

Teaching Behavior Change Concepts and Skills During the Third-Year Medicine Clerkship

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Abstract

Risky health behaviors and social factors are linked to half of all causes of morbidity and mortality in the United States. Physicians report lack of training as one of the barriers to providing behavior change counseling. Formal behavior change curricula are infrequent in medical schools, and where they are available, they are often isolated from clinical experiences or presented through a limited approach. The authors developed the Health Beliefs and Behavior (HBB) course at University of Medicine and Dentistry–New Jersey Medical School (UMDNJ–NJMS) to teach

the impact of unhealthy behaviors on health and wellness, to broaden students' understanding of the many factors that affect behavior, and to give medical students tools to facilitate health behavior change in patients. To the authors' knowledge, this is the only comprehensive, clinically integrated course on health behavior change in a U.S. medical school.

The authors intercalated the 60-hour HBB course in the four-week, third-year internal medicine clerkship ambulatory block. Thus, students practice learned techniques in both the ambulatory and

classroom settings, and they gain insight into health behavior by applying learned health models to patients and engaging in experiential exercises. Course components stress the biopsychosocial and patient-centered approach. The authors measure the impact of the course through student surveys. Third-year medical students at UMDNJ–NJMS who have completed the HBB course report enhanced understanding of the principles of behavior change and improved ability to perform behavior change counseling.

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Half of the causes of morbidity and mortality in the United States are linked to behavioral and social factors.¹ Yet, only 3% of U.S. citizens adhere to abstaining from smoking, maintaining a healthy weight, eating adequate amounts of fruits and vegetables, and exercising regularly; further, almost 10% of U.S. citizens adhere to none of these components.² Changing the health behaviors of U.S. citizens has the greatest potential of any

current approach for decreasing morbidity and mortality and for improving the quality of life across diverse populations.³

Physicians are in a unique position to motivate and assist patients in behavior change. Emerging evidence shows that patients who receive counseling from their practitioners are more likely to change behavior and to adhere to plans of care. Research has demonstrated that brief clinician counseling is effective in tobacco cessation, reduction of problem drinking, and increased condom use.^{4–6} Effective interventions for other unhealthy lifestyle behaviors such as eating poorly and exercising too little or not at all typically involve behavior counseling techniques (e.g., self-monitoring) in addition to multiple methods of communication to assist patients in undertaking behavior changes.^{7,8} Despite the ability of physicians to impact patient behavior through appropriate interventions, and despite government goals (documented in Healthy People 2010) to increase rates of physician counseling on health behaviors,⁹ several studies have documented a paucity of health behavior counseling by physicians: fewer than 45% of adults with hyperlipidemia, hypertension, obesity, or

diabetes mellitus receive diet counseling, and fewer than 30% receive physical activity counseling.¹⁰ Physicians identify patients' smoking status in 68% of visits, but they counsel about smoking in only 20% of these visits.¹¹ Physicians report that both a lack of knowledge and discomfort in counseling are barriers to behavioral change counseling.^{12–15} Similarly, medical students and primary care residents report being ill-prepared to counsel patients on preventive issues.^{16–18}

Medical students receive necessary training to prepare them for their future roles as physicians. The Institute of Medicine (IOM) report, *Improving Medical Education: Enhancing the Behavioral and Social Science Content of Medical School Curricula*, lists inclusion of health risk behaviors and principles of behavior change in the medical student curriculum as a high priority.¹⁹ Yet, a divergence exists between the call for medical student education on behavior change and the availability of such programs in U.S. medical school curricula. After an extensive literature search, we could find no published report of a comprehensive, clinically integrated medical school course on facilitating behavior change. Determining the prevalence of behavior change curricula in U.S. medical schools

