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In This Issue:

Feature Article:

Impact of "Evidence-Based Practice" Web-Based Modules on Perceptions, Attitudes and Knowledge of "Evidence-Based Practice" among Members of the Dietitians in Nutrition Support and Renal Dietitians Dietetic Practice Groups

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This article has been approved for 2 CPE units and the CPE insert can be accessed in the Members Only Section of the website from the CPE Inserts link.

Introduction

Evidence-based medicine (EBM) is "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients" (1). This approach to decision making integrates "the best research evidence with clinical expertise and patient values to answer a question about one's patient plan of care in order to optimize outcomes" (1). It is the ability to ask clinical questions, find the current best evidence, critically appraise the evidence and apply it to patients. It is essential to use the best research evidence in the care of patients to provide optimal treatment. EBM is also referred to as evidence-based practice (EBP) or evidence-based health care (EBHC). The concept of EBM is not limited to one health care profession, and may be applied to varied areas of dietetic practice.

The importance of EBM has become evident in the past few years in dietetics with the American Dietetic Association (ADA) promoting the development of evidence-based practice guidelines. The new ADA guides for clinical practice serve as benchmarks to evaluate the merit and efficiency of medical therapies by the government, private insurance companies and patients (2). ADA has appointed an Evidence-Based Practice Committee to oversee the development of these evidence-based guides for clinical practice and has introduced an online Evidence Analysis Library (3). Member training in evidence analysis and evidence-based grading is under the direction of ADA's Scientific Affairs and Research Team (3).

A criticism of the EBP guidelines, possibly from those who are uninformed, includes making diagnostic and therapeutic decisions based on medical literature while excluding the clinical knowledge and skill of the health care practitioner. Clinical practitioners are under increasing pressure to show that they are abreast of current knowledge and are providing services that are in line with recent clinical evidence (4). Another controversy is that EBP relies heavily on the meta-analysis of the results of randomized controlled trials (RCTs). The RCT is considered the "gold

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Articles about successful programs, research interventions, evaluations and treatment strategies, educational materials, meeting announcements and information about educational programs are welcome and should be emailed to the editor by the next deadline.

Future Deadlines:
March 1, 2008
June 1, 2008
September 1, 2008
December 1, 2008

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Remember to update your profile electronically in the 'members only' section of ADA's website. You will need your registration number and web password. Keeping ADA informed of your name and contact information will help avoid delayed issues of your Renal Nutrition Forum.

From the Editor's Desk

The start of a new year usually brings varied emotions as new resolutions are made after reflections from the past year. The following tips about how to follow through with resolutions and goals can be found at http://www.ElectricKites.com. Amy Ahlers, an International Certified Coach and Co-Founder of Electric Kites Success Coaching, provides these suggestions:

1. "**Write Them Down.** It's a fact: writing down your goals gives you a higher chance of success.
2. **Commit.** Move beyond the land of "good ideas" to promise yourself to show up for your goals. Perhaps you can do a ritual or ceremony to symbolize your commitment.
3. **Tell People.** Let your biggest fans in on your new commitments and goals for the year.
4. **Get Accountability.** Even better than just letting others in on your "secret" dreams and goals-get some accountability. Meet for lunch once a month with a group that will ask you, "So, how's it going with your goal?" Hire a life coach. Talk to your best friend. Get some support!
5. **Make a Plan.** Ensure success with a step-by-step plan. Electric Kites Success Coaching loves to work backwards by starting with the end vision of where you want to be and working backwards to where you are today. You'll find an easy plan to make your goal a reality."

On a professional level, I often find myself collaborating on a new project with co-workers. We usually strive to uncover new ways to optimize patient care and adherence. Timelines have been valuable tools that have helped us to stay focused on our current project and long-term plans. I have been fortunate to have the support of a terrific clinic manager who encourages not only creativity but also contributes new ideas. For example, a phosphorus game for the patients may be identified as a need, a one month timeline is established, and a specific plan is made to execute the project. We also evaluate the success of the task, look for ways to improve if necessary for the future, and share successful ventures with others.

Some valuable questions to ask yourself may include the following: what have I accomplished? What would I like to change? How can I improve? These same questions are being considered by the Renal Dietitians Practice Group and the Renal Nutrition Forum Editorial Board.

It was really great to network with colleagues, other professionals and vendors that were able to attend the ADA's Food & Nutrition Conference & Expo (FNCE) this past September in Philadelphia, PA. The Renal Dietitians Dietetic Practice Group co-planned an educational session and sponsored a member breakfast. Thanks again to all of you who attended and made it a success!

In this issue, we are pleased to be able to offer two articles that have been approved for a total of 3.5 continuing education units. The feature article explores the use of evidence-based practice (EBP). Anna Parker MS, RD, CDE, CNSD, et al. provides a research-based article that discusses the positive effect of providing EBP education for dietitians in order to expand the use of research in daily clinical practice. The Advances in Practice Article by Philippa Norton Feiertag MEd, RD, LD, continues to explore the use of EBP, and specifically focuses on the use of the medication megestrol acetate. The relationship between proinflammatory cytokines and anorexia in chronic kidney disease is explored. Lastly, useful insight about potential uses in this population is provided.

What will inspire you to develop resolutions to improve your contributions to the field of nephrology nutrition and patient care in the coming year? Remember the Renal Nutrition Forum can be a great "forum" to disseminate you ideas and research! Happy New Year!

Aimee Zajc, RD LD CNSD

standard" for evidence of effectiveness (4).

Byham-Gray reported the three most cited barriers by RDs in the US for applying research findings to dietetic practice included a lack of resources (time, money or staffing), poor organizational culture, and unsupportive health care team members (5). Other barriers to the adoption of EBP include attitudinal, perceptual and educational factors (6,7). Johnston et al. developed a self-administered questionnaire to assess EBP knowledge, attitude, behavior and perceptions in undergraduate medical students (7). Future use of EBP was positively correlated with the students' perceptions of themselves as EBP practitioners and the frequency of practicing EBP. Byham-Gray et al. report that the perceptions, attitudes and knowledge of EBP and level of education were identified as the strongest predictors of research score (6). Changes in attitudes, perceptions and knowledge are precursors to changes in behavior (7). Training RDs to apply EBP in their clinical decisions may increase use of EBP in the profession. Increasing knowledge and changing attitudes about EBP may lead to greater research involvement among RDs (6).

EBM is being promoted across the health care disciplines including dietetics. Clinicians must be able to locate, interpret and apply current best evidence to clinical situations. While previous research (5,8) has focused on the perceptions, attitudes and knowledge of RDs of EBP, there is a lack of published research demonstrating the effects of EBP training among RDs. This study explored the changes in EBP perceptions, attitudes and knowledge after completion of five web-based course modules and the relationship between these changes and their demographic characteristics among RDs who are U.S. members of the Dietitians in Nutrition Support (DNS) and/ or Renal Dietitians Dietetic Practice Groups (RPG) of the ADA.

Methods

Sample

The sample included RDs who were recruited from two dietetic practice groups (DPGs) of the American Dietetic Association (ADA): DNS and RPG. Members of the DPGs were invited to complete a questionnaire and five web-based course modules on EBP through an e-mail blast to its members through their listserv. Participants e-mailed the principal investigator (PI) requesting to participate in the research. Membership in the DPGs may overlap, however a system was established so no individual received more than one questionnaire. Each participant was assigned an online user identification to gain access to the questionnaire and web-based modules.

Study Design

The study employed prospective electronic pre- and post-web-based questionnaires used in conjunction with five web-based course modules. Participants accessed the questionnaires via a link using the URL for the Center for Continuing and Outreach Education (CCOE) of the University of Medicine and Dentistry New Jersey (UMDNJ). Participants received 15 hours of Continuing Professional Education units following completion of the five modules and post-questionnaire. Data was collected from September through October of 2006 using the *Dietetics Evidence-Based Practice Questionnaire.* This incorporated questions developed by Byham-Gray et al. (2005) entitled *Dietitian Research Involvement Survey* (5) which addresses perceptions, attitudes and knowledge of EBP among RDs. Questions regarding the demographic characteristics of the population were collected and included age, employment status, ethnicity, gender, level of education, primary area of employment, race, specialty certification, membership in DNS/ RPG (or both), and years of experience. The questionnaire incorporated a 5-point Likert scale to measure the perceptions and attitudes of participants (Table 2). Changes in perceptions, attitudes and knowledge were assessed through pre- and post- web-based questionnaires. The web-based modules were administered using WebCT, which is a distance education platform for learning.

