

## NATIONWIDE FOOD CONSUMPTION SURVEYS - AN UPDATE

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One of the problems of speaking before the same group every year is worrying about whether there will be enough new information to present. (Slide 1). As this slide shows, however, USDA's Human Nutrition Information Service has several surveys in progress or in the planning stages. Last year, I spent most of my time describing the new Continuing Survey of Food Intakes by Individuals. This year, I want to close that survey out and go on to discuss the 1987 decennial survey and the reinstated Continuing Survey which is to be conducted each year from 1989 to 1996.

### The 1985 and 1986 CSFII

As you will recall from my talk last year, the Continuing Survey of Food Intakes by Individuals (CSFII) was initiated in 1985 as the first nationwide dietary intake survey in this country to be conducted on a year-by-year basis. (Slide 2). This innovative survey was designed to provide continuous data on the adequacy of diets of selected population groups and to provide early indications of changes in food consumption practices. The 1985 survey was followed in 1986 with a second survey. This summer, we will close out both the 1985 and the 1986 surveys when we publish the last of the reports. Soon after, we will finish releasing the datatapes for both years of the survey.

In addition to providing an indepth look at the diets of women and children, our experience with the 1985 and 1986 CSFII contributed to planning for the 1987 survey and the Continuing Survey that is to be reinstated in 1989. The CSFII used the 24-hour recall method similar to the one used in NFCS 1977-78, but modified to obtain more detailed information on fat and salt consumed, to include questions about smoking and physical activity, and to improve validity. An updated and greatly expanded nutrient data base was used to assess diets for their nutrient content of 28 food components--twice the number assessed in 1977. The improved planning and data processing procedures in CSFII that resulted in published reports within 6 months of the completion of data collection will be in place for NFCS 1987.

In addition to the work our agency has done in publishing results of the Continuing Survey, we funded eight extramural studies to evaluate the data. Several of these studies are examining methodology issues in food consumption surveys; others are examining various aspects of dietary intake. Results from these studies should be available soon.

### Handouts:

1. Food Consumption through the 20th Century
2. Uses of Data from Nationwide Surveys
3. Data elements in NFCS 1987

### NFCS 1987

The 1987 Nationwide Food Consumption Survey (NFCS 1987) is the most recent of many U.S. Department of Agriculture (USDA) decennial studies of food consumption. The surveys

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and their methodologies and uses have been expanded and refined over the years by USDA and cooperating agencies. The surveys are used now, as in the past, to describe food consumption behavior and to assess the nutritional content of diets for their implications on policies relating to food production and marketing, food safety, food assistance, and nutrition education.

Planning for the NFCS 1987 began with the completion of the NFCS 1977-78. The planning process included a number of steps: (Slide 3)

- (1) A review of USDA needs for the data and of how the data are used by other Federal agencies, food industry analysts, nutrition specialists, home economists, agricultural economists, State and local governments, and academicians. A list of some of these uses is included in the packet that was handed out.
- (2) A review and evaluation of food consumption and related surveys conducted by USDA and other Federal departments, by States, and by the private sector.
- (3) A review of definitions, questions, and assumptions used in previous NFCS, in other dietary surveys such as DHHS's National Health and Nutrition Examination Surveys (NHANES), and in surveys conducted by the U.S. Bureau of the Census. The objective of this review is improved comparability and linkages across surveys.
- (4) The continuation of a program of research to improve survey methodology. Methodological studies sponsored by USDA since 1977 have helped identify procedures appropriate for large national surveys that will provide the most valid and reliable information of food consumption by households and individuals in a timely manner.
- (5) The continuation of research on new technologies in data collection and processing. Systems were developed for using microcomputers in conducting interviews in the household component and for automating the food coding process in the individual intake component.
- (6) A review and expansion of the USDA nutrient data base for use in estimating the nutrient content of foods reported in surveys.
- (7) Careful consideration of recommendations of several committees convened by the National Research Council, of the President's Task Force on Food Assistance, of the Joint Nutrition Monitoring Evaluation Committee, and of the Congress.
- (8) A review of emerging diet/health issues to help assure coverage of relevant information in the survey.
- (9) A review of lifestyles of the population that may be expected to affect eating patterns.

