and infertility questions; add wording variations based on whether the woman has ever been pregnant and whether she is currently married

Section I:

1) Move the work history to Section A

2) Replace some attitudinal questions with different attitudinal questions

Section J (Audio CASI):

1) Move potentially sensitive questions from other sections to Audio-CASI

Figure 5. Significant revisions in the National Survey of Family Growth questionnaire after the pretest

The Revision Process

The questionnaire revision task for the Main Study was a collaborative effort between NCHS and the contractor. Word processing software was used to generate lists of revisions to each questionnaire section. There was continual consultation between NCHS and the contractor to clarify the content of questions and to determine the best way to specify each question for programming. Revised versions of a CRQ section were provided for review and comment before the section was programmed.

As the revisions in the CRQ were reviewed, effects on subsequent questions, sections, or routing patterns were examined carefully. As ambiguities were addressed and clarified, the annotated CRQ was provided to the programmers. The CRQ for the Main Study was about 385 pages long, and revisions were necessary on approximately 75 percent of the pages. Figure 5 lists some of the more significant questionnaire modifications made between the Pretest and the Main Study.

In addition to the section-specific modifications, there were a substantial number of wording and routing revisions in all sections of the questionnaire. These global revisions included:

- modifying the categories of medical providers, and their on-screen definitions (clinic, private doctor, HMO, hospital emergency room, etc.)
- modifying the categories for methods of payment questions, and their on-screen definitions (insurance, co-payment, Medicaid, etc.)
- modifying all tables and questions to eliminate blank answer fields. This change made data entry easier and more accurate for interviewers
- adding numerous on-screen notes and definitions because they were easier for interviewers to use than a separate, hard-copy Questionnaire Specifications Manual; and
- increasing the number of consistency checks within each

section to enhance data quality—for example, checking to see if start dates were before ending dates, or if recorded dates were before the date of interview.

CAPI and Audio CASI Development for the Main Study

As individual sections of the CRQ were revised and approved, they were provided to the CAPI programmers for coding. CAPI programmers specialized in particular sections of the questionnaire. The programmers used the edited versions of the CRQ to identify revisions required in their assigned sections. They then made the required changes in the CAPI program and conducted the first round of testing.

Because of the number and complexity of the revisions, it was necessary to separate the programming units of the questionnaire program and test them individually. This process of breaking apart the CAPI sections was very time consuming for the programmers, but it allowed other staff to program and test sections independently and concurrently, and that saved valuable calendar time.

The interview driver program was written in FoxPro. It linked the programming units of the CAPI program together to make the interview appear seamless. This driver program checked the validity of case ID numbers before beginning the interviews, automatically proceeded to the next section of the interview as sections were completed, rebooted to clear out memory before and after the Audio-CASI section, and generated a completed interview code when an interview was completed. The questionnaire was programmed in nine programming units for the Main Study.

Summary Screens

The interview driver program did not allow interviewers to back up across programming units (previous questionnaire sections) in either the Pretest or the Main Study. Interviewers were not allowed access to previous sections for several reasons. First, because of the length and complexity of the questionnaire, it would have been difficult and time consuming for an interviewer to determine which question required changing and to recall the location of that question. Second, in accessing completed sections, the interviewer would have been able to accidently change or delete answers. Third, after changing an answer, the interviewer would have had to check subsequent sections to determine if the new answer created routing problems or inconsistencies in the data.

It became clear, however, that it was necessary to give the interviewers an opportunity to review and correct key data items. This was based partly on feedback received from the Pretest interviewers regarding their inability to back up and correct answers. The concern was that incorrect responses to key items would create situations in which subsequent questions or sections would be skipped in error. To prevent such errors, ‘‘summary screens’’ (figure 6) were designed and programmed at the end of Sections A, B, C, D, and E (see figure 3) to give the interviewers a chance to review the key data items that had to be passed forward to the subsequent sections. These screens contained a list of the key data items collected in the section; before moving to the next section (or programming unit), the interviewers reviewed the listed items with the respondent. If the interviewer and respondent identified errors, they were resolved before exiting the section, allowing the CAPI program to pass forward the corrected data. Figure 6 contains an example summary screen from Section B of the CAPI program.

The Contraceptive Method Calendar

A significant effort was required to program and test the design changes for the month-by-month contraceptive method history for the 4 years before the date of the interview. Using the revised CRQ specifications, the FoxPro calendar used in the Pretest was removed from the CAPI program and instead a Blaise method history module was developed and tested. Screens leading into the Blaise contraceptive method calendar were added that summarized the respondent’s pregnancies and other related events and prompted the interviewer to verify that these were recorded on the respondent’s Life History Calendar. The interviewer then instructed the respondent to record on the Life History Calendar all of the methods she had used during the specified time period, generally January 1991 to the date of interview. After all methods were recorded on the paper calendar, the interviewer entered them into CAPI.

The FoxPro calendar, developed for the Pretest, worked well—it had the capacity to compute pregnancy start and end dates, impute pregnancy intervals, display recall cues and methods on the calendar, and create the CAPI fills (the text to be inserted in the method use questions). It also performed a number of detailed consistency checks to promote more accurate reporting of method use dates. But the Blaise module was easier for respondents and interviewers to use than the FoxPro calendar, because:

1. The respondents and interviewers preferred to use the paper Life History Calendar rather than the computer screen.
2. The paper Life History Calendar was easier to read than the FoxPro screen.
3. Using Blaise meant that the interviewers could use just one kind of software—Blaise—to collect everything in the interview, instead of having to learn a different software package to administer the method calendar.

In short, the FoxPro method calendar was a technical success, but it was replaced because it was not as easy to use as the Blaise instrument and the paper Life History Calendar. The new Blaise version was very well received by interviewers and respondents alike in the Main Study.

The Family Planning Clinic Database

Another significant CAPI programming effort involved using a

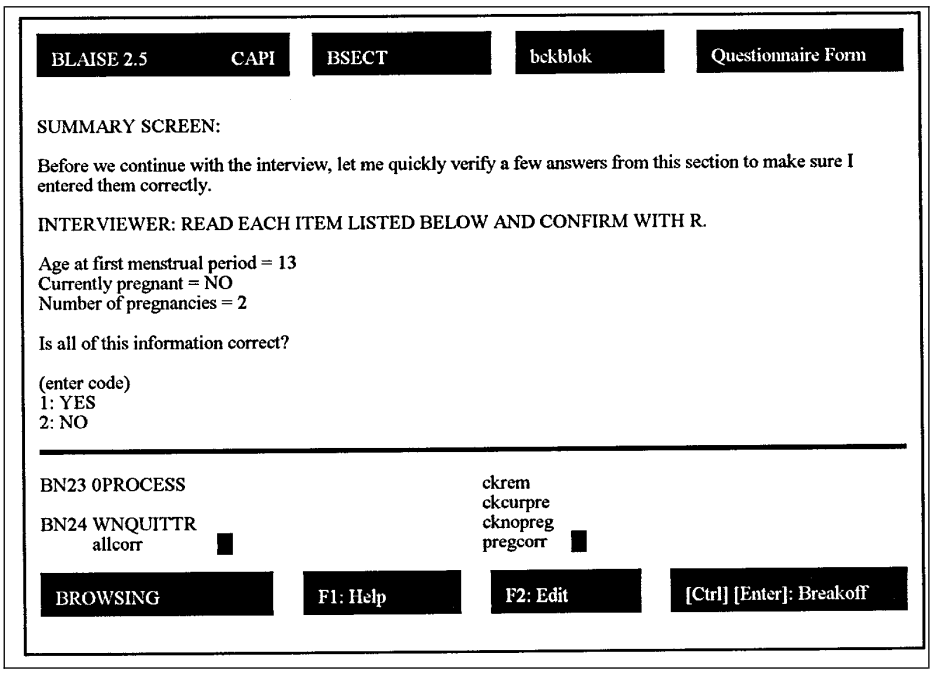


Figure 6. Example summary screen

national database of family planning clinics in Sections E and F. High-quality data on how and where women obtain their contraceptive methods is an important objective of the NSFG. Data were needed on the types of clinics women use to obtain these methods in order to evaluate the roles of private doctors and public programs in providing family planning services.

The Office of Population Affairs (OPA) provided a current listing of clinics in the United States that received funding under the Federal Title X program. This listing was used to classify clinics according to Title X status. For the 1995 NSFG, the Alan Guttmacher Institute (AGI) provided a comprehensive, computerized clinic database that included the OPA listing of Title X clinics. This database contained approximately 7,000 family planning clinics in the United States (24).

To ensure that the AGI database incorporated all Title X clinics, the latest OPA listing was merged with the database. A special program was written to detect misspellings of clinic names and addresses, and city, street, and clinic names that were too long. These were corrected or shortened as required. After this cleaning of the data file, the data were sorted by city within State and assigned sequential numbers to each State, each city, and each clinic.

To select a clinic from the database, interviewers were instructed to enter the appropriate two-digit State code, the two-digit city code in which the clinic was reported, and the two-digit code representing the reported clinic. If the clinic was not listed in the database, the interviewer asked for and recorded verbatim the name and address of the clinic. The database classified the clinic in two ways: how they were funded—that is, Title X funding versus no Title X funding; and the affiliation of the clinic—that is, hospital, Planned Parenthood, health department, or other. The computerized classification also gave interviewers feedback on whether the answer was complete enough to classify.

Testing

The CAPI and Audio-CASI programs were tested and debugged by the CAPI programmers and project staff on an ongoing basis throughout the development process. As sections were revised and tested, draft versions of the Main Study CAPI program were provided to NCHS for review and comment. Meetings were held several times during the development process to review the program and to make programming and questionnaire design decisions.

The same systematic approach was used in testing as was used during the Pretest. A computer-generated checklist of questions in each section was used to ensure that each question had been tested.

Tested sections of the CAPI program were provided to NCHS on a flow basis for review and comment. Laboratory testing was performed by NCHS on the Main Study questionnaire. NCHS staff from the Family Growth Survey Branch and the Office of Research and Methodology interviewed respondents who had been recruited from the local community. Interviews were meant to simulate portions of the actual Main Study interviews, and NCHS staff observed and kept track of problematic questions and issues. These became the basis for some of the requested modifications and improvements that were implemented. As necessary, the CRQ and CAPI program were revised and retested.

Once the individual sections had been thoroughly tested, the systematic testing was repeated on the whole CAPI program. In addition to the testing done for the individual sections (outlined previously), the testing checked to ensure that:

- sections were linked correctly
- needed data from previous sections were available
- procedures for ‘‘breaking off’’ (stopping) the interview worked correctly
- the program passed data from one section to another as intended.

As a final check of the CAPI program, mock interviews were developed for the field interviewer training program to test the questionnaire program. This served two purposes: first, problems in the CAPI program that would have arisen during interviewer training were identified and corrected before training; and second, the accuracy of the training scripts could be verified.

Spanish Translation

Once the English versions of the CAPI and Audio CASI programs were finalized, the questionnaire sections were translated into Spanish. The translation was done locally, allowing frequent in-person interaction between the translation service staff and the contractor's CAPI programmers and questionnaire design staff.

In developing a protocol for the translation process, several important issues arose. First, it was important to choose a dialect that would be understood by all Hispanic respondents regardless of their backgrounds. Second, it was important that medical terms, such as abortion, be translated appropriately. Third, the placement of the fill strings within the various questions had to be resolved. Fills in many of the English version questions would have to be placed in a different position in the Spanish version to make the sentences grammatically correct.

A plan was developed for extracting the English text from the CAPI program, translating the text, and merging the translated text back into the CAPI program. The translator assigned to the project was an experienced computer programmer and brought to the task an understanding of the complex computer-related issues associated with the extraction of English text and replacement with Spanish text. A bilingual survey specialist at RTI tested drafts of the translated instrument questionnaire several times.

After all sections were extracted, translated, and merged, the program was tested to determine that it worked. The fills were revised as needed during this process. Subsequently, the entire interview was evaluated again and any fills that still did not work properly in translation were corrected.

For the Audio CASI portion of the Spanish translation, a woman without a notable Spanish dialect or accent was used. The Audio CASI interview was recorded in Spanish. This recording was reviewed several times to identify any problem areas and to rerecord them as necessary.

Discussion

Although it was a time-consuming and expensive process, using CAPI offered the opportunity to build in routing logic and edit checks that would have been impossible for an interviewer to implement properly on a paper-and-pencil questionnaire. In addition, using CAPI and the programmed logic, routing, and edit checks has resulted in a very clean database that has greatly reduced the amount of editing required. The efforts expended in the redesign of the pretest questionnaire for the Main Study resulted in an improved CAPI instrument that worked very well in the field. Missing data is minimal. CAPI and Audio CASI technology were reliable and well accepted by both the interviewers and the respondents.

Cycle 5 data suggest that the Audio CASI methodology improved the reporting of sensitive behaviors. The Life History Calendar also worked well as a recall aid for dates of pregnancy, contraception, etc. Many respondents liked seeing their major life events on one page and asked to keep the paper Life History Calendar.

Finalizing the CAPI questionnaire and CRQ before starting programming and testing would simplify CAPI programming. The amount and complexity of new questions made that impossible in Cycle 5, but if it is possible in the future, costs would be reduced and the schedule would be faster.

When the contract began in fall 1992, Blaise 2.5 was judged to be the best CAPI software available for the NSFG, in part because it handled rostering so well. But Blaise 2.5 was not designed to handle a questionnaire as large and complex as the 1995 NSFG. The questionnaire had to be programmed into smaller questionnaire units and linked with an external driver program. Newer versions of CAPI software and more powerful laptop computers developed since then will simplify the programming task.

The Cycle 5 CAPI program included immediate consistency checks of data and allowed the interviewer to resolve the inconsistency while the respondent was completing the interview. When inconsistencies were detected, scripted followup questions were provided for the interviewer to use in reconciling the data. These questions for resolving inconsistencies need to be written to describe specifically what the interviewer needs to do to resolve the inconsistency. The interviewers were trained to enter comments whenever an override occurred; however, they did not always do so in the field. As a result, it would be useful to add a question immediately after any override that asks the interviewer why she overrode the edit check.

Interviewer Materials

This section describes the data collection supplies and materials developed for the NSFG Cycle 5 Main Study. The supplies and materials included field manuals, materials for locating and contacting respondents, items used in obtaining participation, computer hardware, Audio CASI hardware, computer-related supplies, and materials used during the interview. The materials developed were revised from those prepared for the Pretest.

Manuals

The manuals described in detail the NSFG Main Study data collection procedures and were used at training and as a reference source during and after fieldwork. The 261-page *NSFG Cycle 5 Field Interviewer (FI) Manual* was sent to each trainee about 1 week before training, along with home-study questions, which the trainees were asked to complete and bring to training. The 331-page *NSFG Cycle 5 Field Supervisor (FS) Manual* was distributed to the supervisors several weeks before supervisor and interviewer training. It included all chapters from the interviewer manual and an additional chapter on supervisory procedures.

The *Field Interviewer Manual* covered the background of the NSFG; the role of the NHIS as the source of the sample; the importance of confidentiality and objectivity;

procedures for contacting the sample women; procedures for gaining cooperation; how to administer the questionnaire; how to use the computer software, hardware, and the Audio CASI equipment; quality control measures; and how to report their time, effort, and expenses.

The Field Supervisor Manual also provided guidelines for assigning cases to interviewers, monitoring field activities, and conducting verification.

Materials Used for Locating and Contacting Respondents

A Case Assignment Folder (CAF) was created for each sample woman, with identifying information printed on a label and affixed to the front of the folder. The CAF contained case-specific information, such as advance letters, consent forms, brochures, and information on advance tracing activities. For Cycle 5, the field interviewer mailed a personalized advance letter to the sample woman a few days before the interviewer would try to contact her. Three versions of the advance letter were developed: one to adult sample women (18–44 years), one to minor sample women (15–17 years), and one to parents of minors in the sample. Generic versions of each letter were given to interviewers for sample women who did not remember receiving the personalized letter or requested another copy. The generic advance letters are shown in appendix III. The letters were translated into Spanish for sample women who were classified as Hispanic in the NHIS.

Two ''contact scripts'' were developed for interviewers to use when making appointments to do the interview or to obtain parental consent. These ''contact scripts'' contained questions that verified the identity of the sample woman, questions for locating the sample woman if she had moved, and questions asking the sample woman for a date and time to do the interview. The two versions of the contact scripts are shown in appendix IV.

Materials Used for Obtaining Participation

Several items were used to help obtain the participation of sample women (or to obtain the consent of parents). The *advance letter,* used to make initial contact with the sample woman (and her parents in the case of minors), was also an effective tool for obtaining participation. In addition, various versions of refusal conversion letters were developed. Each addressed a different reason for refusal, including being too busy, general uncooperation by the sample woman, and general uncooperation by the parent. A ''gatekeeper'' letter was also developed to send to family members who were unwilling to tell the interviewer the whereabouts of a sample woman who had moved. Refusal conversion letters were sent by the supervisors after consulting with the interviewer about the circumstances of the refusal.

A picture identification badge was provided to the interviewers. A Letter of Authorization, shown in appendix V, verified the interviewer's position as an interviewer on the NSFG. The NSFG Q&A Brochure (see appendix VI) was mailed to sample women (and parents) with the advance letter.

The NSFG ''Family Facts'' sheet and four newspaper articles reporting data from the Cycle 4 NSFG were given to sample women to demonstrate how the NSFG data are used and reported. The ''Family Facts'' sheet and the Q&A Brochure were also included in the ''gatekeeper'' letter described previously to emphasize the credibility of the study to the family members of the sample woman to allay any concerns about the legitimacy of the study and encourage them to tell the interviewer the sample woman's address or phone number.

Computer Hardware, Audio CASI Hardware, and Related Supplies

The hardware used in the NSFG Main Study consisted of laptop computers and audio equipment for the field supervisors and field interviewers. The supervisors were given printers. Librex brand laptop computers were obtained from the U.S. Bureau of the Census. They had the following specifications: 386 CPU; 4 MB of RAM; 40 and 80 MB hard disk; external floppy; external 19.2 modem; and serial, parallel, and external VGA output ports. The related computer supplies included a power cord for the computer, an external Librex diskette drive, a 6-foot extension cord, a 3-prong-to-2-prong power adaptor, an Antex AudioPort sound box, a computer cable for the sound box, a Sony headset, a Multitech modem, a power cord for the modem, a computer cable for the modem, a telephone cord, a battery charger, a power cord for the battery charger, an extra battery, and a carrying case large enough to hold all the equipment.