Web-based Modules

Five web-based course modules on EBP developed by Byham-Gray et al. as part of a UMDNJ Academic Information Technology Advisory Committee (AcITAC) mini-grant (9) were used. The modules were interactive, and participants were able to advance at their own pace. The goal of the modules was to increase knowledge of EBP. Topics included learning how to formulate a searchable question, developing a search strategy,

Table 1
Response Rate by DPG

DPG (intial sample)	From Each DPG		From Total Sample (n=374)		Total Completing Study (n=155)	
	n	%	n	%	n	%
DNS (n=3399)	198	5.8%	198	52.9%	90	58.1%
RPG (n=2187)	132	6.0%	132	35.3%	46	29.7%
Both	36	0.6%	36	9.6%	16	10.3%
DPG not indicated	8		8	2.1%	3	1.9%
Total	**374**		**374**	**100%**	**155**	**100%**

critically appraising the literature, and applying the evidence to practice.

Results

Response Rate

Of the 5586 members of DNS and RPG, 18 % (n = 1006) responded to the e-mail blasts, and were useable responses. Forty-nine percent (n = 490 out of 1006) accessed the pre-web-based training questionnaire. Thirty-seven percent (n = 374 out of 1006) completed the pre-web-based training questionnaire, and forty-one percent (n = 155 out of 374) of participants who completed the pre-web-based training questionnaire completed the study. Response rates by DPG were as follows (Table 1):

The demographic characteristics of the study population were compared to the 1999 ADA Membership Database. Of the study sample, approximately 99% of participants (n = 370) were female and 1.1% (n = 4) were male. Slightly more than one third of participants represented the 46- to 55- year old age category (n = 136, 36.5%). The majority of participants were white (n = 340, 90.9%) and not Hispanic/Latino (n = 365, 97.9 %). The majority of participants represented the 46- to 55-year-old age group (36.5%) as compared to 25% in the ADA membership. Most participants had a higher level of education than the general population of ADA, with 46.0% having a master's degree compared to 41.3% in the ADA membership. In addition, the majority of participants worked in clinical-acute care facilities (64.7%) as compared to 34% in the ADA membership. The study sample was similar to ADA membership for race and ethnicity.

Prior to completing the EBP modules, participants received a perception/attitude score and a knowledge score. This was following the completion of a pre-web-based training questionnaire. A maximum perception/attitude score of 50 could be obtained. Participants' mean perception/attitude score was 39. 5 (SD = 4.8). Participants received a knowledge score which was based on the summation of 13 questions to assess awareness of EBP databases and terms in articles about EBP (relative risk, odds ratio, meta analysis, confidence interval, p-value significance). A maximum knowledge score of 60 could be obtained; the higher the score, the greater the knowledge regarding EBP. Participants' mean knowledge score was 29.4 (SD = 9.2).

After completing the EBP modules, the participants' mean perception/attitude score was 41.8 (SD = 3.9), with a range of 32 to 49. Participants' mean knowledge score post-web based training was 41.5 (SD = 6.5), with a range of 16 to 56.

Figure 1
Perception/attitude scores (n=155)

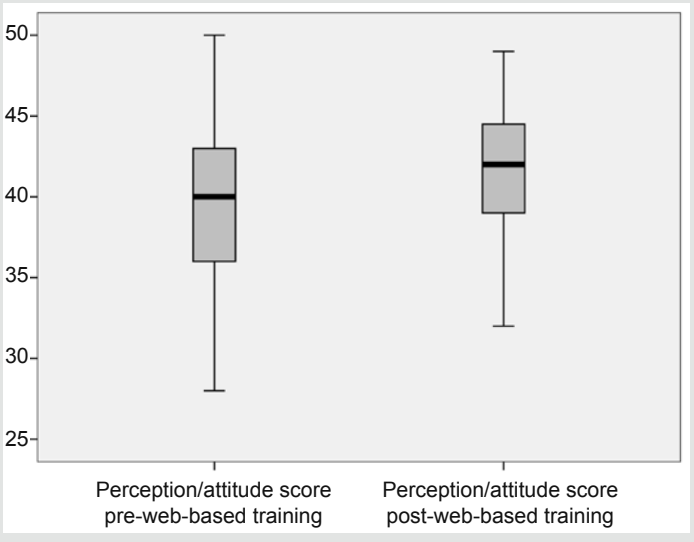


Table 2
Means, standard deviations (SDs) and significance analyzing the difference in perception/attitude scores after post-web-based training (n=155)

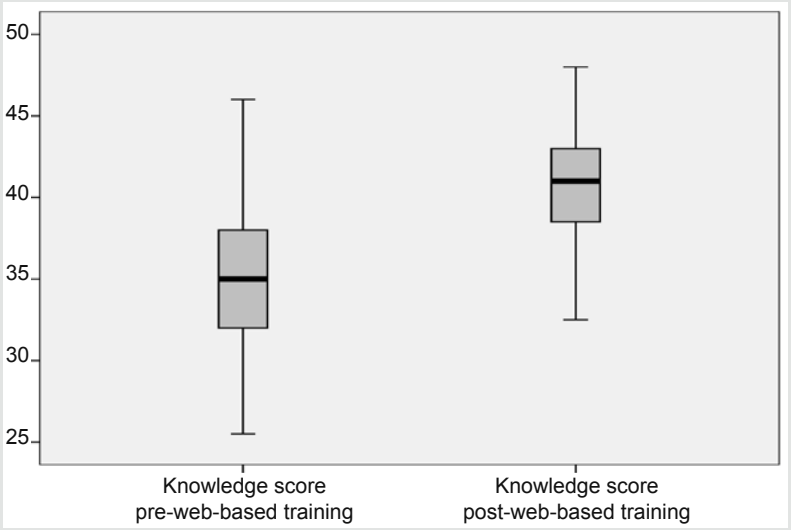
Statement	N	MS-pre†	SD	MS-post†	SD **	Paired t-test (t score)	p-value
Questions regarding perceptions of EBP							
There are many benefits to changing practice according to the latest research findings.	154*	4.3	0.7	4.5	0.7	-2.849	0.005
Evidence-based medicine is 'cook-book medicine' that disregards clinical expertise and patient's choice.	155	3.8	1.0	4.8	0.7	-10.968	<0.0005
Physicians and other health care professionals at my place of employment are supportive of implementing the latest research findings.	155	3.9	0.9	3.9	0.9	0.487	0.63
Research articles are not readily available at my place of employment.	155	3.5	1.4	3.7	1.3	-1.434	0.15
There is sufficient time on the job to implement new ideas.	155	2.9	1.2	3.0	1.2	-0.511	0.61
Questions regarding attitudes of EBP							
Practicing an evidence-based approach improves patient care.	155	4.3	0.7	4.7	0.5	-6.978	<0.0005
I am interested in using evidence-based practice in the care of patients.	155	4.6	0.6	4.8	0.4	-4.218	<0.0005
Research is relevant to my practice.	155	4.5	0.8	4.7	0.7	-3.723	<0.0005
I can use the results from published research in my job.	155	4.4	0.6	4.5	0.6	-1.981	0.05
I use evidence-based practice in the care of patients.	155	3.2	1.1	3.1	1.0	0.742	0.46

† MS-pre=Mean Score pre-web-based training; MS-post=Mean Score post-web-based training.
*One participant did not answer the question pre-web-based training.
**SD=Standard deviation

The changes in the participants' perception/attitude scores and knowledge scores were examined using paired t-tests. The mean perception/attitude score (± standard deviation) increased significantly (t = - 7.008, p < 0.0005) from pre-web-based training (39.5 ± 4.8) to post-web-based training (41.8 ± 3.9) with a mean change of 2.3 points (Figure 1). The greatest change in scores was for the statement: "Evidence-based medicine is 'cook-book medicine' that disregards clinical expertise and patients' choice." The number of participants who disagreed with this statement increased after web-based training (Table 2). This is in contrast to the study conducted by Johnston et al. who reported no significant change in attitudes towards EBP after EBP teaching in undergraduate medical students (7).

Questions that comprised the knowledge score were compared using paired t-tests (Table 3). The mean knowledge scores increased significantly (t = - 18.2, p < 0.0005) from pre-web-based training (29.4 ± 9.2) to post-web-based training (41.5 ± 6.5) (Figure 2).

Figure 2
Knowledge Scores



Scores reflective of participants' awareness of bibliographic databases (Table 3) increased significantly for the American College of Physicians Journal Club (t = - 9.404, p < 0.0005), ADA's Evidence Based Guides to Practice (t = -2.933, p = 0.004), Cochrane Database of Systematic Reviews (t = -11.005, p < 0.0005), and the ADA's Evidence Analysis Library (t = -5.944, p < 0.0005). There was no significant change in the pre/post assessment scores of Evidence-Based Medicine (t = 0.529, p = 0.598).

Paired t-tests were conducted to examine scores pertaining to statistical terms. There was a significant increase in participant's knowledge of 'relative risk' (t = - 9.107, p < 0.0005), 'odds ratio' (t = - 12.375, p < 0.005), 'meta analysis' (t = - 8.491, p < 0.0005), 'confidence interval' (t = - 8.327, p < 0.0005), and p-value significance (t = - 7.360, p < 0.0005) at the post-assessment.