Data collection for the NFCS 1987 started April 1, 1987, and will conclude in June 1988. As in 1977, NFCS 1987 includes two parts: a household food use component and an individual intake component. (You have in your handouts a detailed description of these two components.) In the household component, respondents are asked to provide information on the food used by the household for a 1-week period and on the cost of that food. The

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household component of the NFCS 1987 will differ from that of NFCS 1977-78 in that the interview will be conducted with the use of a computer. This procedure will cut down on data processing time, making survey results available on a more timely basis than in previous surveys.

In the individual intake component, household members are asked to provide 3 days of food intake information. This information is collected by asking individuals to recall the food ingested in the previous 24 hours and then to keep a diary of food ingested for 2 additional days. This method is similar to that used in the 1977-78 survey, but differs from the 6-day panel approach used in the CSFII. In other aspects, the individual intake phase of the NFCS 1987 will be similar to the CSFII. However, the NFCS includes individuals of all ages rather than the specific age groups surveyed in the CSFII.

The NFCS 1987 consists of two area probability samples of the 48 conterminous States--one for the general population (basic survey) and one for the low-income survey. Alaska and Hawaii are not included because understanding of their food consumption and food prices, which differ significantly from those in the mainland States, requires separate surveys.

Samples were selected and data are being collected by National Analysts, a division of Booz, Allen & Hamilton, Inc., according to Human Nutrition Information Service (HNIS) specifications. HNIS staff, with comments from data users, determined the content of the questionnaires. Staff also provided the contractor with the food identification coding systems and the data bases required for processing the data. These include conversion factors for converting units of food reported into pounds (household component) and grams (individual intake component), default values to be used in case the respondent cannot or does not give complete food description or quantity information, and nutrient data files. HNIS staff are responsible for the preparation of published reports and documentation of public use data tapes presenting the survey results.

Results from the NFCS 1987 will be released in reports and in documented public use data tapes in late 1988 or early 1989. Separate reports and tapes will contain household and individual data and separate reports and tapes will contain data from the basic and low-income populations.

Descriptive tabular information on the quantities and money value of food used by households and on the nutrient content of household diets will be presented in the household reports (Slide 4). Descriptive results will be presented for the survey population as a whole and classified by characteristics such as household income, location (region and urbanization), and race. The individual intake reports will include tabular information on the food and nutrient intakes by individuals of given sex and age groups (Slide 5). Also, individual intakes will be presented by source of food (from home food supplies or food obtained and eaten away from home), by place where food is eaten, and by eating occasion (breakfast, snacks, etc.).

The data-tapes provide a host of additional information: characteristics of households and individuals, details about each food used by each household (identification code, quantity, money value, and source), and the household RDA adjusted for the proportion of meals each person had from home food supplies. Also given are details about each food eaten by each individual on each of the 3 days (identification code, quantity, time eaten, eating occasion, sources, and with whom eaten) and each food's contribution to each of 28 food components.

### The CSFII 1989

Plans to reinstate a modified CSFII in 1989 are now nearing completion. The Request for Proposal was issued in May of this year. The two CSFII surveys in 1985 and 1986

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demonstrated that continuous monitoring of population groups in the years between the large decennial surveys can provide timely notice of changes in foods eaten by individuals and in their dietary status. Also, continuous monitoring of dietary status of the general population and of low-income Americans has been called for by the Congress. The CSFII proposed for 1989 and beyond will provide this continuous monitoring using a cost-effective "moving average" approach recommended by two committees established by the Food and Nutrition Board of the National Academy of Sciences.

The CSFII that is initiated in 1989 and continued in following years will provide a 2-to-5-year moving average of the dietary status for all sex-age groups (Slide 6). Annual estimates for both men and women 19-50 years will be provided after 2 years, while those for other sex-age groups will be provided after 3 to 5 years. The new CSFII will include two samples - a sample of all individuals in 1,500 households of all incomes and a sample of all individuals in 750 low-income households. Low-income households are defined as those with incomes of 130 percent of poverty or less. The survey will be designed so that low-income households in the general sample can be combined with households in the low-income sample. This will increase the number of low-income individuals from whom we have dietary data.

