

Background Information
IOM/FNB Workshop on Dietary Reference Intakes
The Development of DRIs 1994-2004: Lessons Learned & New Challenges
September 18-20, 2007
Washington, DC

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Purpose: To Provide Useful/Relevant Information for
Workshop Participants and Attendees

Opportunity for interested parties to comment electronically through August 11, 2007:
www.iom.edu/driworkshop2007

DOCUMENTS:

Uses and Challenges Related to Use of the DRIs

Developed by:

Document 1
US Federal DRI Steering Committee

Document 2
Health Canada

Document 3
American Dietetic Association

Document 4
Dietitians of Canada

Date: June 2007

Uses and Challenges Related to Use of the DRIs

DOCUMENT 3:

Perspectives On Using the Dietary Reference Intakes

Developed by:

American Dietetic Association

Date: June 2007

AMERICAN DIETETIC ASSOCIATION

PERSPECTIVES
ON USING THE
DIETARY REFERENCE
INTAKES

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USING THE DIETARY REFERENCE INTAKES

PERSPECTIVES OF MEMBERS
THE AMERICAN DIETETIC ASSOCIATION

EXECUTIVE SUMMARY

The Institute of Medicine of the National Academies of Science issued a written invitation to the American Dietetic Association to prepare and submit a document of relevant member comments on the uses and purposes of the Dietary Reference Intakes.

IOM will lead a workshop related to the development of DRIs in late 2007. The workshop will be jointly sponsored by the US Department of Health and Human Services, the US Department of Agriculture and the Canadian Institutes for Health Research. The IOM recognizes dietitians' roles as the key users of the DRIs in both planning for and assessment of individuals and groups.

According to IOM's invitation letter, the purpose of ADA's document is to provide targeted background information on the uses and purposes of the DRIs, particularly for the scheduled presenters and discussants in preparing their own documents and presentations for the workshop. In addition, the IOM has indicated that ADA's document would be helpful in informing two overview presentations focused on the uses of DRIs, supported by case studies and examples.

The ADA identified and invited Registered Dietitians (RDs) in various areas of practice to provide input in developing the document, including those working in clinical nutrition services, nutrition assessment methodology, food industry, higher education programs in nutrition and dietetics, public health, military and space exploration and those who served on DRI committees. These ADA members were surveyed about how they used the DRIs, improvements that could be made and what support documentation should be developed to enhance their usability. In addition, members were invited to submit case studies and other documentation that would illustrate how they applied the DRIs and the challenges they faced in their use.

This document describes these applications. It summarizes ADA members' perspectives on the current DRIs and suggestions to enhance the DRI process and to improve the usefulness of the upcoming iteration of DRI development. Key findings are:

- Dietitians use the DRIs primarily in assessing and counseling individual patients, particularly those whose conditions require changes in specific nutrient intakes (i.e. end-stage renal disease, parenteral feedings and other nutrition support).

- DRI complexity has created confusion over which values (i.e. EAR, AI, and RDA) are best suited across all applications.
- Computer software for IOM-recommended DRI guidance is lacking.
- An emphasis on precision needs to be balanced with real world considerations. IOM should explore an 'acceptable range' of intakes rather than a single value. A single value may imply precision in deriving the DRIs which in actual practice fails to exist. A range would give clinical practitioners and public health providers applying the DRIs better information and insight needed in real world settings.
- IOM needs to consider challenges associated in translating DRIs to consumer messages and application. DRI guidance needs a more practical perspective.
- Consistency in DRI application across executive branch agencies of the Federal government is needed to maximize their utilization and public health potential and to reduce practitioner and consumer confusion.
- Strategies to promote expediency in implementation are needed that would overcome the long delay in translating and incorporating the DRIs into nutrition policy.

The DRIs are an important tool, but they could be significantly more powerful if they

- were aligned with other tools to overcome inconsistencies in the format and content of information,
- were translated and structured for wider range of specific audiences and purposes, and if they
- could be applied in ways that create more meaningful nutrition facts and information on food product and dietary supplement labels.

As measures of appropriate or ideal nutrient intake, DRIs have the potential to be meaningfully applied within the context of any single use or purpose that can provide a comprehensive approach to nutritional health when applied consistently and universally. As such, ADA believes that the next iteration of DRIs can either positively or negatively contribute to peoples' knowledge of and application of nutrition principles, depending upon whether the DRIs are viewed as having practical utility in nutrition public policy such as labeling of food products and dietary supplements, food assistance programs, public health outreach, and the greater nutrition environment.

INTRODUCTION

With more than 67,000 members, the American Dietetic Association is the world's largest organization of food and nutrition professionals. Headquartered in Chicago, ADA serves the public by promoting optimal nutrition, health and well-being. ADA members are the nation's food and nutrition experts, translating the science of nutrition into practical solutions for healthy living. The mission of the ADA is *to lead the future of dietetics*. Its vision is that ADA members *are the most valued source of food and nutrition services*. An overview of the American Dietetic Association is available in Appendix A.

Acknowledging the critical role of ADA members in providing for the nutritional health of Americans, ADA has committed major resources to inform its members of the DRIs and their uses in the nutritional assessment and planning for individuals and groups as well as niche applications. Examples of ADA's commitment include a vast series of journal articles in the *Journal of the American Dietetic Association*, a page on its website "*How did the RDAs become the DRIs?*" devoted to the DRIs, promotion of an internet-based course of eight lessons developed by the Dietitians of Canada and authored by Dr. Susan Barr, Professor of Nutrition at the University of British Columbia and Chair of the Food and Nutrition Board's Subcommittee on Interpretation and Uses of the Dietary Reference Intakes, and ongoing continuing education programs sponsored by the American Dietetic Association and the Commission on Dietetic Registration (Appendix B).

The following document will convey members' perspectives on their use of the DRIs based on the results of a survey, two teleconferences and seven case studies (Appendices C, D, and E). As the nation's primary, frontline users, ADA members appreciate this opportunity to document and provide input to the IOM on their experiences with using the DRIs.

USES OF THE DIETARY REFERENCE INTAKES

The IOM has requested information focused on examples and/or case studies of each of the currently recognized four categories of uses relative to a) the purpose of the activity and why the DRIs are needed, and b) the challenges encountered in using the DRIs, including any options for resolving the difficulties encountered. Also, as considered relevant by the document drafters, other uses or general issues were to be included if they do not fit into any of the four categories outlined.

The current categories of uses, as laid out in existing IOM documents are:

- planning for groups,
- planning for individuals,
- assessment of groups, and
- assessment of individuals.