There was no significant relationship between demographic characteristics and changes in

Figure 3
Level of education and change in knowledge scores

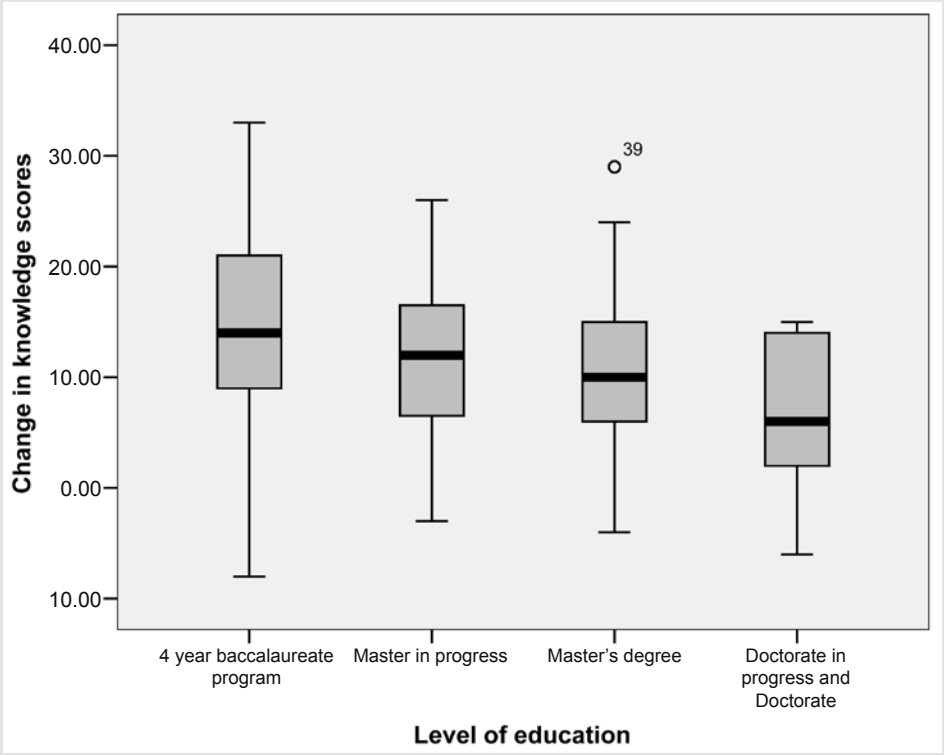


Table 3
Means, standard deviations (SDs) and significance analyzing the difference in knowledge scores after post-web-based training (n=155)

Statement	N	MS-pre†	SD	MS-post†	SD*	Paired t-test (t score)	p-value
Please check the item that indicates your awareness and use of Evidence-Based Medicine.	155	3.6	1.2	3.6	1.0	0.529	0.598
Please check the item that indicates your awareness and use of the American College of Physicians Journal Club.	155	1.2	0.6	1.9	0.7	-9.404	<0.0005
Please check the item that indicates your awareness and use of ADA's Evidence Based Guides to Practice.	155	3.1	1.3	3.4	1.1	-2.933	0.004
Please check the item that indicates your awareness and use of Cochrane Database of Systematic Reviews.	155	1.4	0.9	2.2	0.8	-11.005	<0.0005
Please check the item that indicates your awareness and use of ADA's Evidence Analysis Library.	155	2.5	1.3	3.0	1.1	-5.944	<0.0005
Please indicate your response to 'relative risk.'	155	2.3	0.8	2.9	0.8	-9.107	<0.0005
Please indicate your response to 'odds ratio.'	155	1.8	0.8	2.6	0.8	-12.375	<0.0005
Please indicate your response to 'meta analysis.'	155	2.3	0.9	2.9	0.9	-8.491	<0.0005
Please indicate your response to 'confidence interval.'	154**	2.0	0.9	2.6	0.9	-8.327	<0.0005
Please indicate your response to 'p-value significance.'	155	2.3	0.9	2.7	0.8	-7.360	<0.0005
Statement		**% Correct-pre†**		**% Correct-post†**			
What type of research is ranked the highest in the hierarchy of evidence?	155	65.2		91.0		-6.553	<0.0005
What is the first step in the evidence-based practice model for clinical decision making?	155	41.4		94.8		-11.292	<0.0005
The "PICO" technique to formulate a clinical question stands for:	155	29.0		88.4		-12.336	<0.0005

† MS-pre=Mean Score pre-web-based training; MS-post=Mean Score post-web-based training;
% Correct-pre=Percent Correct pre-web-based training; % Correct-post=Percent correct post-web-based training.
*SD=Standard deviation
**One participant did not answer the question pre-web-based training.

perception/attitude scores pre-and post-web-based training after conducting multiple one-way ANOVAs for ethnicity, level of education, primary area of employment, employment status and type of specialty certification.

There was a significant group effect for level of education ($F = 3.99$, $p = 0.01$) and change in knowledge scores (Figure 3). Post-hoc analysis using Tukey's Honestly Significant Difference (HSD) test, revealed a significant effect between a four year baccalaureate degree only and a Master's degree ($p = 0.02$).

Participants with a four year baccalaureate degree had a mean change in knowledge score of 13.95 (SD = 8.53), which was significantly greater than participants with a Master's degree (10.08 ± 6.66).

Participants who did not have a specialty certification had a significantly higher ($F = 5.54$, $p = 0.02$) mean change in knowledge of 12.51 (SD = 7.80) compared to participants who had a certification, 9.27 (SD = 7.54) . Post-hoc analysis using Tukey's HSD revealed a significant effect between participants with a specialty certification in "other" category versus those who did not hold a certification. ($p = 0.02$). Participants who did not have a certification had a significantly higher ($F=3.87$, $p= 0.02$) mean change in knowledge of 12.51 (SD = 7.80) than those who had a certification. There was a significant group effect for prior evidence analysis training and the change in the knowledge score pre-and post-web-based training ($F = 10.53$, $p = 0.001$). Participants who did not have prior evidence analysis training had a significant higher change in knowledge score of 12.24 (SD = 7.76) versus 5.53 (SD = 5.94) for those who did not.

Discussion

This study has examined the impact of EBP web-based modules on perceptions, attitudes and knowledge of EBP among members of DNS and RPG. Although previous studies have determined the perceptions, attitudes and knowledge of RDs in EBP (5), this is the first study to assess the impact of EBP education using distance education on RDs.

The majority of participants represented the 46 to 55-year-old age group (36.5%) as compared to 25 % in the ADA membership (10). This is similar to what was reported by Byham-Gray et al. (38.9%) (5). Closely related, Pravikoff et al. reported that the majority of nurses who responded to an EBP survey represented the 40 to 49-year-old age group who worked in a hospital (11). However, 5.9 % of participants represented the less than or equal to 25-year-old age group compared to 2.5 % in the ADA membership. This is in contrast to the results obtained by Byham-Gray et al. in which the response rate by younger RDs was less than the ADA membership (5). Most participants had a higher level of education than the general population of ADA with 46.0 % having a master's degree compared to 41.3 % in the ADA membership. The majority of participants worked in clinical-acute care facilities, as compared to 34% in the ADA membership (10). Byham-Gray et al. reported that 47.3 % of EBP study participants worked in acute care (5). The study sample was similar to the 1999 ADA membership for race and ethnicity. Approximately 6% of the membership of DNS and RPG participated in this study. Approximately one third of study participants held certifications as compared to the 2005 Compensation and Benefits Survey of the Dietetics Profession, which reported 17 % of RDs holding one or more specialty certifications (12).

Most participants agreed that practicing an evidence-based approach improves patient care, and the majority were interested in using EBP in the care of patients. Several studies have also reported that RDs recognize the value of research (5,6,8). However in the present study, only 34.5 % responded they used EBP in the care of their patients most of the time. Barriers included lack of time and availability of research articles at their place of employment. McKenna et al. identified that general practitioners believed barriers to using evidence-based practice were the limited relevance of research to practice, keeping up with all the current changes in primary care, and the ability to search for evidence-based information (13).

Evidence Based Medicine (14) was the most commonly used database among RD respondents to this questionnaire followed by ADA's *Evidence Based Guides to Practice* (3). Byham-Gray et al. reported that the ADA *Evidence-Based Guides to Practice* was rated the highest in terms of awareness and usage of bibliographic databases by RDs (5). Participants showed a low level of awareness of EBM databases. Most participants were unaware of the *American College of Physicians Journal Club* (15) and the *Cochrane Database of Systematic*

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Reviews (16). Similarly, Byham-Gray et al. report that 83 % of RDs were unaware of the *Cochrane Library* (5) and McColl et al. found that 60 % of general physician practitioners were unaware of the *Cochrane Database of Systematic Reviews* (17). Thomas et al. reported that among pediatric dietitians surveyed, most said they lacked the skills required for searching the literature (8). In addition, one of the findings was that most RDs were either unaware or aware, but did not use the *ADA's Evidence Analysis Library.* Only 5.3 % indicated that they used it regularly in practice. This is of concern since EBP has emerged as a major core competency for dietetic professionals (18).