Materials Used To Administer the Interview

Question specifications for the Cycle 5 questionnaire were provided on the computer screen, in the Showcard Booklet, and in the *NSFG Cycle 5 Questionnaire Specifications Manual*. A Pill Chart, kept in a back pocket of the Showcard Booklet, displayed pictures of various brands of oral contraceptive pills. This chart was shown to each current user of oral contraceptive pills to help her identify the brand and type she was currently using.

An 11' x 17' paper Life History Calendar (see appendix VII) was used to help the respondent recall dates of events asked in the interview. At the beginning of the interview, the interviewer described the purpose of the calendar and went through an example calendar that was displayed in the Showcard Booklet. Then the respondent and interviewer set up the calendar with events from the respondent's life. During the interview, the respondent was reminded to refer to the calendar to help her recall dates and then to mark these dates on the calendar.

Discussion

The materials used worked well. However, the external items on the laptop computers (modem, audiobox, and diskette drive) created some frustration for the interviewers and increased the training time and assembly time for the interviewers. More modern equipment with internal voice cards and internal drives and modems should be available for the next NSFG.

Interviewer Training

Training Program

Two interviewer training sessions were held to train 253 field interviewers in January 1995, and seven additional field interviewers were trained in ''attrition'' training sessions in April and May. The agenda for interviewer training is shown in appendix VIII. The training program had four parts: preclassroom home study, general computer training, NSFG project-specific training, and Spanish bilingual training. In addition, nightly study halls were provided for interviewers who were having difficulty or had additional questions.

Preclassroom home study training is a self-study of the *Field Interviewer manual* with a written exercise. Interviewers who had never used a computer or were not regularly using a computer were asked to attend a 4-hour general computer training session to learn how to use the Librex computer and to go through a tutorial on the NSFG questionnaire. The general computer training was conducted by a lead trainer and an assistant trainer and was designed to give hands-on practice with the computer.

NSFG project-specific classroom training began with a plenary evening session welcoming all trainees. Speakers included the Chief of the Family Growth Survey Branch of NCHS, the RTI Project Director, and the RTI Field Director. For the remaining 6 days of the training, the trainees were divided into small groups of 15 to 20 interviewers by supervisor region. Each small group session had a lead trainer, an assistant trainer, and a field supervisor. The lead trainer gave most of the lectures on data collection procedures, led the various data collection exercises, and gave instructions on the computer hardware and the software functions. Training on the administering of the questionnaire included three ''round-robin'' interviews, during which trainees played the role of the interviewer and the lead trainer played the role of the woman being interviewed.

The first 3½ days of project-specific training were devoted to administration of the questionnaire. The content of the questionnaire and its unique characteristics were covered and use of the hardware equipment was demonstrated. Then a computerized tutorial explaining how to use the functions of the Blaise CAPI software was reviewed by the lead trainer as the trainees followed along on their computers.

Three ''round-robin'' mock interviews were conducted next. Each round-robin interview was progressively longer and more complex. Trainees took turns asking questions, the lead trainer gave the responses from a prepared script, and the trainees entered the responses into their computers.

Trainees were then paired by the supervisors. Each pair of trainees conducted two ''paired mock'' interviews using prepared scripts. They also practiced data transmission.

On the fourth day of training, the information about each sample woman provided on the Case Assignment Folder was discussed. Procedures for contacting sample women and obtaining their participation were described and practiced. The fifth day of training began with a discussion of field tracing procedures for locating sample women who moved; a 1-hour session on what to do if a respondent becomes upset; and a discussion on how interviewers should document and report their time and expenses. The session continued with two more paired practice exercises through the sixth day of training. During the four paired practice exercises, trainers evaluated trainees on their ability to implement all key elements of the interview process, including setting up the computer and Audio-CASI equipment, obtaining participation, scheduling an appointment, completing the Life History Calendar, and administering the questionnaire. The trainees were evaluated and ranked because the contract required the contractor to identify the lowest 25 percent of trainees, and to observe their performance in the field. The last day of training was devoted to administrative responsibilities and use of the computerized Field Monitoring System. A discussion on procedures to safeguard data quality, including field supervisor observations and verifications, was also provided. The training ended with individual conferences between each interviewer and her supervisor to distribute assignments. Interviewers were given additional prepared interview scripts to practice at home before going out into the field.

Following the NSFG project-specific training, interviewers who were fluent in Spanish were asked to attend the bilingual training session. During this 4-hour session, the interviewers reviewed and practiced using the Spanish version of the CAPI questionnaire. The Spanish CAPI training was conducted by a field supervisor who is fluent in both Spanish and English.

The turnover rate among NSFG interviewers was low. Two ''attrition training'' sessions were held to replace interviewers who had quit or had been released from the study. Four interviewers attended the first attrition training session in April 1995, and three interviewers attended the second session in May 1995. These interviewers received essentially the same training program that the initially trained interviewers had received. The training schedule was modified to shorten the discussion time in some areas because the class size was smaller.

Discussion

Overall, the training program worked very well in preparing the interviewers to conduct the NSFG. The special training session for interviewers

inexperienced with computers, the extensive use of hands-on practice, and the availability of nightly study halls gave the interviewers the confidence they needed when they left training. In retrospect, given the amount of effort that had to be spent on finding hard-to-locate respondents and on refusal conversion techniques, some trainees would have benefited from some additional discussion of tracing and refusal conversion.

Data Collection

Overview

This section describes the data collection for the NSFG Cycle 5 Main Study. The field organization for Cycle 5 consisted of three major regions, each led by a regional supervisor at the contractor's headquarters. Each region had 5 territories, for a total of 15. Each of the 15 territories was led by a field supervisor. The field supervisors prepared interviewer assignments and were responsible for monitoring the progress of each interviewer in their region, performing field observations, conducting telephone verifications of the interviewers' work, and conducting refusal conversion efforts.

The field supervisors' responsibilities were to analyze each interviewer's weekly production, to review interviewer time and expense reports for cost control information, to develop tracing strategies, to talk to each interviewer weekly to give feedback on all of these issues, and to provide support. To accomplish this, the supervisors held a regularly scheduled phone conference with each interviewer every week. In addition, the supervisors were available to their interviewers as needed. Following their interviewer calls, the five field supervisors in each region made weekly progress reports to their assigned regional supervisor.

Throughout the fieldwork, the field staff were supported by a computerized survey control system. This system was developed to track each case from the time it was selected for the sample, to when it was assigned to an interviewer, to when the interview was completed, and when the data were transmitted to the RTI home office. The system captured pending and final result codes and monitored the transfer of cases between field staff. The system consisted of two primary components: the in-house Control System and the Field Monitoring System. The Control System resided on RTI's mainframe computer; a copy of the Field Monitoring System resided on each interviewer's laptop computer. The system generated both daily and weekly reports to show the status of each case for the day before. Old paper-and-pencil field monitoring systems provided data that were 7–10 days old. In the 1995 NSFG, the data were *only 1 day old.* Reports were run by interviewer, by field supervisor area, by regional supervisor territory, and for the total sample. The supervisors received their reports electronically. Electronic reports were also sent daily to the Family Growth Survey Branch for the first few weeks, and then twice a week, for its use in monitoring the field work.

A total of 260 interviewers worked on the Cycle 5 Main Study. Because of the survey's subject matter, all were female. Data collection began immediately after the initial training session on January 13, 1995, and was originally scheduled to end on June 15, 1995, but was extended until July 31. Later, data collection was extended again, to allow for additional tracing by the U.S. Bureau of the Census. Completed interviews were obtained from 10,847 sample women. Completed interviews were telecommunicated to the contractor's host computer each evening.

In the following sections, a number of aspects of NSFG fieldwork are discussed: the field organization, staff recruitment, interviewer assignments, locating sample women, interviewing sample women, refusal conversion procedures, data collection extension, data collection reports, and data collection results.

Field Organization

The sample for the 1995 NSFG was obtained from the 1993 NHIS. This NHIS-linked sample design drew women from 198 PSU's in the United States, including Alaska and Hawaii. The 198-PSU design in Cycle 5 means that the sample was more dispersed than in previous cycles of the NSFG: Cycle 4 used 156 PSU's, and Cycles 2 and 3 used only 79 PSU's. The smaller number of PSU's and segments in previous Cycles tended to reduce the costs of those earlier surveys but also increased their sampling errors (table C). Thus, fieldwork costs for previous Cycles were lower, and variances larger, than in the 1995 NSFG.

Assignments were made in an effort to provide a reasonably equitable distribution of sample cases and thus an equitable number of interviewers assigned to each supervisor. Supervisory regions included contiguous areas but were not necessarily drawn to coincide with State boundaries because of the need to balance workloads among supervisors. More experienced

Table Q. The number of sample women and estimated number of field interviewers by supervisory regions as assessed in 1994

Regions	Number of field supervisors	Total sample women	Expected number of completed interviews	Projected number of field interviewers	Calculated number of field interviewers
North Eastern	5	4,906	3,690	92	90.84
South Eastern	5	4,512	3,400	84	83.72
Western	5	4,582	3,445	86	84.86
Total	15	14,000	10,535	262	259.42

supervisors were given larger territories. Regions were also set up so that no region included more than two of the following cities: New York, Philadelphia, Detroit, Washington, D.C., Chicago, Miami, Dallas, Houston, and Los Angeles. These are the cities in which response rates tend to be the lowest, costs highest, and interviewer turnover greatest. Table Q shows the number of sample women and estimated number of field interviewers needed, by region, as assessed in 1994, just before fieldwork began.

Interviewer Assignments

Field supervisors were responsible for making case assignments to the interviewers in their assigned PSU's; 13,125 cases from 198 PSU's were assigned. A reserve sample of 875 cases was fielded toward the middle of the data collection period to ensure that at least 10,500 completed interviews were obtained. The following were considerations for making interviewer assignments:

- the geographic location of the cases in each site
- the location of the interviewer's residence in relation to the cases
- the number of hours per week that the interviewer committed to the project
- the ability and efficiency of the interviewer based on her previous experience, observations, and ratings during training
- the race/ethnicity and bilingual capability of the interviewer.

Field interviewers and respondents were matched based on race/ethnicity when possible, but because of the dispersion of the sample, and because the interviewer's skills and experience were more important than their race, it was impossible to match everyone. The results of matching interviewer and respondent were as follows: 38 percent of Hispanic respondents were interviewed by Hispanic interviewers; 29 percent of black respondents were interviewed by black interviewers; and 92 percent of white and other respondents by white and other interviewers.

Interviewing Sample Women

The initial contact with a sample woman was made with an advance letter (see appendix III). The letter was personalized for each sample woman and was included in the Case Assignment Folder when assignments were given to the interviewers. The interviewers mailed the letter to the sample woman a few days before beginning work on that case. Given the lengthy data collection period, this mailout procedure was preferred over a ''mass mailing'' because it meant that the sample woman would receive the letter as close as possible to the time she was contacted by the interviewer.

When the field interviewers contacted a sample woman (or her parent), they introduced themselves and explained the purpose of the study, referring to the advance letter that the sample woman should have already received. The interviewer then attempted to obtain parental permission when needed and arranged for a private setting for the interview. Next, the interviewer set up the computer equipment and conducted the interview using CAPI and Audio-CASI. When the interview was completed, the interviewer gave the respondent the $20 incentive and a letter that thanked the respondent for participating in the interview.

In 218 cases (2 percent of the 10,847 completed interviews), the interview was conducted by telephone rather than in person. This was allowed only when the respondent insisted that she would not allow the interviewer to come into her home and would not agree to meet the interviewer at a neutral location to complete the interview, or if the case was in a remote area and the cost of sending an interviewer to the area to complete one case would have been prohibitively expensive. Before telephone interviews were conducted, prior approval had to be received from one of the three regional supervisors. The respondent was mailed the Life History Calendar, and the interviewer helped her fill it out.

Data Collection Results

In appendix IX, a summary of the results from the data collection status reports is presented. Results are presented for totals and by region, race/ethnicity, age, and income. Characteristics (race, income, and date of birth) were obtained in the 1993 NHIS, about 2 years before the 1995 NSFG. NSFG interviews were completed with 10,847 women out of 13,795 eligible women, for an overall (adjusted) response rate of 79 percent. As shown in appendix IX, table 1, the response rate for Region 1 (the northeastern States) was 80 percent; for Region 2 (the southeastern States) it was 75 percent; and for Region 3 (the western half of the United States) it was 81 percent. As shown in appendix IX, table 1, the most common types of nonresponse were inability to locate the woman (5 percent) and refusals (11 percent).

As shown in appendix IX, table 2 and table R, there was little difference in the adjusted response rate by race and ethnicity (79 percent for Hispanic and other women and 78 percent for black women). The refusal rate for white and other women was 13 percent compared with 8 percent for black and 9 percent for Hispanic women. On the other hand, the percent unlocatable (untraceable) was 8 percent for black and Hispanic women and only 4 percent for white women. Thus, the similar response rates for the three groups occurred because of the higher refusal rates for white (''other'') women and the higher percent unlocatable for black and Hispanic women.

Appendix IX, table 3 shows that the adjusted response rate was higher for women under 18 years of age (82 percent) than for women 18 years of age and older (78 percent). Women 18 years of age and older had slightly higher percents unavailable and unlocatable than women under 18 years of age. Table R summarizes data from appendix IX, tables 2, 4, 7, and 8. Appendix IX, table 4 shows that 9 percent of low-income sample women were unlocatable, compared with 3 percent of high-income women. On the other hand, high-income women had

Table R. Percent unlocatable, percent refused, and response rate, by race/ethnicity and National Health Interview Survey income: 1995 National Survey of Family Growth

Income	Hispanic	Black	Other	Total
Total		Number		
Total cases assigned	1,843	2,818	7,930	12,591
		Percent		
Unlocatable	8	8	4	5
Final refusal	9	8	13	11
Adjusted response rate	79	78	79	79
Income under $20,000 in 1993		Number		
Total cases assigned	930	1,567	2,066	4,563
		Percent		
Unlocatable	14	12	7	9
Final refusal	6	7	8	8
Adjusted response rate	75	75	78	77
Income $20,000 or higher in 1993		Number		
Total cases assigned	913	1,251	5,864	8,028
		Percent		
Unlocatable	4	5	2	3
Final refusal	11	11	15	14
Adjusted response rate	81	77	79	78

NOTE: The sample sizes in this table enable 95 percent confidence intervals of less than ± 3.2 percent for Hispanics, ± 2.9 percent for non-Hispanic blacks, and ± 2.1 percent for other race/ethnicity.

higher refusal rates (14 percent) than low-income women (8 percent). The adjusted response rate was 77 percent for low-income and 78 percent for high-income women. The lower refusal rates for low-income women suggest that the incentive offset the bias that would have been caused by the inability to locate low-income women.

Table R shows that the adjusted response rates were about equal for the two income groups (77 and 78 percent), for both black (75 and 77 percent) and white (''other'') women (78 and 79 percent). However, the components of nonresponse were quite different for the two income groups. For low-income black and Hispanic women, the percents unlocatable were much higher than the percents refusing. For example, 14 percent of low-income Hispanic women could not be located, while only 6 percent refused.

In contrast, for high-income Hispanic women, just 4 percent could not be located, and 11 percent refused. For high-income women, only 2 percent could not be located and 15 percent refused. With the linked sample, however, it was possible to identify and adjust for these differences (16).

Interview Length, Tracing, and Response Rates

The Cycle 5 data collection strategy and results were affected by the linked sample design and by the length of the questionnaire (see table S).

The Linked Design

As a result of the advance tracing and field tracing efforts described in the ''Tracing'' section, 95 percent of the selected sample women were located. This result, however, left 5 percent unlocated and without an opportunity to participate in the survey. If these 5 percent had cooperated at a rate similar to the 95 percent located, the response rate for the survey would have been around 83 percent.

Interview Length

It also appears that the length of the interview made it difficult to obtain high response rates. In general, most women found the subject matter important and interesting. However, women in the NSFG age range typically are busy with school, work, and families. The Q & A Brochure disclosed that the interview would average about 90 minutes. Given this information, the most prevalent reason given for not participating in the survey was ''lack of time.'' The length of the interview may have also affected the interviewers' performance. The interview length affected the times of day the interview could be done (for example, after 8 p.m. may not allow enough time in some cases). The interview length may have also affected the interviewers' assertiveness. They could not encourage participation by saying that the interview would be short, because in many cases it could continue for 2 hours or more.

The experience of Cycle 5 suggests that the following factors would make fieldwork easier and reduce costs in future cycles:

1. More complete and accurate locator data from the NHIS (name, date of birth, contact person information, and Social Security number)
2. A shorter interval between the NHIS and the NSFG, which would allow less time for sample women to move
3. Some form of contact with the sample to summarize the results of the NHIS, to tell them that their participation is important, and to

Table S. Mean (average) and estimated mean time (minutes) time required to complete the interview, by section of the questionnaire: 1995 National Survey of Family Growth

Section	N[1]	Mean time (minutes)[2]	Estimated mean[2] (minutes)
A	10,520	21.5	22.2
B	10,533	9.2	9.9
C	10,532	10.7	11.4
D	10,534	2.5	3.2
E	10,536	15.1	15.8
F	10,530	4.3	4.3
G	10,537	1.3	1.3
H	10,535	4.0	4.7
I	10,477	17.3	18.0
J (Audio CASI)	10,517	7.9	12.5
Total[3]	10,401	103.3	103.3

[1]*N* is the number of cases used to compute the mean, that is, with complete data on interview length.

[2]Total includes times between sections while the interviewer driver program wrote out the first section data, got out of the first section, started the new section, and the interviewer asked the first question and recorded the response to the first question. This time is estimated at 4.9 minutes (0.7 minutes per section—or 42 seconds). Time getting into and out of Audio CASI, or Section J, is estimated at 4.6 additional minutes. These estimates are shown in the "Estimated mean" column.

[3]Total does not include about 2 minutes to complete Section K and pay the incentive.

request an update of their address and telephone number
4. A shorter interview
5. A larger incentive.

In July 1995, at the scheduled end of the Cycle 5 data collection period, a decision was made to extend the data collection period through October to allow the U.S. Bureau of the Census to trace the remaining hard-to-locate cases and to allow the RTI field staff to work the nonresponse cases and any newly located cases more completely. This effort increased the overall response rate to 79 percent; but the average field cost per interview during the extension was significantly higher than the field costs during the initial field period.