Members report using the DRIs for a variety of applications that fall within the above four categories of use. Other purposes identified by members that fall outside of the four categories include using the DRIs for research; teaching about nutrient absorption, bioavailability, metabolism, assessment, dietary recommendations, relationship to chronic disease, and supplementation; product development; fortification guidelines; public health messaging; labeling; promotion of Dietary Guidelines/MyPyramid to consumers in the retail environment; and developing menus for international space station.

The following narrative summarizes information drawn from the survey of members who represent various areas of dietetics practice (Appendix C), two teleconferences (Appendix D) and seven case studies (Appendix E). The Appendices provide the reader with additional information.

APPLICATIONS OF THE DRI'S BY CATEGORY OF USE

Planning for Groups

When asked how they apply the DRIs in planning for groups, ADA members report using the DRIs to plan menus and snacks and for educational purposes. Overall consensus is that the DRIs work well for these purposes. However, there is some concern that some of the current DRI values are unrealistic and that they cannot be achieved by foods currently available on the market and universally acceptable to all groups of consumers. For example, recommended levels for vitamin E were increased for both adult women and men to 15 mg/day, which is equivalent to 22 international units (IU) of natural-source vitamin E or 33 IUs of the synthetic form.¹ The 2005 Dietary Guidelines Advisory

¹ Monsen ER. Dietary Reference Intakes for the antioxidant nutrients: Vitamin C, vitamin E, selenium, and carotenoids. *J Amer Diet Assoc.* 2000;100:637-640.

Committee reported that dietary intakes of vitamin E are low enough to be of concern for both adults and children and that most Americans do not typically consume foods that are especially rich in vitamin E on a daily basis.² Further the report states that “The revised USDA food intake pattern includes increases in vitamin E content over current consumption but still provides only 50 to 90 percent of the RDA for vitamin E.”

Planning for individuals

Members across all areas of practice agree that the primary uses of the DRIs by RDs are planning and assessment of individuals in the health care setting. Examples of these applications by which the DRIs are definitely needed and used in planning for individuals, in addition to menu planning and education, include writing clients’ nutrition prescriptions and setting intake goals.

The DRIs for nutrients are widely used in many disease conditions, but primarily for planning diets and evaluating intakes of patients with kidney disease and those who must be fed nutrient solutions by alternative routes including by feeding tube or by vein. For example, two major national healthcare provider groups use the DRIs in developing nutrient recommendations for adult and pediatric kidney patients.^{3,4}

Again, members perceive difficulties in applying the DRIs in planning for both healthy and diseased individuals because some values cannot be achieved with the normal food supply, making supplementation of nutrients such as calcium necessary. They also acknowledge that there is no guidance regarding individual variability, the impact of medications, or other physiological stressors. The incidence of chronic diseases such as obesity and type 2 diabetes mellitus suggest that a large segment of the population is not healthy and that the DRIs may not fully applicable as presented in IOM documents.

Members also report, along with the difficulty of using DRIs for chronic and acute medical disorders, difficulty in applying the DRIs to an aging population, especially for those with decreased caloric intakes.

Assessment of Groups

In addition to research and menu planning, members also teach in dietetics education how the DRIs are used for assessing nutrient needs of groups. Member perception is that the DRIs are good for assessing groups, but there is uncertainty whether the Estimated Average Requirement is the appropriate value to use. Another concern is related to nutritional requirements during pregnancy, for which calories are set by

² Dietary Guidelines Advisory Committee. The report of the Dietary Guidelines Advisory Committee on Dietary Guidelines for Americans, 2005. Available at <http://www.health.gov/dietaryguidelines/dga2005/report/>. Accessed July 2, 2007.

³ Clinical Practice Guidelines for Nutrition in Chronic Renal Failure, *American Journal of Kidney Diseases* Vol. 35, no 6, supp. 2, June 2000. (Page S117 uses the DRI recommendations in the pediatric renal sections.)

⁴ Byham-Gray L, Wiesen A. Clinical Guide to Nutrition Care in Kidney Disease, ADA Publication, 2004. (Pages 38, 97, 135-136, 142 report nutrient recommendations using the DRIs.)

trimester, but that there was no guidance for other nutrients by trimester. Age categories also are a concern, and are especially inconvenient as there are different requirements for research on nutrition and pregnancy; there are different requirements for 18 year olds versus those older than 18 years of age.

Assessment of Individuals

ADA members use the DRIs to evaluate over-consumption of nutrients, comparing actual intakes to the DRIs to identify discrepancies in nutrient intakes in order to make nutrition diagnoses. The DRIs are also perceived as a tool to help individuals choose foods for a better diet and to comply with nutrition prescriptions.

Because the DRIs are recognized as authoritative and science-based measures of human nutrient intake, RDs use them in making decisions about the adequacy of dietary intake for both healthy and unwell individuals, acknowledging that there are not disease-specific values for most nutrients.

Member acknowledge that DRIs are not universally applicable to assessing individuals with chronic diseases, but that they provide baseline values that can readily be adjusted for individual needs. The ADA's landmark *Nutrition Diagnosis and Intervention: Standardized Language for the Nutrition Care Process*⁵ refers to the DRIs as baseline values for diagnosing nutritional intake problems in the following areas:

- Energy balance
- Oral or nutrition support
- Fluid
- Fat and cholesterol
- Protein
- Carbohydrate and fiber
- Vitamins
- Minerals

Concerns were raised over the lack of information about environmental influences over nutrient needs, such as certain medical treatments and drug interventions, physiological stressors and other individual variables (nutrigenomics). Statistical aspects and considerations are difficult in apply in practice and there is no software available to perform such calculations.

USE OF IOM GUIDANCE

Members use IOM guidance unless other reference standards are legally mandated. For example, in the school lunch settings, USDA standards are followed.

There is general agreement, however, that the DRI values are difficult to achieve because they do not reflect actual human intake and that the EAR values are not easy to use. The current recommendations for lower sodium and high potassium intakes are an

⁵ American Dietetic Association. *Nutrition Diagnosis and Intervention: Standardized Language for the Nutrition Care Process*. Chicago, IL:2007.

example of recommendations that are not achievable with current food supply and consumption patterns.

BARRIERS TO USING THE DRI'S

Planning for Groups

There is the perception that the IOM did not have a realistic view of how the DRIs would be implemented by practitioners or understood by consumers. This perception is based on the science supporting intake levels that are not achievable by dietary means, particularly for sodium, potassium and calcium.

Planning for Individuals

While perceived to be a good tool for planning, it is difficult to use the DRIs to help individuals determine their own food choices. This difficulty is compounded by complexity in labeling laws related to what nutrients and ingredients are in the food. Consumers and practitioners alike are confused by the complexity of the DRIs.

