



Would you provide an overview of the scientific basis for the Daily Values (DV) that appear on the Nutrition Facts Panel and discuss proposed changes to the DV, as well as effects that this may have on educating consumers in the use of this tool when making food choices?



The idea for Daily Values (DV) as a public health tool was conceived in the early 1990s, with the advent of the Nutrition Facts Panel (NFP) that appears on most packaged foods. They are intended to reduce risk of diet-related chronic diseases by making it easier for consumers to compare and make wise choices among products while emphasizing how individual choices fit within the total daily food intake via use of the Percent DV (% DV). The current DV that serve as reference points for nutrients on food labels are set to cover the needs of 97% to 98% of the US population, with a built-in safety margin. Because the DV are set high, they do not represent target intake levels for *individual diets* for most Americans [Center for Science and Applied Nutrition (CFSAN) 2004].

The DV for vitamins and minerals represent the Reference Daily Intakes (RDI), which are derived from the highest* of the 1968 Recommended Dietary Allowances (RDA) among all age groups over 4 years. (*Note: These reference values do not reflect unique recommendations for some vitamins and minerals that were set higher for pregnant or lactating women.) This is referred to as the *population-coverage approach* because it strives to protect population segments that are believed to have higher than average nutritional needs due to age, lifestyle or other factors. Because there was no RDA set for certain nutrients, Daily Reference Values (DRV) were established for sodium, potassium and macronutrients, and RDI were established for vitamin K, selenium, manganese, chromium, molybdenum and chloride. Beyond providing a reference point for comparison of nutrients in the NFP, the DV also provide a yardstick for evaluating nutrient content and health claims [Institute of Medicine (IOM), 2003].

While enacting legislation and forming the appropriate structure for food labeling regulations were notable accomplishments, science and the policies that new findings affect are never static. Therefore, from 1997 to 2005, in the US, the IOM undertook a significant examination of human nutrition needs, developing the Dietary Reference Intakes (DRI) to replace all existing US reference values for human nutrition needs, as well as to establish values for essential nutrients for which there were none, provided the scientific literature was sufficient. The establishment of DRI for most nutrients, as well as publication of the *Dietary Guidelines for Americans* in 2005, caused US regulatory agencies to consider possible revisions to nutrition labeling on foods and beverages to ensure consistency with current consensus science (IOM, 2003).

In 2003, the IOM recommended 10 guiding principles for nutrition labeling for the US Food and Drug Administration (FDA) and the US Department of Agriculture's Food Safety and Inspection Service (FSIS) to consider:

1. Nutrition Information in the Nutrition Facts Panel should continue to be expressed as Percent Daily Value (% DV).
2. The Daily Values (DV) should be based on a population-weighted reference value.
3. A population-weighted Estimated Average Requirement (EAR) should be the basis for DV for those nutrients for which EAR have been identified.
4. If no EAR has been set for a nutrient, then a population-weighted Adequate Intake (AI) should be used as the basis for the DV.
5. The Acceptable Macronutrient Distribution Ranges (AMDR) should be the basis for the macronutrients protein, total carbohydrate and total fat.
6. Two thousand calories (2,000 kcal) should be used, when needed, as the basis for expressing energy intake when developing DV.
7. The DV for saturated fatty acids, *trans* fatty acids and cholesterol should be set at a level that is as low as possible in keeping with an achievable health-promoting diet.
8. While the general population is best identified as all individuals 4 years of age and older, the committee recognized four distinctive life stages during which

individuals' nutrient needs are physiologically different from those of the general population: infancy, toddlers—ages 1 to 3 years, pregnancy and lactation. Development of DV for these groups should be guided by the following principles:

- Infants (age <1 year): one set of DV based on the EAR or AI of older infants (ages 7-12 months).
 - Toddlers (ages 1 to 3 years): one set of DV based on the EAR or AI.
 - Pregnant Women: one set of DV based on the population-weighted EAR or AI for all DRI pregnancy groups.
 - Lactating Women: one set of DV based on the population-weighted EAR or AI for all DRI lactation groups.
9. The Supplement Facts Panel (on Dietary Supplements) should use the same DV as the Nutrition Facts Panel (on most packaged food products).
10. Absolute (quantitative) amounts should be included on the Nutrition Facts and Supplement Facts Panels for all (listed) nutrients.

If these recommendations were adopted, the biggest change from the current DV approach on food labels would be the derivation of the reference values on food labels from a *population-weighted* value (as opposed to the current *population-coverage* approach). The EAR was deemed most valuable in this regard, while the AMDR or AI would be appropriate if necessary (IOM, 2003). The result is that, in many cases, the % DV consumers would see on food labels would change because the quantitative number that is the basis for calculating the % DV would be different.

