ADA Nutrition Informatics Member Survey: Results and Future Steps

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In 2007 the American Dietetic Association's (ADA's) Board of Directors appointed the Nutrition Informatics Work Group to examine the state of nutrition informatics across the practice of dietetics. As part of that effort, the work group was asked to design and administer a survey to ADA members to determine the extent of member utilization of technology for creation, retrieval, analysis, and sharing of information. This article summarizes survey methodology, survey findings, and implications for future ADA initiatives. It also serves as an example of emerging professional research into establishing standardized terminology, which should be of interest to all involved in the health care field.

In order to assess the state of nutrition informatics, it was necessary to establish a working definition of the term *nutrition informatics*. The Nutrition Informatics Work Group proposed the following definition adapted from the definition for biomedical informatics as proposed by Shortliffe and Cimino (1): "Nutrition Informatics—the effective retrieval, organization, storage, and optimum use of information, data, and knowledge for food and nutrition-related problem solving and decision making. Informatics is supported by the use of information standards, information processes, and information technology." Based on the definition, informatics includes the use of technology, but also includes access to and use of data and information to provide clinical care, foodservice management, community services, practice outcomes, and research.

In addition, the survey sought to delineate the types of technology applications used by ADA members, comfort of use, and professional involvement with technology. This is the first such assessment of ADA members; the survey was designed to provide baseline information on member practices for planning and educational purposes.

ABOUT THE SURVEY

Survey questions were selected by the Nutrition Informatics Work Group and included standard ADA demographic questions used in a previous ADA survey (2) as well as questions used in other informatics survey tools (3,4). The survey was 20 questions and administered online through Survey Monkey (www.surveymonkey.com). An optional drawing for a copy of *Compensation & Benefits Survey of the Dietetics Profession 2007*

provided a survey completion incentive—25 randomly selected participants received the ADA publication. A pilot version of the survey was completed by 61 ADA members in November 2007 with subsequent survey modifications for improved understanding and question clarity. An e-mail with a link to the survey was sent to all ADA members with a known e-mail address on November 26, 2007. E-mail reminders were sent on December 4 and 11, and the survey link was terminated on December 14, 2007.

This electronic survey of ADA members was deemed "exempt" by the National Institutes of Health, Office of Human Subjects Research, for the purpose of publishing the results.

GENERAL SURVEY STATISTICS

A total of 55,063 successful e-mails (85% of total membership) were sent to ADA members. There were 11,223 usable responses, or a response rate of 20.4%. Members contacted spanned all classes including active (registered dietitian), retired, student, and technician (dietetic technician, registered) categories.

Demographics

Question 1. Employed or Self Employed in One or More Dietetics-Related Positions?—#x00a0; A dietetics-related position was defined as a paid position that requires or makes use of the education, training, and/or experience in dietetics or nutrition, including positions that my or may not be considered "traditional" dietetics practice. Eighty percent of respondents indicated that they were currently employed in dietetics-related positions. The 20% responding "no" included a mix of individuals in alternative careers, not currently employed, retirees, or students.

Question 2. Respondent Age Categories—The median category was the 50- to 54-year age range. See Figure 1 for total age demographics.

Question 3. Level of Education—The majority of respondents have a bachelor's degree. See Figure 2 for total education demographics.

Question 4. Sex—Female—96.8%, Male—3.2%.

Question 5. Primary Practice Area—The majority of respondents work in the clinical nutrition practice area. See Figure 3 for total practice area results.

Question 6. Primary Setting of Position—In descending order, 36% of respondents worked in a clinical setting (acute care or ambulatory facility); 16.5% in a community setting; 9% as faculty in a college, university, or teaching hospital; 8% in a consultation or business practice; 5% in a government agency or department; 4% in food and nutrition management; and 1% in research. Those selecting informatics or technology development as their primary position setting represented 0.4% of respondents or 41 individuals. Students and interns comprised 12% of respondents, and there were 8% who selected "other."