Assessment of Groups

The perception here again is the impracticality of the DRIs relative to the food supply for menu planning. The DRIs are not applicable when planning menus for specific populations, particularly those with chronic medical conditions

Assessment of Individuals

Members acknowledge that the DRIs are intended for application in healthy individuals, but that the bulk of individual assessment work is done on individuals with specific medical conditions, for which the DRIs are not universally applicable. The need for nutritional analysis software that incorporates statistical parameters and that is technologically appropriate and completes analyses in a timely way is seen as a huge barrier to DRI use. While members agree that the DRIs are good for individual assessment, there remains confusion on which values (Estimated Average Requirement, Recommended Dietary Allowance, Tolerable Upper Intake Limit, etc.) to use.

WHAT CHANGES ARE NEEDED TO IMPROVE DRI USEFULNESS?

Planning for Groups

Changes in guidance, particularly a clearer explanation over which DRI values to use with examples, is needed.

Concerns were raised about the ‘"correct"’ reference value being confusing from nutrient to nutrient. For example, one RD wrote

“While I understand, theoretically, the need for this, it makes meal planning for groups (e.g. hospitals, nursing homes, school lunch, etc.) quite a challenge. Furthermore, aren't there regulations that specify that school lunch provide 1/3 RDA for some nutrients? When, in actuality, the regulation should say ‘"DRI"’ so that at least the meal planner could have the flexibility to USE the correct DRI value. This many also be true in institutional foodservice. So many manuals and regulations still exist that say ‘ "RDA"’. This seems to be a problem to me.”

There was an expressed need for IOM guidance in identifying a single value that could be used or a range of values for each nutrient that could be used with confidence in planning menus, program development and other uses for different groups of the population. It was suggested that better software might alleviate some of the difficulties. Members requested that the Adequate Intakes be changed to either an EAR or RDA. Again, members felt that the DRIs for many nutrients such as Fe, Na, K, Ca, and folate were unrealistic.

Planning for Individuals

There was a request for guidance on how to individualize the nutrient requirements. Another member wished that the IOM would research the literature and provide a recommendation about what percent of the RDA generally provides enough of the nutrient in question, asking is it 66%, 75%? This comment emphasizes the confusion over the EAR and RDA for different purposes, and suggests that an acceptable range of intake might serve practitioners better.

Assessment of Groups

The confusion over the complexity of the DRI and the need for more practical guidance can be highlighted by the following quotations,

“I don't think that most dietetic practitioners even know that the recommendations for assessment and planning using the DRIs have changed! Even the texts that we use in the classroom are not generally clear in this area. The texts copy stuff from the IOM that is vaguely written, in my opinion. I'm not even sure I understand the differences and I read the IOM books, etc. I think that a practical approach - a problem based continuing education could be developed to teach dietitians about the changes and how to use them.”

“But here is the problem, if the IOM develops such a ‘"workshop"’ on their own, it’s way too heavy on the statistics and the probability of this or that. I have terrific respect for IOM and its staff, but if they think that people are not using the DRIs and have taken a ‘"break"’ to think about the construct, then I would think about how the information is being delivered. The science, statistics, and probability assumptions should be documented as it is now, but it shouldn’t be the majority of presentations with the actual application as an afterthought at the end.”

It is recognized that current food labeling does not fit with the DRI values and that there needs to be better software developed for assessing intakes. The AIs are viewed as problematic.

Assessment of Individuals

Current food labeling is hard to use to fit with DRI values, especially considering that there is more than one value for most nutrients. A single value for each nutrient that can be used with confidence would be preferable. A ‘healthy’ range of nutrients that can be achieved without relying on dietary supplements might suffice as well.

SUMMARY

ADA members view the DRIs as an essential tool for their work in all areas of dietetics practice, including in- and out-patient settings, public schools, community health settings, food product development, education at all levels, training of healthcare providers, and nutrition policy. However, their current usability is viewed as being limited because of complexity associated with more than one value per nutrient or differing types of values for various nutrients (RDA, EAR and AI), confusion over appropriate application of precision, lack of computer software that is convenient and user friendly to perform statistical measures, and a serious and critical need to translate the DRIs for practical applications. ADA members appreciate the science and statistical foundations used in developing the DRIs, but also emphasize the need for guidance firmly grounded in the reality of actual and potential uses by practitioners.

Practitioners and public are confused by the complexity of the DRIs, and consequently their potential as tools in nutrition public policy applications is underdeveloped. The science of deriving the DRIs may not so much need to be altered as is the translation of the DRIs into useable tools with widespread value in all practice settings.

There is a common thread among ADA members in the major challenges and barriers experienced in using the DRIs, and these challenges are interrelated. The primary challenges exist in:

- Assessment and recommendation of DRIs for individual and group nutrient needs.
- Application and practical usage of the recommendations in:
 - Translation of DRIs to Daily Values as a tool with the goal of helping consumers make appropriate food choices and manage their diets
 - Nutrition labeling from the clinician, consumer and food manufacturer perspectives.

As the IOM prepares for the next iteration of DRI development, ADA encourages the DRI Committees to:

- Consider the goals and applications of the DRIs beyond nutrient deficiency and/or over-consumption to include nutrient relationships to chronic disease risk reduction and management.
- Reconsider the application of toxicological model for establishing ULs by seeking an alternative, improved model that would consider the spectrum of reference intakes and their applications.
- Consider the need to reconcile the DRIs and Daily Values in food labeling to address challenges currently faced in practical settings.

- Consider new scientific developments that would allow for AIs to be replaced with more specific recommendations such as the RDA or EAR.

APPENDIX A. OVERVIEW OF THE AMERICAN DIETETIC ASSOCIATION

ADA's History

The American Dietetic Association was founded in Cleveland, Ohio, in 1917 by a visionary group of women, led by Lenna F. Cooper and ADA's first president, Lulu C. Graves, who were dedicated to helping the government conserve food and improve the public's health and nutrition during World War I.

ADA's Membership

American Dietetic Association members represent a wide range of practice areas and interests including public health; sports nutrition; medical nutrition therapy; diet counseling, cholesterol reduction, diabetes, heart and kidney disease; vegetarianism; food service management in business, hospitals, restaurants, long-term care facilities and education systems; education of other health-care professionals and scientific research. Nearly half of all ADA members hold advanced academic degrees.

Registered Dietitians

Approximately 75 percent of ADA's members are Registered Dietitians, *the* food and nutrition experts. Registered dietitians earn their expert status through both education and experience. RDs must:

- Earn a bachelor's degree with course work approved by ADA's Commission on Accreditation for Dietetics Education. Coursework typically includes food and nutrition sciences, foodservice systems management, business, economics, computer science, sociology, biochemistry, physiology, microbiology and chemistry.
- Complete an accredited, supervised, experiential practice program at a health-care facility, community agency or foodservice corporation.
- Pass a national examination administered by the Commission on Dietetic Registration.
- Complete continuing professional educational requirements to maintain registration.

