

NLSY-MC, NLSY-YA, NLSY79, PSID-CDS, and SIPP. Finally, NHANES-III includes medical and dental assessments for children and adults, plus radiographs and performance tests for persons age 60 and older. Both CSFII and NFSPS include self-reported information on special diets.

Physical, Cognitive, and Emotional Status/Performance

As indicated in table 10, the principal sources provide a variety of data on developmental or performance measures in the physical, cognitive, and emotional/social domains. In the physical domain, NLSY-MC and PSID-CDS provide data on physical development of children (especially motor skills), based on parent reports elicited with standardized scales. ECLS-K has a combination of parent-reported and test-based data on motor skills. NHANES-III has both parent-reported data on physical development for children up to 4 years old and medical assessments for children 5 years and older. These sources also provide objective data on children's cognitive development or performance, ranging from general professional assessments to formal tests of memory, language skills, mathematical skills, and other areas.³⁰

Eight of the sources provide parent-reported data on children's school attendance and performance. Depending on the source, this may include grade attended, incidence of academic and disciplinary problems, or relative ranking in the child's class. NLSY-MC also incorporates the results of a one-time school survey providing data from school records on attendance and grades, as well as descriptive information on school characteristics.³¹ ECLS-K includes periodic teacher surveys, principal surveys, and abstraction of information from school records. Several sources also include data on the social or emotional development of children or on adults' mental health. These data are all parent-reported, except for teacher assessments and school records obtained for the ECLS-K.

³⁰ NLSY-79 is unique among these sources in providing cognitive test scores and school transcript data for youth and young adults, but these data are of limited usefulness because they were collected in 1980-83.

³¹ To obtain the school survey data, users must make special arrangements with the data repository, at the Center of Human Resources Research, Ohio State University.

Potential Data Sources

The data sources described in this section are considered "potential" because, although they include useful data, they have limitations that the previously described principal data sources do not. Some potential sources are not useful at the present time because they either include no information on FANP participation or have a critical gap in this information (for example, a source that includes information on birth outcomes but not on prenatal WIC participation). ERS has worked with other Federal agencies to fill critical data needs for FANP research; these potential data sources represent further opportunities for ERS to fill information gaps through collaboration with sponsoring agencies and organizations.

Other potential sources focus on populations that are limited to a specific lifecycle group (such as preschoolers or the elderly) and/or specific States or localities. Although less useful than the nationally representative data sources described in previous sections, these sources can be used for case study or exploratory analysis.

Nutrition- and health-related measures available in the potential data sources are often (but not always) of lower quality than comparable measures in principal data sources. For example, a potential data source might include parental reports about cognitive performance, while comparable data in principal sources are based on results of standardized tests administered by trained field staff. As described below, some of the potential sources have high-quality outcome data, but these sources have other important limitations.

The following sections describe each of the potential sources, grouped by their major limiting factor. Each section includes a table that summarizes available information on FANP participation and nutrition- and health-related measures. Except as noted in this section, all of the potential sources have public-use data sets, available now or planned for the near future.

Sources with Poor Match Between Program and Outcome Data

These data sources (table 11) have both FANP participation data and potentially useful nutrition- or health-related measures, but the combination of these data does not offer a strong basis for relating program

Table 11—Summary of key data elements in potential data sources with poor match between program data and nutrition/health measures

Data source	FANPs identified				Nutrition- and health-related measures available							
	WIC	FSP	NSLP	SBP	Food expenditures	Food/nutrient intake	Food sufficiency/hunger	Physical/biochemical measures	Birth outcomes	Health-related behaviors	Health status/care	Physical/cognitive/emotional status or performance
Americans' Changing Lives (ACL)		✓			✓					✓	✓	✓
Medical Expenditure Panel Survey (MEPS)		✓						✓	✓	✓	✓	✓
National Health Interview Survey (NHIS)		✓						✓	✓	✓	✓	✓
National Household Education Survey (NHES)	✓	✓	✓ ¹	✓ ¹		✓	✓		✓	✓	✓	✓
National Longitudinal Survey of Youth 1997 (NLSY97)	✓	✓				✓		✓		✓	✓	✓
National Survey of Family Growth (NSFG)		✓							✓	✓	✓	

¹NHES identifies children receiving free or reduced-price meals through NSLP or SBP, not differentiated between programs.

participation and outcomes. In some cases, the program participation data do not provide enough detail or cover the time period when the outcomes in question were shaped. A common problem is relatively short-term participation data in a source for which the strongest outcome data represent long-term impacts. Another issue with these sources is that they often do not have any data on the FANPs that are intended to affect the measured outcomes. In particular, several sources (such as the Medical Expenditure Panel Survey) have strong health outcomes that might reflect WIC impacts, but these sources do not have WIC participation data. Finally, some sources have relatively well-documented FANP participation but do not have strong outcome measures. At present, these sources are more useful for descriptive analyses comparing participants with nonparticipants than for impact analyses, but several of the sources could be useful for impact analyses if the necessary data were added.