Several other changes have been made for CSFII 1989. First, all individuals from a household will be included in the sample, rather than the specific age groups that were included in the 1985 and 1986 surveys. Second, dietary intakes will be for 3 consecutive days as in the recall/record method of the decennial survey rather than the six 1-day recalls of the CSFII in 1985 and 86. We hope that this will improve the response rates. Finally, at least part of the interview process may be computerized - in particular, the sociodemographic household data and the initial 24-hour recall.

As a followup to CSFII 1989, DHHS's Food and Drug Administration and USDA's Food Safety and Inspection Service are cooperating with HNIS in planning a telephone survey of consumer knowledge and attitudes about certain diet/health and safety issues. This followup will provide the basis for studies of food intake behavior relative to knowledge and attitudes for the first time on a national sample.

I want to close with a brief review of the Department's activities related to Nutrition Monitoring (Slide 7). As most of you know, the USDA surveys are a major component of the National Nutrition Monitoring System. In addition to the surveys, HNIS has committed its resources to maintaining and improving other research areas that either support or complement the survey activities. These include improvements in the Nutrient Data Bank, a continuation of the methodological research aimed at improving survey efficiency and data quality, the release of survey results on a timely basis, analyses of survey data, and coordination with surveys of other agencies.

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Handout No. 1 USDA/HNIS 6/88

### FOOD CONSUMPTION THROUGH THE 20TH CENTURY

Early studies on food and nutrition were begun by Dr. W. O. Atwater at the end of the last century. These were small-scale studies aimed at helping the working class achieve good diets at low cost. The first survey of national scope was the "Consumer Purchases Study of 1935-36," conducted jointly by several Federal agencies. Its comprehensive picture of household food consumption and dietary levels indicated that one-third of the Nation's families had diets rated poor by nutrition standards. These findings added impetus to efforts to enrich flour and bread with iron and three B vitamins and to initiate school lunch programs and more vigorous nutrition education. The "Spending and Saving in Wartime" study in 1942 found marked improvement in diets, but many families still had diets below the newly proposed first Recommended Dietary Allowances of 1941 for several nutrients.

Between the 1935-36 survey and a 1948 survey of food consumption in cities, great strides were made in the distribution and storage of food products, most notably in home refrigeration. These changes affected the way people purchased and used food. Between the 1955 and 1965-66 studies, the availability and consumer acceptance of many new food products that offered convenience changed the cooking practices in many American households. For example, use of mixes for the preparation of bakery products, such as cakes and muffins, and readymade bakery products replaced "baking from scratch," and household consumption of flour, sugar, and other basic baking ingredients decreased. The 1965-66 survey was the first to cover all four seasons and to include information on food intake by individual members as well as the food used by the household as a whole.

Between 1965-66 and 1977-78, the proliferation of new products was especially marked. Technological changes such as freeze-dried coffee and a variety of commercially frozen foods reflected breakthroughs in food processing and packaging. Changes in lifestyles such as increases in the proportion of women employed outside the home may have decreased the time spent in meal preparation and increased the demand for convenience foods and fast-food restaurant meals.

Between 1977 and 1985, when a small continuing survey of food intakes was initiated, substantial changes occurred in food intakes toward lower-fat milk, less meat reported separately, and more grain products. These shifts, most prominent among higher income, more educated respondents, may reflect concerns about diet/health issues. Nutrient intakes were as good as and possibly better in some respects in 1985 as in 1977. However, the intakes of some nutrients were still below RDA levels and fat levels were slightly higher than some authorities suggest. These observations were apparent at all levels of income and in all geographic regions.

The NFCS 1987 is expected to show patterns of food consumption reflecting interest in diet/health issues and the food industry's response to those concerns. Patterns will also reflect shifts in incomes, relative food prices, and demographics and changes in household composition, particularly to smaller-sized families, and the age distribution of the population. Another factor is the industry response to the public's increased desire for convenience: increased numbers and varieties of restaurants, microwaveable packaging, the availability of carryout meals and home-delivered food; and supermarkets with bakeries, delis, and salad bars as well as commercially packaged convenience items.