Access to Technology

Question 7. Access to a Computer—In their primary work setting, 97.3% have access to a computer somewhere in their workplace and 89.4 % have access to a computer at their own workstation. The Internet is accessible in the primary work setting by 91.5% of respondents. Personal digital assistants, or PDAs, are used by 19%. Of note were the 144 (1.3%) who had no access to a computer or the Internet at their primary work setting. This finding was noted across all areas of practice and as well as with students and interns.

Access to Information by Format

Question 8. When I Need Information to Support My Practice I Use—ADA members report using information in electronic, printed, and verbal formats. Most frequently used information sources include materials for continuing professional education, patient education, and standards of practice. Electronic information sources used in descending order—databases (82%), the Evidence Analysis Library (81%), recipes (78%), drug information (72%), professional journals (69%), continuing professional education (69%), and patient educational materials (68%). Paper-based information used by members included in descending order—textbooks (79%), professional journals (78%), patient educational materials (70%), lay literature (58%), recipes (55%), and diet manuals/nutrition care manuals (53%). Verbal information (response category was information access through colleague, presentation, webinar, or podcast) was mainly used for continuing professional education (63%).

Use of Technology

Question 9. Use of Technologies or Computer Applications—The majority of respondents use e-mail (97.8%) and the Web/Internet (98.4%) on a regular basis (daily/weekly/monthly) to support their practice. Electronic document management tools such as word processing, spreadsheets, and slides are used by 94% of respondents, and 79% of respondents use electronic data analysis tools. By area of practice, 70% of respondents in the clinical area use electronic clinical management tools (screening, assessment, diet office management) and 57% use electronic health records for patient information, lab results, or clinical documentation. Of note were the 43% of respondents who use electronic personal health records, or PHRs, to support their practice. This may represent a misunderstanding of the concept by respondents as this is a relatively new medium in electronic health care. While few PHR adoption statistics are available, a *Wall Street Journal*/Harris Interactive Survey from November 2007 indicates that based on their sample of 2,153 adults, 2% maintain a personal medical record on a computer, and 1% use a personal health record that is stored on the Internet (5). Other electronic management tools such as foodservice management applications and business management tools such as budget, accounting, billing, human resources, and project management were used by respondents at a level commensurate with members in those respective areas of practice.

Question 10. Familiarity with ADA Standardized Language—Thirty-two percent of respondents acknowledged that they were familiar with ADA's standardized language initiative. Of note, 41% answered "no" and another 26% skipped this question.

Question 11. Using ADA Standardized Language in Practice—Affirmative responses for use of ADA standardized language were as follows: nutrition diagnostic terms —16%; nutrition intervention terms—13%; monitoring and evaluation terms—11%. Another 19% selected that implementation was "in progress" and another 19% note they are not using these terms in their practice. Half of respondents (49%) did not respond to this question, which may imply lack of knowledge or understanding of the area.

Comfort of Use with Technology

Questions 12/13. Comfort of Use with Technology Rated as Beginner, Intermediate, Expert, or Not Used—Respondents indicated a high level of comfort with e-mail, Web/Internet, office applications, and nutritional assessment applications. There were more beginners in the areas of statistical analysis, graphics, spreadsheets, and webinars. Podcasts were used by 30% of respondents. Other applications were used

commensurate with the number of respondents in a specific area of practice (eg, electronic menu development and electronic inventory systems).

Question 14. I am Interested in Learning More about the Following—

Respondents requested education/training for the following in descending order: nutrient analysis (40%), nutrition assessment (40%), podcasts (33%), webinars (33%), nutrient databases (32%), nutrition screening (31%), and generating graphics (28%). Student and intern responses were similar to those in practice settings.

Reasons for Not Using Technology

Question 15. Personal Reasons for **NOT** Using Technology—Sixty-four percent of respondents had no personal barriers to using technology. Other responses included that dietitians have not needed to use technology (14%), there is not enough time to learn technology (14%), the employer does not require the use of technology (14%), and there is no training available (12%). Seven percent felt too inexperienced to use technology. Of the 1,054 students responding to the survey, 14% responded that they have not needed to learn to use information technology. Of the 347 dietetic interns, 12% responded that they have not needed to learn to use information technology.