Americans' Changing Lives (ACL)

The ACL is an ongoing panel study of the lives of older adults, including activities, relationships, and responses to acute and chronic stress. The study pays particular attention to racial and other demographic differences in these dimensions. The study panel is nationally representative of the continental U.S. population age 25 and older, with oversampling of African-Americans and persons 60 and older. In-person interviews were conducted in 1986 and 1989; the third wave, in 1994, was conducted mainly by telephone. A fourth wave is planned in 2001. The combined Wave 1/Wave 2 dataset includes 2,867 respondents.³² The surveys have been conducted by the Institute for Social Research, University of Michigan, with funding and oversight from the National Institute on Aging.

ACL identifies FSP participants but, to date, has included few outcome items likely to be observably affected by FSP participation, once the determinants of FSP participation are controlled for. The outcome most directly related to FSP participation is food expenditures, but these data are much less detailed than in the CES or even the CPS-FSS. The data are rich in measures of health status, healthcare utilization, cognitive performance, emotional health, and health-related

³² The number of respondents for the 1994 wave is not available at present.

behaviors. These outcomes could be related to long-term FSP participation patterns, but ACL only determines whether the respondent households received food stamp benefits in the 12 months before each interview. The longitudinal nature of this study would make it a candidate for analyses of changes in food security over time, if a food security module could be added. It is important to note, however, that the panel is relatively small, so the sample of households with some form of food insecurity is likely to be quite small.

Medical Expenditure Panel Survey (MEPS)

The MEPS collects data on healthcare use, expenditures, sources of payment, and insurance coverage from a panel representing the U.S. civilian noninstitutionalized population.³³ MEPS is the successor to the National Medical Care Expenditure Surveys conducted in 1977 and 1987. The first panel of 10,000 families and 24,000 persons was drawn from respondents to the 1995 National Health Interview Survey (described below). Beginning in 1996, each household in this panel was interviewed five times over 2½ years, generally in person.³⁴ The data cover all household members for the period from January 1996 through December 1997. A new panel is initiated each year, so the overlapping panels provide larger cross-sectional samples for every calendar year. In addition, MEPS surveys respondents' medical providers, employers, and insurance providers to supplement and validate the household survey data. The Agency for Health Care Policy and Research (AHCPR) and the National Center for Health Statistics (NCHS) jointly oversee the MEPS.

The only FANP identified in the 1996-1997 MEPS panel was the FSP. The Round 5 questionnaire asked if anyone in the household received food stamps in 1997 and, if so, the number of months of receipt and the monthly value of the benefit.³⁵

³³ The MEPS has a separate survey of nursing homes and residents, not described here.

³⁴ The final wave of interviews with each household was conducted by telephone except where this method was not considered feasible or suitable.

³⁵ The available data documentation for 1996 surveys did not reference FSP participation and the corresponding questionnaire was not available on the MEPS web site. Therefore, the availability of these data for 1996 is uncertain.

Nutrition- and health-related measures of potential interest include number of births and birthweight. For children, health status data include immunization status and height and weight (all parent-reported). Each household member is checked against a roster of potential health conditions (including diseases and disabilities). Extensive data on all types of healthcare utilization are obtained. Clearly, if WIC participants were identified in future MEPS panels, there would be interesting opportunities for analyses of these data.

National Health Interview Survey (NHIS)

The NHIS is a major annual survey of the health and demographic characteristics of the U.S. civilian population. The NHIS collects data on the incidence of acute and chronic conditions, injury, physician visits, hospitalizations, and related topics, using a stable core questionnaire and a changing series of modules on current health topics. The NHIS was started in 1957 and is currently conducted by the Bureau of the Census for the National Center for Health Statistics (NCHS). Each year, the NHIS conducts personal interviews with a nationally representative, multistage probability sample of over 100,000 persons (including adults and children) in over 40,000 households. African-Americans and Hispanics have been oversampled since 1995. The NHIS sample serves as the sample frame for a growing number of health surveys, including the National Survey of Family Growth and the Medical Expenditure Panel Survey. NHIS public-use data are available from the Census Bureau and from NCHS.

The NHIS includes data on FSP participation (household participation in the last calendar year, identification of individual participants, and number of months of receipt for the period), but no information is available on participation in other FANPs. A particularly unfortunate (but remediable) gap is the lack of information on WIC participation, given the presence of birthweight data for infants and other outcomes of particular interest to the WIC program.