Some RDs hold additional certifications in specialized areas such as pediatric, sports, gerontological and renal nutrition and diabetes education. About half of all RDs work in clinical settings, private practice or health-care facilities. Many work in community and public health settings, academia and research, business, journalism, and wellness programs.

Dietetic Technicians, Registered

Approximately 4 percent of ADA's members are dietetic technicians, registered. DTRs must complete a two-year college degree in an approved dietetic technician program, have supervised practice experience and pass a nationwide examination to earn the DTR credential and must complete continuing education courses throughout their careers.

A DTR, often working in partnership with registered dietitians, screens, evaluates and educates patients; manages and prevents diseases such as diabetes and obesity and monitors patients' and clients' progress. DTRs work in settings such as hospitals and clinics, extended-care facilities, home health-care programs, schools, correctional facilities, restaurants, food companies, foodservice providers, public health agencies, government and community programs such as Meals on Wheels, health clubs, weight management clinics and wellness centers.

Other ADA Members

ADA members also include clinical and community dietetics professionals, consultants, food service managers, educators, researchers, dietetic technicians and students. Nearly half of all ADA members hold advanced academic degrees.

ADA's Leadership

The American Dietetic Association is led by a Board of Directors comprised of national leaders in nutrition and health. The dietetics profession is governed by an elected House of Delegates. ADA's 2007-08 President is Connie B. Diekman, MEd, RD, LD, FADA, director of university nutrition at Washington University in St. Louis. ADA's chief executive officer is Ronald S. Moen, MS.

Areas of Significant Interest

ADA's commitment to helping people enjoy healthy lives brings the Association into the forefront of five critical health areas facing all Americans:

- Obesity and overweight, with a focus on children
- Healthy aging
- Safe, sustainable and nutritious food supply
- Nutrigenetics and nutrigenomics
- Integrative medicine, including supplements and alternative medicine.

Affiliated Dietetic Associations

Fifty state dietetic associations, plus the District of Columbia, Puerto Rico and the American Overseas Dietetic Association, are affiliated with ADA. Within these groups, there are about 230 district associations.

Credentialing Agency

The Commission on Dietetic Registration awards credentials to individuals at entry and specialty levels who have met CDR's standards for competency to practice in the dietetics profession, including successful completion of its national certification examination and recertification by continuing professional education or examination.

Professional Educational Programs

ADA's Commission on Accreditation for Dietetics Education is recognized by the Council on Higher Education Accreditation and the United States Department of Education as the accrediting agency for education programs that prepare registered dietitians and dietetic technicians, registered. Through the accreditation and approval of more than 600 undergraduate and graduate didactic, dietetic technician and supervised practice programs, CADE ensures entry-level education meets quality standards.

ADA's Evidence Analysis Library™

ADA's EAL provides a synthesis of nutrition research in an accessible, user friendly, online database. The EAL™ presents the research in the following formats:

- (1) Conclusion statements provide concise statements of the sum of research on a given question and are assigned a grade based on the quality and extensiveness of available research;
- (2) Evidence Summaries synthesize major research studies into brief, narrative overviews with tables; and
- (3) Worksheets detail the major findings, methodology, and quality of each individual research article listed in the bibliography.

Online evidence-based guidelines include recommendations, information about how to implement the recommendations, algorithms (flow charts) and additional supporting information. The EAL was launched in September 2004 with 4 topics and 115 abstracted articles and has grown to 24 topics, more than 1900 abstracted articles, and 4 complete guidelines with over 100 recommendations for practitioners.

Reliable Online Information

ADA's dynamic Web site, www.eatright.org, contains a wealth of nutrition information for consumers and the media, from news releases and consumer tips to Nutrition Fact Sheets, Hot Topics, FAQs and the *Good Nutrition Reading List*. Consumers seeking the services of a registered dietitian can use the Web site's "Find a Nutrition Professional" feature.

National Nutrition Month®

ADA offers consumers timely, objective food and nutrition information through numerous programs and services. National Nutrition Month®, created in 1973 and celebrated in March, promotes healthful eating and provides practical nutrition guidance.

Government and Public Policy

ADA's government affairs office, based in Washington, D.C., works with state and federal legislators and agencies on public policy issues affecting consumers and the practice of dietetics, including Medicare coverage of medical nutrition therapy; licensure of registered dietitians; healthy aging; child nutrition; obesity; food safety; the *Dietary Guidelines for Americans*; food labels and other health and nutrition priorities.

ADA Position Statements

ADA regularly produces and updates Position Statements of the Association's official stance on issues that affect the nutritional and health status of the public. Position Statements address issues such as children's health, food technology and safety, public health, consumer education, health-care reform, elderly nutrition and health-care provider education. ADA Position Statements are derived from the latest available research and evidence. Texts of ADA Position Statements are available on www.eatright.org.

Journal of the American Dietetic Association

The most widely read peer-reviewed periodical in the dietetics field, the monthly *Journal* offers original research, critical reviews and reports and authoritative commentary and information. Access the table of contents, research study abstracts and selected articles at www.adajournal.org.

ADA Foundation

The American Dietetic Association Foundation was established in 1966 as a 501(C)(3) public charity. Its mission is to fund the future of dietetics through research and education. The Foundation's vision is to be a leader in promoting and achieving healthy weight for children, helping to reduce the growing prevalence of childhood obesity. ADAF achieves its goals by providing support for research, education and public awareness programs and is the largest grantor of scholarships in nutrition and dietetics. For the 2007-08 academic year, ADAF invested in the future of the dietetics profession by awarding approximately \$295,000 to about 225 students through graduate, undergraduate and continuing education scholarships.

More than \$2 million dollars has been awarded through the Foundation's involvement in the General Mills "Champions for Healthy Kids" grants program. Hundreds of community-based programs across the United States are educating children and their families in fun and creative ways about nutrition and physical fitness. Grants of \$10,000 are awarded each year to 50 community-based groups that are helping young people in every part of the country. A requirement for receiving a grant is that the activity must include the significant involvement of a registered dietitian.