Question 16. Workplace Issues for **NOT** Using Technology—Sixty-two percent of respondents reported having no workplace barriers to using technology. Some had no access to a computer at their workplace (3%). This correlates to the findings in question seven regarding access to technology. Other responses include: employers do not require the use of information technology (14%), the employer does not offer training (10%), and there is inadequate staffing to implement and maintain information technology (11%).

Technology Management

Question 17. Level of Involvement with Selection and Management of Technology—A core group of respondents indicated responsibility for decisions regarding software selection, implementation, training, and support, including database management (8% to 10%) and hardware selection (6%). Direct responsibility for project management involved 8.5% of respondents and another 5% were responsible for Web site development or Web site management. Respondents also indicated involvement or influence over decisions for software selection (29%), implementation of software (25%), and software training (22%).

Benefits of Technology

Question 18. Benefits of Technology for Practice—The majority of answers indicated that technology was a benefit to the practice of dietetics. The primary benefit was access to information (95%), access to research (91%), and communication (91%). Other benefits included: reduce or prevent errors (80%), performance improvement (79%), time management (79%), help with workflow efficiency (73%), and patient safety (58%). A possible response was "not sure" and respondents indicated that they were "not sure" that technology would help with time management (9%), reduce or prevent errors (9%), help with workflow efficiency (9%), assist with performance improvement (10%), or patient safety (10%).

Question 19. ADA Support for Use of Information Technology in Dietetics Practice—The majority of respondents indicated the need for additional educational resources to support the use of information technology, specifically journal articles and reference materials as well as professional development sessions on technology and nutrition

informatics. Standards of practice for nutrition informatics were endorsed by 65%, and 46% indicated the need for certification in nutrition informatics. However, there were "not sure" responses for both of these items (24% and 34%, respectively) indicating a lack of consensus and/or understanding of specific outcomes at this time.

Nutrition Informatics Dietetic Practice Group (DPG)

Question 20. Would You Join a Nutrition Informatics DPG?—One quarter of respondents (26%) indicated that they would join a Nutrition Informatics DPG should the ADA establish such a group.

KEY FINDINGS

The nutrition informatics survey is the first survey of ADA members regarding methods for accessing information and utilization of technology for creation, retrieval, analysis, and sharing of information. The concept of informatics does not seem to be well understood despite the broad use of common technologies by most respondents. As indicated by the responses "access to information in an electronic format" and "use of technology for my practice," dietitians are using technology primarily in clinical, foodservice, and research settings. Practitioners in community health, long-term care, or other consulting roles may have multiple practice venues, and not all have access to a computer or supporting technologies. Many respondents reported that their facility required the use of a shared computer, or that they used a PDA that they had purchased with their own funds.

FUTURE STEPS

The federal government has established a goal that most Americans will have a secure electronic health record by 2014 (6). While electronic health records and personal electronic health records are just one aspect of the field of informatics, the adoption and use of electronic health information is critical to the field of dietetics in every area of practice. Registered dietitians need to understand how to access and use electronic health care and food-related information. Direct participation in the implementation of electronic health care management systems in every practice setting will ensure that registered dietitians remain a viable part of the health care team of the future. Practitioners need to become proficient with retrieving and using electronic information. The educational requirements for nutrition students, dietetic interns, as well as those actively practicing in the field of dietetics need to ensure that curricula include informatics competencies.

Question 20 asked about joining a DPG for nutrition informatics. Even though 25% of the survey respondents indicated they would join an informatics DPG rather than a separate informatics DPG being formed at this time, it was recommended that all DPGs should be encouraged to evaluate informatics issues related to the practice area of the DPG and form sub-units if appropriate. However, as nutrition informatics impacts all areas of practice, the ADA has endorsed nutrition informatics as a mega issue for consideration by the House of Delegates and has sanctioned the Nutrition Informatics Work Group to continue for a second year.

Registered dietitians need to become involved at a personal level as well by setting up their own electronic personal health records.