All of the outcome measures in the NHIS are health-related. In addition to infant birthweights, particularly notable measures include self/parent-reported height and weight information for children and adults, presence of diseases such as hypertension and diabetes, and healthcare utilization (inpatient and outpatient). Other outcomes available from NHIS

include health-related behaviors (smoking, exercise, etc.), child behavior problems, and health status of children and adults.

National Household Education Survey (NHES)

The NHES is an ongoing program for collecting information on educational issues from national cross-sectional samples of households. NHES data collection began in 1991; subsequent surveys were conducted in 1993, 1995, 1996, 1999, and 2001. According to the sponsor, the National Center for Educational Statistics (NCES), further surveys are planned for 2003 and every 2 years thereafter (NCES, 1997). All NHES interviews are conducted by telephone. About 60,000 households are screened for eligibility, and minority households are oversampled. The exclusive use of telephone interviews is an important limitation of the NHES, particularly with respect to characterizing low-income populations that are more likely to be missed by such surveys.

The topics, relevant populations, and sample sizes vary from one round of the NHES to the next. The 1991 topics were early childhood education (14,000 parent respondents with children ages 3-8) and adult education. In 1993, the topics included school readiness (11,000 parent respondents with children ages 3-7) and safety and discipline. In 1995, the topics were the same as for 1991, with a similar sample of 14,000 for the early childhood program participation component. The 1996 topics were involvement in education and adult and youth civic involvement. Plans for the 1999 interviews included 24,600 interviews with parents of children from birth through 12th grade, 7,913 youths in 6th through 12th grade, and 6,697 adults age 16 and older not enrolled in grade 12 or below. The 1999 parent interview topics included before- and after-school childcare, early childhood program participation, and school readiness.³⁶

Both the 1993 school readiness and the 1995 early childhood program participation components obtained data on FSP and WIC participation, as did the 1999 parent interview, which covered both of these topics. The 1993 survey asked about any food stamp receipt in the focal child's first 5 years (for children in kindergarten or higher grades) and any WIC receipt

³⁶ Documentation on the 2001 NHES is limited and the data are not yet available, so the discussion in this report is limited to the 1991-1999 surveys.

since birth. For the FSP, the number of months or years of receipt was obtained.³⁷ This survey also asked about receipt of free or reduced-price meals (breakfast or lunch, undifferentiated) for preschoolers in daycare centers and children in kindergarten or higher grades. The 1995 and 1999 surveys used the preceding 12 months as the reference period for FSP and WIC participation, but did not collect data on other food assistance programs.

The 1993, 1995, and 1999 surveys included some health-related measures, but only the 1993 survey has information about hunger and food intake. The 1993 survey had one very limited but conceivably interesting hunger question: whether the focal child has gone without food for one-half day or more during the last month. The meal-eating-pattern questions in the survey also were limited, asking how often the child eats breakfast (per week) and how often a family member prepares a hot meal for the child.

Among the available health-related measures, the question of greatest potential interest is the child's birthweight, which was obtained by the 1993 and 1995 surveys. Unfortunately, neither of these surveys included data on maternal receipt of WIC during pregnancy. The 1993 data do identify lifetime WIC receipt by the child, which could conceivably be used as a proxy, but low birthweight is a major nutritional risk that may be used to qualify infants of non-WIC mothers to receive WIC benefits.

The 1993, 1995, and 1999 surveys obtained indicators of physical or cognitive development and school performance. These included grade attended, class standing, behavior problems, and academic problems or areas requiring special help. All three surveys also asked numerous questions on disability and developmental delays, as well as about the child's general health status and routine healthcare. The 1993 and 1999 surveys asked parents a series of questions about preschoolers' development of abilities in the areas of colors, letters, and counting, plus (in 1993 only) questions on the reading ability of school-age children.

³⁷ The survey collected income data only for the most recent year. This information provides only a crude basis for identifying children who were eligible nonparticipants in FSP or WIC over the covered period of 5 years or more. This problem does not affect analyses using the school breakfast/lunch participation variable, which is short term.

National Longitudinal Study of Youth 1997 (NLSY97)

The NLSY97 is the latest cohort in the series of the National Longitudinal Studies described in the section on principal data sources. It is a continuing longitudinal survey of a nationally representative cohort of 9,000 youths who were ages 12-16 at the end of 1996, with oversamples of African-Americans and Hispanics. This survey has substantial data on FANP participation, but it is considered merely as a potential source at present because of its limited data on nutrition and health outcomes.

The purpose of the study is to gather information about the lives of the study cohort, with particular attention to the transition from school to work and to the relationships between this process and the characteristics of the youths, their families of origin, the families they form, and their environments. These data will be gathered through periodic in-person interviews with the youths and their parents, surveys of the youths' schools, collection of transcripts and existing standardized test scores, and administration of the Armed Services Vocational and Aptitude Battery (ASVAB). Initial school surveys were conducted in 1996, and the first youth and parent interviews were conducted in 1997. The NLS program of which NLSY97 is part is directed by the BLS. The National Opinion Research Center (NORC) manages and conducts the survey under contract to BLS. The Center for Human Resource Research, Ohio State University, provides other support, including creation of variables, data documentation, and dissemination.

