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The Dietary Reference Intakes Research Synthesis Database¹

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The database session provided a summary of the contents, features, and potential uses of the Dietary Reference Intakes (DRI) Research Synthesis Database, which was still under development. The Food and Nutrition Board had been charged with entering all the research recommendations from the DRI reports into a database that would be searchable, user friendly, and widely available. Workshop participants were encouraged to test the database, which is available at www.iom.edu/DRResearch2006, and provide feedback.

CONTENTS OF THE DRI RESEARCH SYNTHESIS DATABASE

The database contains more than 450 research recommendations—that is, all the research recommendations contained in eight DRI reports. For convenience, the database uses letters of the alphabet to identify the reports. In this workshop summary, each research recommendation has a number followed by a report identifier. For example, 29-A is a research recommendation from the report *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride* (IOM, 1997). See Appendix D for a listing of the report identifiers.

Food and Nutrition Board staff categorized each of the research recommendations by key words to aid the search process. Staff members

¹This chapter is based on a transcript and slides from the workshop.

also are adding Medical Subject Heading (MeSH)² terms to the database, and the final version is expected to have full capability for users to search by the MeSH terms as well as by key words.

Review of the recommendations as a whole revealed that it would be helpful to categorize types of recommendations. In particular, staff used a two-tiered system that distinguishes “major knowledge gaps” from “knowledge gaps” (see Appendix D for criteria used). In addition, some of the research recommendations fit into a third category called “research methods.” Examples include recommendations related to databases and nutrient assays.

Review of all the recommendations also made it apparent that it would be useful to identify cross-cutting topics. Obvious topics include age groups (e.g., adolescents, children, infants, elderly), biomarkers, dietary supplements, lactation and pregnancy, and the Tolerable Upper Intake Levels (ULs) and toxicity. Additional suggestions for cross-cutting topics would be welcome.

USE OF THE DATABASE

In developing the database, staff used two types of software—Excel and Access, both from Microsoft.³ Each has advantages and disadvantages. Excel is widely available, many investigators use the software for a variety of purposes, and most users find data entry to be quite easy. However, Excel does not allow Boolean searches and has limited printing options. Access is less widely available, less familiar, and less user-friendly than is Excel. However, Access has a number of features that are highly desirable in a searchable database and that are not available in Excel. These features include capabilities to conduct tailored queries, save useful queries, and produce custom printouts of desired information.

To make the database as user-friendly as possible, staff had placed two releases on the Institute of Medicine (IOM) website at www.iom.edu/DRResearch2006 and sought feedback from users. The remainder of this chapter summarizes how to access and use the database. Additional information about the database appears in Appendix D.

²MeSH is the controlled vocabulary thesaurus of the U.S. National Library of Medicine, National Institutes of Health

³Microsoft Corporate Headquarters, Redmond WA.

ACCESSING AND USING THE DRI RESEARCH SYNTHESIS DATABASE

Entering www.iom.edu/DRIresearch2006 in the user's browser at the URL window accesses the Dietary Reference Intake Research Synthesis page of the IOM website. Clicking on DRI Research Synthesis Database accesses the database. The user then has a choice of downloading three files. One is a text file that provides some basic information on downloading and linking the files, lists the fields in the database, and provides some guidance for using the database.

The other two choices are for the two different forms of the database—one for use with Excel and the other for use with Access. The database is designed to be a desk-top database—one that could be released as a compact disk (CD) or that could be downloaded from the IOM website. Upon downloading these files, the user can access them using the appropriate software.

Opening the Excel database gives the user a sense of the structure of the database. The columns include the number, ID code, recommendation, designation (type of recommendation), key words, and so on.

The Excel user might click on the column that contains all 459 recommendations. Alternatively the user could use the Find command to search for all the recommendations that contain the word *magnesium* (or any other word) in them. Searching on the key words column, the user sometimes obtains more recommendations than would be obtained by using the Find command to search for the same word in the recommendation. For example, if the user searches for biomarkers using the key words column, the listing will include recommendations containing the term *biological markers* as well as recommendations containing the word *biomarker*. Printing the list is not straightforward, however.

The Access file, but not the Excel file, can provide lists of the research recommendations by nutrient, by report, or by cross-cutting topic. Using Access, staff members have made it easy to obtain answers to common queries and to print the results in highly readable format. In particular, the Access research database includes more than 100 queries to cover each of the nutrients and some cross-cutting topics. For example, clicking on the saved query called "A-Calcium Report, All" sends a list of all the research recommendations in the DRI Calcium and Related Nutrients Report (IOM, 1997) to the computer monitor. Another example of a saved query is "Carotenoids List, Major." Clicking on this query sends a list of the major research recommendations pertaining to carote-

noids. To see an example of a saved cross-cutting query, the user might want to look at a list of research recommendations pertaining to biomarkers or to infants.

To print the results of the query, the user clicks on Reports. More than 100 well-designed reports that correspond to the queries are available for printing. Appendix D provides a sample printout that shows the great functionality of the database.

Users of the current release of the DRI Research Synthesis Database files were invited to submit comments and suggestions by August 1, 2006, so that they could be included in the final version. The intent has been to make the database very easy to use and informative.