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through either the Curriculum Management and Information Tool (CurrMIT) or published curricular surveys is difficult; the inclusion of the topics of preventive medicine, communication skills, or counseling for risk reduction does not necessarily imply training in facilitating behavior change. Published reports of tobacco cessation²⁰ and other prevention counseling curricula are generally limited in scope. The courses they describe usually occur in the first or second year of medical school, and most are not integrated with clinical experiences. Although excellent communication is one of the critical factors in facilitating behavior change, few reports describe as components of clinical skills training either motivational interviewing (a patient-centered yet directive behavior change counseling approach through which the practitioner helps patients explore their ambivalence, elicits “change talk,” and collaboratively determines behavior change plans)^{21–24} or broad communication skills training (e.g., asking open-ended questions, building rapport, exploring patient’s beliefs and fears, listening and facilitating).^{25–27} Training in both motivational interviewing and broad communication skills prepare students for behavior change counseling. One school reports the incorporation of behavior change concepts in a longitudinal curriculum during the first 16 months of undergraduate medical training, but the instructional methods are limited to lecture and discussion, and the authors concede that “until they have some real clinical experience, some medical students don’t know what to do with parts of the [social and behavioral science] material.”²⁸

An Opportunity for Change

In August 2004, University of Medicine and Dentistry of New Jersey–New Jersey Medical School (UMDNJ–NJMS) implemented a comprehensive four-year curriculum entitled the Jubilee Curriculum. An integral component of the Jubilee Curriculum was a course called Health Beliefs and Behavior (HBB) dedicated to training students in behavior change techniques. The HBB course built on the communication and behavioral medicine instruction in the revised first- and second-year curriculum. Initially planned as a two-week, stand-alone course in the third year, the curriculum committee

concluded that HBB would be most effective if integrated with ongoing clinical activity. Consequently, they modified a two-week ambulatory block in the internal medicine (IM) clerkship, which was a component of the revised 10-week IM experience, so as to incorporate the two-week HBB curriculum. Accordingly, they expanded the two-week ambulatory IM block to run for a four-week period with the time divided each week between ambulatory IM clinical experiences and HBB. The result was a mandatory, 60-hour HBB course given through rotating, four-week intervals to third-year medical students concurrent with the ambulatory portion of the IM clerkship (other third-year clinical clerkships included surgery, family medicine, pediatrics, obstetrics–gynecology, and psychiatry). Consequently, each of the four weeks consisted of 15 hours devoted to the HBB curriculum and five half-day ambulatory sessions (20 hours) in IM. To create an intimate dynamic, the curriculum committee limited the number of students to approximately 9 to 15 per month, with the course repeated 12 times throughout the academic year, allowing all students to participate by year’s end. One of us (E.M.), an internist, served as course director, provided the majority of the teaching, and received funding from the office of education to devote 50% of her time to this initiative. Given the interdepartmental nature of the course, faculty from the IM, family medicine, psychiatry, and pediatrics departments actively participated throughout the four weeks.

Course Development and Description

Curriculum development relied on extensive review of the literature, consultations with content experts, and a local needs analysis, which one of us (E.M.) conducted through faculty interviews, resident focus groups, and community leader focus groups. Content experts included health behavior researchers; health psychologists; clinical psychologists, psychiatrists, pediatricians, internists, and family practitioners all with a special interest in behavior change; registered dietitians; nurse practitioners; masters and doctors of public health; and preventive medicine researchers from UMDNJ–NJMS, UMDNJ School of Public Health, UMDNJ–School of Health

Professions, and Rutgers University. An HBB committee, chaired by the HBB course director and one of us (E.M.), and composed of faculty representatives from participating medical school departments and the UMDNJ School of Public Health, provided guidance. The HBB committee met monthly for hour-long meetings five times prior to the start of the course, and several follow-up meetings were held after the class began to update members on its progress.

The 2004 IOM report on improving U.S. medical education¹⁹ strongly influenced the HBB course. The IOM report prioritizes the following behavioral and social science domains for inclusion in medical school curriculum:

- Physician–patient interactions,
- Patient behavior,
- Mind–body interactions in health and disease,
- Physician role and behavior,
- Social and cultural issues in health care, and
- Health policy and economics.

Given that effective behavior change includes all of these domains, the HBB curriculum encompasses each area, with the largest component (20 hours, 41%) devoted to “Patient behavior” (Figure 1).