The NLSY97 provides data on FSP and WIC participation, both for youths living with a parent or guardian and independent youths, but has no participation data for NSLP or SBP. The 1997 parent interview asked whether the household received food stamps in 1996 and, if so, the total value of benefits for the year. For both WIC and FSP, this instrument also obtains the number of years the child's parents received the benefit during the last 5 years. For independent youths, the 1997 youth interview obtained a more detailed FSP history, including current receipt, any prior receipt, start and end dates of the first spell, total weeks of FSP benefits, average monthly amount of FSP benefits, and all persons covered by the FSP benefits. For WIC, the youth questionnaire asked the same questions, including the average monthly value of the benefits (in terms of the expected cost to buy the items obtained

with WIC benefits). It is important to note that, given the age range of the cohort at the start of the study, the early years of the survey will include relatively few independent youths, and therefore the sample sizes for this population will be small.

At present, the NLSY97 offers limited information on food intake/habits. Youths are asked how often they eat breakfast on school days (regardless of the source of food) and how often they eat green vegetables or fruit. Both parent and youth questionnaires obtain reports of the youth's height and weight; the youth questionnaire also asks about perceived overweight or underweight status. The youth survey also includes data on health-related behaviors, diseases, and general health. The parent survey includes items on physical, emotional, or mental limitations affecting the youth's schooling or work. In the future, stronger measures of cognitive development and school performance are expected to be available from the tests administered by the NLSY97 and from school records.

The future value of the NLSY97 to FANP research depends largely on whether nutrition- and health-related measures are expanded from the current set. The basic questions on pregnancy outcomes are of potential value, although the data collected so far do not cover the entire cohort's teenage years. If the fertility-related questions were expanded along the lines of the NLSY79 questionnaire, valuable information on birth outcomes and infant feeding would be available. These data would be especially useful if the WIC questions continue to be asked at the individual level. Further potential would be created if the NLSY79-MC child assessments were replicated in the children of the NLSY79 cohort.

National Survey of Family Growth (NSFG)

The NSFG is a series of surveys of women of childbearing age concerning sexual behavior, marriage/cohabitation, contraception, pregnancy, childbearing, and related aspects of maternal and child health. The NSFG began in 1973 and was conducted every 4 to 7 years thereafter (1976, 1982, 1988, and 1995).³⁸ The next NSFG is planned to take place in 2002 and will include men for the first time. Since 1982, the sample has been representative of all women

³⁸ A followup to the 1988 NSFG was conducted in 1990. This survey was not considered for the review because the main data collection occurred before the 1990 cutoff.

aged 15 to 44, regardless of marital or childbearing status. The 1995 NSFG had a sample of 10,847 women, with oversamples of African-American and Hispanic women. All interviews were conducted in person using a computerized instrument, with sensitive data collected via a self-administered module. The 1995 NSFG sample was drawn from the 1993 National Health Interview Survey (NHIS) sample, and the 1995 NSFG data include variables from the 1993 NHIS. The NCHS oversees the NSFG and distributes the public-use files.

The 1995 NSFG identified FSP but not WIC participants, despite the relevance of WIC to maternal and infant health. FSP participation data was collected at the household level, using a 12-month reference period, with no information on the identities of participants, the duration of participation, or the benefit level.

The most notable nutrition/health outcome data in the NSFG are the questions on birth outcomes and breastfeeding. Birth outcome data for each pregnancy include live vs. still birth, gestational age, and birthweight. The breastfeeding data are collected for each named infant. These data include incidence of ever breastfeeding, problems encountered, age at introduction of other foods, age at weaning, and reasons for weaning. Questions on disease and medical conditions elicit information on anemia, diabetes, and high blood pressure, both during and outside of pregnancy, and on infertility. The NSFG also has data on health-related behaviors (especially those related to sexual activity or pregnancy) and on use of maternal healthcare services. Clearly, the utility of this data source for FANP research would be greatly enhanced if information on WIC participation were available.

Sources with Limited Populations

The sources listed in table 12 have some information on FANP participation data and some nutrition- and health-related measures; however, they are not considered principal sources because their samples come from relatively narrow populations. One of the four, the Evaluation of the Comprehensive Child Development Program-Second Cohort (CCDP2), contains data from a set of 10 demonstration sites that are not nationally representative. Two of the studies represent cohorts of two different age ranges among the elderly population. The other study, the National Immunization Survey, is limited to children aged 19 to 35 months.