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Handout No. 2

USDA/HNIS 6/88

Uses of Data from Nationwide Food Consumption Surveys:

**Assessment of Dietary Intake**

- \* Provide detailed benchmark data on food and nutrient intake of the population
- \* Monitor the nutritional quality of diets
- \* Determine the size and nature of populations at risk
- \* Identify intervention (food assistance, fortification, or education) most appropriate for populations at risk
- \* Identify socioeconomic factors associated with diets

**Economics of Food Consumption**

- \* Assess demand for agricultural products, marketing facilities, and services
- \* Determine the effects of socio-economic factors on the demand and expenditure for food
- \* Determine the importance of home food production
- \* Determine the demand for food away from home and its effects on the nutritional quality of diets

**Food Programs and Guidance**

- \* Identify factors affecting participation in some large food programs and estimate the effect of participation on food expenditures and diet quality
- \* Estimate the effect of food programs on demand for food
- \* Identify populations that might benefit from intervention programs
- \* Identify changes in food and nutrient consumption that would reduce risk
- \* Development of food guides and plans that reflect food consumption practices and meet nutritional and cost criteria. (Thrifty Food Plan used as basis for allotment for the Food Stamp Program)
- \* Determine suitable amounts of foods to offer in food distribution programs

**Food Safety Considerations**

- \* Identify patterns of use of foods and food components in the diets of a population
- \* Estimate intake of incidental contaminants, food additives, and naturally occurring toxic substances
- \* Identify extreme and unusual patterns of intakes of foods or food ingredients, including additives
- \* Predict food items in which a food additive can safely be permitted in specified amounts
- \* Determine the need to modify regulations in response to changes in consumption
- \* Identify size and nature of population at risk from use of particular foods and food products

**Historical Trends**

- \* Correlate food consumption and dietary status with incidence of disease over time
- \* Follow food consumption through the life cycle
- \* Predict changes in food consumption and dietary status as they may be influenced by economic, technological, and other developments.

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Handout No. 3 USDA/HNIS 6/88

Data Elements in NFCS 1987<sup>1</sup>

HOUSEHOLD COMPONENT (In this part of the survey, questions appear on the screen of a laptop computer, the interviewer asks the question and enters the response directly into the computer.)

### Household composition and meals:

Sex, age of each member

Pregnancy/lactation status

For each person, number of morning, noon, and evening meals last week

    from home food supplies

    bought and eaten away from home

    free as guest or in payment

Expense for food bought and eaten away from home by members

Number of meals and snacks served to guests and employees last week

Household food use during past week (Food is reported in the form as it is purchased or brought into household from garden, restaurant, other place with the quantity used during the week. Food used includes food that gets eaten, is carried in packed lunches, picnics, etc., leftovers fed to pets, and food thrown away for any reason.):

Quantity of each food used by household

Source of food - purchased, home-produced, or received as gift or pay

Unit of purchase and price of each purchased food

Source of drinking water

### Food assistance program participation

WIC

School lunch and breakfast

Food stamps

Direct distribution of cheese and butter

### Household characteristics:

Race

Ethnicity

Income last month

Income last year

Cash assets

Food shopping practices

Education of male and female heads

Age of male and female heads

Employment of male and female heads

Description of dwelling

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<sup>1</sup> For information on questionnaire, contact Nutrition Monitoring Division, Human Nutrition Information Service, USDA, Federal Building, Hyattsville, MD 20782.

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Size of household

Presence of selected kitchen equipment

Data Elements in NFCS 1987 (continued):

INDIVIDUAL COMPONENT (Interviewer asks for each individual to recall the kinds and quantities of each food eaten at home and away on the full day before the interview and enters the information on the form. Then each individual is asked to record food eaten on the day of and following interview on forms left by the interviewer. Interviewer returns after 2 days to review and collect records.)

Food intake: For each food eaten on each of 3 days.

Time eaten

Name of eating occasion--breakfast, lunch, snack, etc.

With whom eaten--alone, other household members, non-household members, both member and nonmembers

Description of food--descriptors as indicated in easy-to-use instruction book

Quantity consumed. Measuring utensils are provided to help estimate quantities.

Food sources--home supplies, carried out in packed lunch, picnic, etc., obtained and eaten away

If eaten away, type of place--restaurant, cafeteria, fast food, school, someone's house, etc.

Identify any food eaten at home that was from fast food place or meals on wheels.