In addition, the IOM recommended that consumer research precede any changes to the nutrition label. Research conducted by the International Food Information Council (IFIC) Foundation (IFIC, 2006) found that consumers say food labels play an important role in providing them with information about food products. The survey also indicated that many consumers say they frequently check the NFP when deciding to purchase or eat a food or beverage—most often when considering new products. About two-thirds of participants

Glossary of Key Dietary Reference Intakes Terms

- **Estimated Average Requirement (EAR):** The average daily nutrient intake level estimated to meet the requirements of half of the healthy individuals in a group classified by age and gender.
- **Recommended Dietary Allowance (RDA):** An average daily dietary nutrient intake level that is estimated to meet the nutrient requirements of most (97% to 98%) healthy individuals in a group classified by age and gender.
- **Adequate Intake (AI):** A recommended average daily intake level based on observed or experimentally determined approximations or estimates of nutrient intake by a group (or groups) of apparently healthy people who are assumed to be maintaining adequate nutrition. The AI is used when an RDA cannot be determined.
- **Acceptable Macronutrient Distribution Ranges (AMDR):** An estimate of the range of intakes of an energy source associated with a reduced risk of chronic disease and adequate amounts of essential nutrients. AMDR is expressed as a percentage of total energy intake, with lower and upper boundaries:
 - Carbohydrate: 45% to 65% of calories
 - Fat: 20% to 35% of calories
 - Protein: 10% to 35% of calories

Source: Institute of Medicine, 2006

who indicate they have used the NFP find it easy to use. And, the majority of respondents (93%) reported using at least one piece of information from the NFP, with more than half using up to four label elements. In descending order of use, these are: calories, total fat, serving size and sugars. In contrast, less than half of consumers who say they use the NFP report using the % DV.

Serving sizes on food labels have received particular attention in debates about Daily Values. Concern about the prevalence of obesity currently is a factor in food and nutrition discussions; therefore, it is not surprising that there are calls for label

changes that would help consumers become more aware of portion sizes that are consistent with current dietary guidance. There is rationale for such an approach, both for the purpose of facilitating comparisons among products (independent of individual consumption habits) and for educational purposes, to raise awareness of appropriate serving sizes. There also is a precedent for this type of consistency from government-issued dietary guidance, as the *Dietary Guidelines for Americans* (DGA), 2005 and MyPyramid.gov food guidance system based their daily food-intake recommendations on a 2,000 calorie diet to align with the NFP. Even with changes in serving sizes, however, the potential for confusion among consumers would remain. If consumers eat food portions that differ from the label serving size, they would likely continue to find it difficult to understand how these amounts fit into their daily diet. There is no question that health professionals play an integral role in educating consumers about appropriate portions with respect to personal nutrition and health goals and the tools they might use to achieve these (IFIC, 2004; HHS and USDA, 2005; USDA, 2006).

In summary, it is unlikely that the concept of % DV will fall out of favor with regulators or the scientific community in the near future. Thus, there is a need for ongoing education efforts to help consumers understand the purpose and application of the information it offers. If regulations on the basis for establishing Daily Values change, health professionals will need to understand not only the changes, but also the implications of these changes for their practice. For example, the anticipated % DV guidelines are already being used to update government feeding programs, such as the Special Supplemental Feeding Program for Women, Infants and Children (WIC) Program and the National School Lunch Program. The need for consumer education will increase exponentially following such changes or changes in % DV resulting from revisions in the standard serving sizes of foods on the Nutrition Facts Panel. It is imperative that health professionals keep up-to-date on such issues and share their perspectives on how revisions to food labeling regulations may affect consumers' decisions about how foods fit into their daily eating plans.

In-depth information about rules and proposed rules related to food labeling can be found by searching the *Federal Register* at (<http://origin.www.gpoaccess.gov/fr/>). You'll also find information explaining how to comment on these.

References:

1. Center for Food Safety and Applied Nutrition (CFSAN); US Food and Drug Administration: Department of Health and Human Services. Food labeling and nutrition, 2007. Available at: <http://www.cfsan.fda.gov/label.html>. Accessed April 2007.
2. Center for Food Safety and Applied Nutrition (CFSAN); US Food and Drug Administration: Department of Health and Human Services. How to understand and use the nutrition facts label, 2004. Available at: <http://www.cfsan.fda.gov/~dms/foodlab.html>. Accessed April 2007.
3. Institute of Medicine (IOM). *Dietary Reference Intakes: Guiding Principles for Nutrition Labeling and Fortification*. Washington, DC: The National Academies Press, 2003.
4. Institute of Medicine (IOM). *Dietary Reference Intakes: The Essential Guide to Nutrient Requirements*. Washington, DC: The National Academies Press, 2006.
5. International Food Information Council (IFIC). *Food Label and Calorie Research: Qualitative Research Findings*, August 30, 2004. Available at: http://www.ific.org/research/upload/Calorie_Qualitative_Research.pdf. Accessed April 2007.
6. International Food Information Council (IFIC). *Food and Health Survey, 2006*. Available at: <http://www.ific.org/research/upload/2006foodandhealthsurvey.pdf>. Accessed April 2007.
7. United States Department of Agriculture (USDA). MyPyramid.gov, 2006. Available at: <http://www.mypyramid.gov/>. Accessed April 2007.
8. United States Department of Health and Human Services (HHS) and Department of Agriculture (USDA). *Dietary Guidelines for Americans*, 2005. Available at: <http://www.health.gov/DietaryGuidelines/>. Accessed April 2007.