It appears that the $20 incentive payment increased response rates. In the Pretest, incentives raised the response rate by approximately 7 percentage points and reduced interviewer effort more than enough to pay for the incentive. It is unclear, however, what impact a larger incentive ($30 or $40) might have. This issue deserves further study; both larger incentives and shorter questionnaire length might be tested to observe their effects on field costs, response rates, and the reporting of sensitive items.

Quality Control

Introduction

Quality control was important in all stages of the NSFG data collection process. This section discusses the quality control procedures that were put in place during training and data collection.

Practice, Monitoring, and Evaluation at Training

An essential part of interviewer training involved hands-on practice (practice conducting the interview, using the computer, etc.). To make sure that interviewers were properly prepared for their assignments, RTI trainers and NCHS staff monitored interviewers during the training session. After the training session each day, the lead trainers met with other project staff to discuss the progress of training, identify interviewers who were having difficulty, and decide how to help them.

During the last half of training, each interviewer was paired with another interviewer for paired mock interview practice. Paired mock scripts had been specially designed to make sure that the interviewer was equipped to handle situations that would commonly arise in the field.

During the paired mocks, the lead trainer and field supervisor assessed and evaluated how well the trainees performed as they were:

- setting up the computer and Audio CASI equipment
- explaining, setting up, and using the Life History Calendar
- obtaining and keying the work history
- obtaining and keying the living situation history
- using computer functions to resolve edit problems
- resolving inconsistent dates
- probing effectively to help the respondent recall dates
- using computer functions (for example, keying "don't know" and "refused," entering comments, etc.)
- using the clinic database
- obtaining and keying the birth control methods history
- using specifications on the computer screen, in the Showcard Booklet, and in the Specifications Manual
- explaining the purpose of Audio CASI to the respondent
- explaining the keyboard and the Audio CASI function keys to the respondent
- performing general interviewing techniques, such as reading the questions, pacing the interview, and probing appropriately.

Observers completed a form that included these evaluation points. The interviewers who had the most difficulty

were further evaluated by the trainers and field supervisor. Some interviewers were instructed to practice more at home before they received any cases to interview.

A nightly 2-hour study hall staffed by at least one trainer was used as one remedial measure for interviewers who were having difficulty with the material. Any interviewer who had questions, or wanted assistance or more practice was free to drop in during that time. If an interviewer was far behind her colleagues, study hall attendance was mandatory. Many study hall attendees grasped the basic concepts of the interview but gained confidence from the extra practice.

Interview Observations

Field Supervisor Observations

As mentioned previously, interviewers were observed by the trainers during paired mock interviews at interviewer training. The field supervisor observed actual interviews in the field for the 25 percent of interviewers from her area who had the worst scores at training. The sample woman was asked if the field supervisor could observe her interview. During the interview, the field supervisor completed an Observation Evaluation Form that was very similar to one used at interviewer training. Field supervisors also documented specific questions that proved difficult and listed detailed information on what the problem was. After the observation, the field supervisor discussed the positive aspects of the interview as well as areas that needed improvement. Also at that time, the field supervisor edited completed Case Assignment Folders and gave interviewers the chance to ask questions about their assignment or performance.

NCHS Staff Observations

Actual interviews were observed by NCHS staff in several locations. Due to the nature of the study, only female staff conducted observations. The purpose of these observations was to determine how well the questionnaire worked and to identify specific questions that caused problems for respondents or interviewers. Observation reports indicated that most interviewers performed their duties well.

Verification

In order to provide feedback to the interviewers on the quality and accuracy of their interviews, an intense verification process was used. All NSFG verifications were completed by the field supervisors for their own regions so they could promptly reach the interviewer to seek clarification if a problem was identified.

The process of verifying fieldwork was a critical component of the overall quality control system. Both ineligible and completed interview cases were selected for verification. Whenever possible, verifications were completed by telephone. In a few cases where the respondent did not have a telephone and lived close to the field supervisor, in-person verifications were conducted.

Weekly verification reports were generated and provided to NCHS. For the most part, interviewers' work verified with no problem. However, field supervisors discovered four interviewers who falsified work. When falsification was discovered, the interviewer's employment was terminated. Whenever possible, the falsified cases were assigned to another interviewer for completion.

Discussion

Training

Quality control measures put in place for training went well. By having informal discussions about interviewers who were having difficulty, remedial steps were taken quickly to bring them up to an acceptable performance level. In addition, by offering study hall nightly, one-on-one help was provided and the comfort level of interviewers who may have been struggling was increased. Paired mock observation was useful and allowed field supervisors to observe each interviewer's strengths and weaknesses.

Interviewer Observations

It was useful for field supervisors to observe the weakest trainees in the field. However, it might be more useful to rank all of the interviewers across the country and observe the worst 25 percent of those, rather than 25 percent for each region. This way the interviewers who have the most problems (regardless of where they work) would be observed.

The contract required that the weakest 25 percent of field interviewers be observed in person. While it is difficult to predict what proportion of the interviewers hired for a study as complex as the NSFG would require remedial work and field observations, our experience suggests that 25 percent may be higher than necessary. Given the cost of the in-person visits, it might be sufficient to observe the weakest 10 to 15 percent of interviewers.

Timeliness of Verifications

Given that four interviewers were caught falsifying data, it is clear that the verification procedure was worthwhile. However, one problem encountered was the timeliness of the verification. Field supervisors often felt overloaded and verification was often the task given the lowest priority. One option for addressing this issue is to limit the ratio of supervisors to interviewers at 1:16. Two-thirds of the supervisors had more than 16 interviewers assigned to their area. Or someone other than the field supervisor could conduct verification—for example, a quality control assistant to the field supervisor, a regional supervisor, or other person knowledgeable about the study could conduct the verification.

Data Processing

Overview

The questionnaire was not the only part of the 1995 NSFG that was computerized. Computing support spanned the full range of activities, from sampling through the

delivery of the final data files. In-house and field monitoring systems allowed the contractor and NCHS to monitor the progress of all project operations and to complete project tasks as quickly and efficiently as possible. In addition to programming the CAPI questionnaire (as described in ''Questionnaire Development,'') the contractor's computing staff:

- updated addresses, phone numbers, and contact information for sample women who moved or changed their names
- printed personalized advance letters, personalized tracing forms, personalized case assignment folder labels, thank-you letters, and other interviewer materials
- tracked the daily progress of the fieldwork for each sample member
- produced fieldwork status reports for the nation, for the 15 regions, and for each of the interviewers
- enabled field supervisors to transfer cases electronically from one interviewer to another
- devised an electronic mail system to communicate with the field interviewers and field supervisors
- enabled field interviewers to send completed interview data electronically to the contractor's central office
- made corrections to the CAPI interview program after interviewing began, and sent the updated software to the interviewers electronically
- edited completed interview data after they were received at the central office
- coded 19,800 occupations and industries; 32,000 other (specify) responses; and address data for each respondent for 1990, 1993, and 1995, and
- prepared and delivered data files with codebooks and documentation from the NSFG interviews, the survey control system, the NHIS, and the interviewer characteristics file.

The computer support tasks on the NSFG are described in greater detail in the rest of this section.

In-house Survey Control System

A computerized Survey Control System was developed to track each case from sample selection through advance tracing, producing advance letters, assignment to an interviewer, verification, and final receipt of the data and the Case Assignment Folder at RTI's headquarters. Reports were produced with this tracking system that enabled costs and production to be monitored. It also allowed the supervisors to monitor overall production, production for each field interviewer, and potential refusal and unlocatable cases. The system assigned pending and final disposition codes and monitored the transfer of cases between field staff.

The control system resided on a VAX computer system and was written in FICS (the contractor's Fully Integrated Control System software) and FORTRAN. FICS programs were used to manage the databases and generate the reports, while FORTRAN programs were used primarily to process the case assignment and transfer orders. The majority of the information for the in-house control system was entered by the field interviewers. The system was set up to run automatically each night during data collection and to distribute reports to NCHS via computerized fax, to contractor staff via e-mail, and to the field staff through the data transmission process.

Two primary databases, NSFGAT (NSFG Advance Tracing) and FGCS (Family Growth Control System) were established; both were managed by the FICS Control System software. The NHIS preload data included the names, addresses, phone numbers, dates of birth, marital status, and Social Security numbers for the selected sample. It also included names and addresses for the NHIS reference person and sometimes an additional contact person. All tracing forms, advance letters, Case Assignment Folder labels, and thank-you letters were printed using this database. When the NHIS preload data were received, they were loaded into NSFGAT, the database used to track all tracing operations and maintain the most up-to-date addresses and phone numbers in addition to all known address and contact information. The FGCS database was used when interviewing began. The FGCS maintained a history of the status of each case and tracked all case assignments and Case Assignment Folders. The FGCS database was the source of information for all daily status and verification reports.

Field Monitoring System

The Field Monitoring System (FMS) was used by the field interviewers and their supervisors to track cases, enter disposition codes, transmit data, and assign and transfer cases to field interviewers. (Only field supervisors could transfer cases from one interviewer to another.)

The FMS enabled the NSFG field staff to search and view cases by identification number or name. The field interviewers used this system to enter ''disposition codes'' that indicated what they had done on each case and to change the codes when necessary.

Cases were often transferred to another interviewer or a different supervisor if the respondent had moved out of the original supervisor's area. Supervisors also had to transfer cases from the interviewers back to themselves to assign final disposition codes.

Field Reports System

The Field Reports System (FRS) gave the field supervisors easy access to daily field status and other reports. The FRS picked up any new reports as part of the daily data transmission and displayed a list for the supervisors' selection and viewing. Information in the daily reports sent to NSFG field supervisors included:

- totals by the three regional supervisors
- totals for the field supervisor
- data for each of the field supervisor's interviewers
- a list of Case Assignment Folders that needed to be returned

Data Transmissions

NSFG data were transmitted automatically at prescheduled times. The system waited until the assigned time to dial in. Dial-ins occurred at staggered times late at night. The system also allowed immediate dial-in as an option when necessary. The data transmission process prohibited the field interviewer from using the telephone only during the actual data transmission call. The data transmission component for NSFG handled approximately 150 calls per night and about 25 immediate calls (mostly from supervisors) per day.

The data transmission software transferred mail files and data files, as applicable, every time a connection was made. This software was also used to send case assignments to interviewers and transfer cases from one interviewer to another.

All data stored on the laptops were secured by using password-protected computers. The interview data on the laptops were also protected by prohibiting anyone from accessing a case after it was completed. After the interview data were transmitted, they were stored on the contractor's password-protected VAX computer.

The data transmission software was also used to make changes and corrections in the various programs on the interviewers' laptops. During the data collection period, revised questionnaire Sections A and E, three versions of the field monitoring system software, an upgraded version of the PT&E data entry program, and modified case transfer software were transmitted to the interviewers and supervisors.

Finally, the software was designed for timely detection of any possible field problems, such as transmission problems, completed interview and final event code mismatches, incomplete case transfers, missing questionnaire sections, or undelivered mail messages.

Data Editing Procedures

The Family Growth interview data were edited using a number of programs written specifically for the NSFG. The editing programs were based initially on the CAPI Reference Questionnaire (CRQ) specifications. The edits were expanded as a review of the data and interviewer comments pointed out inconsistencies. A team of contractor staff was involved in writing edit programs, resolving problems, and conferring with NCHS staff on particularly difficult problems. (Examples of interviewer comments are shown in figure 7.)

ASECT, 12345678, COLSTART
SW took one college class while she was still in high school so this is the date she first began attending college for our purposes.

ASECT, 98765432, WNENDGR1
SW had two different grandparents living with her at the same time.

BSECT, 55556666, WKS_PRO1
SW ran into a tree and a miscarriage occurred in less than 2 hours after accident.

CSECT, 24681357, LVAPRTH1
R stated that her husband went to prison before they were married, so they were not living together on the date they were married.

CSECT, 22334455, WNSTPH1
Were divorced and then began living together again the next month after the divorce.

ESECT, 66778899, Summary Screen
R didn't realize that she should have reported miscarriages. There have been 5 of them.
10-1-94 4-1-94 10-1-93 9-1-92 1-1-80

FHSEC, 11122233, BTHCONEV
R got shots in Mexico they don't need prescriptions.

ISECT, 44455566, STRTCTY
SW moved out of the state and county then moved back to the same address.

Note: all ID numbers on this page have been changed from the actual numbers.

Note: SW=sample woman
R=Respondent

Figure 7. Examples of interviewer comments

The first editing step was to write SAS programs to identify inconsistencies in the completed interviews. These programs reproduced the Edit checks specified in the CRQ. A separate program was written for each questionnaire section. The programs were used to ''machine edit'' the data.

As completed interviews were received, the edit programs were run and the results reported to the data editors. The data editors worked closely with NSFG staff to develop and document rules for resolving the inconsistent answers.

At regular intervals during data collection, the SAS edit programs were run on all newly completed interviews. At the same time, interviewer comments for those cases were extracted. Every interview that had either an edit failure or an interviewer comment was then loaded into the Blaise CAPI software on a laptop computer to resolve the inconsistency. Loading the cases into Blaise was necessary to maintain the integrity of the flow checks. When a response to a question was changed, it often meant that additional questions should have been asked or previously asked questions should be skipped. Using the Blaise interview software, the additional questions were asked of the editor, a survey specialist who was familiar with the questionnaire. If the editor could determine the correct response from an interviewer comment or from other data, he or she entered the data. If the correct response could not be determined, a missing data response was entered. Whenever response changes caused questions to become inapplicable, Blaise automatically made those fields blank. All changes were reviewed by the editors to ensure accuracy. During the course of the

study, 1,582 edit failures and 6,919 interviewer comments were identified.

Figure 7 shows examples of interviewer comments. Only a small proportion of the interviewer comments resulted in changes to the data.

In addition to the main SAS edit programs, several other programs were written to identify and/or correct unanticipated inconsistencies. If the problem was narrow in scope and could be fixed using a program rather than manual editing, a program was used. Otherwise, the cases were edited manually.

Some examples of the types of edits that were performed are given below. Variable names in this and subsequent sections are presented in UPPERCASE, UNDERLINED print.

- Editing VOCEDNOW (Are you currently in a vocational education program?): For the first run of the Section A SAS edits, several cases failed the edit check because the respondent reported that she was currently in a vocational education program (AB-27 VOCEDNOW = yes) but the end date recorded for the last period of attendance (AB-31VOCSTOP) was not the code used for ''still in the program.'' It was found that the edit check in the CAPI program was not working properly. To fix the problem, the Blaise program was corrected and the updated program was downloaded electronically to the interviewers' laptops. Also, a program was written to correct the data that had already been collected and transmitted to the contractor.
- Changes to pregnancy sort order: Sometimes, as a result of interviewer comments, pregnancy end dates were revised by the editors, which changed the order of the pregnancies. As a result, answers to the ''wantedness'' questions for some of these cases were no longer associated with the correct pregnancies. Programs were written to check for revised pregnancy end dates and programming staff determined how the revisions affected the data. One program identified the affected cases; after manual review to determine the correct order, a second program copied the data to the appropriate ''wantedness'' positions. There was no manual editing to fix this problem except to verify that the program ''fix'' was working correctly.
- Clinic database lookups: During the interview, respondents reported using 1,775 ''clinics'' for family planning or medical services that the interviewers were not able to locate in the clinic database. After data collection, an updated version of the Alan Guttmacher Institute (AGI) family planning clinic database was compared with the one used in the field. New clinic codes were created for the additional family planning clinics. Using the merged clinic database and a list of names and addresses for the 1,775 uncodeable clinics, the contractor successfully located 597 of these clinics. This new information was then programmatically edited back into the interview data files along with Title X status and ''type of agency'' information. This editing process took considerable effort, but it was justified by the importance of the data on Title X clinics.

Data Coding Procedures

Most coding was done automatically by the CAPI system. Some types of coding, however, required staff attention, including industry and occupation coding, State and country coding, and other (specify) coding.

Industry and occupation coding

A well-developed and tested computer-assisted coding and quality control system was used to code industry and occupation data. Coding files were created by extracting the occupation and industry data from the completed interviews. Spanish industry and occupation data were translated into English and inserted into the coding database, replacing the Spanish text responses. Using a computer terminal, coders accessed these coding files and independently coded each record.

Each occupation/industry record received two independent codings. If the two independent coders assigned the same code, the system accepted the code as final. If the coders disagreed, the record was assigned to a third coder for adjudication. The third coder, considered to be an expert coder, assigned a code independently. If the code the adjudicator assigned agreed with either of the first two codes, it was accepted as final. If the code disagreed with both of the first two codes, the system alerted the adjudicator to the three-way disagreement and displayed the codes assigned by the first two coders. The adjudicator then entered his or her code, which was accepted as final.

State and country data

Place of birth, 1990 address, 1993 NHIS-reported address, and 1995 NSFG-reported address were all asked on the NSFG and had to be coded. These entries were automatically assigned three-digit codes during machine edit by creating a database of State and country data, writing a program that matched the alphabetic entry to a table of acceptable entries, and assigning the appropriate numerical code. Data that could not be coded during machine edit were forwarded to NCHS staff for resolution. The resolutions were implemented by adding entries to the table and re-running the software or manually entering the NCHS-assigned code in the data file.

Other (specify) coding

Some questions have several predetermined categories, and an ''other (specify)'' category for responses that do not fit into one of the predetermined categories. The answers in these ''other (specify)'' questions are typed verbatim by the interviewer. All specified ''other'' responses were extracted from the NSFG data and examined through a series of machine and manual operations. Initially, each response was examined to determine if it matched one of the precoded responses for the associated question. These machine matches included words or phrases with

similar meanings, misspelled words, and brand names. If the ''other'' entry belonged in one of the precoded categories, the code was entered into the file automatically.

Following this initial step, the remaining ''other'' responses for each question were examined by coding staff and by the Family Growth Survey Branch. Similar responses for each question were grouped together and the individual responses within each grouping were tallied. The process of coding the ''other'' response data sometimes affected the answers to subsequent questions. This resulted in some additional editing of the data in order to ensure that the ''other'' responses were consistent with the responses to other questions.

A total of 32,000 ''other (specify)'' entries were reviewed in completing this coding process. Additional codes were created if a question had five or more similar ''other (specify)'' responses.

