Lessons learned from nutrition curricular enhancements

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ABSTRACT
The Nutrition Academic Award funded 21 US medical schools to develop, implement, evaluate, and disseminate nutrition curricula for medical students, residents, and physicians in practice over a 5-y period. This article summarizes some of the important lessons learned from this process and offers guidance and strategies for long-term success of nutrition curricular enhancements. Medical educators need to continue to develop, implement, evaluate, and disseminate nutrition curricula with and without funding. By using the lessons learned and the products developed by the Nutrition Academic Award schools, educators will be in a position to enhance their medical curriculum. Am J Clin Nutr 2006;83(suppl):968S–70S.

KEY WORDS Nutrition education, medical students, Nutrition Academic Award, medical school, nutrition curriculum, medical education

INTRODUCTION
When I think about the lessons learned from the Nutrition Academic Award (NAA) process, the first expression that comes to mind is a quote from Dr Gail Morrison, Vice Dean for Education at the University of Pennsylvania School of Medicine. At the 2003 NAA Annual Meeting in Philadelphia, she said, “In real estate we say, location, location, location. In nutrition, it is all about timing, timing, timing.” Morrison was right: the timing of the NAA program (1997 to 2004) could not have been better (1). The nation is facing an obesity epidemic in both adults and children, and spending as a result of this has been estimated at $92.6 billion in 2002 (2–4). Medical schools and residency programs have recognized that their graduates need to be competent in nutrition and prevention (5, 6). The Association of American Medical Colleges (AAMC) is developing Learning Objectives for Medical Education on the topic of obesity, which is an initiative designed to reach a general consensus within the medical education community on the skills, attitudes, and knowledge that graduating medical students should possess (7).

In 2002 the National Board of Medical Examiners (NBME) approved a nutrition subscore for the Step 1 US Medical Licensing Examination (USMLE) on the basis of recommendations from various nutrition interests groups, including the Michigan Medical Nutrition Education Consortium and NAA members (8). The nutrition subscore is a separate score that is shown on the 2003 NAA Annual Meeting in Philadelphia, she said, “In real estate we say, location, location, location. In nutrition, it is all about timing, timing, timing.” Morrison was right: the timing of the NAA program (1997 to 2004) could not have been better (1). The nation is facing an obesity epidemic in both adults and children, and spending as a result of this has been estimated at $92.6 billion in 2002 (2–4). Medical schools and residency programs have recognized that their graduates need to be competent in nutrition and prevention (5, 6). The Association of American Medical Colleges (AAMC) is developing Learning Objectives for Medical Education on the topic of obesity, which is an initiative designed to reach a general consensus within the medical education community on the skills, attitudes, and knowledge that graduating medical students should possess (7).

In 2002 the National Board of Medical Examiners (NBME) approved a nutrition subscore for the Step 1 US Medical Licensing Examination (USMLE) on the basis of recommendations from various nutrition interests groups, including the Michigan Medical Nutrition Education Consortium and NAA members (8). The nutrition subscore is a separate score that is shown on the students’ and schools’ report indicating how they performed on the items identified and coded as nutrition by the NBME. In addition, the Step 2 exam continues to include a subscore on how students performed on the questions related to nutritional and digestive disorders. Concurrent with the process, 21 medical educators from the NAA, consisting of physicians and nutritionists, were invited to review the Step 1, 2, and 3 exams and made recommendations to the NBME committee chairs regarding the quality and appropriateness of the items to be included in the nutrition subscore. We were also asked to develop new questions, which are currently being tested, and a few physicians from NAA and non-NAA medical schools have been appointed to various committees as item writing experts. This unpublished work follows up the author’s dissertation research looking at the nutrition content of the USMLE Step 1 and 2 exams, which was previously published (9).

LESSONS LEARNED
Lesson #1: Be creative and think out of the box when you are developing a nutrition curriculum
It is reasonable to believe that medical students and faculty recognize that proper nutrition plays a key role in the prevention and treatment of the top killers in the United States. However, most of us realized early on that nutrition has to be taught in an interesting and clinically relevant way for students to enjoy this process (10). Medical students are eager to learn nutrition, but as with most students, they need to be challenged and stimulated. For example, in 2005, I held a press conference on the day the new food pyramid was announced by the US Department of Agriculture (11). I invited the entire student body, first-year through fourth-year students, and served a healthy lunch. At least 100 students attended, which was the highest turnout for a non-required symposium given by the medical school faculty in many years. Always consider interactive, small group sessions; panels with patients; multidisciplinary symposiums; problem-based learning cases; Web-based diet analysis; standardized patients; a vitamin jeopardy game; supermarket tours; self-study computer programs; shadowing dietitians; and anything else that might stimulate students’ interest (12–17). When nutrition is presented in an interactive, fun, and memorable way, students are more engaged and motivated.

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likely to remember the nutrition content and to evaluate the programs favorably.

Many of the NAA schools have posted innovative educational products on their websites, which can be accessed from the national NAA site (18–20). If there are enough students, consider developing a student interest group in nutrition or a nutrition elective for fourth-year students that can range anywhere from 1 to 4 wk.