References

1. Shortliffe, HE.; Cimino, JJ., editors. Biomedical Informatics: Computer Applications in Health Care and Biomedicine. 3rd ed. New York, NY: Springer; 2006. p. 24

2. Compensation & Benefits Survey of the Dietetics Profession 2007. Chicago, IL: American Dietetic Association; 2008. American Dietetic Association, Commission on Dietetic Registration; p. 185-188.

3. Trostler N, Myers EF, Snetselaar LG. Description of practice characteristics and professional activities of dietetics practice-based research network members. J Am Diet Assoc. 2008; 108:1060–1067. [PubMed: 18502242]

4. Healthcare Information and Management Systems Society. [Accessed May 20, 2008] 18th Annual 2007 HIMSS Leadership Survey: CIO Results Questionnaire Index. Healthcare Information and Management Systems Society Web site. http://www.himss.org/2007Survey/DOCS/2007Healthcare_CIO_questionnaire_index.pdf. Published April 10, 2007.

5. Steinbrook R. Personally controlled online health data—The next big thing in medical care? N Engl J Med. 2008; 358:1653–1656. [PubMed: 18420496]

6. US Department of Health and Human Services. [Accessed May 20, 2008] Health Information Technology: Initiatives. US Department of Health and Human Services Web site. http://www.hhs.gov/healthit/initiatives/.

Key Survey Findings

1. Registered dietitians are using basic technology such as e-mail and the Internet.

2. The concept of nutrition informatics is new and not well understood.

3. The survey response rate of 20.4%, or over 11,000 members, indicates significant member interest in nutrition informatics.