Data File Creation

The Cycle 4 Public Use File documentation was a starting point for discussions concerning the Cycle 5 data file layout and documentation. As a result of these discussions, it was decided that it would be most cost effective to use CODEOUT, the program used in Cycle 4, to produce the Cycle 5 Public Use File documentation. CODEOUT, developed by NCHS, produces final codebook documentation by merging text input with data and generating formatted text and frequency distributions for all variables. The input for the CODEOUT program included the text of each question, variable names, column numbers, response categories, and ''inapplicable specifications'' (descriptions of which respondents were not asked that question because it did not apply to them).

The next step was to decide the basic layout of the data files and the specific variables to be included in the files. The basic layouts of the files are as follows.

Data for the Woman, Also Called the 'Respondent' File:

- Interview data
- Recoded variables
- Imputation flags (indicates whether the value of another variable was imputed)
- Weights
- Time stamps (these show how long each part of the questionnaire takes)
- Characteristics of the interviewer
- Information from the 1993 NHIS interview
- Selected data for each of her pregnancies
- Pregnancy data from Sections B and E
- Recoded variables
- Weights
- Imputation flags

Pregnancy Interval File (one record per pregnancy):

- Interview data from Sections B and E
- Recoded variables
- Weights
- Imputation flags

NCHS selected the variables to be included in the data files by reviewing the complete codebooks. New codebooks were created for the selected variables and programs were written to create the data files directly from the updated codebooks.

In case manual editing was required, it was necessary to maintain Blaise-compatible data files. This resulted in a sequence of several steps that had to be repeated to create and deliver each Respondent and Interval file. To ensure a complete repetition of these steps each time, the programs were initiated by a single batch command procedure.

SAS Respondent and Interval files were used by the recode staff to compute recoded variables and imputed values. The recode and imputation data were then merged with the files created in the previous steps to create the data files delivered to NCHS. After the data files were created, they were copied to tape for shipment to NCHS.

Data File Documentation

Throughout this study, the CRQ was the primary source of documentation for the respondent and pregnancy data from all sections. It defined all of the questions, answers, edit checks, and flow checks. As part of data file documentation, the CRQ was reviewed and updated to reflect the final files. The CRQ was then used to produce representative question text and ''inapplicable specifications.''

To produce the inapplicable text, each flow check in the CRQ, explicit or implied by a ''go to'' (that is, routing) response, was applied to each affected question.

Having accurate inapplicable specifications is very helpful for data users, but writing inapplicable specifications was a tedious, time-consuming process. A write-and-review process was used in an attempt to ensure accuracy. Two staff members who were knowledgeable about the CRQ drafted the text of the inapplicable specifications. A third staff member, also knowledgeable about the CRQ, reviewed their work for errors and inconsistencies.

Once the inapplicable text was completed for a singular occurrence of each question in the instrument, the text was reviewed by NCHS and revised. The text was then duplicated and customized for questions that are repeated for each occurrence of an event.

After the inapplicable text had been finalized, it was combined with variable names, file positions, question text, notes, response category labels, and CODEOUT-specific syntax. The version delivered by the contractor was reviewed several times and edited thoroughly by NCHS staff before it was ready for release in the Public Use File documentation.

Discussion

The Survey Control System, developed to track each sample case, worked well and provided data that were used to monitor the progress of all

data collection activities. The one area of the control system that might be changed is documenting the advance tracing activities. Although the control system was designed to monitor each advance tracing step, it did not maintain case-by-case result codes from the NCOA, Telematch, and postcard verification steps (the control system did have case-by-case status information for the telephone advance tracing step). While this information would not have been helpful during data collection, it would have been useful for studies of the effectiveness of the various tracing procedures.

The Field Monitoring System, which provided reports on the status of data collection to field supervisors and central-office and NCHS staff, also worked well. A status report for each field interviewer would have been helpful. Although the interviewers had reports on the status of each case, they did not have a summary report for their entire caseload.

Both the data transmission system and the e-mail system worked well. The e-mail system was an efficient means of communicating with the interviewing staff.

Although the use of CAPI greatly facilitated the editing process, editing would be more effective if:

- Some edit checks were changed from ''hard'' failures to ''soft'' failures that can be overridden.
- When a ''soft'' edit failure is overridden, insert a question that requires the interviewer to explain the reason why she is overriding the edit.
- Pregnancy and wantedness questions were asked at the same time, so that post-processing sorting and matching of pregnancies would not be necessary.
- Results from Cycle 5 were used to develop more precoded responses for some questions. This would avoid the additional editing caused by some other (specify) responses.
- State and country coding were done during the interview to eliminate post-processing.

Finally, the inapplicable specifications could be developed during the development of the CRQ, or shortly after the CRQ specifications are finished.

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Appendix I

Definitions of Terms

***Advance letter*—**Also called a ''lead letter.'' In the NSFG, a letter was sent to women in the sample (sample women) explaining the purpose of the study and how important it was for them to participate. The letter was sent before the interviewer contacted the sample women. Examples of the advance letters used in the NSFG are shown in appendix III.

***Audio Computer-Assisted Self-Interviewing (Audio CASI)*—**A procedure for administering a self-administered interview with a laptop or notebook computer. The respondent can either read the questions off the computer screen or hear the pre-recorded questions through headphones. This allows the respondent to hear and answer the questions without concern that either other family members or the interviewer will hear either the questions or her answers. This technique was used for Section J of the 1995 NSFG questionnaire.

***Blaise*—**A computer-assisted personal interviewing (CAPI) system developed by the Netherlands Central Bureau of Statistics. Blaise was chosen in part because it handled ''rosters,'' or event histories, better than most other CAPI systems at the time the choice was made (late 1992). Version 2.5 of Blaise was used to program the pretest and main study questionnaires for the NSFG. Later versions of the program are now available.

***CAPI reference questionnaire (CRQ)*—**A document that specifies in writing everything that CAPI programmers need to know to write the program code for the NSFG questionnaire. This includes all of the questions; the answer categories that are allowable; the edit checks, which check to see if answers are consistent; and the flow checks, which specify when questions should be skipped. Example pages from the CRQ are shown in figure 3.

***Century month*—**a simple numerical notation to allow data users to do arithmetic with dates. The century month is computed by multiplying the last 2 digits of the year by 12 and adding the number of the month, where January = 1, February = 2, etc. For example, January 1900 is 001. January 2000 will be (100 x 12) + 1 = 1201. May 1970 is (70x12) + 5 = 845, and January 1989 is (89x12) + 1 = 1,069 so the difference is 1,069–845 = 224. The dates in the NSFG data file are expressed in century months.

***Cognitive appraisal*—**A specialized type of content analysis of a questionnaire that attempts to describe the task that survey questions give to a survey respondent. The framework used for the NSFG considered what the question requires the respondent to do in order to (a) understand the question; (b) retrieve the information the question asks for; (c) judge what information meets the requirements, definitions, and time periods asked for; and (d) formulate a response that is in the format asked for. This kind of framework helps to identify characteristics of survey questions that make it difficult for respondents to answer survey questions accurately. Cognitive appraisals were used to improve the NSFG questionnaire (22).

***Computer-Assisted Personal Interviewing (CAPI)*—**In the 1995 NSFG, a CAPI program was installed on a laptop, or notebook, computer to perform a personal interview in the respondent's home.

***Contextual data*—**In the NSFG, contextual data are intended to measure the ''context,'' or environment, in which a survey respondent lives. Many behavioral scientists want to measure the effects of State or local government policies, characteristics of labor markets, or the characteristics of neighborhoods, on behaviors such as teenage pregnancy, marriage and divorce, or use of contraception. To measure these concepts, contextual variables in the NSFG were measured at the State, county, census tract, and/or block group levels. Contextual data were obtained from sources other than the NSFG, including the 1990 U.S. Census, the Area Resource Files, disease surveillance reports from the Centers for Disease Control and Prevention, and others.

***Disposition codes*—**A 2-digit numerical code used in the Field Reports System that shows what happened to each of the 14,000 cases in the NSFG sample. Examples of the codes include: completed interview; sample woman refused; parent refused; unable to locate; etc. Table B and the tables in appendix IX list the final disposition codes. A comparable set of temporary, or ''pending,'' codes was used to give the temporary status of each case. The temporary code could be changed after further work or new information about the case.

***Event history*—**A list of all of the occurrences of some event, with beginning and ending dates of each occurrence, and other significant details. For example, a marriage history is a list of all marriages a respondent has had, with the beginning and ending dates of each marriage, how it ended (divorce or death of spouse), and any other details that are deemed significant. The 1995 NSFG contains event histories of all marriages, all pregnancies, all periods of employment and unemployment, all periods of schooling, etc.

***Field interviewer*—**An interviewer who does interviews in the ''field,'' that is, wherever the respondents are. In contrast, most telephone interviewers conduct their interviews from a telephone center at a headquarters office. The NSFG interviews were done in the field, that is, in the respondents' homes, by about 260 field interviewers, for an average of 40 completed interviews per interviewer.

***Field staff*—**Field interviewers and field supervisors.

***Field supervisor*—**The direct supervisor of the field interviewers. In the 1995 NSFG, 15 field supervisors were used, and each field supervisor was responsible for about 15–20 field interviewers. Field supervisors lived in the territories they supervised. Field supervisors met by phone with each interviewer each week during the data

collection period to review the interviewer's progress, analyze problems, and offer advice. Field supervisors also answered urgent questions whenever needed and helped train their interviewers at interviewer training. The 15 field supervisors reported to 3 regional supervisors located in the contractor's home office.

***Foxpro*—**A ''relational database management'' software system used in the NSFG for (a) programming the month-by-month contraceptive method calendar in the 1993 pretest, and (b) the interview ''driver program'' used in both the pretest and the main study. Foxpro Version 2.0 for DOS was used in the NSFG, although a more recent version is available at this writing. The current owner of Foxpro is the Microsoft Corporation.

***Interview Driver program*—**A program, written in Foxpro, that connected and managed the Blaise programs in the CAPI questionnaire. The Interview Driver program checked to see that the interviewer had entered the correct case identification number before beginning the interview. The questionnaire was larger than Blaise version 2.5 could handle in one unit, so the CAPI program was split into nine programming units for the main study (Sections A, B, C, D, E, F–H, I, J, and K). The Driver program's principal function, then, was to conserve computer memory by closing out each questionnaire section as it was completed, and open up the next section. It also closed out the interview and identification number when the interview was completed, so that the ID number could not be reused by mistake.

***Interval file*—**The part of the NSFG data file that contains the data on each pregnancy the woman reported. A woman would have no pregnancy ''interval'' records if she had never been pregnant; in contrast, if she reported 15 pregnancies, she will have 15 pregnancy ''interval'' records.

***Lead letter*—**See advance letter.

***Life history calendar*—**An 11-inch by 17-inch paper form (appendix VII) used during the NSFG interview to help the respondent recall the dates of events. The interview began by recording several easily remembered events (for example, dates of high school graduation, the births of children, the date of the first marriage, the death of a parent). As each additional set of dates and events were recorded, the events already recorded served as references to help the respondent locate the new events (for example, the dates when a given contraceptive method was used).

***Locator information*—**In the 1995 NSFG, locator information was information used to find a new address or telephone number for women who had moved since their household was interviewed in the 1993 NHIS. Locator information was used only by survey staff to contact the sample woman to ask her for an interview. Items of locator information included the sample woman's name, date of birth, Social Security number, race, and marital status; and the names, addresses, and telephone numbers of two friends or relatives who would be likely to know how to contact her if she moved. In other studies, different items might be useful as locator information.

***Looping questions*—**Questions that are repeated for each occurrence of an event. Examples are questions asked about each man the woman ever married, or questions asked for each live birth she had.

***The National Center for Health Statistics (NCHS)*—**NCHS is the nation's principal health statistics agency. It designs, develops, and maintains a number of data systems related to demographic and health concerns. These include data on registered births and deaths, the National Health Interview Survey (NHIS), the National Health and Nutrition Examination Survey (NHANES), the National Health Care Survey, and the National Survey of Family Growth (NSFG), among others. NCHS has conducted the NSFG since 1973. NCHS is one of the ''Centers'' of the U.S. Centers for Disease Control and Prevention, which is part of the U.S. Department of Health and Human Services.

***The National Change of Address system (NCOA)*—**A service run by the U.S. Postal Service that helps to update addresses by identifying persons who have filed change of address cards with their post office. The system is an inexpensive way to identify some movers, but it does not identify those who still pick up their mail at the old address and those who did not file a change of address notice with the postmaster.

***The National Health Interview Survey (NHIS)*—**The NHIS is a principal source of information on the health of the civilian noninstitutionalized population of the United States. The survey, conducted annually since 1957, collects information from approximately 43,000 households and 110,000 people each year on health status, access to health care and insurance, health services utilization, health-related behavior and other topics. The survey consists of a set of core data items that are repeated each year and a set of supplements that can change each year to address current health topics. Households interviewed in the 1993 NHIS were used as the sampling frame for the 1995 NSFG.

***Other (specify) coding*—**Coding of responses to questions that did not fit in the prespecified categories of a question. In the 1995 NSFG, this was done by examining a list of responses that were coded by interviewers as not fitting the prespecified categories and classifying them as (a) fitting one of the prespecified categories, (b) fitting one of the newly specified categories, or (c) as ''other'' (not specified) responses.

***Paired mock interview*—**A technique used at field interviewer training for the NSFG. The trainees use prewritten interview scripts, which are carefully designed to cover situations that typically arise in interviewing. Interviewers form pairs; one interviewer-trainee plays the role of the respondent while the other plays the role of interviewer. On the next paired mock, the trainees switch roles, so that both get to practice interviewing and both see the point of view of the respondent.

Primary sampling unit (PSU)—A unit that is used for the first, or primary, stage of sampling. (Secondary units are part of primary sampling units and tertiary units are part of secondary units.) In the NHIS and NSFG, a PSU is a county, a group of contiguous counties, or a Metropolitan Statistical Area. 198 PSU's were selected for the NHIS. The 1995 NSFG used all 198 of these areas.

Race/ethnicity—In the 1993 NHIS, the following categories of race/ethnicity were collected: Hispanic origin (several types, including Mexican-American, Cuban, Puerto Rican, and others); white, black, American Indian, and 12 categories of Asian and Pacific Islander. The NSFG does not have enough sample cases of Asian-Pacific Islander or American Indian women to analyze separately, so they are shown in the ''Other race'' category.

Only three race/ethnicity categories, however, were used to design and select the NSFG sample: Hispanic, Non-Hispanic black, and Other. Hispanic women and non-Hispanic black women were sampled at higher rates than others in the 1995 NSFG in order to obtain adequate numbers of Hispanic and black women for analysis. Thus, when this report contains tables showing ''race/ethnicity,'' the three categories are those used to select women for the NSFG sample. In reports that are designed to present substantive results, the ''other'' category will be split into ''non-Hispanic white'' and ''non-Hispanic other race'' categories.

Respondents—Persons who answer, or respond to, a survey. In the 1995 NSFG, the ''respondents'' were the 10,847 women who completed the interviews.

The Research Triangle Institute (RTI)—Located in Research Triangle Park, North Carolina, RTI was the contractor selected to conduct the 1995 NSFG. RTI is an independent, not-for-profit organization that serves government and industry clients in the U.S. and abroad. RTI conducts research in public health, medicine, environmental protection, advanced technologies, and public policy. Scientific disciplines at RTI include applied statistics, social sciences, environmental sciences, electronics, physical sciences, engineering, chemistry, and life sciences. RTI was established in 1958.

Round-robin interview—A classroom technique used in NSFG interviewer training. A group of 15–20 interviewer trainees go through a carefully written scripted interview, with the trainer acting as respondent and the trainees taking turns asking the questions and entering the responses into their notebook computers.

Sample women—The 13,795 women born between April 1, 1950 and March 31, 1980 who were selected to be in the 1995 NSFG sample. About 79 percent (10,847) of these women agreed to be interviewed; they are called ''respondents'' in this report. However, about 21 percent were not interviewed, because they refused, or could not be located, or were not found at home after repeated contacts.

Statistical Analysis System (SAS)—A software package that does data management as well as statistical analysis, SAS was used to write the programs used to create the ''Recoded'' variables, produce tabulations of results for editing, consistency checking, and preparing documentation of the file.

Think-aloud interviews—A technique in which a respondent is asked to describe ''out loud'' what she was thinking as she answered a question. This is thought to give insight into how respondents interpret and understand questions, and what kinds of strategies they use to arrive at responses. Also called talk-aloud interviews (22). These were used in the RTI and NCHS cognitive laboratories to test NSFG questions.

Appendix II Outline of the Contents of the 1995 NSFG

NSFG, Cycle 5: 1995
Outline of the Contents of the Survey

General Outline

* Omitted or Restricted-use items

RESPONDENT FILE

A: Childhood/young adult living arrangement history; work history; education history
B: Menarche; number of pregnancies; adoption; other children raised
C: Complete marriage & cohabitation history; sexual partner history for last 5 years
D: Sterilization operations; fecundity impairment
E: Contraceptive history; month-by-month method calendar for 1991–95
F: Use of family planning and other medical services; clinic data base
G: Birth expectations
H: Use of infertility services; PID & other conditions affecting fertility; HIV testing
I: Demographic characteristics (incl. religion & income); child care; health insurance
*J: Audio-CASI: abortions; number of sexual partners; HIV-risking behaviors
K: Recontact information; interviewer assessment of dwelling unit

Recodes (created variables) and imputation flags for Sections A–J
Weights & related variables
Interviewer characteristics: age, race/ethnicity, education, CAPI experience, etc.
Selected variables from 1993 National Health Interview Survey (NHIS)
*Contextual data

INTERVAL FILE

B: Pregnancy outcomes, prenatal care, sources of payment, breast-feeding
E: Contraceptive use in the pregnancy interval and wantedness of the pregnancy

Recodes and imputation flags for Sections B&E
Selected respondent file variables (e.g., race/ethnicity, age)
Weights and related variables

*ABORTION INTERVAL FILE FROM SECTION J (AUDIO-CASI)

J: Date, gestational length, contraceptive use before pregnancy

Detailed Outline

Abbreviations: R= Respondent
H/P= Husband or cohabiting partner

RESPONDENT FILE: (One record per Respondent)

QUESTIONNAIRE ITEMS: Sections A–K

Section A

Age
Date of birth
Marital status

Regular school and GED

Currently attending reg school?; highest grade; complete highest grade attended?
Have H.S. diploma/GED?
Currently attending GED?
Dates of GED attendance (up to 4 periods); Full- or part-time?; date obtained GED?
Date last attended regular school; date obtained HS diploma
Dates of college attendance (up to 11 periods); Full- or part-time?
College degrees; date(s) obtained college degree(s)
Intentions for further (regular) school

Vocational education

Currently attending?
Dates of voc. ed. attendance (up to 11 periods); full- or part-time?
Number of certificates/diplomas; date earned last certif./diploma
Number of times suspended/expelled for disciplinary reasons (grades 7–12); dates (first, last)
Number of times, dates temporarily stopped attending school for 1 month or more (grades 0–12) (up to 6 periods); grade (first time)
Grades R "mostly" gets/got in high school (A–F)

Employment

Dates starting/ending periods of working and not working (up to 10 periods of working and 10 periods of not working)
Dates of full-time within each period of work (up to 10 periods of full-time)
Dates looking for work within each period of not working (up to 5 periods)

Household Roster: age, sex, relationship of each member

Parents' marital status changes and R childhood living situations

Biological parents' marital status at R birth
Whether parents ever married to each other
Year parents got married
Date of 1st living away from parents/guardians (for period lasting 4+ mons) if ever

For up to 12 living situations starting with R's birth:

Female parent (relationship to R)

(grandmother): maternal or paternal?

