FAO/INFOODS Advances in Standard Setting: Useful for Food Composition and Dietary Assessment

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Background and Objectives

Dietary assessment requires reliable data on food consumption and food composition. The overall aim of the International Network of Food Data Systems (INFOODS) is to stimulate and coordinate efforts to improve the quality and availability of food composition data worldwide. In this regard, INFOODS has developed standards, guidelines and tools for collection, compilation and reporting of food composition data. Examples are on **component identifiers (Tagnames), food nomenclature**, **data interchange** and **compilation** (FAO/INFOODS Compilation Tool), as well a **distance learning tool** (Food Composition Study Guide) which also enhances global capacity development in food composition. **INFOODS'** tools and guidelines are **intrinsically interdisciplinary and assist in improving the quality of dietary assessment. More recently guidelines and databases were produced also of interest for food consumption studies.**

Methods

A call for experts interested in working on guidelines for food matching, checking food composition data and conversions was posted on the INFOODS listerv and working groups were formed. FAO prepared first drafts which were circulated to the experts for inputs and comments. This was repeated until the guidelines were regarded as finalized. The FAO/INFOODS Density Database was developed by FAO in collaboration with USDA.

Results

FAO/INFOODS Guidelines for Food Matching (FAO, 2011)

Food matching procedures are critical for obtaining high quality estimations of nutrient intakes and dietary exposure. These guidelines are intended to assist in selecting the most appropriate foods (e.g. from food composition databases) in order to match them to food consumption or food supply data.

- Critical steps are pointed out
- Quality scheme is proposed
- A table listing characteristics influencing nutrient values is provided to aid in making high- quality matches
- Examples with possible solutions are provided for a number of food matching scenarios

FAO/INFOODS Density Database (FAO, 2011)

The density database is the first global DB which will assist professionals to convert food intake data from volume to weight and vice versa.

- Density data are presented for more than 200 foods organized in 16 food groups. Beverages (non- alcoholic); Tea, coffee and drinking powders; Beverages (alcoholic); Milk and dairy products; Oils and fats; Cereals and cereal products; Eggs and egg products; Nuts and seeds; Vegetables; Legumes; Fish and fish products; Soups; Snacks; Sweets; Mixed dishes and Miscellaneous (e.g. salt table, salad dressing)
- The data were collected from the literature, various tables from national food composition tables and own measurements
- An update is planned for 2012

FAO/INFOODS Guidelines on Checking Food Composition Data prior to the Release of a User Database (FAO, 2012) in preparation

These guidelines are being developed to assist compilers of food composition databases/tables in evaluating their data in a standardized way prior to publication of a User Database. The document highlights general issues of food composition and contains checks for food description and nutrient values within a food composition database/table.

The guidelines will contain information on:

<u>General Food composition issues, including</u>
- Food identification
- Nutrient definition and expression
- Recipes
- Documentation
- Database Management
- Printed User tables versus electronic User database

<u>Checks, including</u>
- Checks on food identification
- Checks among nutrients within a food
- Checks among nutrients within the same food group
- Checks on recipes, imputed values and other

FAO/INFOODS Guidelines on Conversion among different Units, Denominators and Expressions (FAO, 2012) in preparation

Conversion of data in relation to food is done in the areas of nutrition (i.e. food composition and dietary assessment) and food safety (exposure assessment) and when reporting analytical data including their publication in scientific articles. A source of error in the use of compositional data is their conversions from one unit, denominator or expression to another. As there are no comprehensive guidelines available on this topic, FAO/INFOODS decided to develop such guidelines.

The guidelines have the objectives to:

- List all possible conversions and ways of proceeding in one document
- Assist users in converting units, denominators and expressions for components used in food composition, dietary assessment and exposure assessment in a standardized way
- Assist users to be aware of some conversions (e.g. the use of the Sheppard factors for converting fatty acid methyl-esters into fatty acids)

Selected examples and possible solutions for food matching

Annex 1: Selected examples and possible solutions for food matching

The selected examples listed below are structured according to different characteristics that substantially influence the food component values. In practice, these factors do not always occur supinally as outlined below; more than one characteristic can be relevant for a particular food.

Many of the possible solutions listed below, include that more information on the consumption data should be obtained in order to calculate e.g. a weighted mean. Information on the consumption data may be obtained through e.g. consulting Ministries of health/agriculture of the particular country, getting trade or sales data (which however, often need to be purchased), or checking the literature.

Food as reported in FC-Survey	Related foods in FCT	Problems	Possible Solutions
PROCESSING and PREPARATION STATE OF THE FOOD			
Tomato, pan-fried with olive oil	-Tomato, raw -Tomato, boiled	Data are not available for a specific preparation. If *tomato raw*, or *tomato, boiled* is selected, values of food components will be underestimated, since pan- frying tomatoes leads to a water loss and a higher fat content due to added oil.	The best solution in this case is a recipe calculation. Prepare a recipe with 2 ingredients, applying yield and nutrient retention factors: 1. *Tomato, raw* 2. *Olive oil*, considering the amount that will be absorbed by the tomato, and the amount left in the pan. For more information on recipe calculation see Charrondiere et al. (2011a, b) -Module 8.
Milk, cow, liquid	-Milk cow, liquid, 3.5% fat -Milk cow, liquid, skimmed, 1.5% fat	Related foods in FCT are more specific than the food reported in the survey. Matching *milk cow, liquid, 1.5% fat* or *milk cow, liquid, skimmed 1.5%* fat, without knowing the actual consumption pattern of the target group, will lead to errors in nutrient intake estimations in particular of energy, fat and fat-soluble vitamins.	• If possible, more information on the consumption data should be obtained (see introductory text of Annex 1) to calculate a weighted mean between the two food entries. • If no information can be obtained, it is advisable to calculate an arithmetic mean of the different entries. • Do not just match to only one food item unless the food is subsequently consumed (see general aspects, page 4, of the current document).Calculating a mean will at least reduce the bias.
Milk, cow	-Milk cow, liquid, 3.5% fat -Milk cow, liquid, skimmed, 1.5% fat -Milk, dry, whole -Milk, dry, non fat	Related foods in FCT are more specific than the food reported in the survey. Milk, cow is a very broad category and could include all the possible foods listed in the FCT. The single food entries vary substantially not only due to different fat contents but also due to their different forms of concentration (liquid versus dry).	



Conclusion

The guidelines, tools and databases aim to harmonize nutrient intake estimations and will assist researchers to do their work time-effectively. The guidelines, databases and other technical documents on food composition are available on the **FAO/INFOODS webpage, free of charge** (http://www.fao.org/infoods/projects_en.stm). The guidelines are updated regularly and more guidelines will be developed in the future.