

► INNOVATIVE MEDICAL EDUCATION

Preparing Einstein Students to Practice Twenty-first Century Medicine

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ABSTRACT

The current trend in medical education is to introduce clinical teaching early in the medical school curriculum to help students understand the relevance of the basic sciences to clinical practice. The Introduction to Clinical Medicine (ICM) Program for students in the first two years at the Albert Einstein College of Medicine (AECOM) is comprised of three, required, integrated courses providing skills training in both medical interviewing and physical examination, training in diagnostic reasoning skills, and opportunities to discuss broad themes in medicine and the doctor-patient relationship. Competency evaluation of students' clinical skills is an essential part of the ICM Program. Innovative strategies for weaving themes related to cultural competency have been incorporated into the ICM program to address the wide spectrum of cultural issues affecting medical care and the doctor/patient relationship, including diversity, spirituality, complementary and alternative medical practices, and end-of-life care. A total of 300 medical school faculty members teach in the various ICM courses. Much effort goes into keeping the faculty current, happy, and rewarded for their dedication and hard work in teaching the students. The ICM Program continues to strive for excellence as we prepare AECOM students to face the demands of medical practice in the twenty-first century.

INTRODUCTION

Since the Flexner report published in 1910 triggering reforms in medical education, medical schools in the United States have traditionally devoted the first two years to the teaching of basic sciences and, in the final two years, medical students participate in clinical apprenticeships. In its final report issued in 1984, a blue ribbon panel established by the Association of American Medical Colleges (AAMC) was particularly critical of the clinical education of medical students, noting that the unstructured apprenticeship experiences contributed little to the overall learning objectives of the educational program. Since the 1980s, the trend in medical education has been to introduce clinical teaching early, within the first two years of the curriculum, to help students understand the relevance of the basic sciences and to provide instruction in basic clinical skills in a standardized fashion. The Albert Einstein College of Medicine (AECOM) has been on the leading edge of this trend.

For the past 30 years, AECOM has committed to provid-

TABLE 1 | INTRODUCTION TO CLINICAL MEDICINE PROGRAM

CORE FACULTY

Susan M. Coupey, MD, Director
Mimi McEvoy, PNP, Co-Director
Daniel C. Myers, ACSW, Co-Director
Maria Marzan, MPH, Associate Director

COURSES

Introduction to the Patient - Year 1 - 24 sessions
The Clinical Experience - Year 1 - 17 sessions
The Clinical Examination, Part 1 - Year 2 - 10 sessions
The Clinical Examination, Part 2 - Year 2 - 17 sessions

360 STUDENTS

180 Year 1
180 Year 2

300 FACULTY PRECEPTORS

79 for Introduction to the Patient
104 for The Clinical Experience
25 for The Clinical Examination, Part 1
92 for The Clinical Examination, Part 2

250 HOURS OF EDUCATIONAL PROGRAMMING

Small Groups
Workshops
Lectures
Clinical Encounters

8 HOSPITALS

Montefiore Medical Center - Weiler Division
Montefiore Medical Center - Moses Division
Jacobi Medical Center
North Central Bronx Hospital
Bronx Lebanon Hospital Center
Beth Israel Medical Center - South
Beth Israel Medical Center - North
Long Island Jewish Medical Center

60 COMMUNITY OFFICES AND HEALTH CENTERS

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TABLE 2 | HOURS OF INTERVIEWING SKILLS PRACTICE, FIRST-YEAR MEDICAL STUDENTS

Introduction to the Patient Course and Clinical Experience Course

LOCATION AND PATIENT TYPE	Hours/year
Classroom:	
Voluntary Patients	10
Simulated Patients	15
Hospital:	
Medical/Surgical Patients	7.5
Psychiatric Patients	5
Ambulatory Practice/Clinic Settings	42
TOTAL	79.5

ing clinical experience for students in the early years of medical school. In the 1970s, two clinical opportunities were offered as electives, the Family Life and Emergency Medicine Programs. The Family Life Program still exists as an elective assigning pairs of first-year students to a pregnant woman in her third trimester. The student pairs attend prenatal visits, the delivery of the baby, and well baby visits, learning much about obstetrics, pediatrics, and communication with patients and families in the process. The Emergency Medicine Program also continues in a greatly expanded format.

Also in the 1970s, a required course for first-year students, called Human Behavior and the Physician, was developed. This course, under the aegis of the Department of Psychiatry, was taught in small groups, examined patients' ways of coping with illness, and focused on aspects of the doctor-patient relationship. In response to the necessity for a more structured approach to teaching clinical skills, the name was changed to Introduction to Clinical Medicine (ICM) in the late 1980s. The focus shifted from patients' perspective to coping with the clinical encounter itself. The ICM curriculum began to move toward having first-year students conduct patient interviews, write medical histories, and learn about the doctor-patient relationship through clinical exposure and structured small group discussions with faculty. Second-year students learned physical diagnosis in lectures and with preceptors in the hospital setting. The faculty now included primary care clinicians from medicine, pediatrics, family medicine, and other departments, including psychiatry.