Male parent (relationship to R)

(grandfather): maternal or paternal?

Other situation (no parents present)

How often did you switch between female/male parent (if "switched" once/month or more often)

Date living situation changed; reason changed

How often did you see [absent parent] between [birth/date situation began] and [date situation changed]?

During period of "switching" between parents:

Dates of mother/father living with boy/girlfriend or wife/husb. (up to 3 for mother, 5 for father)

For up to 10 periods of living with grandparent(s) (not already reported)

Beginning and ending dates

maternal or paternal grandparent(s)?

Natural/adoptive parents marital status changes and living/deceased (not already reported):

Natural parents ever separated? R's age at separation; Ever divorced? R's age at divorce; Still alive? R's age at death of mother/father; Ever marry/ remarry? R's age at marriage/remarriage

Adoptive mother/father ever remarry? R's age at remarriage

Characteristics of natural parents or person(s) who raised R during teens

Who R thinks of as man/woman who mostly raised her (relationship to R) (if not natural father/mother)

How close R feels to father/mother; man/woman who raised R (only R's age < 20 AND still "in nest")

Highest grade completed by father/mother; man/woman who raised her

Highest grade father/mother; man/woman who raised her expects R to complete

Whether mother/woman who raised R worked (full-/part-time) during R's childhood

Number of children ever born to mother/woman who raised R

Age at birth of 1st child of mother/woman who raised R

Living arrangements after moving out of parental home:

Ever live alone? Dates (under age 30 only) (up to 8 periods)

Ever lived again with parents/parent-figures? Dates (under age 30 only) (up to 9 periods)

In past 12 months, how often R saw [mother/father; woman/man who raised her]

In past 12 months, how often R communicated with [mother/father woman/man who raised her] by letter/phone

Sex education

Ever talk with parent/guardian about (before age 18) how pregnancy occurs; Contraception; STDs

Ever had formal instruction on (before age 18)
Contraception; STDs; AIDS prevention (under 30 only); abstinence
Grades in which R received instruction on each

Cigarette smoking
Smoked at least 100 cigarettes in life?
Age when started smoking regularly
Currently smoke?
Frequency/quantity of smoking currently/past
Month/year stopped

Section B
Menarche
Currently pregnant
Number of pregnancies
Adoption: number of children placed for adoption by R
R ever raised children not born to her but under her care & responsibility *(up to 20 coded)*
Name, sex, relationship to R, how placed with R, adoption plans, DOB, race and Hispanic origin, foreign-born, dates of living with R, physical or mental disability
Plans to adopt:
R currently planning to adopt
Steps taken, date of first steps, preferences for adopted child
R previously considered adopting
Steps taken, date of first steps, preferences for adopted child
Reasons for stopping pursuit of adoption
Would R consider resuming pursuit of adoption

Section C
Number of marriages
For each of up to 5 husbands *(no R was married more than 5 times):*
Husband characteristics: *(for 1st husband and current or most recent husband)*
His date of birth, his age when he married R, his education level when he married R, his highest level of education, his race & Hispanic origin, his religion & importance of religion, was he previously married
Date of marriage
Did they cohabit before marriage
IF YES: date when began living together
Did they live together continuously til marriage
IF NO: dates of each spell (up to 5 spells)
How marriage ended
Date when marriage ended
Periods living apart during marriage
reasons why (not getting along, some other reason)
ever separated for 6 months or longer; IF YES: number of times

For current cohabiting partner:

Date when started living with boyfriend
Any periods of living apart
IF YES: reasons why (not getting along, some other reason)
ever separated for 6 months or longer
IF YES: number of times
Characteristics:
His date of birth, his highest level of education (if current cohabiting partner), his education level when he started living with R, his religion & importance of religion, his race & Hispanic origin, was he ever married

For each of up to 8 other cohabiting partners: *(no one reported more than 8)*

Start and end date of cohabitation
Up to 7 separate spells of cohabitation within the start and end dates

Ever had sexual intercourse

(asked only if never pregnant, never married, and never cohabited)

IF NO:
Chances that R will have intercourse before marriage
Chances that R will have intercourse in next 2 years
Reasons why R has not had intercourse up to now
IF YES:
Date of first intercourse
Age at first intercourse
10-point scale for how much R wanted first intercourse to happen
was first intercourse voluntary or involuntary
If first intercourse was involuntary:
has R ever had voluntary intercourse
date of first voluntary intercourse
age at first voluntary intercourse

First (voluntary) sexual partner:

(if not already discussed as husband or cohabiting partner):
Characteristics:
His age when first had sex with R, his marital status when first had sex with R, his education level when first had sex with R, nature of relationship at time of first sex with R, his religion & importance of religion, his race & Hispanic origin
Is he still a current sexual partner
IF NO: date of last intercourse with him
IF YES: his current marital status
Verification questions to get date & age of first (voluntary) intercourse after menarche

Number of sexual partners:

Number or range of partners in last 12 months
Number or range of partners since Jan '91
Number or range of partners in lifetime

Sexual partners since Jan '91 *(up to 36 coded; a few had more than 36 since Jan '91)*

The 36 clusters of variables are mapped to particular partners..

Characteristics of each partner:

his age when first had sex with R, nature of relationship at time of first sex with R, date of first sex with R.

Characteristics of each partner not already discussed as husband, cohabiting partner or 1st voluntary sexual partner:

whether he is a current sexual partner

If not a current sexual partner:

date of last sex with him

If a current sexual partner:

his marital status at time of first sex with him, his current marital status, his highest education level, his religion & importance of religion, his race & Hispanic origin

Section D

Current menstrual status - including missed periods in past 6 months & spotting

Sterilizing operations -

Female: tubal ligation, hysterectomy, ovary removal, other female operation

Male: vasectomy, other male operation

For each operation:

Date, site, overnight stay (if tubal ligation), mode of payment, reasons

For tubal ligation or vasectomy:

Ever reversed, date of reversal, reasons for reversal, desire for a(nother) baby)

Non-surgical sterility and impaired fecundity

Physically possible or impossible to have a(nother) baby *(R; H/P)*

IF IMPOSSIBLE: reasons why impossible, desire for a(nother) baby

IF POSSIBLE: difficult to get pregnant or carry to term (R; H/P)

If difficult: reasons why difficult

Doctor ever told R not to get pregnant (again)

IF YES: reasons why

desire for a(nother) baby

Section E

Contraceptive methods ever used

birth control advice in last 12 months *(under age 25 only)*

non-medical source of birth control advice *(under age 25 only)*

ever-use of individual birth control methods for any reason

First method ever used:

which method, timing with respect to 1st intercourse, date first used, age first used, source (place) where obtained first method

First intercourse:

what method used (if any)

Contraceptive use for period prior to 1/91 for Rs who are users and who have had a completed pregnancy (non-negative intervals and had to have had voluntary sex):
- method use in pregnancy interval
- whether all method use was stopped prior to that pregnancy
- date stopped using all methods of birth control in that interval
- last method(s) used prior to pregnancy (that interval)
- all methods used prior to pregnancy (that interval) *(up to 4 coded)*
- start date of most recent episode of use of method prior to that pregnancy

Periods of non intercourse since 1st (voluntary) intercourse *(up to 4 periods)*

Contraceptive method history *(from later date of 1/91 or 1st intercourse)*
- month-by-month history of all methods used for any reason *(up to 4 coded)*
- start date of method(s) used in first month of history if began use prior to 1/91
- whether methods were used simultaneously or sequentially in a given month

Open Interval End questions
- whether reason not using method because you wanted to get pregnant
- whether partner desires R to be pregnant as soon as possible
- source (place) of current method used (if clinic, whether on database and which)
- if clinic (not on database), name and address

Recent sex/recent birth control use series
- frequency of sex in last 3 months before interview
- consistency of method use in last 3 months before interview
- whether method was used at last intercourse

Pill use for health reasons

Brand and type of pill currently used or used most recently

Section F

Birth control services ever received from doctor or other medical care provider:
- Ever received: sterilizing operation (passed from Section D); birth control method; check-up or medical test related to using birth control; counseling about birth control; counseling about getting sterilized

First visit for birth control services:
- Which services received, Date of visit, timing of visit relative to 1st intercourse, how long after 1st (voluntary) intercourse was 1st visit, site of 1st visit, timing of 1st visit relative to menarche, mode of payment, type of clinic (from clinic database - Title X, hospital, health department, etc.), was clinic your regular place for medical care

Birth control and medical services received ... **in last 12 months**:
- Sterilizing operation (passed from Section D)
- Method of birth control or prescription for a method
- Check-up or medical test related to using birth control
- Counseling about birth control
- Counseling about getting sterilized
- Pregnancy test
- Abortion
- Pap smear

Pelvic exam
Prenatal care
Post-pregnancy care
Blood test for HIV infection, apart from blood donations
Testing or treatment for other sexually transmitted disease
Testing or treatment for vaginal, urinary, or pelvic infection

For each service obtained in last 12 months:

Site, mode of payment, type of clinic (from clinic database - Title X, hospital, health department, etc.), whether clinic was regular place for medical care

If site of services in last 12 months was a clinic, did R:

receive free condoms last 12 months
receive free foam or jelly last 12 months
receive free oral contraceptive pills last 12 months
receive reduced-price oral contraceptive pills last 12 months
pay for any clinic services on sliding scale last 12 months

Services obtained at first visit to clinic after menarche *(under age 25)*

Ever visited clinic for any kind of medical or BC service since 1st menstrual period
At 1st visit to clinic after 1st menstrual period, did R receive:

sterilizing operation
method of birth control or prescription
check-up related to using method
counseling about birth control
counseling about getting sterilized
pregnancy test
abortion
medical exam
testing or treatment for infection or disease
any other service (specify)

Date of 1st visit to clinic after 1st menstrual period
Type of clinic (from clinic data base - Title X, hospital, health department, etc.)

Section G

Do you **want** to have another baby at some time?
Does husband **want** to have another baby at some time?
Do you (or you and husband if married) **intend** to have another baby?
How many more babies R intends (or R and husband if married); or range she/they expect
How sure is R that she/they will have that many more
Ages R expects to have next and last child
Ideal total number of children in whole life according to R
Ideal total number of children in whole life according to R's husband

Section H

Ever received **medical help to get pregnant** (with any husband/partner)

IF YES:

Specific services received, site of most visits, private health insurance to cover any of the costs, date of first visit, number of visits in last 12 months

If more than 1 visit:

Any tests or treatment on 1st visit, still seeking help to get pregnant, date of last or most recent visit, any tests or treatment on last or most recent visit

Ever received **medical help to prevent miscarriage**

IF YES:

Specific services received, site of most visits, private health insurance to cover any of the costs, date of first visit, number of visits in last 12 months

If more than 1 visit:

Any tests or treatment on 1st visit, still seeking help to prevent miscarriage, date of last or most recent visit, any tests or treatment on last or most recent visit

For those who received either kind of help:

Specific infertility diagnoses received

Douching: frequency of douching if "regular" doucher

Health problems related to childbearing

PID: ever had, number of different treatment episodes, date of 1st and last treatment episodes, number of hospitalizations

Ever had:
- diabetes (when not pregnant)
- anemia (when not pregnant)
- high blood pressure (when not pregnant)
- genital warts
- gonorrhea
- chlamydia
- syphilis
- genital herpes
- ovarian cyst
- fibroid tumors or myomas in uterus
- endometriosis
- problems with ovulation or menstruation
- asthma
- hayfever

HIV testing

Blood donations since 3/85 (since all were HIV-tested): date of last donation

Any other HIV tests: date of last HIV test, site, reasons, who initiated

Chances R is infected with HIV

Chances R has had sex with someone infected with HIV

If R ever used condoms:

reasons why (BC & disease prevention)

any times in past year when R meant to use but did not

IF YES: reasons why didn't use condoms

IF EVER USED FOR DISEASE PREVENTION:
how often in past 12 months
IF (not "all the time"): how many partners did R use condoms with

Section I

Residence

Duration at current residence
Duration at 1990 residence (if different from current)
State of birth (if different from current/1990)
Foreign-born? Country of birth; Date of immigration

Religion

religion raised; frequency of attendance at age 14; current religion; importance of religion; current frequency of attendance; current frequency of communion; frequency of attendance 5 years ago

Hispanic origin - detailed nationality

Race

Attitudes; psychological states

Level of current happiness
Ever have period of anxiety (screener questions), if so, 7 symptom items, duration, dates, how many, earliest age
18 attitude items:
Gender roles: making long-range plans; working versus childrearing; housework; work opportunities
Gender equality attitudes in workplace; childrearing practices; job opportunities; sex
Attitudes about combining work & childrearing; family size; feminism
Marriage expectations (general; current partner)

Current work status/information

What was R doing most of time last week (work; school; vacation; etc.)
Ever worked for pay 1 month or more
Number of jobs last week (up to 5 jobs). If currently working:
occupation; work activities; business/industry; hours; shift; time of day begin/end for up to 3 shifts; earnings.

Childcare

Working women: for each child < age 13 in household roster: type of child care in past month (up to 10 children, up to 9 different child care arrangements)
Non-working women: for each child < age 13 in household roster: type of regular child care in past month, if any (up to 9 children, up to 9 different child care arrangements)
How much paid (altogether) for child care in typical week

Husband/Partner other children and job information

Total number of children current H/P has
Residence of H/P's children not in household
H/P's child support payment
H/P's work status last week

Did H/P ever work?
Number of jobs H/P worked last week (up to 4 jobs)
Occupation; work activities; business/industry; hours; shift; time of day begin/end for up to 3 shifts; earnings.

Income and insurance

In past year:

Did R's household receive income from:
self-employment; salaries; Social Security, railroad retirement; Supplemental Security income; unemployment compensation, AFDC; child support; other
What was R's total family income
Did R or household member:
Receive food stamps?
Receive Medicaid?
Receive military health care coverage?
Was R covered by any health insurance plan?
Source of R's insurance (work; H/P; parents; self; etc.)

Section J (Audio CASI) (omitted items)

Section K

Interviewer assessment of R's willingness to be recontacted
Interviewer assessment of R's dwelling

RECODES and associated imputation flags: Sections A–J

A: Age; marital status; education (level, degrees, age last enrolled, etc.); employment (dates began and ended each period, duration each period, duration full-time each period); household composition; R's parents marital status changes; date first lived away from parents; living arrangements (primary parent(s)/parent-figure(s); date changed; duration; total #); father, mother characteristics; living alone; living again with parents

B: Menarche; current pregnancy status; outcome-specific pregnancy counters; selected pregnancy-based recodes for pregnancies 1-15 (pregnancy outcome, gestation, end date, end year, conception date; R's age and marital formal status at conception & outcome) *(included on respondent file for data user's convenience)*

C: Marriage start/end dates and mode of dissolution; cohabitation; 1st sex dates and ages (3 definitions of "1st sex"); intervals between 1st sex and other key dates

D: Payment for tubal ligation, hysterectomy, & vasectomy; fecundity and infertility status

E: Current contraceptive status, source of method used in month prior to interview, 1st method use (type & date), method used at 1st sex, nonintercourse (last 12 months & last 36 months), ever-use of selected methods; recent condom use; wantedness recodes for

pregnancies 1-15 (both definitions for R and partner) *(included on respondent file for data user's convenience)*; number of wanted pregnancies in past 5 years

F: Family planning services received; type of provider; type of clinic; source of services, method of payment (apply variously to first visit, first services, first services w/in last 12 months, any services in last 12 months, 1st services after 1st menstrual period)

G: Birth expectations and ideal family size

H: Infertility services and diagnoses received; PID; HIV testing; condom use for disease protection

I: Type of residence (urban/rural, region); region of birth; religion; race/ethnicity; anxiety; labor force status; income divided by poverty level

J: Number of abortions and pregnancies; number of sexual partners in lifetime

WEIGHTS and related variables

Date of interview

INTERVIEWER CHARACTERISTICS

Interviewer's NSFG training - in Durham or Phoenix
Interviewer currently uses computer-home/job/school
Interviewer ever used computer to interview before?
    Number of surveys Interviewer used computer for
    Survey by telephone or in-person
Is NSFG Interviewer's first interviewing job
    Number of years Interviewer has been an Interviewer
Has Interviewer worked on other NSFG Cycles
Does Interviewer currently work at other paying jobs
    Number of hours that Interviewer works at other job
    Other jobs as Interviewer or something else
    Primary job is interviewing
Age, race & Hispanic origin, marital status, education (incl. current attendance)
Religion: affiliation, importance to Interviewer
Has Interviewer ever been pregnant
    Number of times Interviewer has been pregnant
    Number of babies Interviewer has given birth to
    Age of Interviewer's youngest child
Has Interviewer ever adopted a child

SELECTED VARIABLES FROM 1993 NATIONAL HEALTH INTERVIEW SURVEY
(For all respondents of NSFG)

NHIS ID (enables linkage with 1993 NHIS data) **(omitted item)**
Was NSFG respondent also NHIS respondent?
Type of living quarters; phone present
Interview completion status
Month of interview
Household size/# of families/# of unrelated members
Residence: region, metro/nonmetro
Number of person records (NHIS respondents) in household
Language of interview
Age
Race/Hispanic origin
Marital status
Veteran status
Education
Income (family), poverty level
Size of household & household structure (living alone, with non-relatives, with spouse, etc.)
Major activity at interview (working; school; etc.)
Health status; activity limitation - work, school, personal care
Employment status (past 2 weeks), class of worker
Whether NHIS information was directly from respondent or proxy
Height, weight
Past year: bed days; doctor's visits
State or country of birth
Duration in current state; in U.S.

