

# An Integrated Module to Introduce Freshmen Medical Students to Breast Cancer in the First-Term of the Curriculum

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## ABSTRACT

Breast cancer is the most common form of cancer among women in the United States. Although the basic science and physical examination aspects of breast cancer education had been included in the curriculum at the University of Arkansas for Medical Sciences for many years, the psychosocial aspects of the disease process had not been emphasized. When a new Introduction to Clinical Medicine course was added to the curriculum, the basic science and psychosocial aspects of breast cancer were interwoven into a teaching module that has proven to be very effective. The purpose of this paper is to describe this teaching module and discuss its impact.

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## INTRODUCTION

Breast cancer is the most common form of cancer among women in the United States and is therefore a significant public health problem. The incidence of breast cancer in the United States has been rising since the 1980s, and the National Cancer Institute estimates that one in eight American women will develop breast cancer during her lifetime.<sup>1</sup> Yet the breast cancer education of medical students has been reported to be fragmented and inadequate, and studies show that medical students need more training in physical examination skills and psychosocial issues.<sup>2,7</sup>

The initiation of an Introduction to Clinical Medicine (ICM) course at the University of Arkansas for Medical Sciences (UAMS) in 1997 provided new opportunities to teach students about breast cancer. In our institution, ICM is a required and graded two-year course that runs concurrent with the basic science curriculum. It is designed to prepare medical students for the clerkship year. The first-year curriculum emphasizes medical interviewing and physical examination skills, professionalism, and the physician-patient relationship. Students attend a weekly lecture series and meet twice each month in small groups (ten students and two clinical faculty) to practice clinical skills and discuss

issues related to medical professionalism and the doctor-patient relationship.

Prior to the ICM course, first-year medical students had been exposed to the gross anatomy, microscopic anatomy, and embryology of the breast in the first semester without much emphasis on the clinical issues or the illness experiences of patients who are diagnosed with breast cancer. Training in the psychosocial issues of breast cancer patients had been sporadic and scattered throughout the four-year curriculum. As a consequence, students had difficulty integrating the basic science, clinical, and psychosocial aspects of breast cancer (UAMS College of Medicine Curriculum Committee/ICM Course Proposal, 5/31/95). In an attempt to address these issues, a breast cancer teaching module was developed that encompasses portions of three courses – Gross Anatomy, Introduction to Clinical Medicine I, and Microscopic Anatomy – that run concurrently in the first term of the first year. The purpose of the current study was to evaluate the impact of the breast cancer teaching module as presented to freshmen medical students from 1998-2001.

## MATERIALS AND METHODS

A three-day breast cancer teaching module was presented to freshman medical students in the first-term of a traditional

medical school undergraduate program. The basic science foundation necessary to understand the process of breast cancer was presented to the class with little or no emphasis on the patient as a person. On Thursday (Day 1), a Gross Anatomy lecture on the thoracic wall, the breast, and its lymphatic drainage was given in the morning and followed by a dissection exercise in which the breast and pectoral region were examined grossly. In the afternoon, the students had a Microscopic Anatomy lecture on the blood vascular and lymphatic systems followed by a laboratory session designed to facilitate student understanding of the formation of tissue fluid and lymph and lymph drainage through chains of nodes.

Friday (Day 2) began with a Microscopic Anatomy lecture on the functional histology and embryology of the breast and lymph node with information on the formation of intraductal carcinoma. This lecture was followed by a laboratory session in which the histological structure of the mammary gland was studied. In the afternoon, the Chief of the Breast Service gave a clinical correlation lecture. This lecture reviewed normal anatomy information, then expanded to encompass the histopathology and clinical stages of the disease, surgical intervention (including a video of a mastectomy), and a discussion of outcomes. Students were allowed four days to process the basic science and clinical correlation information before continuing the module. During this interval, all three courses continued on their regular schedules.

On the following Wednesday (Day 3), a panel of breast cancer survivors addressed the Introduction to Clinical Medicine (ICM) class. The panel was composed of four women who had experienced breast cancer and who represented diversity in terms of race, age, socioeconomic status, time since diagnosis, and treatment regimens. They were selected and invited by the ICM course directors well in advance of the session, and they met with the course directors immediately before the session for a brief orientation. The Director of the Hematology/Oncology moderated the discussion. To begin the discussion, the women took turns introducing themselves and telling their cancer stories. Questions from students were expected, and any question was permitted. Students, who were wearing professional attire and their white coats, were asked to stand and introduce themselves before asking their questions. The women answered all questions candidly.

