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2011 Nutrition Informatics Member Survey

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The academy of Nutrition and Dietetics completed an online Nutrition Informatics Survey in February of 2011. This survey builds on the first Nutrition Informatics Survey completed in 2008 (1) and has enabled the Academy to begin a longitudinal analysis of member trends in the use of technology, information management, and the use of the Nutrition Care Process and the International Dietetics and Nutrition Terminology. The online survey was developed by the Academy Nutrition Informatics Committee with the support of the Health Information Management Systems Society (HIMSS). A total of 3,342 individuals responded to the survey, and it included both active members and students. The 2011 Nutrition Informatics Survey demonstrates that members of the Academy are adopting and using technology and beginning to reap the benefits of improved information access and management. An increasing number of Academy members now practice full-time in the area of biomedical and/or nutrition informatics.

The survey was designed to assess changes in the adoption and use of technology and to gauge differences in how members are accessing and using data and information, including the use of the Nutrition Care Process (NCP) and International Dietetics and Nutrition Terminology (IDNT). The survey also addressed the roles registered dietitians play in their organizations related to the selection, implementation, and maintenance of information management systems and other technology.

BACKGROUND

Nutrition informatics is defined as “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, processes and technology” (2). In short, “Nutrition informatics is the intersection of information, nutrition and technology.” Although the definition may seem broad, informatics is a broad field and encompasses every area of practice. Patients, clients, and business partners in health care are adapting to new technologies and new methods of information management. As a profession we must understand our current knowledge and skills in the area of informatics and make informed choices about how to enhance our practice with informatics.

David Blumenthal, MD, MPP, the former head of the Office of the National Coordinator for Health Information Technology at the US Department of Health and Human Services noted at the November 17, 2011, Office of the National Coordinator Grantee and Stakeholder Summit in Washington, DC, “I think meaningful use [the use of electronic health care records] is now a fact of life” (3). Blumenthal stated that the health care community is adjusting to the shift to electronic records and that the status quo cannot persist. As health care moves to the digital age, patients and clients are also using technology. This may mean accessing a portal into an existing health care information system for laboratory results or

using a mobile device, such as a smart phone, to track personal health data or access health care information online. Our profession must be prepared to meet the changing needs of our patients and clients to ensure they receive timely and accurate information with the goal of optimal health care.

SURVEY DESCRIPTION

The 2011 Nutrition Informatics Survey was developed by the Academy Nutrition Informatics Committee and HIMSS Analytics. Distribution of the e-mail survey and collection and analysis of responses was conducted by HIMSS Analytics on behalf of the Academy. The 2011 survey was built on the findings of the 2008 Nutrition Informatics Survey with additional questions to reflect the changing informatics and technology environment of health care practice. Survey participants were given the opportunity to enter a drawing for one of 25 copies of the *Pocket Guide for International Dietetics & Nutrition Terminology (IDNT) Reference Manual: Standardized Language for the Nutrition Care Process, Third Edition*, published by the Academy. This survey was deemed exempted research by the National Institutes of Health Office of Human Subjects Research Protection.

The first notification was included in the Academy electronic newsletter *Eat Right Weekly* on January 18, 2011. Based on a limited response rate, direct e-mails to Academy members were sent on January 25, 2011 and February 3, 2011. The invitation to participate was e-mailed to 65,852 members, 64,751 of which were successfully received. A total of 3,342 individuals responded to the survey and it included both active members and students. This response represents the population with a 99% confidence level and a confidence interval of 2.2%. This response rate is well within market research standards.

The survey was designed to gather population-specific questions for active members vs students. Students were categorized as undergraduate, graduate (MS, MBA, PhD), and supervised practice (dietetic internship/coordinated program in dietetics). If a respondent selected a student category the questions presented reflected an educational setting instead of a work setting. Unlike the 2008 survey, the 2011 survey excluded retired members.

GENERAL FINDINGS

Demographic Information

Forty-nine percent of respondents were 50 years or older and 6% of respondents were under 25 years of age. The majority of respondents (96%) indicated that they were female. Racial categories were based on the US Census. The majority of respondents were white (86%), with Asian the next highest category (4%).

Practice Area and Practice Setting

Nearly half of respondents (43%) indicated that clinical nutrition was their key practice area. All areas of practice were represented in the respondent pool: community (14%), food and nutrition management (9%), consultation and business (9%), education (8%), and research (3%). Informatics was identified as a key practice area by 1.4% of participants (note that this was not offered as a possible area of practice in the 2008 survey). Students comprised 7% of the respondent pool. Practitioners (excluding students) were asked to identify their primary practice setting. Over one quarter of respondents worked in an in-patient acute care facility (28%). The ambulatory care practice setting (either stand-alone or affiliated with an acute care facility) was selected by 18% of respondents. Other primary practice settings reflect the diverse nature of the profession: health care, business, consulting, research, and education.

Access to Electronic Data

A new question in the 2011 survey related to the level of experience with retrieving and using electronic data. On a scale of one to five, where one was “no experience” and five was “highly experienced,” the average response was 3.77 and the median was 4.0. Figure 1 displays the distribution of responses by level of experience.

