



Sense of Competence Impedes Uptake of New Academy Evidence-Based Practice Guidelines: Results of a Survey



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SINCE 2004, THE ACADEMY OF Nutrition and Dietetics (the Academy) has been conducting and publishing systematic reviews on the Evidence Analysis Library. Some of these projects progress to the development of evidence-based nutrition practice guidelines, which are the basis of dietetics practice. In July 2014, an Evidence-Based Nutrition Practice Guideline (EBNPG*) for the Prevention of Diabetes was published in the Evidence Analysis Library.¹ This EBNPG covers care for patients with prediabetes and metabolic syndrome, with the goal of slowing progression toward type 2 diabetes.¹ This was the first EBNPG on the topic of diabetes prevention from the Academy, although other organizations, including the American Diabetes Association (ADA),² American Association of Clinical Endocrinologists,³ Endocrine Society,⁴ and Department of Veterans Affairs/Department of Defense,⁵ have guidelines for pre-

diabetes or preventing diabetes that include nutrition recommendations.

Guidelines are based on an accumulation of evidence for a practice or therapy, making the time lag between guideline development and implementation long. Seventeen years is often cited as the time period between the development of an innovative therapy and the therapy reaching a patient in an academic medical center.⁶ However, most patients are not seen in academic medical centers, but in community-based settings.⁷ Therefore, innovation and guidelines take even longer to reach these patients for a variety of reasons, including concern that the evidence for guidelines might not apply to the primary care population.⁷

Lack of awareness due to poor dissemination and conscious decisions not to use guidelines are barriers to implementation; however, these causes can be difficult to differentiate. Work in the primary care setting has shown that even when physicians are aware of new therapies they might not implement them due to concerns about applicability to their own patient population, lack of time,⁸ and other reasons.^{9,10} For example, the underuse of guidelines for cardiovascular risk reduction using aspirin has been well documented.¹¹ Overall, research suggests there is no relationship between self-reported guideline knowledge and guideline use.¹² Work with registered dietitian nutritionists (RDNs) shows that while RDNs are supportive of evidence-based practice and specific guidelines, they might not implement guidelines, often due to lack of necessary time or equipment.¹³⁻¹⁶

Measuring implementation is challenging; direct observations have the potential to change the clinician's behavior via the Hawthorne effect.^{17,18} The Hawthorne effect refers to

treatment effects that occur because subjects know that they are being studied and observed.¹⁹ Social desirability bias, in which individuals give answers that they think are right or socially appropriate rather than true, can cause clinicians to report higher use of guidelines than is actually the case,²⁰ even in anonymous surveys.¹³⁻¹⁶ Among physicians, self-assessment of knowledge or frequency of use of practices is not well correlated with measures of competency.²¹

The release of this new EBNPG for the Prevention of Diabetes provided a unique opportunity to conduct a pair of ecological surveys describing RDN self-reported knowledge and use of an evidence-based practice guideline when expected use and knowledge would be low, and to monitor how knowledge changes over time. A quiz was included in the survey to determine RDN content knowledge of the EBNPG. By surveying members of the Academy before the EBNPG release (baseline) and 6 months later, we were able to track knowledge and implementation of an EBNPG over time. The self-reported data from baseline also provides a measure of the impact of social desirability bias.

The goals of the pair of surveys were to describe RDN self-reported familiarity and use of evidence-based guidelines for prediabetes from different organizations, including the Academy's EBNPG prepublication and, 6 months later, to describe RDN change in knowledge of the Academy's EBNPG over time and compare self-reported knowledge with knowledge demonstrated on a quiz. We hypothesized that RDNs would report adoption of the Academy's EBNPG for the Prevention of Diabetes before its publication, due to the perceived desirability of using evidence-based guidelines. We

**For clarity, EBNPG refers to this specific Academy guideline for prevention of diabetes. The more generic "guideline" or "evidence-based guideline" refer to guidelines in general or from other organizations.*

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also hypothesized that EBNPG content knowledge scores would be low and uncorrelated with self-reported knowledge, ruling out the possibility of early adoption via advanced knowledge of EBNPG content.