Perception/attitude and knowledge scores changed after completion of the web-based training modules. After completing the five web-based course modules, the mean perception/attitude score for RDs increased. This is in contrast to the study conducted by Johnston et al., who reported no significant change in attitudes towards EBP after EBP teaching in undergraduate medical students (7). Scores did not increase for statements involving employment setting or time pressures. It appears the modules positively changed perceptions/attitudes that were perceived to be relevant and that participants felt they could control.

Knowledge scores also increased after web-based training. The results demonstrated that RDs were more aware of the *American College of Physicians Journal Club*, *ADA's Evidence Based Guides to Practice* and *Cochrane Database of Systematic Reviews*, and *ADA's Evidence Analysis Library* than pre-web-based training. Knowledge of statistical terms also increased. Ninety-one percent of RDs knew what type of research is ranked the highest in the hierarchy of evidence after web-based training as compared to 65.2 % prior to web-based training. Similarly, Gruppen et al. report that training students in EBM search strategies improved the quality of their searches (19). Johnston et al. report that post-assessment knowledge scores after EBP teaching improved in undergraduate medical students (7).

Demographic characteristics were not associated with changes in perception/attitude scores. However, the change in knowledge scores was related to level of education, specialty certification and evidence analysis training. RDs with a four year baccalaureate degree demonstrated the greatest positive change in knowledge score as compared to individuals with a master's degree. RDs that did not possess a specialty certification had a significantly greater change in knowledge scores than participants who did. In addition, although participants with prior evidence analysis training had higher knowledge scores pre-web-based training, knowledge scores after web-based training were not significantly different. In this case, it appears participants with the least amount of education and training had a greater change in knowledge scores which suggests that training RDs in EBP had a positive effect.

Strengths and Limitations of the Study

This study had several limitations. The questionnaires were not validated and did not take into account participants who did not work directly with patients. The study sample was restricted to two DPGs. In addition, it is possible that the participants who opted to participate felt the greatest need for improving their skills on EBP resulting in a possible response bias. However, the demographic characteristics of participants closely resembled the ADA membership. In addition, technical difficulties arose in accessing the URL for the Center for Continuing and Outreach Education of UMDNJ which may have contributed to the decrease in number of potential participants. Overall, the experience of study participants was positive based on comments: new awareness of databases, appreciation of the *ADA Evidence-Based-Library*, interesting content and learning approach.

Conclusions

This study explored the changes in EBP perceptions, attitudes and knowledge after completion of five web-based course modules. It also investigated the relationship between these changes and their demographic characteristics among RDs who are members of the DNS and RPG of the ADA in the United States. This study provides some encouraging evidence that perception/attitude and knowledge scores increased significantly in participants who had completed the web-based training modules. Susan Laramee, the 2005 ADA president, reported that, "State and federal government agencies, professional associations, purchasers of health care and regulatory organizations all increasingly demand that

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care delivery be based on EBP guidelines" (18). EBP may improve the quality of care and manage costs. ADA has recommended that all dietetic professionals engage in EBP, and that dietetics must truly become an EBP profession. Incorporating EBP in the nutrition care process provides the scientific strength behind our recommendations.

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Megestrol Acetate Therapy and Anorexia In Patients With Chronic Kidney Disease Undergoing Maintenance Dialysis

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This article has been approved for 1.5 CPE units and the CPE insert can be accessed in the Members Only Section of the website from the CPE Inserts link.

Anorexia, defined as the loss of desire to eat, occurs frequently in patients with chronic kidney disease (CKD) undergoing maintenance dialysis therapy and contributes to kidney wasting disease (1,2). A recent systematic review of 60 studies of symptom occurrence in patients with CKD on dialysis revealed a mean prevalence of 49% for anorexia (3).

Hemodialysis (HD) patients who report decreased appetite have lower protein intake, hemoglobin levels, and quality of life scores. They also have higher levels of pro-inflammatory cytokines compared with patients reporting normal appetite (4,5). Poor performance of usual activities has been attributed to deficits in protein and energy intake as well (6). More importantly, CKD patients with poor appetite and lower dietary protein intake have higher hospitalization and death rates than those with better appetite and protein intake (4,7-10).

CKD patients with anorexia require aggressive intervention to improve their nutritional status and quality of life while decreasing their risk for morbidity and mortality. Intervention often involves use of high-density nutrition supplements to increase calorie and protein intake. However, there is evidence that nutrition supplementation administered orally or in dialysate may not definitively improve nutritional status in patients undergoing maintenance dialysis therapy (11). In addition, few of these studies have been directed to determine the impact of nutrition supplements on rates of morbidity and mortality in this population (12,13).

Pilot studies with recombinant human growth hormone (rHGH), insulin-like growth factor-1 (IGF-1), and androgen therapy have shown anabolic effects in adult dialysis patients (14-19). However, administration of these agents is expensive and side effects may be serious (20). Studies involving patients with cancer and acquired immunodeficiency syndrome (AIDS) have shown increased appetite, weight gain and improved quality of life following therapy with the progestational agent megestrol acetate (21-24). Of particular interest is the finding that progestational agents appear to decrease the levels of proinflammatory cytokines associated with anorexia and cachexia (25). For these reasons, there is increased attention to the potential therapeutic effects of megestrol acetate in patients with CKD undergoing maintenance dialysis therapy. This article will examine the association between proinflammatory cytokines and anorexia in CKD, and review studies of megestrol therapy in this population.

Proinflammatory Cytokines and Anorexia

Food intake is regulated by neural and chemical signals transmitted to the hypothalamus in the brain. These signals originate from the gastrointestinal tract, liver, fat stores and circulating nutrients (5). Within the hypothalamus, catecholamine and serotonin pathways regulate food intake via the feeding center located in the lateral hypothalamus, and the satiety center in the ventromedial hypothalamus. Reduced food intake is associated with increased serotonin activity, which is synthesized from the amino acid tryptophan.

In patients with cancer, increased availability of tryptophan to the brain, and subsequent serotonin synthesis, has been implicated in the development of anorexia (26). Furthermore, interleukin 1 beta (IL-1 beta) and other cytokines released from malignant tissue may act directly on the satiety center to suppress food intake (27).

There is evidence to suggest that similar mechanisms may suppress appetite in patients with CKD (28). In patients undergoing maintenance dialysis therapy, an amino acid imbalance has been identified in anorexia. This imbalance is characterized by low concentrations of large

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neutral and branched chain amino acids in cerebrospinal fluid, which allows high levels of tryptophan to cross the blood-brain barrier and therefore increases serotonin synthesis (29).

High cytokine levels have been identified in patients with CKD undergoing maintenance HD and peritoneal dialysis (PD). Findings from one study suggest that the HD procedure may stimulate production of tumor necrosis factor (TNF) by peripheral blood mononuclear cells (PBMC) (30). High levels of TNF and interleukin-18 (IL-18) have also been detected in PD patients (31). Exogenously administered TNF is known to elicit symptoms of infection, including anorexia, and poor appetite in HD patients is associated with higher serum concentrations of interleukin-6 (IL-6) (32,33). These studies collectively may explain why cytokine-mediated anorexia in patients with CKD is resistant to hypercaloric feeding in the form of nutrition supplements.

Megestrol Acetate Therapy

Megestrol acetate was originally used in the treatment of metastatic breast and endometrial cancers. Increased appetite and body weight were frequent side effects of this therapeutic regimen, resulting in its application to treat malnutrition inpatients with cancer and AIDS (34). More recently, the use of megestrol acetate as a therapeutic agent for malnutrition has been investigated in geriatric patients.

In one study, 69 nursing home patients with a weight loss ≥ 5% of usual body weight over the previous 3 months or with body weight 20% below their ideal weight were randomly assigned to receive megestrol acetate oral suspension (800 mg/day) or placebo for 12 weeks (35). Improvements in body weight, fat mass and fat free mass in the treatment group at 12 weeks were correlated with a reduction in cytokine levels. Reduction in cytokines after megestrol acetate therapy also correlated with improvements in appetite, albumin and prealbumin levels, and quality of life (36).

Studies on megestrol acetate in patients undergoing maintenance dialysis therapy show mixed results.

These studies collectively indicate that small doses of megestrol acetate (up to 400 mg/day) may be effective and safe for treating anorexia and improving nutritional status in patients undergoing maintenance dialysis therapy. However, additional placebo-controlled studies with larger patient populations are needed to confirm these findings, and the impact of megestrol acetate on morbidity and mortality rates should also be determined.