Classroom instruction is integrated with clinical and personal experiences. Because students alternate between the classroom and ambulatory experiences, they can immediately apply the concepts and techniques they are learning in class to their ambulatory experiences, and then they can discuss in the classroom those ambulatory experiences and the quantity and quality of counseling that occurs in the clinical setting. Assignments (see below) further encourage exploration of HBB concepts outside the classroom.

During the first week, we establish an integrated and experiential tone for the HBB course. Students learn and apply the biopsychosocial framework through a case-based method, and subsequently throughout the course they gather cases from their ambulatory experiences to present in the classroom. In a workshop with role-play, students learn and practice brief motivational interviewing, a time-efficient form of motivational

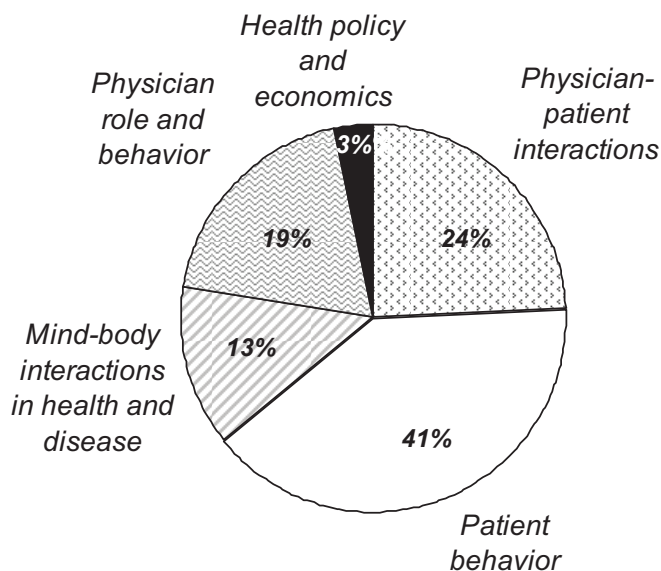


Figure 1 The percentage of Health Beliefs and Behavior (HBB) course time at New Jersey Medical School divided by Institute of Medicine (IOM) domains. The IOM report, *Improving Medical Education: Enhancing the Behavioral and Social Science Content of Medical School Curricula*,¹⁹ places priority behavioral and social science topics into “Physician–patient interactions,” “Patient behavior,” “Mind–body interactions in health and disease,” “Physician role and behavior,” “Social and cultural issues in health care,” and “Health policy and economics” domains. Because topics in the “Social and cultural issues in health care” domain are inextricably linked to the other domains and weaved throughout the course, the time is included in the other domains.

interviewing developed for use in the busy clinic setting.²⁹ Later in the course, students complete two decision balance sheets while counseling patients in their ambulatory experiences (Chart 1). Decision balance is one method used to resolve ambivalence and promote behavior change. Using the patient’s perspective, the benefits and costs of changing a risky health behavior are

compared with the benefits and costs of maintaining the status quo.³⁰ The first week also includes a lecture on medically unexplained illness followed by a group interview of a consenting patient with such an illness. A psychologist and family medicine physician facilitate the group interview and then debrief the students. During the debriefing, students explore the psychological, physical, social,

economic, spiritual, and cultural interactions that impact the patient’s experience of illness, and the students gain insight into their own personal biases in treating patients with medically unexplained illnesses. Students discuss the morbidity and mortality caused by risky health behaviors, the social determinants of health, and basic models of health—all of which they apply to their clinical and personal experiences. A smoking counseling day, during which students learn the health effects of smoking, the pharmacologic and behavioral tools to quit smoking, and the “Stages of Change” model, caps the first week. Students then apply newly learned concepts in a teaching observed standardized clinical examination (TOSCE) focusing on smoking cessation, and they receive feedback on their counseling skills from a standardized patient, peers, and faculty. The day is tied to ambulatory experiences through completion of at least two smoking cessation forms performed on patients seen during the course.

Several first-week activities continue through the remainder of the course. To highlight the difficulty that patients experience in adhering to physician recommendations, we created a student-as-patient exercise, in which students receive a three-week-duration patient prescription (i.e., placebo pills, blood pressure checks, urine dipsticks, or a diet journal are assigned randomly). Students record their adherence and are required to comment on the experience in their reflection journal. To promote an appreciation for the difficulty of behavior change, students perform a behavior change exercise, in which they self-select a behavior they wish to change, attempt to change that behavior, and report back to the class on their experiences.