For food preparer only, was salt or fat used in preparation? If fat was used, what type?

Quantity of water

Related Elements

About diet

Was intake typical?

If not, why?

Healthfulness of diet(self-evaluation)

Was salt added at table?

On special diet?

Vegetarian?

Supplement use: How often and type?

Frequency of consumption of calcium-rich foods

Was alcoholic beverage consumption typical?

About individual

Height and weight (self-reported)

Health status (self-evaluation)

Disability, handicap

Diagnosed disease

Problem chewing food. Why?

Leisure Physical activity

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\* For information on questionnaire, contact Nutrition Monitoring Division, Human Nutrition Information Service, USDA, Federal Building, Hyattsville, MD 20782

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### USDA FOOD CONSUMPTION SURVEYS

SURVEY	TYPE OF DATA	POPULATION
<u>Continuing Survey</u> (1985 and 1986) • General population • Low income	Individual intake	Women 19-50 years and their children 1-5 years
<u>Decennial Survey</u> (NFCS 1987) • General population • Low income	Household use of food and individual intake	Men, women, and children of all ages
<u>Continuing Survey</u> (1989 - 1996) • General population • Low income	Individual intake	Men, women, and children of all ages
<u>Decennial Survey</u> (NFCS 1997) • General population • Low income	Household use of food and individual intake	Men, women, and children of all ages

4357

Slide 1

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### Continuing Survey of Food Intakes of Individuals

- Continuous data on dietary adequacy of general population and groups at nutritional risk
- Up-to-date information on food consumption practices

4286

Slide 2

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PLANNING FOR NFIS 1987

- Review of USDA needs for data and how the data are used by others.
- An evaluation of previous surveys conducted by USDA and others.
- A review of definitions, questions, and assumptions used in previous surveys.
- Linkage with other Government surveys.
- Methodological studies.
- Research on new technologies for data collection-- such as microcomputers.
- Review and expansion of USDA nutrient data base.
- Review of recommendations from Congress and others.
- Review of diet/health issues.
- Review of lifestyles of the population.

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Slide 3

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HOUSEHOLD USE OF FOOD

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MONEY VALUE OF FOOD USED

- Food at home
- Food bought away from home

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FOOD AT HOME

- Share of home food dollar
- Quantity of food used
- Nutrients per dollar's worth of food
- Nutritive value of food used
- Percent of household diets that met RDA



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Slide 4

## NATIONWIDE FOOD CONSUMPTION SURVEYS - AN UPDATE

### INDIVIDUAL INTAKES—

#### FOOD INTAKES:

Meat, poultry, fish; Milk and milk products; Eggs;  
Legumes; Nuts and seeds; Vegetables; Fruits;  
Fats and oils; Sugars and sweets; Grain products;  
Beverages, and about 50 subgroups.

#### NUTRIENT INTAKES:

Food energy and 27 nutrients and dietary components:

Protein, Total fat, Saturated fat, Monounsaturated fat,  
Polyunsaturated fat, Cholesterol, Carbohydrate,  
Dietary fiber, Vitamin A (IU), Vitamin A (RE), Carotenes,  
Vitamin E, Ascorbic acid, Thiamin, Riboflavin, Niacin,  
Vitamin B-6, Folic acid, Vitamin B-12, Calcium, Phosphorus,  
Magnesium, Iron, Zinc, Copper, Sodium, Potassium.

#### EATING PATTERNS:

Breakfast, Snacks, Food obtained and eaten away from home,  
Frequency of eating.

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Slide 5

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CSFII 1989-94

- Continuous monitoring of both the general and the low-income populations
- Annual reporting using a moving-average approach
- 3-day intakes (1-day recall, 2-day record)

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Slide 6

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### National Nutrition Monitoring System: USDA Activities

- Nutrient composition laboratory (ARS)
- Nutrient data bank (HNIS)
- Food supply: food and nutrient content (ERS, HNIS)
- Surveys:
  - Household food use and cost (HNIS)
  - Individual food intake and eating practices (HNIS)
- Methodology research (HNIS)
- Analysis:
  - Determinants of dietary status (HNIS)
  - Food assistance programs (FNS)
  - Food economics and marketing (ERS)
- Cooperation with DHHS (HNIS)

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Slide 7