APPENDIX B. ADA RESOURCES SPECIFIC TO THE DIETARY REFERENCE INTAKES

Journal of the American Dietetic Association (sample list of articles):

- 1 Barr SI, Murphy SP, Poos MI. Interpreting and using the Dietary Reference Intakes in dietary assessment of individuals and groups. *Journal of the American Dietetic Association*, June 2002 (Vol. 102, Issue 6, Pages 780-788).
- 2 Monsen ER. Dietary Reference Intakes for the antioxidant nutrients: Vitamin C, vitamin E, selenium, and carotenoids. *Journal of the American Dietetic Association*, June 2000 (Vol. 100, Issue 6, Pages 637-640).
- 3 Murphy SP, Guenther PM, Kretsch MJ. Using the Dietary Reference Intakes to Assess Intakes of Groups: Pitfalls to Avoid. *Journal of the American Dietetic Association*. October 2006 (Vol. 106, Issue 10, Pages 1550-1553).
- 4 Suitor CW, Gleason P. Using Dietary Reference Intake-based Methods to Estimate the Prevalence of Inadequate Nutrient Intake Among School-aged Children. *Journal of the American Dietetic Association*, April 2002 (Vol. 102, Issue 4, Pages 530-536).
- 5 Trumbo P, Schlicker S, Yates AA, Poos M. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein and Amino Acids. *Journal of the American Dietetic Association*, November 2002 (Vol. 102, Issue 11, Pages 1621-1630).
- 6 Trumbo P, Yates AA, Schlicker S, Poos M. Dietary Reference Intakes: Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. *Journal of the American Dietetic Association*, March 2001 (Vol. 101, Issue 3, Pages 294-301).
- 7 Yates AA, Schlicker SA, Suitor CW. Dietary Reference Intakes: The New Basis for Recommendations for Calcium and Related Nutrients, B Vitamins, and Choline. *Journal of the American Dietetic Association*, June 1998 (Vol. 98, Issue 6, Pages 699-706).

Dietetics @ Work (online education program specific to DRIs) accessed June 26, 2007, at <http://www.dieteticsatwork.com/coursedelivery/index.asp>.

Information on ADA webpage titled “How did the RDAs become the DRIs?” accessed June 26, 2007, at http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/nutrition_5347_ENU_HTML.htm.

Commission on Dietetics Registration Continuing Professional Education Database “Moving Beyond the RDAs to Dietary Reference Intakes” accessed June 26, 2007 at <http://cdrnet.org/applications/cpe/ViewProgDetails.cfm?ProgramID=061503&CFID=6286009&CFTOKEN=59509731>.

Food and Nutrition Conference and Exhibition annual meeting sessions and presentations.

APPENDIX C. RESULTS OF MEMBER SURVEY

The following results include comments by 16 ADA members who represent various areas of dietetics practice: clinical nutrition, public health, higher education, food industry, and others.

Four primary uses of the DRIs

Number who use DRIs in planning for groups:	8
Number who use DRIs in planning for individuals:	11
Number who use DRIs in assessing groups:	9
Number who use DRIs in assessing individuals:	10

Number who use DRIs for all four applications:	5
Number who do not use DRIs for any of the above:	3

Number who use DRIs for only group applications:	2
Number who use DRIs for only individual applications:	1

Respondents: Other uses of the DRIs

- I was a member of an IOM committee charged with recommending how DRIs should be used in nutrition labeling and fortification.
- Research (2)
- Use to develop the menu for the international space station.
- I use the DRIs in teaching students about nutrient absorption, bioavailability, metabolism, assessment, dietary recommendations, relationship to chronic disease, and supplementation.
- I do not use DRIs.
- Product development. Promotion of the Dietary Guidelines/MyPyramid to consumers in the retail environment.
- In-service training of public health nurses and outreach staff
- Strategic planning for health department/state health plans
- Public policy advocacy
- Media outreach, community awareness campaigns

Planning for Groups (n=16)

Research - 1

Menu Planning - 7

Education - 3

N/A – 5

Other: Evaluation of snack for children.

Development of care guidelines and strategic planning for specific groups

Grant development/proposals

Planning for Individuals (n=16)

Research - 0

Menu Planning - 7

Education - 10

N/A – 3

Other: Writing client's nutrition prescriptions, setting intake goals.
 Development of care plans

Assessment of Groups (n=16)

Research - 6
 Menu Planning - 3
 Education - 3
 N/A – 5
 Other: Public health surveillance

Assessment of Individuals (n=16)

Research - 2
 Menu Planning - 3
 Education - 8
 N/A – 5
 Other: Evaluate over consumption of nutrients.
 Comparison of actual intake with DRIs in order to determine discrepancies,
 leading to the RD making one or more nutrition diagnoses.

Which of the following Values do you use within the groups/categories of use?

USE	EAR*	RDA	AI	UL	N/A	All
Planning for Groups (n=14)	5	6	3	5	7	1
only	0	1	0	0	--	--
Planning for Individuals (n=14)	3	7	6	5	5	1
only	0	3	1	0	--	--
Assessment of Groups (n=15)	8	7	6	4	6	2
only	1	2	0	0	--	--
Assessment of Individuals (n=14)	5	5	5	8	6	2
only	0	0	0	0	--	--

*Multiple responses per use possible

Is the DRI guidance published by the IOM used in your work setting? (n=15)

Yes – 13
 No – 2

If No:

The school setting uses the USDA requirements
 I do not analyze dietary intake data for individuals or for groups

If Yes:

Although provided a yes answer, the EAR values are not easy to use. The whole DRI values are difficult because they do not relate to human intakes. A good example is low NA and the K levels recommended. We cannot meet that recommendation within the US food supply.

Do you believe that the DRIs work well for your purposes? (n=15)

USE	Yes	No	Uncertain	N/A	Skipped
Planning for Groups (n=12)	7	0	1	5	3
Planning for Individuals (n=13)	8	2	1	3	2
Assessment of Groups (n=14)	8	0	4	3	1
Assessment of Individuals (n=13)	8*	3*	0	4	2

*One respondent marked both 'yes' and 'no'

Tell us more as to why you answered no or uncertain within each specific use category

Planning for Groups

- Difficult because some values are unrealistic

Planning for Individuals

- Impossible because some values are unrealistic and can not get within the normal food supply and must use supplements, e.g. Ca
- Does not take into consideration individual variability (nutrigenomics), impact of medications, physiological stressors

Assessment of Groups

- Good for this, but again which value do you use, the EAR?
- In pregnancy, caloric requirements are set by trimester, but this breakdown was not provided for other nutrients. Also, for research purposes (where we evaluate pregnant women at least 18 years old), the age categories are inconvenient, as there are different requirements for 18 year olds vs. those older than 18 years.

Assessment of Individuals

- In MNT many DRIs are not applicable
- Good tool to help folks eat better
- Same as for planning for individuals-- Does not take into consideration individual variability (nutrigenomics), impact of medications, physiological stressors
- The concept of 'confidence of adequacy' is difficult to implement.