Participants were asked how they access electronic data in their workplace. Most indicated that they accessed the data they needed to do their job via a dedicated computer (90%). In addition, participants reporting using a shared workstation (30%), a mobile computing device (19%), or smart board (interactive white-board) (3%). Students were asked how they accessed electronic data to accomplish their schoolwork. Almost all used a personally owned computer (98%). In addition, students used a shared workstation (60%), a mobile computer device (40%), a school-provided computer (31%), or a smart board (6%). No students reported the inability to access electronic data to support the completion of their coursework.

Sources of Data

To assess how respondents access data, 23 data types and three access methodologies were presented in a grid format. The methods of access included “electronic,” “paper,” and “direct interaction (eg, verbal, webinar, or podcast).” Multiple answers were possible for the 23 data types. Respondents were also able to select “not used in the past 6 months” or “not applicable in my daily work activities.” This question was similar to the question asked in 2008 allowing for comparison. Electronic access increased for all data types from 2008 to 2011. Respondents were most likely to report that they access patient education materials and nutrient databases electronically.

Continuing education continued to be the most frequent direct interaction activity (53%) but 78% of respondents indicated that they also access continuing education electronically. There are two sources of data that are still accessed by paper: professional journals (66%) and textbooks (59%). However, professional journals are also accessed electronically (77%) and textbooks are accessed electronically by 25% of respondents.

Access to data/information *about* patients and access to data *from* patients and clients highlight the multiple modalities involved in patient care. Two-thirds (67%) of respondents noted that they access data *about* their patients electronically, with 41% accessing these data with paper, and 34% via direct interaction. In 2008, electronic access to data *about* patients was selected by 65% of respondents. When asked about accessing data *from* patients/clients 67% said they received these data electronically, 41% via paper, and 34% by direct interaction. This question was not asked in 2008.

Use of Data and Technology

Two questions, which related directly to the definition of nutrition informatics, were added to the 2011 survey: use of data and technology to problem solve and use of data and technology to make decisions. Questions were asked on a scale of “one (strongly disagree)” to “five (strongly agree).” Most respondents agreed with the statement: “I use data and technology available to me to problem solve.” The average response was 4.17 and the median was 5.0. Figure 2 displays the distribution of responses related to problem solving. Many respondents also agreed with the statement: “I use data and technology available to me for decision making.” The average response was 4.03 and the median response was 4.0. Figure 3 displays the distribution of responses related to decision making.

Respondents were asked about their use of technologies or computer applications during the past 6 months to support their daily work activities. Most respondents used Web tools for collaboration (88%) followed by clinical nutrition management tools (78%), data analytics (69%), and the electronic health record (EHR) (61%).

Comfort Level in Using Technology and Computer Applications

Respondents were asked to rate their expertise with 29 different types of technology and computer applications such as graphics software, nutrition assessment software, podcasts, social media, and webinars. Potential responses included “no experience,” “beginner (I need lots of support),” “intermediate (I can handle most tasks),” and “expert (my colleagues come to me for help).” Compared to 2008, more respondents reported being expert users in 2011. Most respondents identified themselves as expert users of word processing and the Web/Internet. Table 1 summarizes the top 10 areas of expertise for both 2008 and 2011. Word processing and using the Internet remain the top two categories. The biggest change in level of expertise was with webinars. In 2008, 9% of respondents identified themselves as experts. In 2011, 24% of respondents identified themselves as experts. Over half of respondents (55%) classified themselves as intermediate users of webinars.

Barriers and Benefits of Information Technology

A majority of respondents felt there were no barriers to using information technology for their practice or for their educational needs. For those citing barriers, these included training issues (19%), lack of employer support (15%), equipment issues (13%), or personal preference (5%).

The benefit of using technology was assessed using 10 items plus an “other” free text response option. Many components of this question were asked in 2008 allowing for the comparison of data. In 2008 and 2011, most respondents selected improved access to research and education materials as a benefit. Of note, in 2008, 57% of respondents felt information technology improved patient safety/quality of care. In 2011, 43.8% selected this item as a benefit. Likewise, in 2008, 79.5% of respondents felt reduction/prevention of medical errors was a benefit. In 2011, this dropped to 32.9%. A number of free text comments noted improved communication in a variety of settings, ready access to information, and the ability to work virtually.

Organizational Involvement with Information Technology Management

Respondents were asked their level of involvement with primary work setting activities related to information technology. The 17 items ranged from hardware and software selection and project management to Web site design and development. Possible responses included no role, makes recommendations, decision influencer, and decision maker (only one response per item). Many of the items were included in the 2008 survey allowing for comparison. Students were not asked this question. Table 2 compares areas of organizational information technology management where registered dietitians serve as decision makers. Many respondents also noted their roles as decision influencers and providing recommendations.