The ensuing weeks are structured similarly to the first week with HBB concepts woven together in the classroom and applied to clinical experiences. Throughout the course, the patient-centered approach is emphasized. Table 1 shows the IOM domains, corresponding HBB learning objectives, and instructional methods. The multiple pedagogical approaches, including role-play, standardized patient, and guest patient appearances (Figure 2), emphasize active learning. Experiences in the IM ambulatory subrotation further enhance

Chart 1

A Sample Decision Balance Sheet, as Possibly Completed by a Patient Who Smokes

Behavior: Smoking Cigarettes

	Benefits/Pros	Costs/Cons
Making a change	<ul style="list-style-type: none"> • Health benefits • Make my family happy if quit • Save money • Good role model for my children 	<ul style="list-style-type: none"> • Will be cranky to my family • Stressful to quit • Afraid of failure • May gain weight
Not making a change	<ul style="list-style-type: none"> • I enjoy smoking • Smoking calms my nerves 	<ul style="list-style-type: none"> • Family will be disappointed in me • Continue to feel disappointed in myself • May develop lung or other health problems

Table 1
Health Beliefs and Behavior (HBB) Course Domains, Themes, Major Learning Objectives, and Instructional Methods

IOM domain*	Theme	Learner’s objective: By the end of the course the learner will be able to . . .	Instructional methods [†] and selected educational resources [‡]
Physician–patient interactions	Advanced communication skills	. . . apply a patient-centered approach to counseling and plans of care. . . . demonstrate brief motivational interviewing skills.	Motivational interviewing (MI) ²⁹ and patient education workshops ³⁷ TOSCE [§] VASE-R ^{§38} Reflective journaling (RJ) Interactive lectures Team-based learning (TBL) Patient case presentations (CP) Group interview of patients Role-plays Completion of two decision balance sheets ²⁹
Patient behavior	Risky health behaviors	. . . describe the impact and treatments of major risky health behaviors. . . . apply counseling and care plan strategies.	<i>Stages of Change</i> video ³⁹ and discussion Interactive lectures ^{40,41} Group interview of patient after bariatric surgery CP Case-based learning (CBL)—obesity TOSCE [§] Behavior change exercise Completion of smoking cessation forms in clinics Role-plays Workshops
	Pediatrics	. . . compare counseling strategies for children, adolescents, and adults.	Standardized patient interview Interactive lecture Discussion
	Medication adherence and patient self-management	. . . recognize factors in nonadherence and use appropriate counseling strategies. . . . recognize barriers to self-management and design a management approach.	Standardized patient interviews Student-as-patient exercise CBL—chronic disease Discussions Health literacy lecture TBL
	Health models: The biopsychosocial approach	. . . construct care plans and counseling strategies using a biopsychosocial framework and health models.	Interactive lecture ^{42–44} Discussion RJ CP Community project report
Mind–body interactions in health and disease	Biological mediators between psychological and social factors and health; psychological and behavioral factors in chronic disease	. . . describe the interaction of mind and body and how it applies to health behavior.	Yoga and biofeedback workshop <i>New Medicine</i> video ⁴⁵ Interactive lectures TBL Group interview of patient with medically unexplained illness
Physician role and behavior	Physician behavior and well-being	. . . assess his/her own health behavior and how it applies to patient care. . . . describe methods to maintain health and well-being.	Behavior change exercise RJ TBL AMSA [§] self-care assessment ⁴⁶ Interview with impaired physician
	Physician and society	. . . describe the impact of unhealthy behaviors on society and physicians’ social accountability and responsibility. . . . contact and demonstrate knowledge of community resources.	Interactive lecture Group discussion Community project

(Continued)

Table 1
(Continued)

IOM domain*	Theme	Learner's objective: By the end of the course the learner will be able to . . .	Instructional methods [†] and selected educational resources [‡]
Social and cultural issues in health care	Impact of social inequalities on health behavior	. . . give examples of the impact of social and cultural issues on health behavior.	CP Health literacy lecture Medication adherence session Morbidity/mortality lecture Community project Discussions Role-plays
Health policy and economics	Economic barriers to counseling and their solutions	. . . describe economic barriers to counseling and explain solutions to those barriers.	TBL Group discussion Health literacy lecture ⁴⁷ Medication adherence sessions

* From the report, *Improving Medical Education: Enhancing the Behavioral and Social Science Content of Medical School Curricula*.¹⁹

[†] Some instructional methods cross over several domains and are repeated.