Different breast cancer survivors participated in the panel discussion each year, but the ability of this format to present the distinction between a disease state and the illness experience was consistent. Although two people may have the same disease (e.g. breast cancer), their illness experiences are completely different. "Disease" refers to the "pathology" of the disease: the history and physical manifestations of the disease. "Illness" refers to the patient's individual experience with the disease, as well as the effect it has on her function and how she copes. Most panelists were in remission, but three panelists were near the end of life. To remind students that women do die from this disease, the panel was named in memory of one panelist who lived with the disease for 21 years.

To promote integration of the information they had learned, students were asked to reflect on the panel discussion by responding to a journal question in an e-mail exchange with their small group faculty.<sup>8</sup> Immediately following the ICM session, the ICM course directors sent the students the following question: "Thinking back on the panel discussion, what is the one thing you heard from them that you hope you never forget? Why?" Students were expected to respond in writing to their faculty, with a copy to the course directors, within one week. Completion of the e-mail journal was a course requirement; student responses were not graded on content.

The breast cancer module includes knowledge, skill, and attitudinal learning objectives. Because these objectives incorporate intellectual and emotional aspects of medical practice, some are not easily measured. In each year, mastery of essential basic science and clinical knowledge was confirmed via faculty-written objective tests in all courses and communication skills were assessed during a five-station Objective Structured Clinical Examinations (OSCEs) in the ICM course. The OSCE is a practical examination to measure what a student should be able to do at an expected level of achievement, including mastery of a body of relevant knowledge and the acquisition of a range of relevant interpersonal, clinical, and technical skills. During an OSCE, each student is assessed at one or more stations with one or two aspects of clinical competence being tested at each station.<sup>9</sup>

Quantitative and qualitative measures of student satisfaction were used to assess the attitudinal objectives. In Fall 2000 and Fall 2001, a standardized College of Medicine lecture evaluation for basic science course lecturers was used to collect quantitative evaluation data (Table 1). Students were asked to rate the panel discussions across eight domains using a five-point Likert-type scale anchored by "5" representing "superior" and "1" representing "poor." Mean student responses were calculated for each domain.

To assess the long-term impact of the teaching module, a follow-up study was conducted with senior students who had participated in the Fall 1998 teaching module. In the spring of their senior year, these students were asked a series of questions about the impact that this teaching module had on their professional development. Five descriptors were prepared and rated on a five-point Likert-type scale anchored by "5" representing "strongly agree" and "1" representing "strongly disagree" (Table 2). Mean student responses were calculated for each descriptor.

## RESULTS

Overall student satisfaction with the teaching module was positive (Table 1). Annual responses to the journal question indicated that the module impacted medical student attitudes in four important areas. Illustrative rather than comprehensive student quotations are reported to represent our outcomes.

First, educational contact and positive interactions with patients promoted the altruism that attracted these students to

**Table 1.** Freshman Evaluation of Breast Cancer Panel & Comparison to Other ICM Sessions in the Fall Semester.  
(5-point scale, 5 = "strongly agree")

	Fall 2001		Fall 2000	
	BC Panel (n=110)	All Fall Sessions (n=2,303)	BC Panel (n=125)	All Fall Sessions (n=1,753)
Organization	4.58	4.33	4.56	4.18
Clarity	4.68	4.28	4.57	4.15
Enthusiasm	4.74	4.44	4.65	4.23
Knowledge	4.80	4.55	4.68	4.33
Rapport	4.65	4.38	4.56	4.19
Instructional skills	4.58	4.23	4.45	4.07
Professional characteristics	4.65	4.45	4.58	4.26
Overall excellence of instructor	4.73	4.37	4.64	4.20
<b>Mean rating</b>	<b>4.68</b>	<b>4.38</b>	<b>4.58</b>	<b>4.20</b>

There was no statistically significant difference between years.

medicine and helped the students understand the relevance of their academic work. "It is the attitudes of these 'survivors' that will make studying for gross and all other studies worth while and not seem like such a chore." "Cancer became more than a cell out of control; cancer was a tangible fear that disrupted and abruptly ended the life of many women." "Reading books and articles is helpful, but actually listening to people share their personal battles with cancer is much more real and will stay with me for a much longer time." "With all of the minor details that we are trying to learn it is very easy to lose sight of the real goal and that is to help people like them have a more enjoyable life."

Second, our findings support the research that suggests patient stories are powerful teaching tools.<sup>11</sup> Every panelist had a story that demonstrated the interaction between the biological, psychological and social aspects of a patient's life. "Well, I certainly learned a lot about breast cancer, but more than that, listening to each survivor tell her own unique story of her battle with the disease made me realize that every patient is going to be unique and real." "This was so much better than reading about the different stages of disease in a book. You cannot ask a book questions and get actual answers." "I think it truly helps us to see how much empathy and understanding mean to our patients and how much they value our time with them. It is important to know how our actions affect them." "I've thought about Mrs. B. every day since. She was rockin' cool." "I thought this session was great. I laughed and teared up and resolved to be a great communicator!"