Studies on megestrol acetate in patients undergoing maintenance dialysis therapy show mixed results, and findings from these studies are summarized in Table 1. In a placebo-controlled trial, 160 mg megestrol acetate daily had no effect on serum albumin or lean body mass in a small group of HD patients (37). However, a small group of dialysis patients (4 on HD and 12 on PD) with persistent hypoalbuminemia (serum albumin <3.5 gm/dl for 2 consecutive months) treated with a low dose of 20 mg megestrol acetate twice daily showed a mean increase in serum albumin from 2.7±0.1 to 3.0±0.2 gm/dl after one month (38). Patients in this study who responded to megestrol acetate also reported improved appetite. Neither of these studies addressed the impact of megestrol acetate on dietary intake.

A case study of safety and efficacy of moderate doses of megestrol acetate in a male maintenance HD patient evaluated body weight, body composition, dietary intake, appetite, nutrition-related serum chemistries and quality of life as outcome measures (39). The patient had HIV nephropathy with poor appetite and a 3 kg unintentional weight loss over a 3 month period prior to the start of the study. Treatment with megestrol acetate was initiated at 320 mg/day for 12 weeks. Since dry weight was unchanged, the dose was increased to 440 mg/day at week 13 and to 560 mg/day at week 20. After 24 weeks, the patient reported improved appetite, and energy and protein intake increased. The patient gained little body weight (0.5 kg) and serum albumin was maintained; fat mass increased by 7.5 kg (163%) and fat free mass decreased by 6.8 kg (10.6%) from baseline values.

Other studies have evaluated the impact of megestrol acetate on nutritional status in small groups of patients undergoing maintenance dialysis therapy. In one study, 17 elderly HD patients (mean age 68.5 years) with serum albumin < 3.5 gm/dl for 2 months, and deemed at high nutritional risk based on assessment by a renal dietitian, were prescribed megestrol acetate oral suspension (400 mg) twice daily for 6 months (40). Subjective

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Table 1
Summary of studies on megestrol acetate (MA) in patients undergoing maintenance hemodialysis (HD) and peritoneal dialysis (PD) therapy

Study population	MA dose	Study duration	Primary outcome	Side effects
24 HD patients (37)	160 mg/day	3 months MA; 3 months placebo	No significant increase in serum albumin or lean body mass	None reported
4 HD and 12 PD patients (38)	20 mg twice daily	2 – 11 months	Increased serum albumin	None reported
1 HD patient (39)	320-560 mg/day	24 weeks	Increased energy and protein intake; increased fat mass	None reported
17 HD patients (40)	400 mg twice daily	6 months	Increased dry weight, protein and calorie intake; improved SGA score	Diarrhea, confusion, hyperglycemia, headache, dizziness.
9 HD and 1 PD patient (42)	400 mg/day	16 weeks	Increased weight, BMI, body fat, triceps skinfold, serum albumin, protein and calorie intake	No major side effects reported
32 PD patients (43)	160 mg/day	23 months	Increased weight and serum albumin	None observed

global assessment (SGA) and nutrition-related serum chemistries were evaluated monthly, and dry weight was tracked throughout the study. A high incidence of side effects including diarrhea, confusion, hyperglycemia, headaches and dizziness caused some subjects to reduce megestrol acetate dosage or withdraw from the study. In 3 patients completing the entire study, dry weight, protein intake, calorie intake, SGA score and sense of well-being improved. There was no significant change in serum albumin or other laboratory parameters. In addition to the side effects reported by Boccanfuso et al, megestrol acetate therapy has also been linked to adrenal insufficiency, Cushing's syndrome and diabetes (40,41).

In a more recent study, 10 dialysis patients (9 maintenance HD and 1 chronic PD) received 400 mg megestrol acetate solution daily for 16 weeks (42). All subjects had body weight below 85% of ideal body weight or body mass index (BMI) below 20 kg/m^2, with recent unintentional weight loss exceeding 5-10% of dry weight or serum albumin below 3.7 gm/dl. These indicators were for 3 consecutive months prior to study commencement. Anthropometry, dual energy X-ray absorptiometry (DEXA), 24-hour diet recall and biochemical measures of nutritional status were performed throughout the study. Weight and BMI increased by 9%, body fat proportion and triceps skinfold by 31% and 40% respectively, and daily protein and calorie intake increased progressively up to 27-42% by the end of the study. Serum albumin increased from 3.0 to 3.3 gm/dl and continued to increase to 3.6 gm/dl 3 months after the study ended. No major side effects were observed.

When 32 PD patients were treated with 160 mg megestrol acetate daily for up to 23 months (mean treatment duration 5.93±5.12 months), appetite improved in more than two-thirds of the patients (43). Weight gain was statistically significant at the third month and there was a non-significant increase in serum albumin. No side effects were observed.

In secondary HPT,

NOT ALL RECEPTORS ARE CREATED EQUAL

Data show that the vitamin D receptor and the calcium-sensing receptor play independent roles in the pathogenesis of secondary HPT

Secondary hyperparathyroidism (HPT) begins at early stages of chronic kidney disease and becomes increasingly severe over time.[1,2] Disease progression is characterized by parathyroid gland hyperplasia—defined as cell proliferation—and gland enlargement.[3,4] It is crucial, therefore, to understand the factors that mediate parathyroid gland hyperplasia and its role in disease progression.[3-7]

Calcium, acting through the calcium-sensing receptor (CaR), and vitamin D, acting through the vitamin D receptor (VDR), have diverse effects in a variety of tissues[8] and independently impact parathyroid gland function.[4-6,9] Vitamin D directly diminishes parathyroid hormone (PTH) gene expression and hormone synthesis and indirectly reduces PTH synthesis and secretion by raising blood calcium levels.[7,10] In contrast, calcium signaling through the CaR directly inhibits PTH secretion and reduces PTH gene expression.[3,6-8]

Moreover, recent evidence suggests that signaling through the CaR is a key determinant of parathyroid gland enlargement and cell proliferation.[3,6] Findings from preclinical studies by Li et al suggested that calcium-dependent signaling through the CaR was sufficient to prevent parathyroid gland hyperplasia even in mice lacking a functional VDR whose tissues cannot respond to vitamin D.[6,11]

Research suggests that there are 2 independent pathways involved in the pathogenesis of secondary HPT.[5,12] Signaling through the VDR inhibits PTH gene expression and hormone synthesis[12] while signaling via the CaR affects PTH secretion, PTH synthesis, and parathyroid cell proliferation[3,6,12]—the last impacting parathyroid gland hyperplasia.[3,6,8]

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These studies collectively indicate that small doses of megestrol acetate (up to 400 mg/day) may be effective and safe for treating anorexia and improving nutritional status in patients undergoing maintenance dialysis therapy. However, additional placebo-controlled studies with larger patient populations are needed to confirm these findings, and the impact of megestrol acetate on morbidity and mortality rates should also be determined. Megestrol acetate is excreted by the kidney and is not removed by hemodialysis (37), indicating the need for caution when administering the drug to maintenance dialysis patients. Administration of megestrol acetate in doses exceeding 400 mg/day requires careful monitoring of patients for potential adverse effects.

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ADA Weighs In On Medicare

Medicare's Dialysis Center Interpretive Guidelines

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Medicare regulations stipulate expectations for nutrition care from RDs' in certain work venues, including renal dialysis clinics. Section 299I of the Social Security Amendments of 1972 originally extended Medicare coverage to insured individuals, their spouses, and their dependent children with End Stage Renal Disease (ESRD) who require dialysis or transplantation. The ESRD program became effective nearly 35 years ago on July 1, 1973, and operated under interim rules. Final rules were published in the Federal Register (41 FR 22501) on June 3, 1976.

The ESRD Amendments of 1978 amended title XVIII of the Social Security Act by adding section 1881 [specifically sections 1881(b)(10) and1881(f)(7)] which authorize the Secretary of Health and Human Services to prescribe health and safety requirements (known as "conditions for coverage" or CfC) that a facility providing dialysis and kidney transplantation to dialysis patients must meet to qualify for Medicare reimbursement. In addition, section 1881(c) of the Act established ESRD network areas and network organizations to assure that dialysis patients are provided appropriate care. The requirements from these sections are implemented in regulations published in Title 42, Part 405 of the Code of Federal Regulations, subpart U, Conditions for Coverage of Suppliers of End-Stage Renal Disease (ESRD) Services.

Nearly three years ago, on February 4, 2005, the Centers for Medicare and Medicaid Services (CMS) proposed new rules to modernize the 1976 CfC and section 1881 amendments, and to move toward a patient outcome-based system that focuses on quality assessment and performance improvement. According to CMS, the existing CfC did not require the facility to operate a patient-centered, outcome-oriented quality assessment and performance improvement program. The proposed rules separated out dialysis clinics from Part 405 and proposed a unique number, Section 494, for dialysis clinics alone.

What Did the Proposed 42 CFR 494 Require of Dietitians?