Action Items for Registered Dietitians

1. Advocate for health care information technology in the field of dietetics.

2. Educate and train ADA members, students, and interns in principles and practices of nutrition informatics.

3. Establish your own electronic personal health record in order to prepare for patient and consumer utilization of this technology.
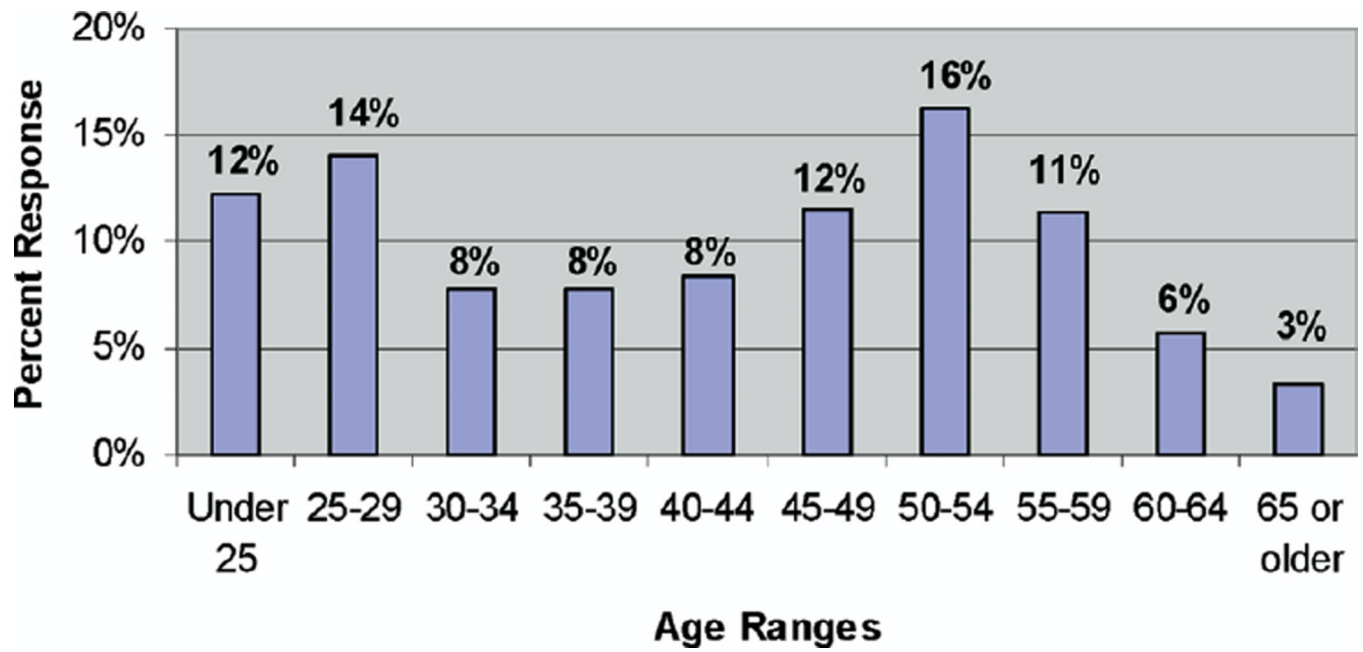
Figure 1.
Nutrition informatics survey response rate by age ranges based on 11,223 completed surveys by American Dietetic Association members.