Third, many young medical students have not emotionally experienced illness, suffering or death, nor have they confronted their feelings about cancer and the reality of there being disease that cannot be cured. "I've never had any serious medical problems, so I probably learned a lot more

than some of the others in my class." "I never before heard someone share such intimate details about an illness that they have, and I was moved by their intense emotions." "I think it would have to be Mrs. H's statement when her doctor told her there was nothing new to try to treat her cancer ... I want to remember what she said because of the courage she showed in being able to accept it."

Fourth, these students understood the need for acquiring skills necessary for integrating social and behavioral concepts with biologic principles of patient care. Skills for providing comfort and healing, even in the absence of a cure, are important for humanistic patient care. "I hope I never forget to address the 'whole' person, instead of just focusing on the disease. Also, I hope to always listen to the patients since they know their body better than anyone else. As we continue our training, it may seem natural to distance ourselves from the human side of the patient, since we will be so caught up in diagnosis and treatment. I hope today's panel will help us to remember that these people are real." "I learned that all of these patients approached and dealt with their illnesses in a different manner, and that is precisely how it will be when I begin treating patients." "Mrs. B. reminded me that all people don't grow up like I did. She told us to remember that some people don't read. Some people don't know to get mammogram. Treat these people with the same respect you would treat others. I don't want to forget this so that I will be able to effectively take care of my patients."

A total of 19 senior students who had participated in the teaching module in the fall of 1998 responded to the follow-up survey (Table 2). The highest student ratings were reserved for integration of basic science concepts with clinical topics. Written comments expressed the feeling that the patient experience made a lasting impression. A majority

**Table 2.** Senior Student Evaluation of the Long Term Impact of the Breast Cancer Teaching Module.

Descriptor	Mean Student Response (n=19)
Connecting several basic science concepts with a clinical topic in a close time frame was a good way to teach me about breast cancer.	4.78
This interaction with patients enhanced my feelings of respect and compassion for patients with breast cancer.	4.68
The patient panel enabled me to understand the relevance of the basic science content.	4.32
This module was excellent preparation for clinical practice.	4.21
The breast cancer module motivated my interest in learning about the basic normal structure/function of the breast.	3.79

of senior student respondents mentioned that the death of one of the panelists, which occurred within a year of the panel discussion, had a strong influence on how they thought about patients and patient outcomes. One student stated that for him the take-home message was that “cancer patients are still people and that they should not be treated as third class citizens just because of their diagnosis.” Another student wrote, “One of the women spoke about how her physician delivered the ‘bad news’ and how it affected her outlook, etc. That stuck with me - it was one of those comments that makes you want to slow down, take time with patients, explain things clearly, and add words of encouragement when appropriate.”

## DISCUSSION

Active, creative approaches in teaching improve student understanding of abstract ideas in the physical sciences.<sup>12</sup> Teaching students about the scientific aspects of breast cancer is a cognitive process, but teaching the psychosocial aspects of breast cancer requires experiences that stimulate learning in the affective domain. A study of breast cancer survivors by Harris and Templeton (2001) recommended that breast cancer patients and medical educators work together to improve communication skills of physicians. One of the strategies identified by the women in this study was patient panel discussions for medical students.<sup>13</sup> We believe that our experience validates the effectiveness of this teaching strategy. Consistent student responses to the journal question and anecdotal comments by the faculty over a three-year period, as well as the recall of senior students who responded to the follow-up survey, indicate that the panel discussion does impact students on an emotional level.

Although women with breast cancer have recently become more open about their disease and have taken a more active role in treatment decisions,<sup>6,8</sup> many breast cancer patients report that their psychosocial needs are not adequately addressed.<sup>14</sup> An important learning objective for this module was that medical students would be able to distinguish between a disease state and the illness

experience. Objective and subjective student assessments indicate that we have been successful in making this distinction with our students.

Patient stories have been recommended as devices to help students acquire or change attitudes during medical education.<sup>15</sup> Medical decisions are based on the stories patients share with their physicians, and physicians use patient histories to convey information to other health care providers.<sup>11,14</sup> Every breast cancer patient has a unique story, and our study suggests that the stories the students hear early in their training remain with them throughout their medical education.

## CONCLUSIONS

This format could be used to teach other clinical concepts and reinforce the integration of first-year basic science “facts” with clinical situations and patient stories early in the curriculum. This can be accomplished without a major alteration to the current curriculum, as long as all first-year and ICM course directors work in concert and schedule topic sequences appropriately.

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