Database also contains all the above person-level items (not household-level items) for individuals identified as R's husband at the time of the NHIS.

CONTEXTUAL DATA (restricted-use file; available by applying to NCHS)
(900 variables for 1995; 600 each for 1993 and 1990)

INTERVAL FILE
(1 record per pregnancy; Up to 15 pregnancies per R; None had more than 15)

QUESTIONNAIRE ITEMS: Sections B and E

Section B

Pregnancy outcome *(up to 3 coded)*
End date
Gestational length

If pregnancy did not end in induced abortion:
Help getting pregnant or preventing miscarriage
If pregnancy ended after Jan '91:
Smoking during pregnancy
When R learned she was pregnant
Timing of first prenatal care visit
Source of most prenatal care
Payment for most prenatal care *(up to 3 sources coded)*
Pregnancy problems requiring more than routine prenatal care (list given)
If pregnancy ended in live birth:
Number of babies born alive
Location of birth (e.g., hospital or non-hospital)
Payment for delivery *(up to 3 sources coded)*
Maternity leave (dates, duration, duration paid)
For each of up to 2 babies:
Sex, birth weight, mode of delivery
Child's current living arrangement & date stopped living with R
Breast-feeding (ever breast-fed; child's age when supplemented and when stopped breast-feeding altogether, why child was not breastfed or why R stopped when she did)

Section E

Conditions surrounding R becoming pregnant

method use in pregnancy interval
whether & when all methods were stopped prior to that pregnancy
whether methods were stopped because R desired pregnancy
method(s) R was using when she became pregnant that time
consistency of use of methods in month prior to that pregnancy
if not using method prior to that pregnancy, was reason to become pregnant
wantedness of that pregnancy (R's attitude)
follow-up confirmation question for those who said never wanted pregnancy
timing of that pregnancy
for sooner than wanted, how much too soon?
10-point scale of feeling of happiness about that pregnancy
series of 10-point scale items on attitudes toward that pregnancy
wantedness of that pregnancy (father's attitude)
timing of that pregnancy (father's attitude)
age of father at time of pregnancy

RECODES and associated imputation flags: Sections B&E

B: Pregnancy outcome, gestational length, end date, end year, conception date; R's age at outcome and conception, formal marital status at outcome and conception; mode of delivery; weeks pregnant when R learned of pregnancy and when R began prenatal care;

payment for prenatal care and delivery; low birthweight & sex for up to 2 babies; breast-feeding; maternity leave

E: Wantedness of pregnancy, both Cycle 4 version and new version, for R and partner

RESPONDENT FILE VARIABLES (included on interval file for data users' convenience)

Age at interview
Race; Hispanic or Spanish origin; Race & Hispanic origin combined
Education
Income
Labor force status
Urban/rural, metro/non-metro, geographic region of residence
Religious affiliation
Occupation (if currently working)
Received Medicaid in past year
Born outside U.S.? Date came to U.S.

WEIGHTS and related variables
DATE OF INTERVIEW

Audio CASI (Section J) ABORTION FILE (omitted items)
(1 record per abortion reported in ACASI)

Appendix III
Generic Lead Letters

A generic lead letter to adult sample women

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control and Prevention

National Center for Health Statistics
6525 Belcrest Road, Room 1140
Hyattsville, Maryland 20782

January, 1995

Dear Friend,

The National Center for Health Statistics, an agency of the United States Public Health Service, is requesting your help on the National Survey of Family Growth. In this study, women 15 to 44 years of age share their experiences on such topics as schooling and work, family life, pregnancy, infertility, and medical care. The Public Health Service has contracted with the Research Triangle Institute (RTI), a not-for-profit survey research organization, to administer the interviews. The information collected in the survey is used to provide better health services and health education for American women.

You are one of more than 10,000 women selected for this study to represent all 58 million women 15 to 44 years of age in the United States. As a participant, you have the opportunity to contribute to a study that will benefit all American women and children. Because your contribution is important, we will pay you $20 for participating in the interview.

We realize you are busy, taking care of a family, working outside the home, or going to school--possibly all three. The professional female interviewer who will contact you is prepared to schedule the interview whenever it is convenient for you.

Your help in this study is voluntary, but we urge you to participate. The information you provide will be completely confidential, as required by law. No individual woman or family is identified in reports or data files released by the Public Health Service.

Additional information about the study is in the enclosed brochure. If you have any questions, the RTI interviewer will be glad to answer them. The National Center for Health Statistics appreciates your help with this important study. We hope it will be an interesting and rewarding experience.

Sincerely yours,

Manning Feinleib, M.D., Dr.P.H.
Director

Enclosure

A generic lead letter to minor (age 15 to 17) sample women

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control and Prevention

National Center for Health Statistics
6525 Belcrest Road, Room 1140
Hyattsville, Maryland 20782

January, 1995

Dear Friend,

The National Center for Health Statistics, an agency of the United States Public Health Service, is requesting your help on the National Survey of Family Growth. In this study, women 15 to 44 years of age share their experiences on such topics as schooling and work, family life, pregnancy, infertility, and medical care. The Public Health Service has contracted with the Research Triangle Institute (RTI), a not-for-profit survey research organization, to administer the interviews. The information collected in the survey is used to provide better health services and health education for American women.

You are one of more than 10,000 women selected for this study to represent all 58 million women 15 to 44 years of age in the United States. As a participant, you have the opportunity to contribute to a study that will benefit all American women and children. Because your contribution is important, we will pay you $20 for participating in the interview.

A professional female interviewer from RTI will be contacting you soon to schedule an interview at your convenience. Your help in this study is voluntary, but we urge you to participate. For young women under age 18 who are living at home, permission to do the interview is also requested from her parent or guardian. The information you provide will be completely confidential, as required by law. No individual woman or family is identified in reports or data files released by the Public Health Service.

Additional information about the study is in the enclosed brochure. If you have any questions, the RTI interviewer will be glad to answer them. The National Center for Health Statistics appreciates your help with this important study. We hope it will be an interesting and rewarding experience.

Sincerely yours,

Manning Feinleib, M.D., Dr.P.H.
Director

Enclosure

An example lead letter to parents of sample women aged 15 to 17

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control and Prevention

National Center for Health Statistics
6525 Belcrest Road, Room 1140
Hyattsville, Maryland 20782

January, 1995

Dear Friend,

The National Center for Health Statistics, an agency of the United States Public Health Service, is requesting your permission to allow your daughter to participate in the National Survey of Family Growth. In this study, women 15 to 44 years of age share their experiences on such topics as schooling and work, family life, pregnancy, infertility, and medical care. The Public Health Service has contracted with the Research Triangle Institute, a not-for-profit survey research organization, to administer the interviews. The information collected in the survey is used to provide better health services and health education for American women.

Your daughter is one of more than 10,000 women selected for this study to represent all 58 million women 15 to 44 years of age in the United States. As a participant, she has the opportunity to contribute to a study that will benefit all American women and children. Because her contribution is important, we will pay her $20 for participating in the interview.

A professional female interviewer from Research Triangle Institute, a not-for-profit survey organization, will be contacting you soon to obtain your permission to interview your daughter. She will then ask your daughter to participate and to schedule the interview at a convenient time.

Your daughter's help in this study is voluntary, but we urge you to allow us to ask her to participate. The information she provides will be completely confidential, as required by law. No individual woman or family is identified in reports or data files released by the Public Health Service.

Additional information about the study is in the enclosed brochure. If you have any questions, the RTI interviewer will be glad to answer them. We appreciate your help with this important study. We hope it will be an interesting and rewarding experience for your daughter.

Sincerely yours,

Manning Feinleib, M.D., Dr.P.H.
Director

Enclosure

Appendix IV
Contact Scripts

CONTACT SCRIPT FOR ADULT SW

A. INTRODUCTION

A1. Hello, my name is _____. I am with the Research Triangle Institute and am (here/calling) in behalf of the U.S. Public Health Service. May I please speak to (SAMPLE WOMAN)?

IF AVAILABLE → REINTRODUCE YOURSELF IF NECESSARY AND GO TO Q.A2.

IF UNAVAILABLE → OBTAIN BEST TIME TO REACH SW AND RECORD ON RECORD OF ACTIONS.

IF SW NOT HH MEMBER → IF TELEPHONE CONTACT, VERIFY TELEPHONE NUMBER. IF DIALED CORRECTLY, OR THIS IS AN IN-PERSON VISIT, GO TO Q.B1.

A2. In (MONTH/YEAR OF NHIS INTERVIEW) your household took part in the National Health Interview Survey (NHIS). At that time, the interviewer indicated that someone in your household might be contacted again for another health-related survey. A letter was recently sent to you explaining that you were selected for that survey, called the National Survey of Family Growth. It is a study about childbearing and women's health. Did you receive the letter?

IF YES → GO TO Q.C1
IF NO
↓

A3. The letter explains that the National Survey of Family Growth is conducted by the U.S. Health Service every five years. This important survey gathers information used by many health services. In-person interviews are conducted with a scientifically selected sample of more than 10,000 women between the ages of 15 and 44. You will be paid $20 for your time. (Here is a copy/I will bring a copy) of the letter and a study brochure for you to read. (GO TO Q.C1.)

B. TRACING PROBES

B1. I'm trying to reach (SAMPLE WOMAN) for an important health survey. Do you know her?

IF YES → PROBE FOR SW'S ADDRESS AND TELEPHONE NUMBER. RECORD CHANGES ASSIGNMENT INFORMATION LABEL. THEN TERMINATE.

IF NO
↓

B2. Do you know of anyone else who might know how to reach (SAMPLE WOMAN)?

IF YES → IF NHIS R, NHIS HEAD OF HH, OR NHIS CONTACT PERSON MENTIONED VERIFY ADDRESS/TELEPHONE NUMBER, RECORD CHANGES ON ASSIGNMENT LABEL. FOR OTHER INFORMANT(S), RECORD INFORMATION OF RECORD OF ACTIONS.

IF NO → TERMINATE

C. VERIFICATION (OBTAIN INFORMATION FROM ASSIGNMENT INFORMATION LABEL)

C1. Before we talk more about the interview, let me make sure that I have the correct information.

a. First, are you (AGE) years of age? (IF NOT BETWEEN 15-44 ON APRIL 1, 1995, SW IS INELIGIBLE. TERMINATE.)

b. Is your birth date (BIRTHDATE)?

c. On (NHIS INTERVIEW DATE), were you living at (NHIS ADDRESS)?

C2. IF ALL ARE "YES", GO TO Q.D1. IF SOME ARE "YES", MAKE A JUDGEMENT IF YOU THINK THIS IS THE SW.

IF YOU JUDGE YES → GO TO Q.D1.
IF YOU JUDGE NO → GO BACK TO Q.B1.
IF YOU DON'T KNOW
↓

C2a. I need to check my information with my supervisor. I may be calling on you later. (TERMINATE AND RECORD ON RECORD OF ACTIONS.)

D. SCHEDULING INTERVIEW WITH ADULT SW

D1. I would like to schedule an appointment to interview you. Would (now/SUGGESTED DATE AND TIME) be a convenient time?

IF YES → CONDUCT INTERVIEW OR RECORD DATE/TIME ON RECORD OF ACTIONS AND GO TO Q.D2.

IF NO → When would be convenient for you? RECORD DATE/TIME ON RECORD OF ACTIONS AND GO TO Q.D2.

IF REFUSED → ADDRESS REASONS FOR REFUSAL. TRY TO AVOID FIRM REFUSAL. IF SUCCESSFUL, SET APPOINTMENT AND GO TO Q.D2. COMPLETE RECORD OF ACTIONS. IF UNSUCCESSFUL, TERMINATE. COMPLETE NIR AND RECORD OF ACTIONS.

IF APPT. WITHIN 5 DAYS

↓

D2a. Alright. We have an appointment for (APPOINTMENT). IF PHONE CONTACT, VERIFY ADDRESS. MAKE CHANGES ON ASSIGNMENT INFORMATION LABEL. I will call you one or two days before our appointment to confirm these arrangements. (OPTIONAL: PROVIDE YOUR TELEPHONE NUMBER.)

IF APPT. MORE THAN 5 DAYS

↓

D2b. Alright. We have an appointment for (APPOINTMENT). IF PHONE CONTACT, VERIFY ADDRESS. MAKE CHANGES ON ASSIGNMENT INFORMATION LABEL. I will send you a postcard in a couple of days and call you one or two days before our appointment to confirm these arrangements. (OPTIONAL: PROVIDE YOUR TELEPHONE NUMBER.)

CONTACT SCRIPT FOR MINOR SW

A. INTRODUCTION

A1. Hello, my name is _____. I am with the Research Triangle Institute and am (here/calling) in behalf of the U.S. Public Health Service. May I please speak to a parent of (SAMPLE WOMAN)?

IF AVAILABLE → REINTRODUCE YOURSELF IF NECESSARY AND GO TO Q.A2.

IF UNAVAILABLE → OBTAIN BEST TIME TO REACH A PARENT AND RECORD ON RECORD OF ACTIONS.

IF PARENT NOT HH MEMBER → IF TELEPHONE CONTACT, VERIFY TELEPHONE NUMBER. IF DIALED CORRECTLY, OR THIS IS AN IN-PERSON VISIT, GO TO Q.B1.

A2. In (MONTH/YEAR OF NHIS INTERVIEW) your household took part in the National Health Interview Survey (NHIS). At that time, the interviewer indicated that someone in your household might be contacted again for another health-related survey. Letters were recently sent to you and your daughter, (NAME OF SW), explaining that she was selected for that survey, called the National Survey of Family Growth. It is about childbearing and women's health. Did you receive your letter?

IF YES → GO TO Q.C1.
IF NO
↓

A3. The letter explains that the National Survey of Family Growth is conducted by the U.S. Health Service every five years. This important survey gathers information used by many health services. In-person interviews are conducted with a scientifically selected sample of more than 10,000 women between the ages of 15 and 44. Your daughter will be paid $20 for her time. (Here is a copy/I will bring a copy) of the letter for you to read.
(GO TO Q.C1.)

B. TRACING PROBES

B1. I'm trying to reach (SAMPLE WOMAN) for an important health survey. Do you know her?

IF YES → PROBE FOR SW's ADDRESS AND TELEPHONE NUMBER. RECORD CHANGES ASSIGNMENT INFORMATION LABEL. THEN TERMINATE.

IF NO
↓

B2. Do you know of anyone else who might know how to reach (SAMPLE WOMAN)?

IF YES → IF NHIS R, NHIS HEAD OF HH, OR NHIS CONTACT PERSON MENTIONED VERIFY ADDRESS/TELEPHONE NUMBER. RECORD CHANGES ON ASSIGNMENT INFORMATION LABEL. FOR OTHER INFORMANT(S), RECORD INFORMATION ON RECORD OF ACTIONS.

IF NO → TERMINATE

C. VERIFICATION (OBTAIN INFORMATION SW FROM ASSIGNMENT INFORMATION LABEL)

C1. Is your daughter still living with you?

IF NO → PROBE IF SW LIVING WITH ANOTHER PARENT OR "ON HER OWN". OBTAIN CURRENT ADDRESS/TELEPHONE AND RECORD ON ASSIGNMENT INFORMATION LABEL. THEN TERMINATE.

IF YES
↓

C2. Before I talk with you about interviewing (NAME OF SW), let me make sure that I have the correct information.

a. First, is she (AGE) years of age? (IF NOT BETWEEN 15-44 ON APRIL 1, 1995, SW IS INELIGIBLE. TERMINATE.)

b. Is her birth date (BIRTHDATE)?

c. On (NHIS INTERVIEW DATE), was she living at (NHIS ADDRESS)?

C3. IF ALL ARE "YES", GO TO Q.D1. IF SOME ARE "YES", MAKE A JUDGEMENT IF YOU THINK THIS IS THE SW.

IF YOU JUDGE YES → GO TO Q.D1.
IF YOU JUDGE NO → GO BACK TO Q.B1.
IF YOU DON'T KNOW
↓

C3a. I need to check my information with my supervisor. I may be calling on you later. (TERMINATE AND RECORD ON RECORD OF ACTIONS.)

D. SCHEDULING PARENTAL CONSENT

IF THIS IS AN IN-PERSON VISIT → GO TO Q.F1.
IF THIS IS A TELEPHONE CONTACT
↓

D1. For women who are under the age of 18 and living at home, we ask the parent's permission to do the interview.

D2. I'd like to set up a time to see you, or if it is more convenient, we could do it over the phone.

IF REFUSES CONSENT → ADDRESS REASONS FOR REFUSAL. TRY TO AVOID FIRM REFUSAL. OFFER TO MAKE AN IN-PERSON VISIT TO EXPLAIN STUDY. IF WILLING TO GIVE CONSENT ON PHONE, GO TO Q.E1. IF WANTS AN IN-PERSON VISIT, GO TO Q.D3. OTHERWISE, TERMINATE AND COMPLETE NIR AND RECORD OF ACTIONS.

IF CHOOSES PHONE CONSENT → GO TO Q.E1.

IF CHOOSES IN-PERSON CONTACT
↓

D3. Would (SUGGESTED DATE AND TIME) be a convenient time?

IF YES → RECORD DATE/TIME ON RECORD OF ACTIONS AND GO TO Q.D4.

IF NO → When would be convenient for you? RECORD DATE/TIME ON RECORD OF ACTIONS AND GO TO Q.D4.

IF APPT. WITHIN 5 DAYS
↓

D4a. Alright. We have an appointment for (APPOINTMENT). VERIFY ADDRESS. MAKE CHANGES ON ASSIGNMENT INFORMATION LABEL. I will call you one or two days before our appointment to confirm these arrangements. (OPTIONAL: PROVIDE YOUR TELEPHONE NUMBER.)

IF APPT. MORE THAN 5 DAYS
↓

D4b. Alright. We have an appointment for (APPOINTMENT). VERIFY ADDRESS. MAKE ANY CHANGES ON ASSIGNMENT INFORMATION LABEL. I will send you a postcard in a couple of days and call you one or two days before our appointment to confirm these arrangements. (OPTIONAL: PROVIDE YOUR TELEPHONE NUMBER.)

