USDA’s National Food and Nutrient Analysis Program: Progress Report

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Abstract

The National Food and Nutrient Analysis Program (NFNAP), implemented in 1998, is designed to develop robust estimates of the mean nutrient content of important foods in the food supply and significantly improve the quality of food composition data in the USDA National Nutrient Databank (NNDB). The program objectives are: 1) identification of Key Foods and nutrients for analysis, 2) providing access to the NNDB, and 3) development of nationally based sampling plans. 4) Nutritional analysis of foods, and 5) compilation and calculation of representative food composition data. To set priorities for analysis, a ranked list of 1000 foods and ingredients (including 666 Key Foods) for the United States population was developed; data from food consumption surveys were combined with USDA nutrient data to determine a foods relative nutrient contribution to the diet. The sampling plan was based on a self-weighted stratified design; 12 to 24 retail outlets were selected for food pickup and the selection of brands or varieties was based on market shares (as amount consumed). Sample units were procured and analyzed using valid analytical methods and state-of-the-art quality control monitoring. NFNAP is a flexible system that allows cost-effective compositing for large scale sampling. Through additional sampling and analysis, a ranked list of 1000 foods and ingredients was developed; a more precise estimate of variability for select nutrients of public health importance was also obtained. To date, NFNAP has supported the development of nationally based sampling plans; 4) chemical determination of food composition; 5) evaluation of existing data quality; 6) compilation and calculation of representative food composition data. All data are being incorporated into the NNDB and will be available through our website: NFNAP’s Web site: www.usda.gov/nfnap

1. Identification of Key Foods and nutrients for analysis

Uses food composition and food consumption data to identify and prioritize 1000 foods (including 666 Key Foods) and nutrients for analysis. List developed for entire population of the United States. Specialized lists also developed to make sure foods consumed by at-risk populations subgroups are also included: Lists developed:
- African-Americans
- American Indians
- Hispanic Americans

2. Evaluation of existing data quality

Assess status of data for up to 150 food components; where data are lacking; when formulations have changed, and where new analytical methods are available.

Foods
- Mixed dishes
- Fast foods
- Ground beef
- Fresh fruits and vegetables

Food Components
- Vitamin K
- Phytochemicals
- Choline

3. Development of nationally-based sampling plan

Sampling frame based on a national probability model
- 4 Regions
- 3 strata per region
- 2 gCMSAs per stratum
- 1 or 2 outlets per gCMSA

Composite samples analyzed for most foods; Individual samples analyzed for selected foods to determine sample-to-sample variability

Specialized sampling plans
- Produce: Regional composites
- American Indians – sampling on reservations

4. Analyze sampled foods under USDA-supervised laboratory contracts

4 Laboratories were qualified for the analysis of traditional nutrients, using these criteria:
- Analytical methodology
- Facilities
- Analyst expertise
- Quality control procedures
- Performance on check samples

Cooperators selected for emerging nutrients based on expertise:
- Carotenoids and Flavonoids, Dr. Gary Beecher, USDA-ARS
- Selenium, Dr. Kris Patterson, USDA-ARS
- Vitamin E and Folates, Dr. Ron Eitenmiller, University of Georgia
- Vitamin K, Dr. Sarah Booth, Tufts University
- Choline, Dr. Steven Zeisel, University of North Carolina
- Fluoride, Dr. Steven Levy, University of Iowa

5. Incorporate new data into USDA databases on NDL’s Web site:
http://www.nal.usda.gov/ndl/foodcomp
- Annual releases of the USDA Nutrient Database for Standard Reference
- Used in National Food Surveys
- Special interest tables