Academy Support for Information Technology Activities

Respondents were provided with seven alternative options for how the Academy could support the use of information technology in the daily activities of members. Most respondents (94%) indicated they wanted the Academy to provide assistance in at least one of the options. This finding was consistent with the same question posed in 2008. The top area for involvement was professional development on nutrition informatics (81%) followed

by reference materials on nutrition informatics (80%). An EHR Training and Practice Application was selected by 63% of respondents and a certification in nutrition informatics was noted by 45% of respondents.

Academy Standardized Language and the EHR

To support the efforts of the Academy related to the adoption and use of the NCP and the IDNT into EHRs, the survey included three questions on the adoption and use of Academy standards. These questions were included for active practitioners, not students. In 2011, 54% of respondents indicated that they were familiar with the IDNT. In 2008, 44% indicated that they were familiar with the IDNT. For respondents who indicated that they were familiar with the IDNT, a follow-on question was asked: "which elements of the IDNT are you using at your primary worksite?" The results, as shown in Figure 4, indicate significant adoption of the IDNT since 2008.

Respondents, who were familiar with the IDNT, were then asked about the level of integration of Academy standards into the EHR at their organization. Potential responses ranged from beginning to think about building an EHR to using an EHR with structured data entry including the NCP and the IDNT with structured data entry for the IDNT. The most frequent response to this question was: "My organization uses an EHR with nutrition-related functions but does not include the NCP or IDNT."

DISCUSSION OF FINDINGS

Comparing the results of the 2008 and 2011 Nutrition Informatics Survey, our profession is adopting technology, is more comfortable in using technology, and understands that information management and technology can assist with decision making and problem solving. While nutrition informatics as a specialty practice was not measured in the 2008 survey, in 2011, 1.4% of respondents noted that this was their primary area of practice.

Respondents believed that information technology has the ability to positively impact time management and workflow and the ability to access and analyze data. However, respondents were less likely to believe that information technology can improve the quality of care, reduce medical errors, and improve communication between health care team members and patients. While respondents indicated increased adoption of EHRs, benefits realization offers an opportunity for member education and additional study.

Involvement of members with activities related to health information technology in their primary worksite was established with this survey. As health care organizations add health information technology to assist with practice, members are participating in a number of activities. This participation ensures that technology solutions reflect the content and processes related to practice of nutrition and dietetics.

The data from the 2011 survey indicates continued adoption of EHRs, the NCP, and the IDNT. Respondents responded positively toward the Academy providing training, education, and resources to support practitioner transitions to electronic health care.

Next Steps

The 2011 Nutrition Informatics Survey demonstrates that members of the Academy are adopting and using technology and beginning to reap the benefits of improved information access and management. As more practitioners use these tools, our educational programs will need to ensure students are prepared to practice in an electronic workplace. Training programs for practitioners will need to provide opportunities to build on current technology and information management skills. Our research needs to pursue the benefits versus risks of

using information technology for patient care, practitioner education, and consumer health. The Nutrition Informatics Committee will continue to monitor these trends in the coming years.

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Figure 1. Level of experience with retrieving and using electronic data (includes practitioners and students) from the Academy of Nutrition and Dietetics 2011 Nutrition Informatics Member Survey. On a scale of one to five, the average response was 3.77 and the median response was 4.0.

Figure 2.

Responses for the question "I use data and technology available to me to problem solve" from the Academy of Nutrition and Dietetics 2011 Nutrition Informatics Member Survey. On a scale of one to five, the average response was 4.17 and the median response was 5.0.

Figure 3. Responses for the question “I use data and technology available to me for decision making” from the Academy of Nutrition and Dietetics 2011 Nutrition Informatics Member Survey. On a scale of one to five, the average response was 4.03 and the median response was 4.0.

Figure 4. Respondent use of International Dietetics and Nutrition Terminology (IDNT) terms in the Academy of Nutrition and Dietetics 2008 and 2011 Nutrition Informatics Member Survey. Note that nutrition assessment terms were not included in the 2008 survey.

Table 1

The top 10 areas of “expert” users in the Academy of Nutrition and Dietetics 2008 and 2011 Nutrition Informatics Member Surveys^a

Areas of expertise	Percent–2008	Percent–2011
Word processing	41	45.8
Web/Internet	33	36.5
Slide presentations	27	34
Nutrition assessment	23.7	33.2
Nutrition screening	22.4	30.7
Nutrition histories	20.7	29.8
Nutrient analysis	20.4	25.9
Webinars	8.9	23.7
Patient management	17.5	23.1
Care plans	14.6	21.5

^a Respondents were asked to rate their own proficiency. The biggest change from 2008 to 2011 was in proficiency with webinars.

Table 2

Registered dietitian involvement as “decision makers” for activities related to information technology from the Academy of Nutrition and Dietetics 2008 and 2011 Nutrition Informatics Member Surveys

Areas of expertise	Percent–2008	Percent–2011
Project management	8.4	11.4
Change management	Not included	10.9
Software implementation	9.4	9.2
Software training	8.3	9.2
Database management	7.1	8.9
Software selection	10.1	8.8
Workflow design	Not included	8.3
Data standards	Not included	7.5
Mobile computing devices	7.4 ^a	6.7
Software support	6.5	6.5

^a In 2008, only personal digital assistants were included.