CMS proposed in §494.140(c) that the "qualified dietitian" be a registered dietitian with the Commission of Dietetic Registration, meet the practice requirements of the state in which he or she is employed, and have one year of clinical experience as an RD. ADA supported this proposed definition as being consistent with quality standards for dietetics practice. ADA's entire comments are available at: http://www.eatright.org/ada/files/ADACommentsreESRDFacilities505final.doc.

In October 2007, ADA (along with other stakeholders) was informed that these were drafted and are in the approval process. Stakeholders are individuals or groups who have a particular interest. For example, ADA is a stakeholder in these interpretive guidelines because so many of its members work in dialysis clinics. These new rules will require changes in the survey process, including new and revised interpretive guidelines which help surveyors assure patient health and safety.

What are Interpretive Guidelines?

Interpretive guidelines provide guidance to surveyors in understanding CMS' intent in the regulatory language. Stakeholders were given an opportunity to comment on the interpretive guidelines, with the firm instruction that the regulations themselves would not be changed.

With the input of the Renal DPG, ADA crafted comments on the interpretive guidelines consistent with CMS' instructions. These comments follow.

The comments address the issue of staffing and propose specific items for surveyors to consider when evaluating the adequacy of staff. CMS does not specify staffing ratios because available resources and severity of patient caseloads vary greatly among dialysis clinics across the nation. It is believed that staffing ratios should be determined locally. Therefore, there is considerable burden upon facility staff and surveyors alike to determine that safe and quality patient-centered care is being provided.

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ADA Weighs In On Medicare

Final regulations must be published in the Federal Register no later than February 2009. The CfC and interpretive guidelines by CMS will be published in the State Operations Manual which is available online at www.cms.hhs.gov.

Tag	Comment
480	Evaluation of factors associated with renal bone disease: *Delete Sensipar and substitute calcimimetic agent. Rationale: Avoid use of brand names in guidelines.*
571	Nutritional Status (Albumin). *Suggest adding language*: Ask to see the clinic's procedures for measuring and interpreting serum albumin as an indicator of nutrition status. What methodology has the clinic adopted?
665	Allocation of necessary staff and other resources for the facility's quality assessment and performance improvement program. *Suggest adding language*: Check if the dietitian conducts home dialysis visits and covers multiple clinics to account for time spent in travel, management of multiple QAPI programs, multiple care planning conferences, patients at higher nutritional risk, etc.
666	Adequate number of qualified and trained staff. *Suggest adding language*: Check if the dietitian conducts home dialysis visits and covers multiple clinics to account for time spent in travel, management of multiple QAPI programs, multiple care planning conferences, patients at higher nutrition risk, etc. *Rationale: Sept. 8, 2006, letter to Teresa Casey from ADA stated that "there are sufficient numbers of clinical RDs, and most likely no shortage of RDs who would qualify for renal positions as defined in the proposed rule. ADA is concerned, however, that the large case load most renal dietitians manage (…as many as 1:175-200…) potentially impacts staff turnover in some dialysis facilities. ADA previously suggested that CMS consider establishing an acuity-based staffing system that includes all members of the required interdisciplinary team. ADA recommends that CMS consider conducting a clinical trial that investigates the relationship of staffing load, which includes parameters of acuity level (such as timeframes for completing the comprehensive assessments and their frequency), with the quality and safety of patient care."*

REQUEST FOR PROPOSALS

THE ADA FOUNDATION AND ABBOTT NUTRITION

The American Dietetic Association Foundation with sponsorship from Abbott Nutrition is pleased to announce the availability of funding to support the development of a nutritional screening and assessment tool to identify people with chronic kidney disease (stages 1-5) who are at nutritional risk.

All proposals must provide a plan that demonstrates a collaborative effort to work with organizations who are leaders in the area of renal research and treatment, such as the American Dietetic Association Renal Dietetics Practice Group, the National Kidney Foundation Council on Renal Nutrition and the ASPEN Renal Practice Group. Application is limited to Registered Dietitians as Principal Investigators who are members of the American Dietetic Association. The scientific support for the tool must be consistent with the content of the Evidence Analysis Library and Nutrition Care Process and Standardized Language.

Initial funding in the amount of $50,000 is available. How to submit a proposal:
Interested applicants should submit 5 copies of the following no later than **April 18, 2008**:

1. A proposal describing your qualifications (and the qualifications of your research team/include curriculum vitae for principal investigator). The proposal should be 2,500 words or less.
2. A strategy for how the tool will be developed including a projected timeline.
3. A detailed budget for phase one (tool development) not to succeed $50,000.
4. A summary budget for phase two (tool testing).
5. Letters of support from collaborative agencies.

Please send questions/additional information, and applications to: Beth Labrador -blabrador@eatright.org - 312/899-4821

Christina Buccino MHHS,RD,LD
Clinical Dietitian
Fresenius Medical Care
Cortland, Ohio
Email:Christina.Buccino@fmc-na.com

The 2007 Food & Nutrition Conference & Expo (FNCE) held in Philadelphia, PA was a very positive experience for me. Attending FNCE took me, as a dietetics professional, outside of my every day world and elevated me to a new level of appreciation for the American Dietetic Association (ADA). There is an abundant amount of information that is shared with ADA members at this conference, and it began with the opening session keynote address from Jackie Freiberg, EdD entitled "Embrace Change Courageously, Stop Letting Fear Steal Your Dreams." This topic motivated us to embrace personal and professional changes courageously, and to find passion in what we do on a daily basis. There were quite a variety of topics at FNCE that were of interest to me, including ones on school nutrition and obesity, as well as some progressive areas of nutrition informatics and nutrigenomics. The town hall meetings on the future practice of dietetics education for 2017 were enlightening. One of my favorite presentations was called "Mindless Eating: Why We Eat More Than We Think." Brian Wansink, PhD and Denice Ferko-Adams, MPH, RD, provided a fascinating look into the psychology of food choices, and how offering nutrition information alone may not be enough to alter food choices for consumers.

In addition to FNCE offering interesting lectures, there was an Expo hall where there were the latest items used in our industry including kitchen equipment, specialty foods, resources, nutritional supplements, and more. The Expo hall contained over 410 exhibiting companies for one to view and experience. There were many great poster sessions of fellow colleagues to review as well. The ADA book store offered an up-to-date experience with many of the latest books and resources to purchase without the shipping and handling.

FNCE offers trips before and during the conference, which also helped with networking opportunities. My roommate and I enjoyed the Brandywine valley tour, which included touring the Chaddsford Winery and eating a nice lunch nearby at a glassblowing factory and restaurant overlooking the Brandywine River, Simon Pearce. Outside of FNCE there was a lot to do and see in Philadelphia. We went to the King Tut exhibit at the Franklin Museum of Art. It was a very memorable experience that my roommate and I will never forget.

The ADA Foundation also held their Dollars for Scholars Campaign with a silent auction, nutrition symposium, Rocky 5K Challenge, yoga sessions, pedometer program, t-shirt sale, and Bandstand Gala. The Renal Practice Group (RPG) donated a basket to the ADA Foundation silent auction. The RPG also hosted a membership breakfast sponsored by Abbott Nutrition, and later that day had a booth at the Dietetic Practice Group (DPG) showcase. At this booth our practice group officers were there to discuss the benefits of belonging to the practice group, had education materials for sale, gave paper clip holders with the logo on them, and had a drawing for a Clinical Guide to Kidney Disease if you guessed the correct number of kidney beans in a glass.

RPG and the Medical Nutrition Practice Group co-planned a session at FNCE titled "The Nutritional and Inflammatory Evaluation in Dialysis Patients (NIED) Study: What You Need to Know." This session's presenters were Kamyar Kalantar-Zadeh, MD, PhD, MPH, and Sara Colman, RD,CDE. Sara Colman RD, CDE, a nutrition project specialist for the study, shared how she and other DaVita dietitians contributed to the NIED study.

Dr. Kalantar-Zadeh is the lead investigator of the NIED study, a multi-center, prospective, dynamic cohort study which took place from 2001-2006, and an extension of the study is in progress. The NIED study targets approximately non-concurrent 900 maintenance hemodialysis (MHD) patients at DaVita dialysis units in the greater Los Angeles area.

The hypothesis of this study is that the protein-energy malnutrition-inflammation complex syndrome (MICS) is a major cause of the paradoxes observed in hemodialysis patients, and survival can be improved by nutritional interventions. Dr. Kalantar-Zadeh described how treating traditional cardiovascular risk factors such as obesity, hyperhomocysteinemia, high blood pressure, and hypercholesterolemia are not decreasing mortality in the HD population. In fact, Dr. Kalantar stated that research has shown that certain components of over-nutrition such as increased weight or high cholesterol can

➡

be protective to the dialysis population. Also a low body mass index (BMI), low cholesterol, creatinine and possibly homocysteine are risk factors for poor outcomes in dialysis patients. These relationships are known as reverse epidemiology when they are compared with the general population.

