



# Cancer Research Center Hotline

## Unique Nutrition Support for Research at the Cancer Research Center of Hawaii

**Suzanne P. Murphy PhD, RD**

The Cancer Research Center of Hawaii maintains a Nutrition Support Shared Resource (NSSR) that is unparalleled among cancer centers in the United States. The NSSR offers a variety of services, both to investigators within the Center, and to those in the broader research community. Because the study of diet and cancer has been a prevailing theme for many of the past and present research grants at the Center, the NSSR plays a key role in ensuring that dietary measures are collected and analyzed correctly.

The NSSR maintains a variety of databases and expertise that are crucial for the analysis of dietary intake data for residents of Hawaii. These databases focus on quantifying information on local foods and food practices. Currently, they are used by a wide variety of research projects, both in Hawaii and on the mainland. Some examples include: the Hawaii Department of Health will use the facilities of the NSSR in their upcoming survey of schoolchildren, a University of Hawaii researcher is using them to analyze the diets of adolescents in a calcium intake study, and a Center researcher uses them to monitor the diets of women participating in a soy feeding study. In addition, the large Hawaii-Los Angeles Multiethnic Cohort Study continues to rely on data collection instruments and related nutritional databases from the NSSR to determine intakes for over 215,000 participants.

Some of our recent activities are summarized below:

**Food composition database updates:** This database is used to calculate nutrient intakes based on foods that a subject reports he or she consumed. The CRCH food composition database currently contains information for more than 2,200 foods items. For each food, the concentration (per 100 grams) of up to 130 nutrients and other dietary components is available. The dietary components were selected with a particular focus on those thought to be associated with the etiology and prevention of cancer. Data come primarily from the US Department of Agriculture, but also from various international and commercial publications. In addition, selected local foods are analyzed in the laboratory to obtain estimated values for components such as flavonoids, isoflavonoids, ascorbic acid, carotenoids, and tocopherols. Updates are applied periodically to reflect the latest information available.

**Supplement composition database expansion:** To capture total dietary intake of a nutrient, it is necessary to know consumption of both foods and dietary supplements. Because supplement use is so ubiquitous in Hawaii, ignoring intake from this source can lead to misleading conclusions when studying the relationship of diet to cancer. In order to quantify supplement intake, we maintain a

supplement composition database, which currently contains over 2600 products available in Hawaii and Los Angeles. Recently, we have greatly expanded the number of nutrients and non-nutrients in the database, from 26 to 191. Non-nutrients include herbs, botanicals, animal derivatives, and other ingredients.

**Recipe file revisions:** The recipe file is used to determine the ingredients in food mixtures. For example, this file would indicate that haupia contains cornstarch, sugar, salt, and coconut milk, and the proportions of each. When a subject in a study reports eating a mixture, this file is used to calculate how much of each ingredient was consumed. Investigators can use this information to determine intake of specific ingredients (sugar, for example) in a research subject's diet, and can then use these food intake variables in their studies of various health outcomes. We currently have approximately 750 recipes, over half of which were locally developed. The recipes reflect the practices of our multiethnic participants in dietary studies, including Chinese, Filipino, Japanese, Korean, Latino, African American, Caucasian, and Native Hawaiian. A complete review of the recipe file is now underway, with the goal of updating the recipes to reflect current practices in Hawaii.

**Household measures updates:** Because subjects usually report their food intake in common household measures (e.g., a cup, a slice, a teaspoon), we maintain a database that converts these measures to gram weights. These weights are needed to calculate nutrient intake from each food item using the food composition table. Updates to this file are ongoing.

**Creation of a food group servings database:** Our newest database indicates the servings of 30 different food groups that are contained in each food item in our food composition table. For example, a cup of chili would contain 0.5 servings of legumes and 0.3 servings of tomatoes. The servings are based on the Food Guide Pyramid, a consumer guide to healthy eating that was developed by the US Department of Agriculture in 1992. Using this information, it is possible to calculate the number of servings from each of the 30 food categories, and also to compare intakes with recommendations (e.g., whether a subject is consuming at least 5 servings of fruits and vegetables per day).

**New dietary questionnaires:** For large population studies, it is not practical to collect detailed dietary data across multiple days. Thus, most cohort studies use a food frequency questionnaire, which captures usual intake for a variety of foods. Dr. Jean Hankin, the former Director of the NSSR, achieved worldwide recognition for her innovative dietary questionnaires, which incorporate food pictures into the questionnaire pages. These are widely used, both in Hawaii and on the mainland, and variations continue to be developed.

In addition to maintaining these databases and questionnaires, the NSSR staff provides expertise to investigators who are designing and conducting dietary studies. Dr. Suzanne Murphy, Director of the NSSR, is an expert in dietary assessment methodology. Ms.

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Physicians in the 21<sup>st</sup> century must not only master the clinical content of medicine, but also recognize their role in the health of their community. Altruism, social responsibility, and community service help to define the professional standards of our graduates and therefore, should be modeled and taught as an important part of our curriculum. Formally incorporating a sense of social responsibility is consistent with our medical school's mission to improve health care in Hawaii.

The mission of each academic center is its moral compass<sup>3</sup>. Medical schools of the future will demonstrate their greatness not only through traditional missions in education and research, but by the service they provide through community partnerships and the quality of the contributions their graduates make to better their world.

A service-learning program for medical students to teach health issues to high school students represents an innovative curricular response to meet JABSOM's mission, the educational objectives of our medical students, and the health care needs of the state. It also provides a mechanism to introduce social responsibility into our educational program and evolve the community medicine curriculum into an educational experience that provides meaningful roles for first-year medical students in the real world.

#### References

1. Seifer SD. Service-learning: Community-campus partnerships for health professions education. *Acad Med* 1998;73(3):273-277.
2. Belorgey L, Chung H, Figueroa R, Hayashi M, Hudak D, Nomura J, Sakai D, Fukuda M. The effectiveness of an educational outreach program at a high school by first year medical students. *American College of Physicians - American Society of Internal Medicine Hawaii Chapter Scientific Meeting*; 2000 Mar 3-4; Honolulu, Hawaii.
3. Pellegrino ED. Academic health centers and society: An ethical reflection. *Acad Med* 1999;74(8):S21-S26.

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Donna Au, MPH, RD, is the lead nutritionist for the NSSR, and is assisted by three other research nutritionists and two dietetics students. Typical activities include designing data collection instruments, training interviewers, reviewing the accuracy of dietary records and recalls, and assisting with data entry and analysis.

The availability of a centralized NSSR, with specific expertise in collecting and analyzing dietary data for residents of Hawaii, allows CRCH investigators to obtain high quality intake data in a cost-efficient manner. Investigators from other research groups may also use the NSSR facilities for a nominal fee.

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