If you do not use the DRIs in your work setting, please tell us why (check all that apply)

USE	Choose not to use	Difficult to use	Values not realistic	Uncertain which value to use	NA
Planning for Groups (n=7)	--	--	--	1	6
Planning for Individuals (n=7)	--	--	--	1	6
Assessment of Groups (n=6)	--	--	--	1	5
Assessment of Individuals (n=7)	--	--	1	1	6

Identify other barriers within each group/category as to why you do not use the DRIs (n=4)

Planning for Groups

- The IOM did not have a realistic view of implementation. We can not truly use the DRIs because we do not have foods that meet these levels, e.g. Na, K, and Ca
- Limited software for analysis

Planning for Individuals

- Good tool for planning, but with the labeling laws unclear about what is in the food, it is difficult to help individuals determine their own food choices
- Specific medical condition

Assessment of Groups

- We use this for the menu planning and again, the IOM did not look at the food supply so implementation is nearly impossible
- Specific medical condition
- Computer software to do analysis

Assessment of Individuals

- Good for assessment, but sometimes confusing on which values to use, EAR?
- Need for nutritional analysis software and time to complete analyses.
- Specific medical condition
- Can be confusing due to the different variables that need to be considered—health literacy of individuals and ability to use numbers, especially with low income population

What changes to the DRIs are needed to improve their usefulness? (n=6)

Planning for Groups

- Fe, Na, K, Ca, folate
- Confusion about EAR vs. RDA...need clearer explanation and examples
- It seems to me that the "correct" reference value is quite confusing from nutrient to nutrient. While I understand, theoretically, the need for this, it makes meal planning for groups (e.g. hospitals, nursing homes, school lunch, etc.) quite a challenge. Furthermore, aren't there regulations that specify that school lunch provide 1/3 RDA for some nutrients? When, in actuality, the regulation should say "DRI" so that at least the meal planner could have the flexibility to USE the correct DRI value. This may also be true in institutional foodservice. So many manuals and regulations still exist that say "RDA". This seems to be a problem to me.
- Change AIs to EARs/RDAs. Develop better software for planning intakes.
- Better guidelines/tools to use for menu planning/teaching

Planning for Individuals

- Protein, Na
- Need guidance on how to individualize the nutrient requirements
- I wish the IOM would research the literature and provide a recommendation about what % of the RDA generally provides enough of the nutrient in question. Is it 66%, 75%?
- Discontinue use of the %Daily Value—confusing to individuals

Assessment of Groups

- Do away with the AIs
- Food labeling does not fit with the DRI values
- I don't think that most dietetic practitioners even know that the recommendations for assessment and planning using the DRIs has changed! Even the texts that we use in the classroom are not generally clear in this area. The texts copy stuff from the IOM that is vaguely written, in my opinion. I'm not even sure I understand the differences and I read the IOM books, etc. I think that a practical approach - a problem based continuing education could be developed to teach dietitians about the changes and how to use them. But here is the problem, if the IOM develops such a "workshop" on their own, it's way too heavy on the statistics and the probability of this or that. I have terrific respect for IOM and its staff, but if they think that people are not using the DRIs and have taken a 'break' to think about the construct, then I would think about how the information is being delivered. The science, statistics, and probability assumptions should be documented as it is now, but it shouldn't be the majority of presentations with the actual application as an afterthought at the end. So much for my ideas.
- Change AIs to EARs/RDAs. Develop better software for assessing intakes.
- A tool that could be used, eliminate for software

Assessment of Individuals

- Food labeling is hard to use to fit with DRI values
- Change AIs to EARs/RDAs
- Decide on one set of values to use for individual counseling versus for research purposes

APPENDIX D. SUMMARY OF TELECONFERENCE COMMENTS

Two teleconferences were scheduled after the survey. The first, on June 14, discussed the survey results (Appendix B). On the June 21 teleconference, contributors discussed a rough draft of the document and offered additional thoughts on the usefulness and ways to improve the DRIs for dietetics practice.

June 14, 2007

Participants: Rita Johnson, Cathi Martin, Chris Bieseimeier, Johanna Dwyer, Kathy Sucher, Yvonne Greer, Helen Lane, Adalia Espinosa, Shelley Goldberg, Joanne Shearer, Jennifer Weber, Stephanie Saullo, Mary Hager

- Teach students and utilize in projects for planning and assessments
 - Expose students to in beginning nutrition classes and courses that meet non-lab science general education requirements.
 - For Gen Ed student, difficult to teach because have to include stats
 - Students also don't learn how to critically evaluate use of DRIs because textbooks come with software. GIGO
 - Not even certain how many students at higher levels get the DRI guidance and concepts
- Public health setting
 - RDA to DRIs switch increased complexity in consumer messages
 - Not have all of the data sets
 - Not fully clear about recommended uses in PH settings
 - Ready references that are simple are helpful
 - Extremely difficult to translate further to client level
 - Health literacy is an issue
- Issues around DV's which are based on 1968 data
- When is a diet considered to be adequate? At 85% RDAs?
- Shouldn't label be relevant to DRI's?
- Professional training is required to use the labels
- Shouldn't the label be relevant to what people can consume in the diet? It's a leap to relate the DRIs to the label. Messages should be consistent.
- Nutrition policy needs to make sense. School menus lightly relate to DRIs
- Consumers/clients/patients want to know "how much should I have?"
- DRIs are integral in ADA's standardized language document for making nutrition diagnoses. While meant for healthy individuals, dietitians use critical thinking skills in using DRIs to assess and plan nutrition plans for individuals with chronic conditions.
- Need to think about what is being addressed, what are the purposes of the DRIs, not for all practitioners.
- DRIs are based on the best science, but the process and results are for researchers. Practitioners such as RDs have to translate them for application to real life.
- Should be considerations for geographic regions, regarding Vit D.
- Large segment of public, even if eat a lot of fruit and vegetables, can not get enough of the nutrients they need relative to the DRIs.

- 1800 kcal diet appears appropriate for large segment of population, but issues then with getting enough Vit D, calcium, potassium and less sodium. Can these dietary goals be realistically achieved?
- Need for consistent messages between the DRIs and DVs. When do you reach a clinically significant adverse effect with discretionary fortification?
- To get healthier outcomes, do you have to supplement?
- How to better balance practitioner use versus policy and regulatory needs and applications?
- How distinguish between clinically desirable and undesirable?
- Part of it is the best science and best data---consensus conference needed.
- UL's- some are clinical significant
- Expertise in the theoretical: need to plan and assess a diet
- Lack of computational support is a big disappointment. Didn't design a program to make it easier to apply
- Should have professional references, very technical and hard basis to read, then be taken and not have to be used for every application. Kcal and number of servings. Not the sole source for nutrition decision making.
- Useful tools for regulations
- What do you do when you say not work? Supplement? Science and evidence based guidance?
- Nutrigenomics
- Of limited value for critical care of patients in acute care hospital setting.
- EARs are not adequate for patients, assume someone is in good health. Need to be adapted for disease states.
- In chronic conditions, generally affect just a few, selected nutrients.