Table 12—Summary of key data elements in potential data sources that have limited populations

Data source	FANPs identified				Nutrition- and health-related measures available							
	WIC	FSP	NSLP	SBP	Food expenditures	Food/nutrient intake	Food sufficiency/hunger	Physical/biochemical measures	Birth outcomes	Health-related behaviors	Health status/care	Physical/cognitive/emotional status or performance
Evaluation of the Comprehensive Child Development Program—Second Cohort (CCDP2)	✓	✓				✓	✓		✓	✓	✓	✓
Health and Retirement Study (HRS)		✓			✓		✓			✓	✓	✓
National Immunization Survey (NIS)	✓									✓		
Pregnancy Risk Assessment Monitoring System (PRAMS)	✓	✓ ¹				✓ ²	✓ ³	✓ ⁴	✓	✓	✓	
Survey of Assets and Health Dynamics Among the Oldest Old (AHEAD)		✓			✓		✓	✓		✓	✓	✓

¹FSP data in Prams are collected only in some States.

²Some States collect information on use of vitamin supplements and/or folic acid during pregnancy.

³Some States ask limited question(s) on hunger/lack of food.

⁴Some States collect information on maternal weight gain during pregnancy.

Evaluation of the Comprehensive Child Development Program—Second Cohort (CCDP2)

The Comprehensive Child Development Program (CCDP) was first funded by the Department of Health and Human Services' Administration on Children, Youth, and Families (ACYF) in 1989. The overall goal of the program was to provide early and comprehensive services to enhance child health and development and to support families in gaining economic self-sufficiency. Two evaluations of CCDP have been conducted for ACYF by Abt Associates Inc. The first one covered the first cohort of 22 sites (CCDP1), and the second covered the second cohort of 10 sites (CCDP2).³⁹ Both evaluations used random assignment designs and gathered rich data on the development of focal children in the sampled families (both treatment and control) from the time of program entry until the child's third birthday.⁴⁰ To enter the sample, the family had to have income at or below the poverty level, and the mother had to be pregnant or within 12 months postpartum.

Only CCDP2 was considered for this review, however, because it is the only one of the two evaluations that provides both FSP and WIC participation data. The 10 sites are not nationally representative, but were selected on the basis of the respective sponsoring organizations' willingness and ability to oversee CCDP operations. Nevertheless, the sites are quite diverse, including rural, urban, and suburban areas and varying minority populations and representing four of the seven FNS regions.

CCDP2 had a sample of over 2,000 families, each with a focus child. Approximately half of the CCDP2 families were in the treatment group. Inclusion of this group may not be problematic for analyses of FSP or WIC impacts, because the CCDP does not appear to have been effective.⁴¹ Although the sample frame initially included only households under 100 percent of poverty, only 72 percent of children were at or below the poverty line by 2 years of age. Because of

the random assignment feature of the CCDP evaluation, the evaluation drew convenience samples from the pool of families recruited for the program, rather than probability samples of eligible children within the sites.

CCDP2 includes data collected in person at program entry, 1 year later, and at the child's second and third birthdays. The baseline data includes demographic information such as race, income, and employment. Because CCDP was hypothesized to have a wide range of effects on both children and their families, the followup surveys were designed to collect information on a variety of outcome measures for both children and their mothers.

Short-term WIC and FSP participation data were collected from parents or caregivers at the focal child's second and third birthdays. For the FSP, these data include incidence of benefit receipt, duration of participation, and last benefit amount during the preceding 6 months. For WIC, current enrollment status was determined for the focal child, the caregiver, and other children in the household.⁴² Thus, this study does not provide a full history of FSP or WIC participation for the entire period of the focal child's development, nor on participation during the prenatal period—crucial limitations in light of the study's focus on developmental measures. The study does, however, provide income and household-size data needed for identifying eligible nonparticipants.

Available nutrition and health measures include both short- and long-term measures for the focal child derived from the parent/caregiver interviews. The short-term measures include limited indicators of food sufficiency and hunger; data on regularity of meals and consumption of certain food groups (milk, cereals, fruits and vegetables) and nutrients (added sugar, salt, and fats); health status; a detailed immunization history; infant feeding practices; and healthcare utilization. Long-term measures of motor, cognitive, and emotional/social development are available from a battery of assessments performed by the data collectors.

³⁹ The CCDP2 evaluation has been completed but not yet released.

⁴⁰ CCDP1 also collected data at ages 4 and 5 (St. Pierre et al., 1997).

⁴¹ The CCDP1 evaluation did not find any impacts when treatment and control groups were compared.

⁴² At ages 2 and 3, 54 and 43 percent of focal children, respectively, were enrolled in WIC. (Source: Tabulations by Abt Associates Inc.)