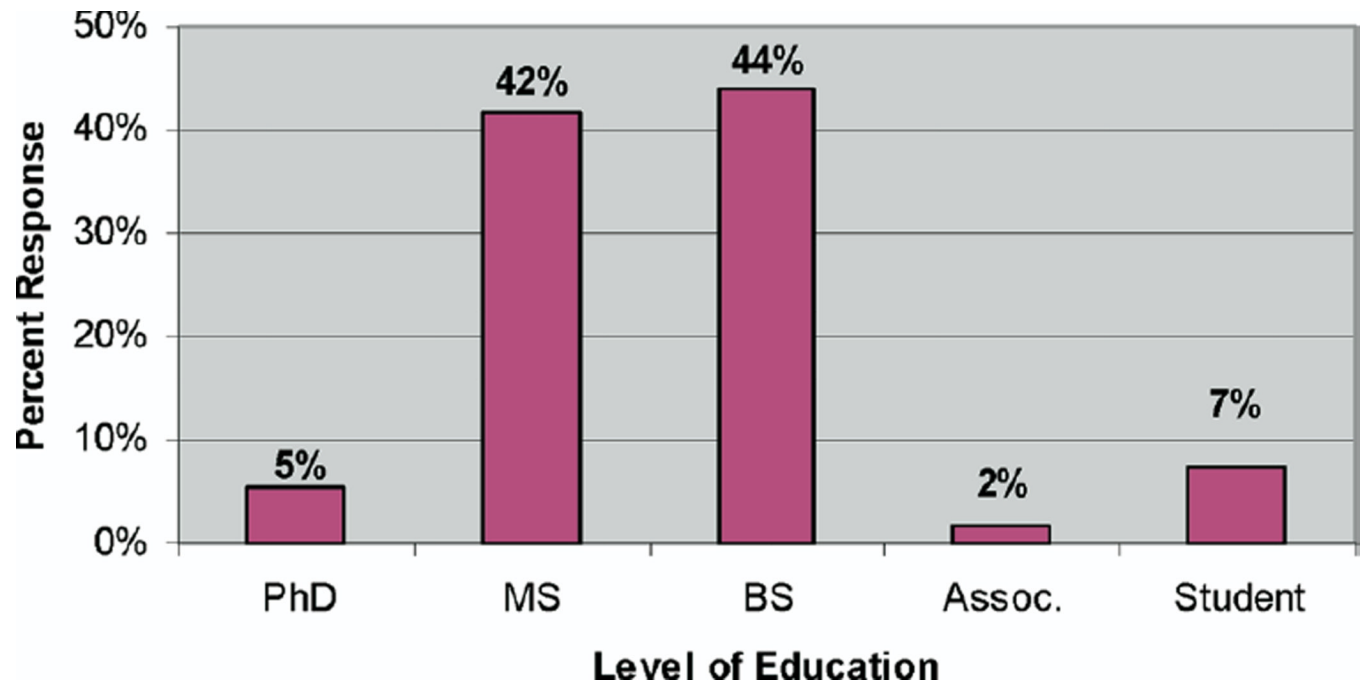
Figure 2.
Nutrition informatics survey response rate by level of education based on 11,223 completed surveys by American Dietetic Association members.
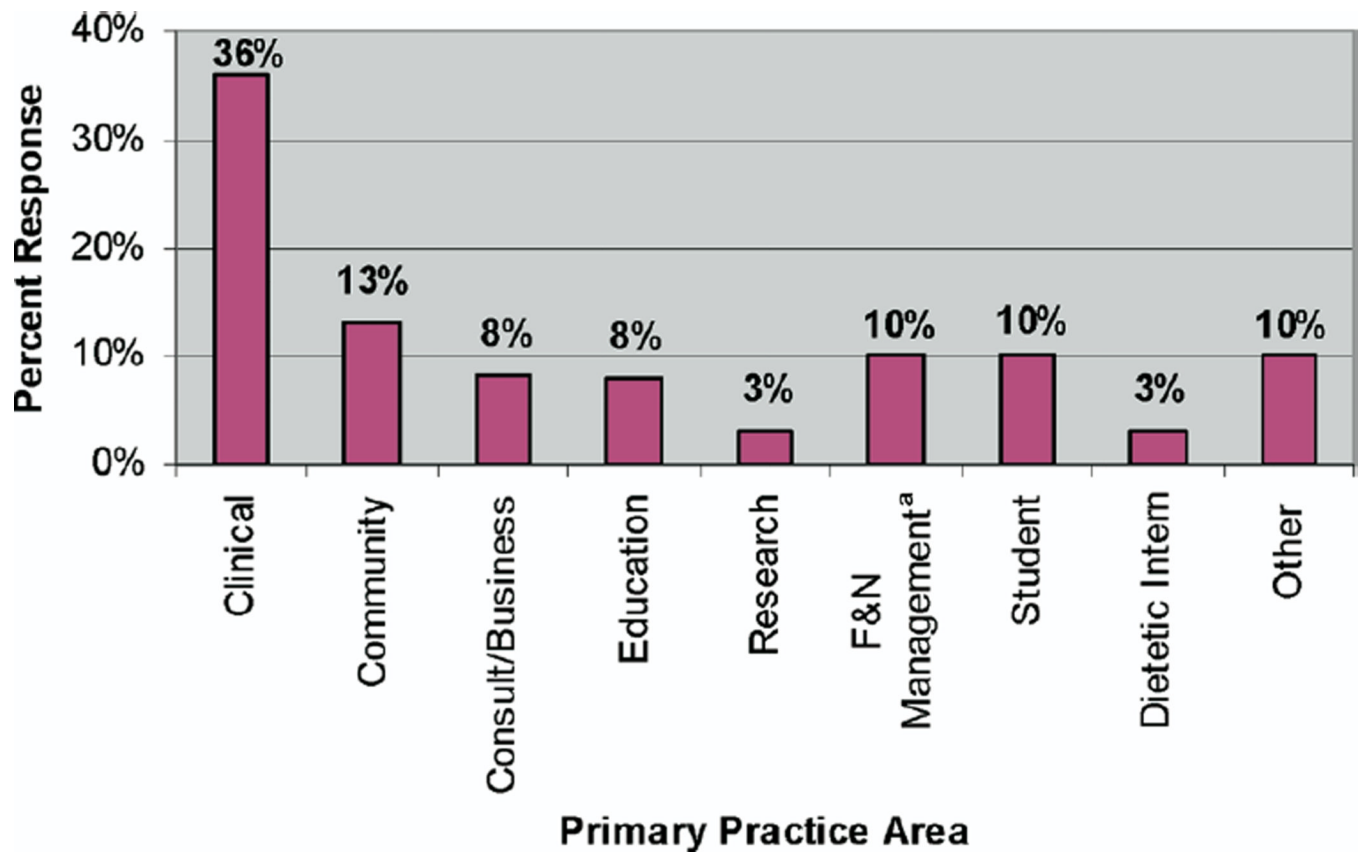
Figure 3.
Nutrition informatics survey response rate by primary practice area based on the six
American Dietetic Association (ADA) practice area classifications. Data displayed represent
11,223 total responses from ADA members. [a]F&N Management=food and nutrition
management.