[‡] Selected educational resources are listed as reference numbers.

[§] TOSCE indicates teaching observed standardized clinical examination; VASE-R, Video Assessment of Simulated Encounters; AMSA, American Medical Student Association.

the active learning aspect of the course. Student case presentations of patients with risky health behaviors, poor adherence, or unconventional health beliefs (e.g., that illness is caused by impurities in the body that must be purged, or that colic can be prevented through avoidance of extremes of temperature and wind^{31,32}) provide a conduit into exploring patients' explanatory models of illness, the students' own personal biases as practitioners, and the application of health models. The HBB course emphasizes the Health Belief Model, Social Cognitive Theory, and Stages of Change Model. HBB students apply these models to patient cases both to increase their insight into reasons the patient continues a risky health behavior and to help clarify a direction for counseling the patient. For instance, the Health Belief Model maintains that the likelihood of taking a recommended preventive action depends on multiple factors, including the individual patient's perceived susceptibility to a condition, perceived severity of the condition, perceived benefits of the action, perceived barriers to taking action, and the threat of disease. Counseling strategies can target these areas and provide a cue to action, thus activating readiness to change. Similarly, students apply the Stages of Change Model by determining the patient's readiness to change and then using appropriate counseling strategies accordingly. Through applying Social Cognitive

Theory, students appreciate the reciprocal interplay of behavior, personal factors, and environmental factors in addition to the importance of self-efficacy (a person's belief in his or her capability to change a risky health behavior). Using their patient cases, students construct biopsychosocial care plans that address medical problems and counseling in the context of the individual patient's spiritual, sociocultural, economic, family, and psychological milieu.

The course aims always to connect HBB material directly to the students' lives and clinical rotations. The students keep a reflection journal, in which they collect their reactions to clinical and classroom experiences, especially when the past and concurrent clinical experiences are at odds with the patient-centered approach they learn in the HBB course. We explicitly discuss the hidden curriculum as students reveal the tensions they experience, and the reflection journals offer students another mechanism to synthesize this disconnect. Students learn about the connection of mind and body, and then they experience biofeedback and yoga exercises. After students review the importance of self-care, they construct their individual wellness plans. We discuss behavior change counseling barriers including physician discomfort, lack of knowledge, pressure for time, and limited reimbursement. The overall course and its activities help the students become more aware of behavior change counseling

techniques and more comfortable extending this counseling to their patients, and, to address time and reimbursement concerns, we describe methods sensitive to physicians' time constraints that support behavior change including the use of physician extenders, follow-up phone calls, and referrals to community programs. Students practice effective interviewing and counseling approaches, such as brief motivational interviewing, that maximize time efficiency. We briefly discuss coding and emerging pay-for-performance initiatives that address the barrier of less reimbursement for counseling.

The course culminates with a community project. Working in teams, students investigate the impact of a selected risky health behavior on the individual and society, investigate community resources, contact or visit those programs, determine the health models used in the program, and present their findings to the class in a final group project. For example, one student group reported on hookah smoking, which is social tobacco smoking using shared water tube apparatuses. The students learned about the rising popularity of hookah bars, particularly among their peer group; fascinated, they visited a hookah bar in the local area. They reported on recent research on the health effects of hookah smoking. Although there were no programs specifically for hookah smoking, they visited a local tobacco cessation program