Health and Retirement Study (HRS)

The HRS is a longitudinal study of the lives of a nationally representative panel of older adults, focusing on retirement choices, the transition to retirement, and coping with illness and limitations in later life. The HRS began in 1992 with a survey of a panel of 12,600 adults, including persons aged 51 to 61 and their spouses. Followup surveys have been conducted every 2 years, the latest in 2000.⁴³ Primary data collection includes a combination of telephone and in-person interviews, along with self-administered (mail) questionnaires. In addition, pension and health insurance data have been extracted from employer records, and earnings and benefit data have been obtained from the Social Security Administration's files. The study is conducted by the Institute for Social Research with support from the National Institute on Aging. Starting with the 1998 wave, it is linked through a common questionnaire and data collection process with the Survey of Assets and Health Dynamics among the Oldest Old, which is discussed later in this section.

HRS gathers data on participation in FSP and Meals on Wheels. For the FSP, Waves 2 and 3 of HRS (the 1994 and 1996 surveys) gathered monthly participation data covering the 2 years between interviews, including the last benefit amount received before the interview. For Meals on Wheels, the surveys ask only whether the respondent's household had ever used the program in the 2 years prior to the interview.

HRS includes data on food expenditures, food sufficiency, and hunger, but the measures are relatively weak when compared with those of the principal sources. The food expenditure data are approximate weekly averages (over a 2-year period) for food purchases, additional food delivered to the home, and meals eaten out. There is one food sufficiency question ("In the past two years, have you always had enough money to buy the food you need?") and one hunger question ("At any time in the last two years have you skipped meals or eaten less than you felt you should because there was not enough food in the house?").⁴⁴

⁴³ The information on HRS content in this report is based on the 1992-96 questionnaires. The 1998 and 2001 questionnaires are available online at www.umich.edu/~hrswww/docs/qnaires/online.html.

⁴⁴ Wording from Wave 3 questionnaire, downloaded from www.umich.edu/~hrswww.

Health-related measures include a series of memory tests administered during the interviews. Questions on the incidence of disease ask, among other things, about high blood pressure and diabetes. Other health-related measures include health care utilization and expenses (out-of-pocket and paid by insurance), general health status, health-related behaviors (smoking, exercise, and alcohol use), and emotional health/depression.

National Immunization Survey (NIS)

The NIS collects information on the immunization coverage of children 19 to 35 months of age. As the monitoring tool for the National Immunization Program, the NIS is designed to provide rapidly available, statistically valid four-quarter moving averages for each of the 50 States, the District of Columbia, and 27 metropolitan areas.

NIS data collection began in 1994 and is ongoing. Each quarter, approximately 8,580 interviews are completed, but over 400,000 random-digit dial (RDD) screening interviews are conducted to identify eligible households. These screening interviews provide the potential for conducting other surveys from the same initial RDD sample frame. To improve the accuracy of vaccination data, providers identified by survey respondents are mailed a self-administered questionnaire. The NIS is funded and overseen by the Centers for Disease Control and Prevention (CDC); the current survey contractor is Abt Associates Inc.

A key issue concerning the use of the NIS to study FANP outcomes is the exclusive reliance on telephone interviews. Other sources (principally the National Health Interview Survey, or NHIS) have shown that children in households with telephones tend to have higher immunization rates and higher family incomes than those in households without telephones.⁴⁵ The NIS uses NHIS data on households without telephones to adjust the estimates of overall immunization coverage; the results are comparable to the NHIS and other immunization data (Abt Associates, 1996). It is not clear whether similar methods could be used to refine comparisons of WIC participants with eligible nonparticipants. A related issue is whether the NIS data can reliably identify either subgroup, given the challenges in this area encountered even by longitudinal studies using both telephone and in-person interviews.⁴⁶

⁴⁵ The NHIS is a potential source for FANP outcomes analysis, as discussed later in the section on potential sources.

Information on FANP Participation. The NIS has several items on WIC participation that were added in 1997 and funded by USDA. No other information on FANP participation is available. The exclusive focus on WIC participation is a logical one and reflects the recent emphasis on using WIC nutrition education as a vehicle for promoting childhood immunizations. For each child in the survey (i.e., age 19 to 35 months), the NIS asks whether the child has ever received WIC; the age (in months) at first receipt; current receipt status; age at last receipt for former recipients; and whether WIC benefits were interrupted for 6 or more months. The NIS also asks whether the WIC program has checked the child's immunization record. Household size and income data are available to identify eligible nonparticipants in the age range covered by the survey.

Nutrition- and Health-Related Measures. The NIS has comprehensive information on children's receipt of age-appropriate vaccinations from both parent interviews and followup contacts with medical providers. No other nutrition or health outcome data are obtained by the NIS.

A public-use file of the 1999 NIS data and related documentation are available from the NCHS website (www.cdc.gov/nis/default.htm).