**Lesson #2: Gain support for nutrition at the highest political level possible**

My colleagues often ask me how I was able to get so much nutrition content into the University of Pennsylvania School of Medicine’s curriculum (10). I believe we made significant advances because of all the roles that Dr Morrison has played in the educational administration. Over the past 2 decades, she was course director for Introduction to Clinical Medicine, Pathophysiology, Clinical Nutrition, and the Medicine Clerkship. In 1990 she was appointed Associate Dean for Clinical Curriculum, and in 1995 she became Vice Dean for Education. By gaining support from the deans, course directors, and clerkship directors at a very early stage, we were able to convince a group of multidisciplinary faculty to become involved. This foundation has been critical to the long-term success of our programs. Nutrition seems very obvious to us as nutrition educators and specialists, but it is still a very political process at medical schools and health systems. Remember, timing is everything. If you don’t get support immediately, persevere, because I believe that all medical schools will eventually be held accountable to graduate doctors who can talk to their patients about diet and lifestyle and provide effective nutritional counseling to prevent and treat chronic diseases.

**Lesson #3: Establish a nutrition curriculum committee or task force**

Building on the above lessons, establishing a nutrition curriculum committee or task force should be your first step. Include faculty with an interest in nutrition and dietitians from the departments of pediatrics, medicine, family medicine, obstetrics and gynecology, surgery, gastrointestinal medicine, endocrinology, biochemistry, etc. Include course directors from basic science and clinical curriculum and clerkship directors who have experience with and understand the realities of the medical school curriculum. Schedule meetings a few times a year and plan to present to the curriculum committee at least one time per year.

Your charge should be to assess the curriculum and develop stimulating approaches and a plan of action or strategies to teach nutrition (Figure 1). By having a multidisciplinary effort, you will be more likely to integrate nutrition across the entire 4-y curriculum, rather than in just one course or one lecture (21). The best way to accomplish this process is to work closely with the faculty at your institutions who are interested in nutrition. Making contact with these individuals and setting up a committee will give you a much greater platform when trying to gain support from the highest level.

**Lesson #4: Focus on training more faculty in nutrition**

One of the biggest barriers to expanding and sustaining a strong nutrition program is the lack of trained faculty who can teach nutrition, mentor students, and serve as role models for both basic science research and clinical practice. Therefore, faculty development sessions are helpful to accomplish this process. Teaching nutrition knowledge and skills to primary care practitioners has been accomplished by several NAA schools, and this can only strengthen the educational process for medical students and residents (22). Translating the vast amount of nutrition science and teaching this content to medical students within a packed curriculum requires prioritizing. Concentrate on the body of knowledge, practice behavioral skills students should attain, and encourage faculty to give input into this process. The more physician role models and mentors become available for students and residents interested in nutrition, the more we will foster their interests. Consider holding a few half-day retreats each year to facilitate this process. Many universities have funding mechanisms to support these types of endeavors.

**Lesson #5: Always evaluate your programs**

The stronger your evaluation component, the greater chance you will have in convincing the administration that your programs are effective. Evaluation programs can consist of pre- and post-knowledge-based questionnaires, reviewing the AAMC Graduation Questionnaire (Figure 2), and chart reviews of patients who have received nutrition counseling by medical students or residents (7, 8, 23–28).

**FIGURE 1.** Nutrition curriculum committee tasks and process.

**FIGURE 2.** Percentage of students reporting on the Association of American Medical Colleges graduation survey (1991–2005) that the time devoted to nutrition instruction was inadequate. ■, all schools; □, University of Pennsylvania School of Medicine.
Standardized patients are also being used by most medical schools to evaluate students’ clinical skills and attitudes. Incorporating nutrition into these patients’ history and physical exam findings, as well as the checklist (height, weight, BMI), can help assess students’ ability to nutritionally assess patients and to provide effective counseling aimed at behavior and lifestyle change.

Since the NBME approved the nutrition subscore on the USMLE Step 1 exam, all students and schools have received an individual score of how they performed on the items identified on this exam as nutrition related. It is therefore very important to make contact with your student affairs office or the designated faculty in your curriculum office who receives the NBME results, including the subscores, for your school. The nutrition subscore will be listed as an average of all your students and will be shown as an SD compared with the national average. I believe this nutrition subscore has a positive impact on medical students because it acknowledges the importance of nutrition in medicine.

CONCLUSION

In conclusion, as a full-time nutrition educator in medical schools for the past 15 y, I have learned many lessons. I have tried to highlight the top 5 as a way to show the most important issues for both short-term results and long-term benefits and “staying power.” Without longevity, a nutrition program is not worth designing and implementing. It will never be easy to “get more time” in a medical school, and this is essentially what we are demanding. When something goes into the curriculum, another topic usually has to be moved, condensed, or eliminated, and this can upset many faculty members. But with poor nutrition playing such a huge role in society now, timing is on our side. Remember, in my opinion and based on my experience, it is all about making friends; teaching at a very high mechanistic, evidenced-based level in a stimulating manner; and being able to support your teaching efforts. If you use the vast amount of resources that the NAA faculty have developed, you will save yourself hundreds of hours of work. Good luck!

I want to thank Gail Morrison for her incredible support and mentoring over the past 15 y. Her recognition that nutrition needed to be an integral part of the medical school curriculum was key to our success. I would also like to thank the American Society for Clinical Nutrition and the Dannon Institute for recognizing my work by giving me the 2005 Roland Weinsier Award for Excellence in Medical/Dental Nutrition Education. I am truly grateful. I want to recognize Virginia Stallings at the Children’s Hospital of Philadelphia for helping to establish the foundation at the University of Pennsylvania School of Medicine that was needed to make all of this possible. We are all very grateful to the NHLBI for supporting the Nutrition Academic Award Program. Thank you also to Galina Movshovich for her assistance in preparing this manuscript.

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REFERENCES