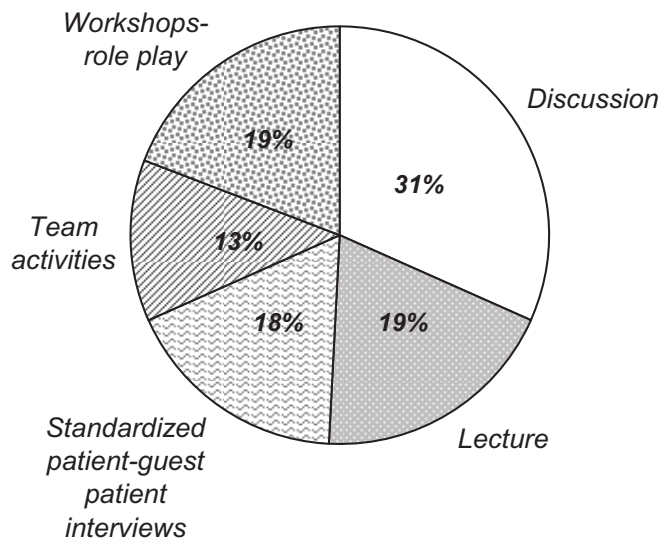


Figure 2 The percentage of Health Beliefs and Behavior (HBB) course time at New Jersey Medical School divided by pedagogical approach.

and observed a Stages of Change Model being used.

Students receive an independent HBB grade separate from their IM clerkship grade. We use multiple modalities to assess student performance in the HBB

course. We assess students through midcycle and final exams that include multiple-choice and essay questions (55%), through class participation including case presentations (15%), through the community group project (30%), through their reflection journals

(Pass/Fail), and through completion of the decision balance sheets and smoking cessation forms (Pass/Fail). The students receive formative feedback through team-based learning quizzes, role-play exercises, and the smoking cessation TOSCE.

Course Evaluation

We distributed end-of-rotations surveys to all students, and nonfaculty staff collected them. The surveys were anonymous and voluntary. Questions were based on a five-point Likert-type scale (5 = to a very high degree, 1 = not at all). Five medical interns reviewed the survey for readability and comprehension. All students but one (n = 149) completed surveys during the academic year 2006–2007. We obtained IRB approval from UMDNJ for this project. Table 2 reports mean and standard deviation values that resulted from the 2006–2007 survey. Overall, these third-year students reported an improved ability to recommend health promotion and behavioral change strategies to their patients in addition to enhanced understanding of the course’s main tenets.

Table 2
Student Survey Responses (2006–2007): Attitudes, Knowledge, and Skills Acquired at Completion of Health Beliefs and Behavior (HBB) Course at New Jersey Medical School*

Question	Mean (SD)
The course enhanced my . . .	
. . . conceptualization of and reasoning skills around biopsychosocial and cultural issues in patient care.	4.2 (0.8)
. . . ability to develop a biopsychosocial assessment and plan of care.	4.1 (0.8)
. . . understanding of the patient-centered approach.	4.1 (0.9)
. . . conceptualization of and reasoning skills around health models and how they apply to health behavior.	4.3 (0.8)
. . . awareness of the impact of unhealthy behaviors on disease and health outcomes.	4.2 (0.8)
. . . awareness of societal costs of unhealthy behaviors.	3.9 (0.9)
. . . ability to recommend health promotion and behavior change strategies to patients.	4.3 (0.8)
. . . ability to identify appropriate strategies to facilitate behavioral change based on patients’ “Stage of Change.”	4.5 (0.8)
. . . ability to recognize and address factors in patients’ nonadherence to medications or treatment plans.	4.2 (0.9)
The course provided me with tools that I can use to facilitate health behavior change in a patient.	4.2 (0.8)
I have an open mind to behavior change after participating in the course.	4.2 (0.9)

* All students participating in the course except one completed surveys during the academic year 2006–2007 (n = 149). Ratings are based on a five-point scale where 1 = not at all, 2 = to a small degree, 3 = to a moderate degree, 4 = to a considerable degree, and 5 = to a very high degree.

Success in Teaching Behavior Change

Altering unhealthy behavior of Americans has the greatest potential of any current approach for improving health in the United States.³ We created the HBB curriculum specifically to address this need. Throughout the course, we extensively and successfully integrated concepts promoted in the IOM report, *Improving Medical Education: Enhancing the Behavioral and Social Science Content of Medical School Curriculum*.¹⁹

The course emphasizes a collaborative, patient-centered counseling approach, which respects the patient’s beliefs and attempts to understand the patient’s perspectives. Research has demonstrated that such a patient-centered approach improves patient adherence and facilitates behavior change.^{33,34} Therefore, the course stresses the interplay of psychiatric, social, cultural, spiritual, family, and community forces on health beliefs and behavior.