DEVELOPING AND IMPLEMENTING THE SURVEY

A survey was developed by the authors with expert input from members of the Diabetes Care and Education (DCE) dietetic practice group (DPG) and members of the Dietetics Practice-Based Research Network Oversight Committee. RDN demographics and practice characteristics were collected. Familiarity with and frequency of use of prediabetes guidelines from the Academy and four other organizations—ADA, American Association of Clinical Endocrinologists, Endocrine Society, and Department of Veterans Affairs/Department of Defense—were reported using a 5-point Likert-type response scale. Participants were also given a 17-question quiz to quantify their knowledge of the Academy's EBNPG; recommendation statements were provided and respondents indicated whether they believed each statement was part of the Academy's EBNPG, was not part of the EBNPG, or they were unsure.

The survey was 32 questions long with the potential for some questions to be skipped based on answers to previous questions. Before launching the survey, a panel of five experts in diabetes care reviewed the survey for face validity. In addition, three individuals served as beta-testers. Revisions were made based on comments from both groups. Institutional Review Board approval was obtained from the American Academy of Family Physicians. A waiver of signed consent was granted, but participants read and agreed to a consent statement on the first page of the survey.

The survey was distributed twice—once in July 2014 before the Academy's EBNPG's release (baseline) and again in March 2015 (6 months) after the guideline had been advertised for 6 months. The methodology for survey distribution remained the same for the two time points. The survey was e-mailed to all members of the Academy's Dietetics Practice-Based Research Network (n=2,040), the DCE

DPG (n=5,364), and RDNs who had self-identified as Medicare providers for diabetes (n=7,295). The total number of e-mails sent was 12,237, after duplicates from individuals who belonged to more than one group were removed. Only individuals who cared for patients with prediabetes were asked to participate in the survey, so the number of eligible respondents is much smaller than the number e-mailed. During each distribution the survey was open for a total of 27 days and a reminder e-mail was sent on day 21.

Baseline

The survey was open between June 19 and July 15, 2014. The Academy's EBNPG for the Prevention of Diabetes was published on July 14, but the release was not advertised until August. The survey did not explicitly state that the Academy's EBNPG was not yet published; participants were instructed not to use print or Internet resources to answer the knowledge questions.

Six Months

Between September 2014 and March 2015, the EBNPG was advertised using the following methods: banner ads on the Academy website where EBNPGs are housed, messages in weekly update e-mails to Academy members, messages on Academy social media feeds, and targeted e-mails to practice groups expected to be interested in the content (DCE; Medical Nutrition Practice Group; Nutrition Educators of the Public; Public Health and Community Nutrition Practice Group; Sports, Cardiovascular, and Nutrition; Weight Management, and Women's Health). In order to capture whether any of these targeted messages had reached survey respondents, questions were added to the survey at 6 months regarding preferred methods of learning about new guidelines.

ANALYSIS

Data represent two cross-sections with unknown overlap in respondents. Demographic and practice characteristics for baseline and 6-month respondents were described and compared using independent *t* tests or χ^2 tests. Demographic information was collected on the final page of the survey after the quiz. At both time points, a large number of respondents did not

complete the quiz, and although it was possible to skip forward to the demographic questions, only a very small number completed the demographic questions after skipping the quiz. Quiz completer status was assigned based on whether the first quiz question was answered. Therefore, the demographics represent only quiz completers for both time points.

Self-reported familiarity and frequency of use for each guideline were described using percent of respondents in each response category among quiz completers only. Self-reported familiarity and frequency of use for each guideline were compared at the two time points using χ^2 tests and Bonferroni post hoc comparisons. Because of concern that quiz completers and noncompleters might be different in their self-rated familiarity or frequency of use, we completed an unplanned analysis comparing the self-assessments between the two groups using χ^2 tests with data from baseline only.

Two content knowledge scores were calculated for each quiz respondent. A knowledge score for each individual was calculated using the number of correct quiz answers divided by the total number of statements. An "unsure" score for each individual was calculated using the number of statements marked unsure divided by the total number of statements. The mean scores were compared at baseline and 6 months using independent *t* tests.

The relationship between self-reported familiarity and self-reported frequency of use for each guideline (among quiz completers) was assessed using a χ^2 test at baseline only. The relationship between self-reported familiarity or frequency of use and knowledge/unsure scores were assessed using a one-way analysis of variance at baseline and 6 months.

The relationship between demographic characteristics and knowledge score was assessed at baseline and 6 months among quiz completers using correlations for years of experience and *t* tests for Certified Diabetes Educator credential and membership in the DCE DPG.

Analysis was conducted using SPSS software (version 20.0, 2011, IBM Corp). Significance was defined as $P < 0.05$. Tests for equality of variance were conducted and the appropriate follow-up statistics were used.

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