Pregnancy Risk Assessment Monitoring System (PRAMS)

The PRAMS is a surveillance system operated by the CDC and State health departments. Started in 1987 to address concerns about infant mortality rates and the incidence of low birthweight, PRAMS is a population-based survey of women who delivered live-born infants. The survey measures maternal attitudes and behaviors prior to, during, and immediately following pregnancy. The overarching goal of the surveillance system is to provide State health officials with State-specific data on maternal characteristics that can be used to plan and assess health programs for mothers and infants. In 2000, 24 States, plus the District of Columbia and New York City, participated in PRAMS (Liscomb, Johnson, and Morrow, 2000).

PRAMS sampling and data collection methodology are standardized across States. Each month, every State samples 100-250 eligible women from State birth

certificate files. Most States oversample low birthweights, and several States stratify their samples by race or ethnicity. Data are collected through a mail survey, with mail and telephone followup. In 1998, the latest year for which data are available, samples in States with fully implemented PRAMS systems ranged from 1,506 to 3,322 (Liscomb, Johnson, and Morrow, 2000).

The PRAMS survey includes a core set of questions, administered by all participating States, as well as a State-specific set. The CDC periodically revises the core survey in response to new areas of interest and areas needing improvement (Liscomb, Johnson, and Morrow, 2000). States may develop and test their own survey items or use additional (optional) items developed by CDC, referred to as "standard" questions. In addition to survey data, the PRAMS database includes information on demographic and health characteristics for each mother and infant, extracted from State vital statistics records.

The core portion of the PRAMS questionnaire collects information as to whether the woman participated in WIC during her pregnancy. Some States collect additional information on when the woman enrolled in WIC, whether her infant is enrolled in WIC, and, if not, the reasons why. Some States collect information on whether respondents participated in FSP during their pregnancies. Currently, no States collect information on the duration or size of FSP benefits.

Information available from the PRAMS core questionnaire (used by all States) includes data on prematurity (expected due date and actual delivery date), use of neonatal intensive care, infant mortality, infant and maternal morbidity, breastfeeding, use of drugs, alcohol, and cigarettes during pregnancy, and health care access and utilization. Some States collect additional data in these areas and/or data on maternal weight gain during pregnancy, food insufficiency, and use of vitamin/mineral supplements and/or folic acid during pregnancy.

Survey of Assets and Health Dynamics among the Oldest Old (AHEAD)

The AHEAD is a longitudinal panel study of adults 70 and older and their spouses. The study focuses on the interplay between changes in health in later life and the resources to cope with these changes, including personal economic resources, government programs, and family supports. AHEAD began with a 1993-94 survey (Wave 1) of a nationally representative sample

⁴⁶ Response rates for the NIS are not reported on the websites for the NIS. Consult the NIS web site at www.nisabt.org for further study design information.

of 8,222 noninstitutionalized persons (7,447 of them 70 or older). The study oversampled African-Americans, Hispanics, and Florida residents. A followup AHEAD survey (Wave 2) was conducted with this panel in 1995-96. To gather data on deceased members, the surviving spouse or another proxy was interviewed in this and subsequent waves. In 1998, the data collection for the AHEAD panel was combined with that of HRS (Health and Retirement study, discussed above), including the questionnaire. All waves have used a combination of in-person and telephone interviews. Study plans include interviews every 2 years and data linkages with SSA earnings and benefits data, Medicare and Medicaid files, and the National Death Index. The study is conducted by the Institute for Social Research with support from the National Institute on Aging.

AHEAD obtains the same monthly data on FSP participation as HRS, covering the 2-year period prior to each survey wave. As in the HRS, the FSP data include the last FSP benefit amount, and the same question on use of Meals on Wheels is asked. Income, age, and household composition data are available to identify eligible nonparticipants.

The relevant outcome measures in AHEAD are largely the same as in HRS. The same questions on food expenditures, food sufficiency, and hunger are asked. Health-related data include measures of cognitive status from a series of memory tests, as well as self-reported data on physical abilities (walking, preparing meals, etc.), health status, health behaviors, diseases, healthcare use, and emotional health. AHEAD also includes self-reported (over the telephone) measures of height and weight.

Sources with No Information on FANP Participation

Finally, the potential sources include two surveys that presently lack FANP participation data but have the potential to be useful to FANP research if appropriate questions are added (table 13). The following text describes each of these sources.

Behavior Risk Factor Surveillance System (BRFSS)

The BRFSS is a set of annual, State-based surveys of adults that assess the prevalence of personal health practices related to leading causes of disease and death. State health departments use BRFSS data to guide

health promotion and disease prevention programs and to monitor their progress. The BRFSS began in 1984; since 1994, all 50 States, the District of Columbia, and several U.S. territories have participated. All interviews are conducted by telephone under State supervision, using a standard core questionnaire and optional modules. State samples range from 1,200 to 4,000; the national total is over 100,000 interviews. The National Center for Chronic Disease Prevention and Health Promotion of the Centers for Disease Control and Prevention (CDC) coordinates the survey, publishes State summary data, and makes electronic microdata available to researchers by agreement.