WHEN YOU MAKE YOUR IN-PERSON VISIT, BEGIN AT Q.F1.

E. OBTAINING PARENTAL CONSENT BY TELEPHONE

E1. First, I will read you the permission statement. (READ "PARENT'S PERMISSION FOR INTERVIEW" FORM.

E2. Now, I will put my signature on this statement to show that I have your permission to interview (SAMPLE WOMAN). I will give a copy of the statement to your daughter when I interview her. Do I have your permission?

IF YES → SIGN AND COMPLETE FORM. GO TO Q.G1.

IF NO → ADDRESS REASONS FOR REFUSAL. TRY TO AVOID FIRM REFUSAL. OFFER TO MAKE IN-PERSON VISIT TO EXPLAIN STUDY. IF WILLING TO GIVE CONSENT ON PHONE, COMPLETE FORM AND GO TO Q.G1. IF WILLING FOR AN IN-PERSON VISIT, RETURN TO Q.D3. OTHERWISE, TERMINATE AND COMPLETE NIR AND RECORD OF ACTIONS.

F. OBTAINING PARENTAL CONSENT IN PERSON

F1. For women who are under the age of 18 and living at home, we ask the parent's permission to do the interview.

F2. (HAND "PARENT'S PERMISSION TO INTERVIEW" FORM TO PARENT.)
This statement gives information about the interview and explains the importance of including your daughter. As the statement says, the questions are about health problems and health care, marriage and having a family, sexual experience and pregnancies, if any. My signature at the bottom of the form shows that I have your permission to interview (SAMPLE WOMAN). After I complete the rest of the form, you will receive a copy to keep. Do I have your permission?

IF YES → AFTER YOU SIGN AND COMPLETE THE FORM, GIVE COPY TO PARENT. THEN GO TO Q.G1.

IF NO → ADDRESS REASON FOR REFUSAL. TRY TO AVOID FIRM REFUSAL. IF SUCCESSFUL, COMPLETE CONSENT FORM AND GIVE COPY TO PARENT. THEN GO TO Q.G1. IF UNSUCCESSFUL, TERMINATE. COMPLETE NIR AND RECORD OF ACTIONS.

G. SCHEDULING INTERVIEW WITH MINOR SW

G1. Thank you very much for your help. May I speak to your daughter now to set up a convenient time to interview her?

IF AVAILABLE → GO TO Q.G2.

IF UNAVAILABLE → OBTAIN BEST TIME TO REACH SW AND RECORD ON RECORD OF ACTIONS.

G2. Hello, my name is _____. I am with the Research Triangle Institute and am (here/calling) in behalf of the U.S. Public Health Service. A letter was sent to you recently explaining that you have been selected for an important study about women's health and childbearing, called the National Survey of Family Growth. Do you remember the letter?

IF YES → GO TO Q.G4.
IF NO
↓

G3. The letter explains that the National Survey of Family Growth is conducted by the U.S. Health Service every five years. This important survey gathers information used by many health services. In-person interviews are conducted with a scientifically selected sample of more than 10,000 women between the ages of 15 and 44. You will be paid $20 for your time. (Here is a copy/I will bring a copy) of the letter and a study brochure for you to read.

G4. I would like to schedule as appointment with you. Would (<u>now/SUGGESTED DATE AND TIME</u>) be a convenient time?

IF YES → CONDUCT INTERVIEW OR RECORD DATE/TIME ON RECORD OF ACTIONS AND GO TO Q.G5.

IF NO → When would be convenient for you? RECORD DATE/TIME ON RECORD OF ACTIONS AND GO TO Q.G5.

IF REFUSED → ADDRESS REASONS FOR REFUSAL. TRY TO AVOID FIRM REFUSAL. IF SUCCESSFUL, SET APPOINTMENT AND GO TO Q.G5. COMPLETE RECORD OF ACTIONS. IF UNSUCCESSFUL, TERMINATE. COMPLETE NIR AND RECORD OF ACTIONS.

<u>IF APPT. WITHIN 5 DAYS</u>
↓

G5a. Alright. We have an appointment for (APPOINTMENT). IF PHONE CONTACT, VERIFY ADDRESS. MAKE CHANGES ON ASSIGNMENT INFORMATION LABEL. I will call you one or two days before our appointment to confirm these arrangements. (OPTIONAL: PROVIDE YOUR TELEPHONE NUMBER.)

<u>IF APPT. MORE THAN 5 DAYS</u>
↓

G5b. Alright. We have an appointment for (APPOINTMENT). IF PHONE CONTACT, VERIFY ADDRESS. MAKE CHANGES ON ASSIGNMENT INFORMATION LABEL. I will send you a postcard in a couple of days and call you one or two days before our appointment to confirm these arrangements. (OPTIONAL: PROVIDE YOUR TELEPHONE NUMBER.)

Appendix V
Authorization Letter

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control and Prevention

National Center for Health Statistics
6525 Belcrest Road, Room 1140
Hyattsville, Maryland 20782

To Whom it May Concern:

This letter serves to authorize (INTERVIEWER NAME) to work as a field interviewer on a major research project, the National Survey of Family Growth (NSFG), sponsored by the United States Public Health Service. This study is designed to provide information on such issues as infertility problems, teenage pregnancy, adoption, and family planning. Nationwide over 10,000 individuals will be selected at random to participate.

The Field Interviewers working on this study have been hired and trained specifically for this project by Research Triangle Institute (RTI), a not-for-profit survey organization located in Research Triangle Park, North Carolina. Research Triangle Institute is under contract (Contract # 200-92-7024) to the U.S. Public Health Service to perform all data collection activities associated with the survey.

If you would like further verification that (INTERVIEWER NAME) is a legitimate interviewer working for RTI on this study, please contact Ms. Janice Kelly at RTI (1-800-334-8571, 8:30 AM to 5:00 PM, EST), or Dr. Kathryn London at the National Center for Health Statistics (1-800-298-0223).

Thank you for your cooperation.

Sincerely yours,

Manning Feinleib, M.D., Dr.P.H.
Director

QUESTIONS AND ANSWERS ABOUT THE

NATIONAL SURVEY OF FAMILY GROWTH

Sponsored by
PUBLIC HEALTH SERVICE
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Conducted under contract by
RESEARCH TRIANGLE INSTITUTE
Research Triangle Park, NC 27709-2194
1-(800)-334-8571

Contract #: 200-92-7024

You have been chosen to participate in an important study of women's health and childbearing, called the NATIONAL SURVEY OF FAMILY GROWTH. In this brochure, we answer the most common questions people ask us about the survey.

WHAT IS THE NATIONAL SURVEY OF FAMILY GROWTH?

Every five years interviews are conducted with about 10,000 women 15-44 years of age who have been scientifically selected to represent all women of these ages in the United States. Only women in the childbearing years (those who will be 15-44 during the survey year) are interviewed. From these interviews we learn many facts about health, pregnancy, childbirth and family life, infertility, education, and work.

WHO IS DOING THE NATIONAL SURVEY OF FAMILY GROWTH?

The National Center for Health Statistics (NCHS) does this survey. NCHS is part of the U.S. Public Health Service and the U.S. Department of Health and Human Services.

WHY IS THE NATIONAL SURVEY OF FAMILY GROWTH CONDUCTED?

The U.S. Public Health Services uses the survey results to better carry out its responsibilities for the health of the nation. The survey is authorized in Section 306(b)(1)(H) of the Public Health Service Act (42 USC 242k).

The survey information helps to provide better health services and health education programs for people, such as:

- pregnant teenagers trying to plan for the future
- couples unable to have babies of their own
- women looking for a safe and acceptable way to plan their pregnancies
- women concerned about their reproductive health
- mothers working outside the home who need reliable child care services

It also helps us to better understand how much the population is likely to grow in the next few years — information which is needed to plan schools, housing, and other public facilities.

And, researchers in universities and other private and public organizations study the results to understand how our population is changing.

HOW WAS I CHOSEN?

Women are selected for this survey from households that participated in the National Health Interview Survey — a survey conducted by the U.S. Bureau of the Census for the Public Health Service. By recontacting these households, the government and taxpayers save nearly $1 million.

WHY SHOULD I PARTICIPATE?

In doing this survey we cannot talk to all 58 million women in this country between the ages of 15 and 44 — that would cost too much and take too long. So, we scientifically select a cross-section or "sample" of women. Each woman in this sample represents about 5,000 other women in the same age group. It is not possible to substitute, so if you do not participate, the women you represent will be left out of the results. Because your contribution is important, we will pay you $20 for doing the interview.

AREN'T THESE INTERVIEWS JUST FOR WOMEN WHO HAVE CHILDREN?

No. The answers of women who have <u>not</u> had children are essential in order to give accurate information about most topics covered in this survey, such as:

- the popularity and effectiveness of different contraceptive methods
- the number of teenagers who are at risk of becoming pregnant
- the need for health services for family planning or infertility
- the number of women who are choosing not to have children or to have children later in life

If you have never had children, you will be asked only those questions that apply to you.

WILL MY ANSWERS BE KEPT CONFIDENTIAL?

Federal law protects the confidentiality of all the information you provide (Section 308(d) of the Public Health Service Act (42 USC 242M) and the Privacy Act of 1974 (5 USC 552a)).

These laws assure respondents that the confidentiality of their answers will be maintained by the Public Health Service and RTI. The answers you give will be combined with those from thousands of others, and the results will be reported in percentages, averages, and other statistics. No individual woman or family is identified.

DO I HAVE TO ANSWER THE QUESTIONS?

Of course your participation is completely voluntary. Your choice about whether or not to participate will have no effect on any services, privileges, or benefits you receive. Once the interview has started, you may answer all the questions or only those you choose to answer.

HOW LONG WILL IT TAKE?

The average interview takes about 90 minutes; interviews for teenagers average 60 minutes. We will schedule the interview whenever it is convenient for you.

WHO IS RTI?

Research Triangle Institute (RTI) is a private, not-for-profit research organization located in Research Triangle Park, North Carolina. Closely associated with the University of North Carolina, Duke University, and North Carolina State University, RTI conducts laboratory and survey research for government and industrial clients. RTI has been retained by the U.S. Public Health Service to conduct this study.

HOW IS THE STUDY DONE?

A professional female interviewer from RTI will come to your home and read the questions from a computer screen and type your answers into the computer. At the end of the interview, you will get a chance to enter some responses into the computer yourself.

HOW WILL I RECOGNIZE THE RTI INTERVIEWER?

The interviewer will be carrying an RTI identification badge with her picture on it, and a Letter of Authorization from the U.S. Public Health Service.

WHERE DO I GET MORE INFORMATION?

If you have any other questions about the interview, you may call:

Dr. Kathryn London at NCHS,
1-800-298-0223 or

Janice Kelly at RTI,
1-800-334-8571.

If you have any questions about your rights as a participant, contact *Dr. Barbara Moser* at 1-800-334-8571.

QUESTIONS AND ANSWERS ABOUT THE

NS FG

National Survey of Family Growth

Sponsored by

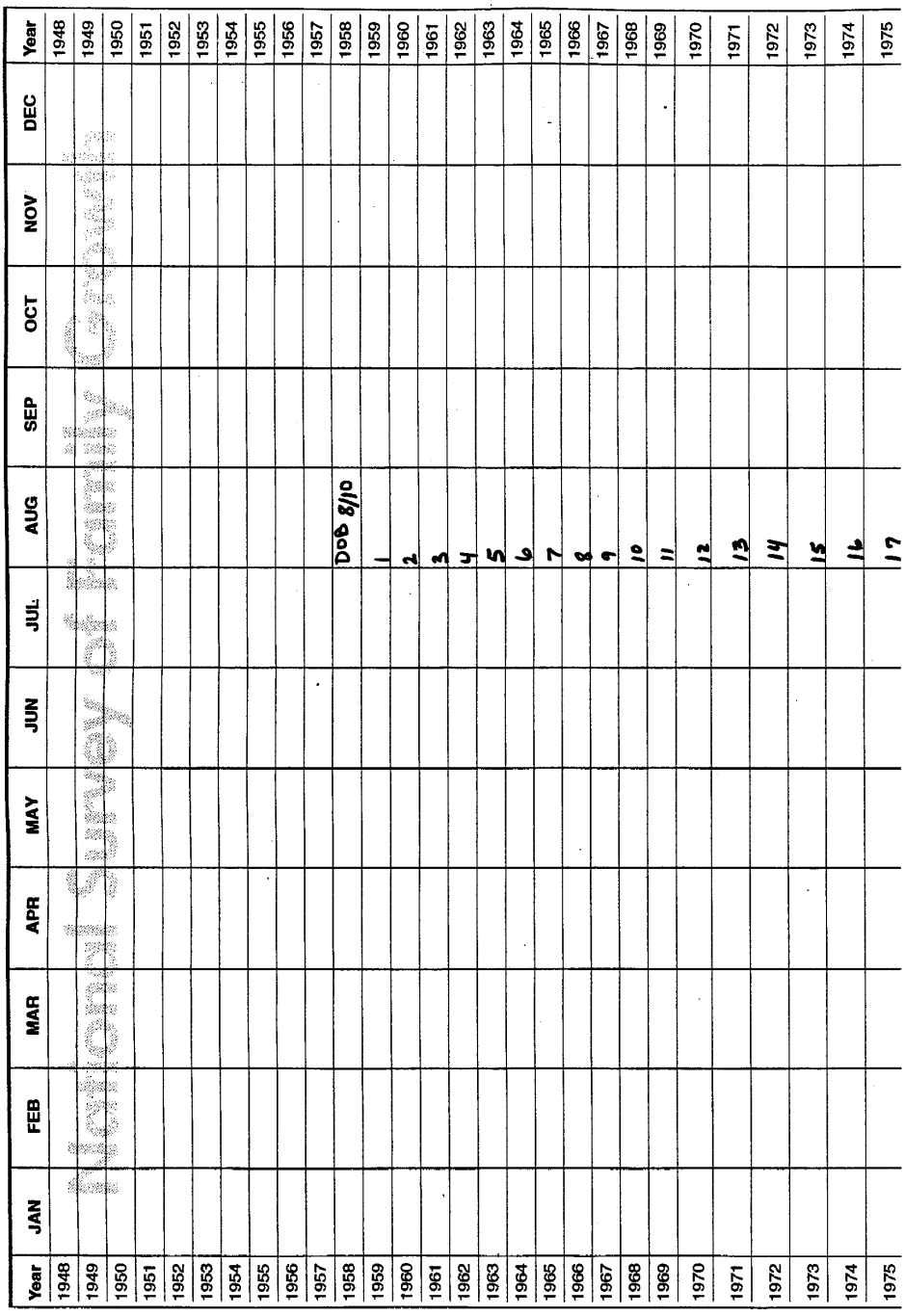
PUBLIC HEALTH SERVICE
U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES

Conducted under contract by

RESEARCH TRIANGLE INSTITUTE
Research Triangle Park, NC 27709-2194
1-(800)-334-8571

Contract #: 200-92-7024

Appendix VII
Life History Calendar



Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year
1948													1948
1949													1949
1950													1950
1951													1951
1952													1952
1953													1953
1954													1954
1955													1955
1956													1956
1957													1957
1958								DOB 8/10					1958
1959								1					1959
1960								2					1960
1961								3					1961
1962								4					1962
1963								5					1963
1964								6					1964
1965								7					1965
1966								8					1966
1967								9					1967
1968								10					1968
1969								11					1969
1970								12					1970
1971								13					1971
1972								14					1972
1973								15					1973
1974								16					1974
1975								17					1975

1976	JAN	FEB	MAR	APR	MAY	Graduated JUN	JUL	18 AUG	SEP	OCT	NOV	DEC	1976
1977								19		Moved to Chicago			1977
1978								20					1978
1979								21					1979
1980		Dad died		Moved in w/mom				22					1980
1981								23					1981
1982					Married			24					1982
1983								25					1983
1984								26					1984
1985								27		Twins born			1985
1986								28					1986
1987								29					1987
1988								30					1988
1989								31					1989
1990								32					1990
1991								33					1991
1992								34					1992
1993								35					1993
1994								36					1994
1995								37					1995
Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Year

Appendix VIII
Field Interviewer
Training Agenda

CYCLE 5 NSFG TRAINING AGENDA
Field Interviewer Training

DAY 0

EAST: **Thursday, January 5, 1995**

WEST: **Monday, January 16, 1995**

	Registration for all NSFG, Cycle 5 Trainees		7:00 am - 7:00 pm
Module 0.1	General Interviewing Training (For NSFG, Cycle 5 trainees new to RTI)	4 hrs.	8:30 am - 12:30 pm
	LUNCH	1 hr.	12:30 pm - 1:30 pm
Module 0.2	General Computer Training (For NSFG, Cycle 5 trainees with no computer experience)	4 hrs.	1:30 pm - 5:30 pm
Module 0.3	Welcome/Background of NSFG (For all NSFG, Cycle 5 trainees)	1.5 hrs.	7:00 pm - 8:30 pm

DAY 1

EAST: Friday, January 6, 1995
WEST: Tuesday, January 17, 1995

Module 1.1	(LT)	Introductions	15 mins.	8:30 am - 8:45 am
Module 1.2	(LT)	Confidentiality	15 mins.	8:45 am - 9:00 am
Module 1.3	(LT)	The Sample	30 mins.	9:00 am - 9:30 am
Module 1.4	(LT)	The NSFG Questionnaire	45 mins.	9:30 am - 10:15 am
		BREAK	15 mins.	10:15 am - 10:30 am
Module 1.5	(LT)	Aids for Administering the NSFG Questionnaire	90 mins.	10:30 am - 12:00 pm
		LUNCH	60 mins.	12:00 pm - 1:00 pm
Module 1.6	(LT)	Introduction to the Computer	60 mins.	1:00 pm - 2:00 pm
Module 1.7	(LT)	Conducting a CAPI Interview (Tutorial)	75 mins.	2:00 pm - 3:15 pm
		BREAK	15 mins.	3:15 pm - 3:30 pm
Module 1.7	(LT)	(cont'd.)	90 mins.	3:30 pm - 5:00 pm