The course endeavors to not only instill knowledge but also to positively impact

attitudes, improve counseling skills, and promote the use of behavior change tools. Students learn firsthand about community resources available while reinforcing their knowledge of health models. Self-care instruction not only benefits the students in the short-term but also might help future patients in the long-term by enhancing future counseling. Physicians who practice healthy habits are more likely to counsel on those habits,³⁵ and physicians who spend an extra 30 seconds talking about their own healthy behavior are more believable to patients.³⁶

The extensive groundwork for the course, which included stakeholder meetings, HBB committee meetings, and researching and contacting resources within and outside of the medical school, was critical to its success. The course director observed, at a minimum, the first two iterations of all class sessions and offered feedback to course faculty. Having monthly student evaluations of the rotations, obtaining faculty feedback from the course director, and encouraging honest critique from students during postcourse debriefing sessions helped us problem-shoot and improve the course. Flexible, open-minded faculty committed to the course's success enabled us to improve the course rapidly and continually throughout the first year. For instance, lectures evolved to include more patient examples and applications. We shortened some sessions to allow for more practice opportunities, and we lengthened the biofeedback and yoga experiential sessions.

The placement of the course in the third-year IM clerkship is ideal. Whereas most medical schools teach behavioral/social science topics and communication skills in the first two years with no formal reinforcement,¹⁹ the HBB course builds on knowledge and skills acquired in the first two years. The synergy created through the combination of a rich clinical context in the ambulatory experiences and the health behavior education in the HBB classroom permits a deeper understanding of the impact and complexity of health behavior and behavior change. Practice opportunities and ample discussion of student perceptions of their counseling successes and pitfalls advance counseling skills.

At the completion of the HBB course, students believed that they possessed the

tools necessary to assist patients in behavior change, and they reported both an increased ability to identify appropriate counseling techniques and an increased ability to use learned tools. They reported improved understanding of the patient-centered approach and other course concepts. Because barriers to physician counseling include physician discomfort and lack of knowledge, the approaches and techniques learned in the course, measured in increased self-perceived ability, should translate into increased use of behavior counseling. Further studies are needed to confirm this hypothesis and to determine whether the effect is sustained in the fourth year of medical school, during residency, and beyond. The outcome measure was student perceptions; additional objective measurements such as precourse, postcourse, and delayed postcourse OSCEs would also track results. Anecdotally, we noted an increased sophistication of the student cohorts as the year progressed, as reflected by increasingly rich discussion of patient cases, health models, and biopsychosocial plans of care. Interestingly, the first two cohorts of students seemed to rely more on their life experiences outside of medicine as a construct for understanding course concepts, whereas later cohorts referenced experiences from their clinical rotations. Formally studying this anecdotal observation would be beneficial because it would further support the need to integrate patient experiences, past or present, into a behavior change curriculum.

We do acknowledge some limitations of the course. Although aspects of this course can easily be incorporated in most medical school curricula, the low student-to-faculty ratio requires significant institutional support. The heterogeneous patient population at UMDNJ-NJMS, a state-supported tertiary referral center with student ambulatory experiences in inner-city clinics, Veterans Affairs clinics, and private offices, provides a strong construct for discussion of economic and other social influences on behavior. The course may require modification in schools with more homogeneous patient populations. Finally, development and implementation of an HBB-type curriculum requires a high degree of interdepartmental collaboration.

To the best of our knowledge, the present manuscript is the first report of a comprehensive course with related clinical experiences dedicated to teaching the theory and practice of behavior change. Third-year students at UMDNJ-NJMS completing the HBB course report enhanced understanding of the course's main tenets and improved ability to recommend health promotion and behavioral strategies to their patients. Future studies are needed to determine whether this change in attitudes and increased confidence in using behavioral change tools translates into students' increased use of behavior change techniques now and in their future practices.

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