June 21, 2007

Participants: Rita Johnson, Johanna Dwyer, Jessie Pavlinac, Kathy Wiemer, Suzanne Murphy, Constance Geiger, Jennifer Weber, Stephanie Saullo, Mary Hager.

- Dietitians are not certain which values to use (EARs, RDAs, ULs, AIs)
- Need information in one place (new monograph published by NAS press is good news)
- Acute care, use to help treat patients
- ESRD, part of NKF practice guidelines
- Difficult to understand, more difficult to teach other persons how to use
- In food industry, primarily used for nutrition labeling. DVs need updating. And to evaluate fortification practices, and thus used for research. Struggle with overlap between ULs regardless if EARs or RDAs are used.
- Not a clear understanding of what they are and how to use them
- Selected DPGs should have education
- Want a paperback, cheaper
- Accessibility of information is key
- For using with groups, have to do some adjustment.
- Major issue with software, adjustments needed with more than just new values, but new methodology needs to be incorporated as well.
- Repeat measures for statistical validity not feasible: need to distinguish between practice and research. People are not getting it; need materials on how to use in practice settings.
- Most members use for assessment and planning for individuals

- Needs to be simple/simpler
- What can IOM do to make more approachable? How to go about using them appropriately?
- Methodology for individuals—important to clarify
- Dietitians try to do what's right; if you point out what's wrong to them, they reorganize and try to fix it
- What % of the RDA should everyone be using?
- Even common things that they need to do, talking about nutritional adequacy is unbelievably complex
- Ave encounter time with patient in acute care hospital is 10-15 minutes. In ambulatory settings between 30 to 45 minutes
- Has to be in software.
- Still problems with MyPyramid for consumers
- Palm pilot for bed-side use ideal
- What would be useful calculation for nutrient intake/probably of adequacy?
- Precision value is lost once patient walks out of hospital/clinic and starts to choose foods, read labels, etc.
- Many imprecisions in translation
- Overage in vitamins
- Academic exercise—needs to be translated into reality
- NKF Pediatric Guidelines
- Nutrition support, elemental diets
- Role of food processing and modifying nutrient profiles.
- Epo and Fe
- Ca, P, Na, K

APPENDIX E. CASE STUDIES

The following seven case studies cover the four categories of DRI use (planning for groups, planning for individuals, assessment of groups, and assessment of individuals) and an example of DRI applications in food product labeling.

1. PLANNING FOR GROUPS

Type of program in which the DRIs are used: Specialty Heart Hospital: Menu planning for patients and café customers

Summary/description of program and how the DRIs are applied:

Menus follow modified Mediterranean diet principles.

One week menu cycle for breakfast and evening meal and 5 week noon meal cycle.

One menu utilized for patients and café customers.

One typical week is chosen and analyzed for calories, protein, carbohydrates, saturated fat, sodium, and fiber.

Nutribase menu analysis program is utilized for the analysis.

Acceptable Macronutrient Distribution Ranges utilized for pro, fat and carbohydrate.

Adequate Intake utilized for dietary fiber.

Upper Limit utilized for sodium (2.3 gm).

Estimated Energy Requirement for calories (males 19y+).

Challenges faced in using DRIs, if any:

DRIs are intended for use with healthy individuals. But the majority of patients I see are chronically ill and therefore not directly applicable depending upon how you define "healthy individual"? Does having a chronic illness (i.e. heart failure) mean "unhealthy"? There are no DRIs for saturated fat, *trans* fats, and cholesterol. Therefore, I have to use other guidelines (i.e. NCEP, AHA).

Recommended ways to improve and change the DRIs to help overcome challenges or to improve their utility:

Definitely need a better understanding of nutrient requirements for illness. The DRIs do not apply to the majority of hospitalized patients and have limited utility for critical care. Also need guidelines for nutrient repletion. To correct a nutrient deficiency, will RDA be adequate or is 2-3 times RDA needed? Need definition of "healthy individual"

Other: I found the Dietary Reference Intakes publication from IOM to be essential in understanding the DRIs. You might consider two publications: One more detailed for researchers and educators and a more simplified version for practitioners.

2A. PLANNING FOR INDIVIDUALS

Type of program in which the DRIs are used: Development of the food supplies for the international space station. Each crew member tastes the available foods for selection for their menus. Their menus are analyzed for meeting the nutrient requirements. For missing nutrients, the dietitian works with the crew member to include foods that provided a complete diet. The final menu is approved (10-day rotational cycle) and all the food is shipped to the station close to the time the crew member will arrive. During

the space flight (6 months or more), the crew member selects foods that they want to eat. Using a food frequency questionnaire, the food intakes are verified once a week. If nutrients are missing, the crew member is advised to improve their consumption. Also, the diet has very little fresh foods.

Summary/description of program and how the DRIs are applied: For the International Space Station food supply is similar to feeding the military such as submarines, but have a very limited selection as all foods flown on the station must meet nutrient, safety, and compatibility with space craft too. We have limited space for storage so volume and mass are limited. Also, there is no ambient storage or microwave. However, we must use the DRI values to develop the food supply and this is particularly critical as any missed nutrient source can not be supplied until the next launch, maybe 6 months later. There are certainly nutrients that are different, for instance we use lower values for Fe and we can not meet Ca recommendations. Also, we chose not to have gender differences as that complicates the food system.

The DRI information is used as the source for the development of the nutrient requirements for the international space station. On the whole these values work well with the exception of Fe – it is too high because erythropoiesis is slowed down in space flight. Also, there maybe differences in nutrient availability due to microgravity and or radiation exposure.

However, with the exception of these differences, generally the DRI values provide the framework. The food system is developed using the nutrient requirements for the international space station. Secondly, we worked with the international community and their standards are different. For instance, the Japanese cannot obtain the lower sodium levels reflected in the DRI (we can not either, but we try).

Challenges faced in using DRIs: The DRIs as daily values are difficult to use, but given that the space program is all adults, ages 35-60 years old and in good health, we can generally assume that the RDA or EAR can be the guiding factors. We also used the UL values to ensure that we are not getting too many fortified foods.

Recommended ways to improve and change the DRIs to help overcome challenges or to improve their utility: Make it more user friendly. Clearly, no one consumes to the values listed, such as the EAR. However, the range of values would be good. The DV proposed will really help us to improve the quality of our food system. Also, it is unclear if one can really consume a diet that meets all these requirements from food. Given that the international space station food only contains about 200 foods of which half are provided by Russia, it is very difficult to meet the requirements especially the low sodium and higher potassium levels

2B. PLANNING FOR INDIVIDUALS

Type of program in which the DRIs are used: Medical nutrition therapy course assignment for undergraduate students.