The NIED study aims to answer these questions:

- *How does the MICS lead to risk factor paradoxes in dialysis patients?*
- *Can changes in inflammatory markers over time explain changes in nutritional status, appetite, and food intake?*
- *Can food frequency questionnaires accurately assess food intake?*

According to Sara Colman, RD,CDE, a hypothesis also being reviewed in the NIED study was that a poor appetite is associated with inflammation, poor quality of life (QoL), and a poor response to epoetin alpha.

During the study, the dietitians' tasks included performing anthropometry measurements, Subjective Global Assessment (SGA), bio-electrical impedance analysis, food records, and near-infrared reactance to measure body fat. They also used a scoring system called the Malnutrition Inflammation Score (MIS). It is a useful and relatively easy tool to use. It is comprehensive, and expands on the SGA design. The MIS addresses internal inflammation and predicts clinically relevant outcomes such as hospitalizations and mortality. There are ten components: weight change, dietary intake, gastrointestinal symptoms, multi-morbidity, fat stores, signs of muscle wasting, BMI, serum albumin, and serum transferrin. MIS uses a one page scoring system that is universal and can be shared among members of the health care team.

Some of the interim conclusions of the NIED study are:

- *Some inflammatory markers and cytokines are associated with poor appetite in hemodialysis patients.*
- *Poor appetite is also associated with refractory anemia and increased epoetin alpha doses, as well as poor QoL.*

The question is, can we intervene earlier and make a difference? Can a numerical result of a uniform nutritional scoring system such as the MIS be a reliable predictor of morbidity and mortality? NIED study showed a need to continue to improve the MIS form and scoring system, and thus the evolution of MIS continues. For further information on the NIED study visit www.NIEDStudy.org. It is a very interesting and useful website to navigate. It allows the user to review many aspects of the study, and includes links to SGA and MIS scoring sheets.

Overall, the FNCE experience was a very worthwhile and an enjoyable event. Meeting new friends and seeing old ones can be one of the best experiences as well. I hope you can get to FNCE next year as it is being held on October 25-28, 2008 in Chicago, Illinois. Save the date now! You won't regret the experience.

2008 Board Certification For a Specialist in Renal or Pediatric Nutrition
http://www.cdrnet.org/certifications/spec/renal.htm

Next specialty examination:

Application Deadline (postmark)	**Examination Date**
September 2, 2008	November 3-21, 2008

To become a Board Certified Specialist in Renal or Pediatric Nutrition, you must first complete the eligibility application and successfully meet the following minimum criteria:

- Current Registered Dietitian (RD) status with CDR.
- Maintenance of RD status with CDR, for a minimum of 2 years from original examination date (by the time of the specialty examination date).
- Documentation of 2,000 hours of practice experience as an RD in the specialty area within the past five years (by the date the application is due). Please note: certain education and professional experiences can be used as a substitution for the required 2,000 specialty practice hours up to a maximum of 40% (800 hours).

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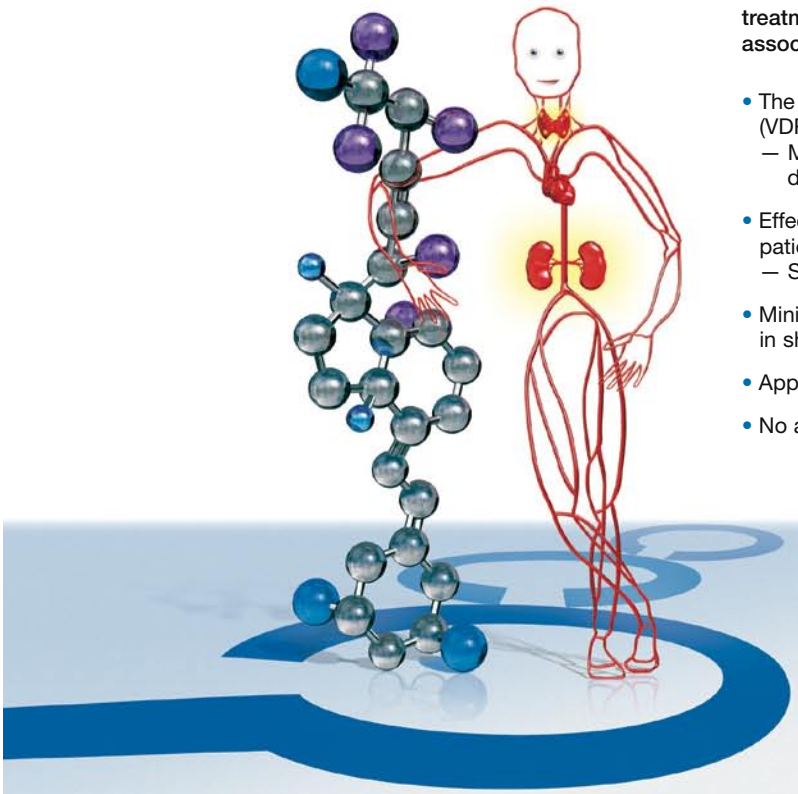

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†Based on an open-label, multicenter, long-term (up to 13 months in duration) study of CKD Stage 5 patients (N = 164). A subset analysis (n = 35) was conducted in patients with hyperphosphatemia (defined as baseline phosphorus >7.0 mg/dL, mean baseline phosphorus was 8.0 mg/dL). After a baseline or washout period, ZEMPLAR Injection was administered 2 to 3 times per week. Mean dose was 7.5 mcg per treatment. Dose was adjusted at the investigator's discretion.

Important Safety Information

- ZEMPLAR is contraindicated in patients with evidence of vitamin D toxicity, hypercalcemia, or hypersensitivity to any product ingredient
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- PTH should be monitored at least every three months and more frequently at initiation and dosage changes. Calcium and phosphorus should be measured at least monthly and more frequently at initiation and during dosage changes. If clinically significant hypercalcemia develops, the dose should be reduced or interrupted
- Adverse events with greater than 5% frequency with ZEMPLAR vs placebo, regardless of causality, were nausea (13% vs 8%), vomiting (8% vs 4%), and edema (7% vs 0%)

References: **1.** ZEMPLAR Injection [package insert]. North Chicago, IL: Abbott Laboratories; 2005. **2.** Data on file. Abbott Laboratories. **3.** IMS data. December 2006. **4.** Lindberg J, Martin KJ, González EA, Acchiardo SR, Valdin JR, Soltanek C. A long-term, multicenter study of the efficacy and safety of paricalcitol in end-stage renal disease. *Clin Nephrol.* 2001;56:315-323. **5.** Martin KJ, González EA, Gellens M, Hamm LL, Abboud H, Lindberg J. 19-Nor-1-α-25-dihydroxyvitamin D_2 (paricalcitol) safely and effectively reduces the levels of intact parathyroid hormone in patients on hemodialysis. *J Am Soc Nephrol.* 1998;9:1427-1432. **6.** National Kidney Foundation. K/DOQI clinical practice guidelines for bone metabolism and disease in chronic kidney disease. *Am J Kidney Dis.* 2003;42(suppl 3):S1-S201.

Please see adjacent brief summary of full Prescribing Information.
For more information, please contact your Abbott Renal Care representative or visit **www.zemplar.com.**

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A Promise for Life

Renal Dietitians Dietetic Practice Group (RPG) Celebrates its 30th Anniversary

Lois Hill, MS, RD, CSR
RPG Chair

I have been fortunate to practice as a renal dietitian for over 30 years, and have held RPG membership for these 30 years. I have also held an ongoing membership in the National Kidney Foundation Council on Renal Nutrition (NKF CRN). My American Dietetic Association RPG and NKF CRN memberships are complementary to each other. My objective in this message is to share the mission, vision, and goals of the RPG as well to reflect on the progress made by the efforts of the members and leaders of both the RPG and CRN.

How Did We Get Here?

Over 30 years ago, a typical hemodialysis diet prescription was for 20 grams protein, 1 gram sodium, 40 milliequivalents potassium, and a 500 cc plus daily urine output fluid restriction. Phosphorus was not a part of the diet restriction at that time since it was thought that the diet was already so limited. The diets were also high calorie and high fat. This translated into the inclusion of butter balls, a simple recipe of powdered sugar and butter. Hard candies, low protein bread, and low protein cookies were also incorporated. Amphogel cookies came along later, and were a short-lived recipe. Needless to say, our patients lost weight since their intake of these high calorie and high fat foods was low. These individuals also had significantly more uremia than today's patients since dialysis clearance was not as optimal during that time. As a first year renal dietitian, I had the good fortune to win a Kentucky Dietetic Association scholarship to attend a national renal nutrition meeting in Minneapolis. I can recall that low protein diet products such as cookies and bread were promoted as a low protein, high calorie addition to the renal diet. One could add extra butter and jelly to the low protein bread. At the time, hospital cooks added extra butter to the vegetables and to every possible item on the patient's meal tray. Extra sugar was also added to acceptable fruits and cereals.