The BRFSS lacks information on FANP participation but has a number of potentially useful outcome variables.⁴⁷ Core questionnaire measures include height, weight, medical and dental care usage, incidence of disease (including high blood pressure, high cholesterol, and diabetes), immunization (flu and pneumonia), and general health status. Optional modules include a limited food sufficiency question (concern about enough food in the last 30 days), frequency of consuming specific fruits and vegetables, folic acid supplementation, presence of cardiovascular disease, and weight control practices. Current pregnancy status is asked, and data are collected on annual household income and household size and composition.

National Longitudinal Study of Adolescent Health (Add Health)

The Add Health study examines the relationships between the health-related behaviors of adolescents in grades 7-12 and their individual, family, school, and community characteristics. Add Health is a national study that collects data from adolescents, parents, and school administrators. The study includes 80 high schools and 54 “feeder schools” selected to represent strata by region, degree of urbanization, school type, ethnic mix, and size. There have been two waves of data collection: Wave 1 in 1994-95 and Wave 2 in 1996. Wave 3 data collection began in August 2001 and is scheduled to end in April 2002. Wave 1 included a self-administered questionnaire completed in school with 90,000 respondents; in-home interviews and vocabulary tests with 20,745 adolescents; in-home interviews with 17,700 parents; and self-administered questionnaires completed by 164 school administrators. Wave 2 included 14,738 followup in-home interviews

⁴⁷ This description reflects the BRFSS questionnaires through 1999.

Table 13—Summary of key data elements in potential data sources that have no information on FANP participation

Data source	FANPs identified				Nutrition- and health-related measures available							
	WIC	FSP	NSLP	SBP	Food expenditures	Food/nutrient intake	Food sufficiency/hunger	Physical/biochemical measures	Birth outcomes	Health-related behaviors	Health status/care	Physical/cognitive/emotional status or performance
Behavior Risk Factor Surveillance System (BRFSS)						✓	✓	✓		✓	✓	
National Longitudinal Study of Adolescent Health (Add Health)						✓		✓		✓	✓	✓

with adolescents and 125 self-administered school administrator questionnaires. The Wave 3 sample includes the Wave 1 in-home respondents (now young adults ages 18 to 26) and a new sample of 1,500 current partners of Wave 1 respondents. An important feature of the study is that the school-based sample allows linkage of information about individual adolescents from their siblings, friends, classmates, and romantic partners, as well as contextual information about the school and community. The National Institute of Child Health and Development (NICHD) was the lead funding agency of Add Health. The study is managed by the Carolina Population Center at the University of North Carolina, Chapel Hill.

Add Health did not collect any data on FANP participation in either Wave 1 or Wave 2. There may be FSP participation data from the Wave 3 survey.⁴⁸

In both Wave 1 and Wave 2, the Add Health in-home interviews with adolescents included questions on food intake. The Wave 1 data include questions about which specific types of foods the respondent usually eats for breakfast on a weekday and about the previous day's food frequency by food group. In Wave 2 there is, instead, a single series of questions on beverages and foods consumed the previous day, using a more detailed list of foods.⁴⁹

⁴⁸ The Wave 3 survey asks about household-level FSP participation (prior year and current) among the respondents, who are young adults. The availability and quality of these data are yet to be determined.

⁴⁹ Preliminary documentation on the Wave 3 survey does not specify whether food intake data will be available.

The Wave 1 and Wave 2 interviews provide a variety of health-related outcome data, generally with the same items in both waves. Respondents reported their heights and weights, as well as perceptions about under/overweight and efforts to gain or lose weight. Other health-related behavior data include several items on exercise and many items on risky behaviors. In the domain of health status and care, the data include general health status, specific symptoms of possible illness, access to health care, and receipt of routine health care services. Several items provide information on school attendance and performance, notably a series of questions on grades received in specific subjects, in addition to the common general questions about problems with behavior or academics and repeating grades. Finally, a series of questions assesses the respondent's emotional health and tendency toward depression. Preliminary information on the Wave 3 survey indicates a continuing focus on health considerations, including topics of pregnancy and childbirth.

The potential use of Add Health for FANP outcomes analysis is uncertain. Given the lack of FANP participation data in Waves 1 and 2, these waves cannot be used for outcome analysis, although they might be used as baseline data for future longitudinal analysis. The potential use of Wave 3 data will depend on the availability of the FSP participation data and outcomes likely to be related to FSP participation. Collection of WIC participation data in future waves of this study might open up greater possibilities for exploiting the extensive health outcomes data.