Using International Nutrient Data An Overview

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Over the last few years we have worked on several projects in which we needed nutrient data for foods from countries other than the U.S. This overview will discuss some of these experiences. Of necessity, our view will be that of a U.S. researcher, but we believe our perspective would apply to researchers in other countries as well.

In general, nutrition researchers need international nutrient data in two situations. Obviously, when conducting research on populations residing outside one's home country, it will be necessary to locate nutrient data on foods of the study country. We have been involved in the Nutrition Collaborative Research Support Program in Egypt, Kenya, and Mexico[1], and together with other U.S. investigators, as well as scientists from the host countries, have spent considerable effort in locating appropriate food composition data for the rural villages being studied. We have been aided by several published food composition tables from these three countries, but in some instances, there were significant problems in correctly identifying the local food items and estimating their nutrient content.

More to the point for this discussion, nutrition researchers may need international nutrient data even when conducting studies within their home countries. This occurs when foods from other countries appear in the diets of the home country population. In the U.S., this situation occurs commonly; imported food items are commonplace in virtually all food stores, and in most people's diets. The variety is astounding, including such diverse products as canned nopales from Mexico, pesto sauce from Italy, and salted plums from Asia. Many of these imported foods have no parallel in the U.S. food composition tables.

Another changing aspect of the American diet, and probably of those of most other countries as well, is the increasing popularity of ethnic restaurants. Here the problem of locating food composition data is even more difficult, because researchers must worry not only about the nutrient content of the ingredients, but also the proportions of the ingredients in the final dish consumed by the patron. Often a subject trying to fill out a dietary record or recall will know neither the ingredients nor the proportions. Thus, we have a need for information about the usual content of mixed dishes from other countries.

Lastly, we have occasion to collect dietary data for people who have emigrated from another country. These people may grow foods from their native countries, and may prepare these foods, as well as local foods, in ways not customarily considered by U.S. food composition tables. Sometimes, even food composition data from the country of origin may not be useful because dishes are modified to include a mix of locally-available foods as well as foods from the native country. For example, American varieties of chiles may be substituted for native Mexican chiles in various mixed dishes such as enchiladas or mole sauce, so the vitamin content listed in a Mexican food table for these mixed dishes may be inappropriate for an Americanized version of the recipe.

Nutrient data from other countries are usually obtained from published or printed tables. INFOODS has published a directory of food tables by country which I have found very useful[2]. Sometimes important data may be found in research articles in journals; often these articles address the content of selected foods or nutrients, but they still may be very useful when compiling food composition data. Occasionally nutrient data are obtained, by request, from other investigators who have not had occasion to publish their food composition data. We believe that exchanging nutrient data (whether published or not) via electronic media will become more and more common as we all

have better access to computer networks, and we hope this mode of data exchange will be greatly expanded in the future.

There are several types of information that ideally would accompany all nutrient databases. First, when information is exchanged between countries, the food descriptions are crucial. How to accurately describe foods has been an item of considerable discussion, as you have heard from other speakers at this conference and others. However, it seems that a minimum food description would include the name in English (speaking as American investigators) as well as the local name, plus the biologic name and brand name if a processed food item. Maturity may be important for some foods (e.g., mature vs. immature beans), as well as the part consumed (leaves, roots, stems, etc.). One would need to know any processing or preparation the food has received as well as any fortification or enrichment (we have found this information is often difficult to determine from local descriptions). Also, we would suggest that a description of typical recipes is important for mixed dishes that may be included in the table. Even for items such as bread, a recipe may be very useful in determining if the bread is whole grain or refined, what type of leavening agent (if any) is added, if fat is added, etc. Finally, it is important to know if the nutrient data for a food item represents a national average of that food from different regions, different seasons, etc., or if it is only representative of a local food item.

Food composition tables from other countries are not useful unless the nutrients are adequately descibed. Obviously, it is crucial to know the units for the nutrients, as well as any conversion factors that may have been applied. For example, there is considerable confusion today when using vitamin A values from international tables. The analytic methodology has changed over the last few years, so data from 20 years ago may not be valid. Furthermore, opinion on the appropriate availability factors to use with the various carotenoids has changed; we now use 6:1 for beta-carotene, whereas a few years ago we assumed 2:1. If a table combines retinol and carotenoids into a single "vitamin A" value, the results may vary widely depending on the conversion factor used.

Other desirable descriptions include information about the actual nutrient value given in the table. If it is a mean of multiple samples (the usual situation), then information about the range, the standard deviation, the median, etc., will provide useful information to other users. The number of samples should be given as well. The analytic method used should be described (by food item, if different methods are used for different foods). Finally, it is helpful to give the date of analysis (so the user can decide if the values are likely to be out of date).

These are lists of desirable documentation; probably no database has all the features described above. However, even if not available in electronic form, access to the information at least in printed form should ideally be available.

In closing, we would suggest some topics for discussion during the rest of this session on international data uses. (1) What types of international data are available at this time? (2) How would investigators from other countries obtain them? (3) What problems might investigators outside the country of origin encounter when using these data and what are the solutions to those problems?

References

[1]Calloway DH, Murphy SP, Beaton GH. Food intake and human function: A cross-project perspective of the Collaborative Research Support Program in Egypt, Kenya and Mexico. University of California, Berkeley. 1988.

[2]Rand WM. International directory of food composition tables, 2nd edition. INFOODS, Cambridge MA. 1988.