We have made major strides in the quality of the renal nutrition plan in terms of transforming to a higher protein, lower fat, lower carbohydrate, and more liberal sodium, potassium and fluid diet plan. Undoubtedly, we also now recognize the important role that phosphorus plays in nephrology nutrition.

The archives of the Renal Nutrition Forum (formerly the Renal Dietitians Newsletter) have additional historical trivia which includes highlights by year:

1979: 180 RPG members
1981: Average hourly rate for outpatient dialysis center renal dietitians: $8.86
Legislative Issues: Sodium and potassium labeling
1983: Aluminum used as phosphate binder
1984: 900 RPG Members
Average hourly rate for outpatient dialysis centers renal dietitian: $10.79
Third party reimbursement and Nutrition Services Payment Systems
1985: Calcium Carbonate used as phosphate binder
1987: First joint publication between CRN and RPG: Clinical Guide
RPG approved proposal for Renal Nutrition Specialist submission
Suggested Clinical Guidelines published:
Intradialytic Parenteral Nutrition
Treatment of Renal Osteodystrophy
1989: 1300 RPG members
1993: First Renal Nutrition Specialist Exam – Boston
2002: Medicare provides payment for medical nutrition therapy for non-dialysis kidney disease
2007: 2200 RPG members

Where is the RPG Today in 2008?

RPG's **Mission** is:
To lead the future of dietetics by promoting and supporting its members working in nephrology nutrition

The RPG **Vision** is:
RPG members are a valued source of expertise in nephrology nutrition

The RPG **Strategic Goals** are:

Renal Dietitians Chair Message

- Promote and increase an engaged, diverse membership that is actively involved with renal nutrition

- Encourage quality nutrition care in chronic kidney disease by providing opportunities for professional education and development of effective patient education materials

  All RPG publications are currently under review. Watch for revisions and new publications

- Define scope of practice and standards of professional performance for dietitians in nephrology practice

  RPG and CRN have worked on a joint project to create standards of professional practice

- Stimulate, support, encourage and disseminate nephrology nutrition-related research

  RPG is working with ADA to establish the renal section of the ADA evidence based library, which is an ADA membership benefit

- Impact regulatory and legislative issues related to nephrology nutrition

In the 30 years since the RPG's inception, Medicare legislation was passed in 2002 to cover medical nutrition therapy for glomerular filtration rates from 13 – 50 mL/min/1.73 m² and post kidney transplantation for up to 36 months

CRN and RPG continue collaboration on labeling regulations for potassium. RPG and CRN have worked together as leaders for the profession to accomplish many important endeavors. A strong base has been built by our current and past members and leaders. I look forward to the bright future of nephrology nutrition in the years to come.

For more information on these RPG projects or other RPG issues, please visit the RPG web site **www.renalnutrition.org** for contact information and resources.

Thank You to all of our clinical peer reviewer members who made this issue possible:
Lynn Munson, RD, LD
Mary Sundell, RD, LDN, CCRP
Jerrilynn D. Burrowes, PhD, RD, CDN
Susan Salmi, RD, LD
Sarah Carter, RD, LDN, CDE, CNSD
Maureen P. McCarthy, MPH, RD, CSR, LD

Thank You also to:
Amy Hess-Fishl, MS, RD, LDN, BC-ADM, CDE for providing our CEU test questions.

Additional Thanks
are extended to RNF Managing Editor **Cathy M. Goeddeke-Merickel, MS, RD, LD** and RPG chair **Lois Hill, MS, RD, CSR, LD** and ADA Practice Team Manager and Director respectively, **Susan Dupraw, MPH, RD** and **Diane Juskelis, MA, LDN** for proof copy review.

Website Extras

Visit RPG's web site www.renalnutrition.org for:

Member voting access for the 2008 ADA & RPG candidates:
www.eatright.org/cps/rde/xchg/ada/hs.xsl/home_7770_ENU_HTML.htm
or via www.renalnutrition.org/ under "RPG News"

Calendar/Meetings section for an extensive list of conferences & add'l CPEU opportunities:
www.renalnutrition.org/calendar/index.php

Evidence Analysis Library (EAL) information and tips for using this valuable resource:
www.renalnutrition.org/members_only/resources.php

Current & archived PDF files of the Renal Nutrition Forum (RNF) Issues:
www.renalnutrition.org/members_only/forum.php

RNF CPEU Inserts:
www.renalnutrition.org/members_only/insert.php

CRN Chairperson Message

The More Things Change, the More They Stay the Same

Maria Karalis, MBA, RD, LDN
CRN Chair

As I have transitioned into the role of the CRN Chair, many have asked me questions along the lines of, "So what's the first thing you are going to change? What's your vision for CRN? Will you begin any new programs?"

To be honest, I didn't have any big plans for changing the course of CRN. I quickly discovered that my role was mostly about listening and helping to build coherence and clarity around our *collaboratively developed vision, mission and overarching goals*. I also realized that in order for us to advance our agenda, we each had to take on leadership positions in spearheading various initiatives.

Your CRN executive committee recently participated in a strategic session to focus on what we as an organization do well (and why), and what we can do better in the future. After this 3-hour session, we identified four areas to focus on:

1. Increase patient education efforts across the continuum of chronic kidney disease (CKD), including post-transplant and pediatrics
2. Increase awareness of CRN membership not only to renal dietitians but to generalists who see CKD patients (often times before we do)
3. Increase communication to local CRN chapters to share resources and make connections towards achievement of shared goals and objectives
4. Increase research efforts in areas where renal nutrition scientific gaps exist (the National Kidney Foundation Board of Directors has voted to double research spending over the next 5 years from $2.8 million to $5.6 million).

Full details of this strategic session will be available soon on www.kidney.org.

On the flight home from the meeting, I realized that *the more things change, the more they stay the same*. What CRN stands for, and why we exist will never change. Our strategies will be amended in the midst of an ever-changing world, but our core values and enduring purpose will always remain constants.

As NKF embarks on their strategic plan to include major infrastructure changes, we are excited for the future. We are confident that the vision and goals we have been focused on for so long will continue to support our profession and the population we serve.

CRN Vision: To enhance the lives of everyone with, at risk of, or affected by kidney disease.

CRN Mission: The Council on Renal Nutrition (CRN) functions as a professional council within the framework of the National Kidney Foundation (NKF) and networks with other organizations to support the NKF's goal of making lives better for those with chronic kidney disease through education, outreach, and research in the field of nutrition as it pertains to prevention, eradication and treatment of kidney and urologic diseases.

Over-arching CRN Goals:

1. Promote and encourage quality nutrition care of all patients with CKD
2. Support the profession of the nephrology dietitian and promote professional education
3. Develop and promote patient and public education
4. Stimulate, support, encourage and disseminate nutrition-related research
5. Work with the American Dietetic Association (ADA) to impact regulatory and legislative issues as it pertains to nephrology dietitians and the nutrition care of CKD patients
6. Maintain and increase council membership
7. Maintain fiscal accountability within the NKF structure in support of CRN goals

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Vision: RPG members are a valued source of expertise in nephrology nutrition.

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RNF Guidelines For Authors

Article length: Article length is determined by the Editor for each specific issue. The feature article (including abstract) is approximately 3000 words (not including tables/graphs). Other articles are usually 1000-1500 words; member highlights and reports are approximately 400-500 words.
Text format: Times New Roman font, 12 point, double space.
Tables/illustrations: Tables should be self-explanatory. All diagrams, charts and figures should be camera-ready. Each should be accompanied by a title and brief caption that clearly explains the table, chart, diagram, figure, illustration, etc.
References: References should be cited in the text in consecutive order parenthetically. At the end of the text, each reference should be listed in order of citation. The format should be the same as the *Journal of the American Dietetic Association.*
Reference citation examples:
Article in periodical:
Knower WC, Barrett-Connor E, Fowler SE, et al. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Eng J Med*. 2002;346:393–403.
Book:
Institute of Medicine. *Dietary Reference Intakes: Applications for Dietary Assessment*. Washington, D.C.: National Academy Press; 2001.
Chapter in a book:
Walsh J. Which insulin to use and how to start. In: *Using Insulin*. San Diego, Calif.: Torry Pines Press; 2003.
Web site:
Medscape drug info. Available at www.medscape.com/druginfo. Accessed Feb. 3, 2004.
Author information: List author with first name, middle initial (if any), last name, professional suffix and affiliation (all in italics) below the title of the article. Also include the primary author's complete contact information including affiliation, phone, fax and email address.
All submissions for publication should be submitted to the editor as an email attachment (MS word file). The feature articles from the Renal Nutrition Forum will be posted on the Members Only Section of the RPG website (password protected). Thus, please include a brief abstract along with feature article submissions.

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