Note: LT = Lead Trainer

DAY 2

EAST: Saturday, January 7, 1995
WEST: Wednesday, January 18, 1995

Module 2.1	(LT)	Review/Questions & Answers		
Module 2.2	(LT)	Round Robin Mock #1	105 mins.	8:30 am - 10:15 am
		BREAK	15 mins.	10:15 am - 10:30 am
Module 2.2	(LT)	(cont'd.)	90 mins.	10:30 am - 12:00 pm
		LUNCH	60 mins.	12:00 pm - 1:00 pm
Module 2.3	(LT)	Round Robin Mock #2	135 mins.	1:00 pm - 3:15 pm
		BREAK	15 mins.	3:15 pm - 3:30 pm
Module 2.3	(LT)	(cont'd.)	90 mins.	3:30 pm - 5:00 pm

Note: LT = Lead Trainer
AT = Assistant Trainer

DAY 3

EAST: Sunday, January 8, 1995
WEST: Thursday, January 19, 1995

Module 3.1	(LT)	Review/Questions & Answer		
Module 3.2	(LT)	Round Robin Mock #2 (cont'd.)	150 mins.	8:00 am - 10:30 am
		BREAK	15 mins.	10:30 am - 10:45 am
Module 3.3	(LT)	Round Robin Mock #3	75 mins.	10:45 am - 12:00 pm
		LUNCH	60 mins.	12:00 pm - 1:00 pm
Module 3.3	(LT)	(cont'd.)	135 mins.	1:00 pm - 3:15 pm
		BREAK	15 mins.	3:15 pm - 3:30 pm
Module 3.3	(LT)	(cont'd.)	90 mins.	3:30 pm - 5:00 pm

Note: LT = Lead Trainer
AT = Assistant Trainer

DAY 4

EAST: Monday, January 9, 1995

WEST: Friday, January 20, 1995

Module 4.1	(LT)	Review/Questions & Answers		
Module 4.2	(LT) (AT)	Paired Mock #1 (Transmission)	135 mins.	8:00 am - 10:15 am
		BREAK	15 mins.	10:15 am - 10:30 am
Module 4.2	(LT) (AT)	(cont'd.) (Transmission)	60 mins.	10:30 am - 11:30 am
Module 4.3	(LT)	Review Paired Mock #1	30 mins.	11:30 am - 12:00 pm
		LUNCH	60 mins.	12:00 pm - 1:00 pm
Module 4.4	(LT) (AT)	Paired Mock #2 (Transmission)	135 mins.	1:00 pm - 3:15 pm
		BREAK	15 mins.	3:15 pm - 3:30 pm
Module 4.4	(LT) (AT)	(cont'd.) (Transmission)	60 mins.	3:30 pm - 4:30 pm
Module 4.5	(LT)	Review Paired Mock #2	30 mins.	4:30 pm - 5:00 pm

Note: LT = Lead Trainer
AT = Assistant Trainer

DAY 5

EAST: Tuesday, January 10, 1995
WEST: Saturday, January 21, 1995

Module 5.1	(LT)	Review/Questions & Answers		
Module 5.2	(LT)	Contacting Sample Women	150 mins.	8:00 am - 10:30 am
		BREAK	15 mins.	10:30 am - 10:45 am
Module 5.3	(LT)	Obtaining Participation	75 mins.	10:45 am - 12:00 pm
		LUNCH	60 mins.	12:00 pm - 1:00 pm
Module 5.4	(LT)	Field Tracing Procedures	45 mins	1:00 pm - 1:45 pm
Module 5.5	(FS)	Sensitivity Issues	30 mins.	1:45 pm - 2:15 pm
Module 5.6	(LT)	Documenting and Reporting Procedures	60 mins.	2:15 pm - 3:15 pm
		BREAK	15 mins.	3:15 pm - 3:30 pm
Module 5.6	(LT)	(cont'd.)	90 mins.	3:30 pm - 5:00 pm

Note: LT = Lead Trainer
FS = Field Supervisor

DAY 6

EAST: Wednesday, January 11, 1995
WEST: Sunday, January 22, 1995

Module 6.1	(LT)	Review/Questions & Answers		
Module 6.2	(LT)	Paired Mock #3	135 mins.	8:00 am - 10:15 am
		BREAK	15 mins.	10:15 am - 10:30 am
Module 6.2	(LT)	(Cont'd.)	60 mins.	10:30 am - 11:30 am
Module 6.3	(LT)	Review Paired Mock #3	30 mins.	11:30 am - 12:00 pm
		LUNCH	60 mins.	12:00 pm - 1:00 pm
Module 6.4	(LT)	Paired Mock #4	135 mins.	1:00 pm - 3:15 pm
		BREAK	15 mins.	3:15 pm - 3:30 pm
Module 6.4	(LT)	(cont'd.)	60 mins.	3:30 pm - 4:30 pm
Module 6.5	(LT)	Review Paired Mock #4	30 mins.	4:30 pm - 5:00 pm

Note: LT = Lead Trainer
FS = Field Supervisor

DAY 7

EAST: Thursday, January 12, 1995
WEST: Monday, January 23, 1995

Module 7.1	(LT)s	Review/Questions & Answers		
Module 7.2	(FS)	Administrative Procedures	90 mins.	8:30 am - 10:00 am
		BREAK	15 mins.	10:00 am - 10:15 am
Module 7.3	(LT)	Data Collection Overview	105 mins.	10:15 am - 12:00 pm
		LUNCH	60 mins.	12:00 pm - 1:00 pm
Module 7.4	(FS)	Assignment Distribution/ Practice Interviews	180 mins.	1:00 pm - 4:00 pm
Module 7.5	(LT)	CAPI Clean-up/Wrap-Up	60 mins.	4:00 pm - 5:00 pm

Note: LT = Lead Trainer
FS = Field Supervisor

DAY 8

EAST: Friday, January 13, 1995
WEST: Tuesday, January 24, 1995

Module 8.1	Spanish NSFG, Cycle 5 Questionnaire (For NSFG, Cycle 5 Bilingual Trainees)	4 hrs.	8:30 am - 12:30 pm

Note: LT = Lead Trainer
FS = Field Supervisor

Appendix IX
Summary Tables of Data Collection Status Reports

Table 1 **National Survey of Family Growth final main study data collection status report**

Status	REGION 1		REGION 2		REGION 3		TOTAL	
	N	%	N	%	N	%	N	%
1.Total Cases Assigned	4715	100	4705	100	4580	100	14000	100
2.Cases Completed:								
a.Interview complete	3692	78	3490	74	3665	80	10847	77
b.SW not 15-44	21	0	11	0	23	0	55	0
c.SW not female	21	0	9	0	15	0	45	0
d.SW deceased	7	0	8	0	5	0	20	0
e.SW moved (country)	26	0	22	0	37	0	85	0
f.SW moved	2	0	4	0	4	0	10	0
g.Breakoff/partial	4	0	5	0	2	0	11	0
h.SW unavailable	121	2	194	4	33	0	348	2
i.SW unlocatable	192	4	292	6	273	5	757	5
j.Ment/phys incap	27	0	31	0	23	0	81	0
k.Language, Spanish	0	0	2	0	0	0	2	0
l.Language, other	26	0	9	0	60	1	95	0
m.SW final refusal	535	11	593	12	414	9	1542	11
n.Parent refusal	39	0	32	0	19	0	90	0
o.Parent unattain	0	0	0	0	0	0	0	0
p.Other noninterview	2	0	3	0	7	0	12	0
q.Total	4715	100	4705	100	4580	100	14000	100
3.Adjusted Response Rate:*		80		75		81		79

* The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of cases less the sample women who were not age eligible, were not female, were deceased, or had moved out of the country. Cases in these categories had no opportunity to be interviewed.

Table 2 **National Survey of Family Growth final main study data collection status report by race/ethnicity**

Status	HISPANIC		BLACK		OTHER		TOTAL	
	N	%	N	%	N	%	N	%
1.TotalCases Assigned	2038	15	3170	23	8792	63	14000	100
2.Cases Completed:*								
a.Interview complete	1553	76	2430	77	6864	78	10847	77
b.SW not 15-44	12	0	17	0	26	0	55	0
c.SW not female	9	0	8	0	28	0	45	0
d.SW deceased	4	0	5	0	11	0	20	0
e.SW moved (country)	42	2	6	0	37	0	85	0
f.SW moved	4	0	0	0	6	0	10	0
g.Breakoff/partial	0	0	6	0	5	0	11	0
h.SW unavailable	47	2	116	4	185	2	348	2
i.SW unlocatable	171	8	266	8	320	4	757	5
j.Ment/phys incap	13	1	24	1	44	0	81	0
k.Language, Spanish	2	0	0	0	0	0	2	0
l.Language, other	2	0	4	0	89	1	95	0
m.SW final refusal	174	9	266	8	1102	13	1542	11
n.Parent refusal	2	0	16	0	72	1	90	0
o.Parent unattain	0	0	0	0	0	0	0	0
p.Other noninterview	3	0	6	0	3	0	12	0
q.Total	2038	100	3170	100	8792	100	14000	100
3.Adjusted Response Rate:+		79		78		79		79

* SW = sample women
Ment/Phys incap = mentally or physically incapacitated
Parent unattain = parent or guardian not attainable for permission to interivew
SW moved = sample woman no longer at the address where she was originally located

+ The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases, that is, the "total cases assigned"" (line 1) minus the sample members who were not 15-44 yers old, were not female, were deceased, or had moved out of the country. Cases in these categories had no opportunity to be interviewed.

Table 3 National Survey of Family Growth final main study data collection status report by age

Status	UNDER 18		18 & OLDER		TOTAL	
	N	%	N	%	N	%
1.Total Cases Assigned	1034	7	12966	93	14000	100
2.Cases Completed:						
a.Interview complete	835	81	10012	77	10847	77
b.SW not 15-44	2	0	53	0	55	0
c.SW not female	10	1	35	0	45	0
d.SW deceased	1	0	19	0	20	0
e.SW moved (country)	7	1	78	1	85	0
f.SW moved	1	0	9	0	10	0
g.Breakoff/partial	0	0	11	0	11	0
h.SW unavailable	11	1	337	3	348	2
i.SW unlocatable	39	4	718	6	757	5
j.Ment/phys incap	9	1	72	1	81	0
k.Language, Spanish	0	0	2	0	2	0
l.Language, other	0	0	95	0	95	0
m.SW final refusal	44	4	1498	12	1542	11
n.Parent refusal	75	7	15	0	90	0
o.Parent unattain	0	0	0	0	0	0
p.Other noninterview	0	0	12	0	12	0
q.Total	1034	100	12966	100	14000	100
3.Adjusted Response Rate:*		82		78		79

* The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases less the sample women who were not age eligible, were not female, were deceased, or had moved out of the country. Cases in these categories had no opportunity to be interviewed.

Table 4 **National Survey of Family Growth final main study data collection status report by income**

Status	< 20,000		> 20,000		MISSING		TOTAL	
	N	%	N	%	N	%	N	%
1.Total Cases Assigned	4563	33	8028	57	1409	10	14000	100
2.Cases Completed:								
a.Interview complete	3425	75	6189	77	1233	87	10847	77
b.SW not 15-44	17	0	30	0	8	0	55	0
c.SW not female	19	0	21	0	5	0	45	0
d.SW deceased	10	0	9	0	1	0	20	0
e.SW moved (country)	39	1	43	1	3	0	85	0
f.SW moved	5	0	5	0	0	0	10	0
g.Breakoff/partial	3	0	7	0	1	0	11	0
h.SW unavailable	134	3	199	2	15	1	348	2
i.SW unlocatable	451	9	252	3	54	4	757	5
j.Ment/phys incap	42	1	35	0	4	0	81	0
k.Language, Spanish	1	0	0	0	1	0	2	0
l.Language, other	44	1	46	1	5	0	95	0
m.SW final refusal	343	8	1127	14	72	5	1542	11
n.Parent refusal	25	1	59	1	6	0	90	0
o.Parent unattain	0	0	0	0	0	0	0	0
p.Other noninterview	5	0	6	0	1	0	12	0
q.Total	4563	100	8028	100	1409	100	14000	100
3.Adjusted Response Rate:*		77		78		89		79

* The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases less the sample women who were not eligible, were not female, were deceased, or had moved out of the country. Cases in these categories had no opportunity to be interviewed.

Table 5 **National Survey of Family Growth final main study data collection status report of race ethnicity for sample women age 18-44**

Status	HISPANIC		BLACK		OTHER		TOTAL	
	N	%	N	%	N	%	N	%
1.Total Cases Assigned	1895	15	2948	23	8123	63	12996	100
2.Cases Completed:								
a.Interview complete	1427	75	2252	77	6333	78	10012	77
b.SW not 15-44	12	1	16	1	25	0	53	0
c.SW not female	7	0	6	1	22	0	35	0
d.SW deceased	4	0	5	0	10	0	19	0
e.SW moved (country)	38	2	5	0	35	0	78	1
f.SW moved	4	0	0	0	5	0	9	0
g.Breakoff/partial	0	0	6	0	5	0	11	0
h.SW unavailable	47	2	112	4	178	2	337	3
i.SW unlocatable	166	9	252	9	300	4	718	6
j.Ment/phys incap	11	1	22	1	39	0	72	1
k.Language, Spanish	2	0	0	0	0	0	2	0
l.Language, other	2	0	4	0	89	1	95	0
m.SW final refusal	171	9	260	9	1067	13	1498	12
n.Parent refusal	1	0	2	0	12	0	15	0
o.Parent unattain	0	0	0	0	0	0	0	0
p.Other noninterview	3	0	6	0	3	0	12	0
q.Total	1895	100	2948	100	8123	100	12966	100
3.Adjusted Response Rate:*		78		77		79		78

* The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases less the sample women who were not age eligible, were not female, were deceased, or had moved out of the country. Cases in these categories had no opportunity to be interviewed.

Table 6 **National Survey of Family Growth final main study data collection status report of race ethnicity for sample women under age 18**

Status	HISPANIC		BLACK		OTHER		TOTAL	
	N	%	N	%	N	%	N	%
1.Total Cases Assigned	143	14	222	21	669	65	1034	100
2.Cases Completed:								
a.Interview complete	126	88	178	80	531	79	835	81
b.SW not 15-44	0	0	1	0	1	0	2	0
c.SW not female	2	1	2	1	6	1	10	1
d.SW deceased	0	0	0	0	1	0	1	0
e.SW moved (country)	4	3	1	0	2	0	7	1
f.SW moved	0	0	0	0	1	0	1	0
g.Breakoff/partial	0	0	0	0	0	0	0	0
h.SW unavailable	0	0	4	2	7	1	11	1
i.SW unlocatable	5	3	14	6	20	3	39	4
j.Ment/phys incap	2	1	2	1	5	1	9	1
k.Language, Spanish	0	0	0	0	0	0	0	0
l.Language, other	0	0	0	0	0	0	0	0
m.SW final refusal	3	2	6	3	35	5	44	4
n.Parent refusal	1	1	14	6	60	9	75	7
o.Parent unattain	0	0	0	0	0	0	0	0
p.Other noninterview	0	0	0	0	0	0	0	0
q.Total	143	100	222	100	669	100	1034	100
3.Adjusted Response Rate:*		92		82		80		82

* The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases less the sample women who were not age eligible, were not female, were deceased, or had moved out of the country. Cases in these categories had no opportunity to be interviewed.

Table 7 National Survey of Family Growth final main study data collection status report of race ethnicity for income less than $20,000

Status	HISPANIC		BLACK		OTHER		TOTAL	
	N	%	N	%	N	%	N	%
1.Total Cases Assigned	930	20	1567	34	2066	45	4563	100
2.Cases Completed:								
a.Interview complete	671	72	1166	75	1588	77	3425	75
b.SW not 15-44	3	0	9	1	5	0	17	0
c.SW not female	6	1	4	0	9	0	19	0
d.SW deceased	3	0	4	0	3	0	10	0
e.SW moved (country)	25	3	3	0	11	1	39	1
f.SW moved	4	0	0	0	1	0	5	0
g.Breakoff/partial	0	0	2	0	1	0	3	0
h.SW unavailable	27	3	56	4	51	2	134	3
i.SW unlocatable	121	14	182	12	148	7	451	9
j.Ment/phys incap	6	1	16	1	20	1	42	1
k.Language, Spanish	1	0	0	0	0	0	1	0
l.Language, other	1	0	4	0	39	2	44	1
m.SW final refusal	58	6	113	7	172	8	343	8
n.Parent refusal	1	0	6	0	18	1	25	1
o.Parent unattain	0	0	0	0	0	0	0	0
p.Other noninterview	3	0	2	0	0	0	5	0
q.Total	930	100	1567	100	2066	100	4563	100
3.Adjusted Response Rate:*		75		75		78		77

* The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases less the sample women who were not age eligible, were not female, were deceased, or had moved out of the country. Cases in these categories had no opportunity to be interviewed.

Table 8 **National Survey of Family Growth Final main study data collection status report of race ethnicity for income over $20,000**

Status	HISPANIC		BLACK		OTHER		TOTAL	
	N	%	N	%	N	%	N	%
1.Total Cases Assigned	913	11	1251	16	5864	73	8028	100
2.Cases Completed:								
a.Interview complete	720	79	954	76	4515	77	6189	77
b.SW not 15-44	8	1	4	0	18	0	30	0
c.SW not female	3	0	4	0	14	0	21	0
d.SW deceased	1	0	1	0	7	0	9	0
e.SW moved (country)	15	2	3	0	25	0	43	1
f.SW moved	0	0	0	0	5	0	5	0
g.Breakoff/partial	0	0	3	0	4	0	7	0
h.SW unavailable	17	2	54	4	128	2	199	2
i.SW unlocatable	37	4	66	5	149	2	252	3
j.Ment/phys incap	6	1	7	1	22	0	35	0
k.Language, Spanish	0	0	0	0	0	0	0	0
l.Language, other	1	0	0	0	45	1	46	1
m.SW final refusal	104	11	143	11	880	15	1127	14
n.Parent refusal	1	0	8	1	50	1	59	1
o.Parent unattain	0	0	0	0	0	0	0	0
p.Other noninterview	0	0	4	0	2	0	6	0
q.Total	913	100	1251	100	5864	100	8028	100
3.Adjusted Response Rate:*		81		77		79		78

* The adjusted response rate is calculated by dividing the total number of completed interviews by the total number of eligible cases less the sample women who were not age eligible, were not female, were deceased, or had moved out of the country. Cases in these categories had no opportunity to be interviewed.

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