Summary/description of program and how the DRIs are applied: DRIs are used as indicators to determine if the planned diet is overall healthy. Students enrolled in a course studying medical nutrition therapy must plan a diet (using exchange list) for a case study patient. The resulting one-day diet is analyzed (computer) for nutrient

content. Students must have met their energy nutrient targets, plus targets for key vitamins and minerals depending on the suggested intake for disease/disorder. If no target intake for key vitamins and minerals, they just meet the DRIs for vitamins A and C and minerals Fe and Ca to ensure dietary quality of the planned menu.

Challenges faced in using DRIs: Not meant for individuals who are not healthy. May not meet the needs for individuals over 55 years of age.

Recommended ways to improve and change the DRIs to help overcome challenges or to improve their utility: Not for this particular case study, but it must be made clearer that the DRIs may or may not match other government guidelines. Can the DRIs be met consuming 1800 calories/day?

3A. ASSESSMENT OF GROUPS

Type of program in which the DRIs are used: Food fortification practices

Summary/description of program and how the DRIs are applied:

Food fortification has long been recognized as an appropriate and important source of needed nutrients in the diets of the U.S. population. Fortification practices have been in place for several decades and a variety of factors must be considered when undertaking nutrient addition to foods. FDA's Fortification Policy outlines principles for the addition of nutrients to foods that provides guidance to the food industry. The IOM Committee Uses of DRIs presents its guiding principles to assist the regulatory agencies that oversee food fortification.

DRIs are used to benchmark nutrient intakes based on population intake data (NHANES). For example, contribution of calcium provided in the diet from fortified cereal and fortified cereal plus milk.

Challenges faced in using DRIs, if any:

The application and interpretation of the DRIs for vitamins and minerals, including the Tolerable Upper Intake Levels (ULs).

What is the best approach for interpreting and applying the DRI values to fortification?

- Should all UL values have equal weight (vit. A versus zinc)?
- Challenges arise when UL values for children are below the RDA or EAR levels for adults and the current DVs for labeling

How to balance the benefit of fortification for one population group versus the potential risk of adverse effects for another?

- Nutrients intakes below recommended levels for some groups while above the ULs for others
- Limitations of current nutrient intake databases to determine chronic intake (modeling vs. actual)

What approach will be used to develop ULs for nutrients of need (e.g. omega-3) that are being added to foods?

Recommended ways to improve and change the DRIs to help overcome challenges or to improve their utility:

Considerations for new disease relationships

Improved model for nutrient risk assessment

Consider possible beneficial effects of micronutrients for improving health

As new data become available convert AI to more specific recommendations

3B. ASSESSMENT OF GROUPS

Type of program in which the DRIs are used: A Nutritional Sciences doctoral student used the DRIs to evaluate the dietary intake of low-income pregnant Latinas for her doctoral dissertation

Summary/description of program and how the DRIs are applied: In a longitudinal study, comparisons of nutrient intake were made at 2 times during pregnancy. At each time point, the nutrient intake of Puerto Rican women vs. non-Puerto Rican Latinas was compared. Additional analyses were conducted, based on the participants' food security status.

Challenges faced in using DRIs:

1. The Estimated Energy Requirements (EER) vary by trimester, indicating that in the first trimester, a pregnant woman does not need any additional calories above her usual needs. However, none of the other nutrients vary by trimester. This implies that the woman must eat a much more calorically dense diet in the first trimester, which is often not feasible or accomplished.
2. The age category cut-offs for both males and females are 14-18 and 19-30. Often, research studies seek to recruit adults (i.e.: 18 or older), but the participants who are 18 have different DRIs for many nutrients. If this age cut-off is biologically based, then that is fine. But if the cut-off is somewhat arbitrary, it would be more useful to have age groups of 14-17 and 18-30.

Recommended ways to improve and change the DRIs to help overcome challenges or to improve their utility:

1. For pregnancy, provide estimates of nutrient needs by trimester, to match the EER for calories
2. If scientifically sound, have age categories of 14-17 and 18 to 30.

4. ASSESSMENT OF INDIVIDUALS

Type of program in which the DRIs are used: Acute care inpatient settings

Summary/description of program and how the DRIs are applied: The upper levels are most helpful when evaluating intakes from home, as well as for patients with metabolic disorders. As for energy and protein intakes, we use other equations since they are sick, bedridden, etc.

In outpatient setting, looking at general requirements, we conduct quick evaluation strategies using pyramid, basic four or seven, and RDA/DRI for energy and protein and use the ULs if taking vitamin supplements since there is so much paperwork.

Challenges faced in using DRIs: Time is a major consideration, there is much paperwork required from Medicare in the outpatient setting.

Recommended ways to improve and change the DRIs to help overcome challenges or to improve their utility: It would be helpful if DRIs were built into computer program tied to outpatient assessments. Estimated Energy Requirements are not user friendly from my

standpoint... too many equations to deal with and comes out to old RDA within reason (i.e. if decrease energy expenditure, decrease calories by 20%).

5. OTHER

Type of program in which the DRIs are used: The issue is how Daily Values in the Nutrition Facts panel are used by consumers, what are appropriate used of DVs, and which DRI should serve as the basis for developing DVs.

Summary/description of program and how the DRIs are applied: In most cases the current DVs for micronutrients are based on the highest RDA (1989 data) of select age/gender groups. The IOM committee on Use of DRIs for Nutrition Labeling issued a report which recommended the DVs for micronutrients be based on a population weighted EAR, or a population-weight AI if an EAR is not available. After extensive discussion, the committee unanimously agreed on this recommendation and concluded that using a population weighted RDA or the highest RDA is inappropriate. The committee also recommended listing the absolute quantity of all nutrients.

Challenges faced in using DRIs: Some RDs and others (dietary supplement companies) do not agree with the committee's recommendation to use a population-weighted EAR because they want consumers to use the DV as an index of their personal needs. However, as an extreme example, a DV for iron on the RDA for menstruating women clearly overstates the requirement for men and non-menstruating women.

Recommended ways to improve and change the DRIs to help overcome challenges or to improve their utility: RDs and others should learn the appropriate use of DVs as to help consumers compare products for relative nutrient content and to get a picture of how any individual product contributes to an average diet (not their personal diet).

If the DV is meant to help individual consumers evaluate how a specific food item meets their personal nutrient needs, then another committee needs to think through that logic and make a recommendation. Alternatively, if Nutrition Facts panels also provided the absolute quantity of micronutrients (e.g., 300 mg calcium/serving), then RDs could use that value to help individualize the information for consumers

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