In the 1990s, three major shifts occurred in the clinical teaching curriculum for first- and second-year students at AECOM. First, the ICM Course grew and changed into the ICM Program comprised of three required, integrated courses providing skills training in both medical interviewing and physical examination, training in diagnostic reasoning skills, and opportunities to discuss broad

themes in medicine and the doctor-patient relationship (Table 1). Hands-on clinical experience for first- and second-year students is incorporated into all aspects of this coordinated ICM Program. Second, structured, formal training in the clinical skills of interviewing and physical examination, with skills-competency evaluation, was implemented. Third, innovative strategies for weaving themes related to cultural competency such as diversity, spirituality, and complementary and alternative medicine into the program were developed and implemented.

SKILLS TRAINING AND COMPETENCY EVALUATION INTERVIEWING SKILLS

Traditionally, medical students learned about interviewing patients by observing practicing physicians. Students were expected to imitate their preceptors and "do" as they saw the doctor "do." This method, although time-honored, has shortcomings. Most medical school faculty members have not been formally trained in communication skills and, while many are naturally good communicators, they often have difficulty identifying and teaching communication techniques without a structured curriculum. There is, moreover, a growing body of empirical knowledge available in the literature about the importance of effective communication in medicine (Levinson 1994; Simpson et al., 1991; Stewart, 1995) and about ways to improve and evaluate doctors' communication skills (Bryson-Brockmann and Fischbein, 1995; Eaton and Cottrell, 1999). The AAMC stated in its 1999 report, "...the apprenticeship model and a conception of com-

TABLE 3 | STUDENT RATING OF INTERVIEW SKILLS PRACTICE SESSIONS *Introduction to the Patient Course - Class of 2005*

Data reported as mean ratings on a 5-point scale where 5 = excellent, 4 = good, 3 = adequate, 2 = fair, 1 = poor.

SESSION TYPE	MEAN RATING n = 156
Volunteer Patient Interviews:	
HIV Patient	4.4
Adolescent Patient	4.1
Substance Abuse Patient	4.3
Family Interview	4.3
Simulated Patient Interviews:	
Headache	4.1
Sexual Complaint	4.2
Psychiatric Complaint	4.2
Medical Inpatient Interviews:	
#1	4.4
#2	4.3
#3	4.3
Psychiatric Inpatient Interview	4.3
Videotaped Simulated Patient Interview	4.3
Videotaped Competency Evaluation	4.3

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munication as bedside manner or history taking is giving way to a more formalized instruction and a re-conceptualization of communication as a fundamental clinical skill" (AAMC, 1999). We at Einstein are at the forefront of the movement toward formal instruction of medical students in communication skills.

In the early 1990s, we chose Cole's and Bird's three function model as our framework for teaching the medical interview in ICM (Cole and Bird, 2000). This model delineates the functions of a medical interview as:

1. Building the relationship with the patient
2. Assessing the patient's problems
3. Managing the patient's problems
(education, negotiation, and motivation)

At AECOM, the structured learning of medical interviewing skills occurs in the first year in a course called Introduction to the Patient. Groups of 12 students practice interviewing under the guidance of two faculty facilitators. Concurrently in the first year, all students are assigned to a clinical site (doctor's office, emergency room, or hospital) for 18 half-days in a course called The Clinical Experience. This gives students an opportunity to practice the interviewing skills they learn in the structured classroom setting with real patients in an actual clinical setting.

Understanding the functions of a communication task helps to break it down into component elements that are easier for students to comprehend and to practice. Students in the Introduction to the Patient course are taught active listening skills and both verbal and non-verbal communication strategies designed to facilitate patients' disclosure of information pertaining to a medical problem. For example, students are taught to begin by asking open-ended questions and to allow patients to "tell the story" of their problem with minimal interruption for the initial few minutes of the interview. Such strategies address both functions one and two of the medical interview, building the relationship and gathering data to assess the patient's problems; patients feel that the student is really listening and trying to understand them and they are more likely to disclose important symptoms. Students also are taught to interject specific statements into the interview that convey empathy, a commitment to help, respect, and support. Such statements are the foundation for building a trusting relationship with patients. For specific assessment of a symptom, students are taught to focus on seven content items or core dimensions of the symptom location, quality, severity, timing, context, modifying factors, and any signs or symptoms associated with the current problem. To date we have spent relatively little time teaching function three, which includes educating and motivating patients, although some students do conduct patient education sessions in school-based clinics and other outpatient settings during The Clinical Experience course.

We plan to put more emphasis on function three. In September 2002, we presented an all-day workshop on motivational interviewing for faculty facilitators in the Introduction to the Patient course to prepare them for additions to the curriculum. Clarity of communication with colleagues is another focus of the first-year curriculum in ICM. To organize data gathered from patients for verbal or written presentation to colleagues, we teach students to use the traditional categories of chief complaint, history of present illness, past medical history, family history, and social history.

Acquisition of any skill requires practice. Ample opportunity to practice both interviewing using the three-function model and oral and written presentation of patient histories is provided in the first-year courses (Table 2). In their small groups in the Introduction to the Patient course, students practice interviewing both volunteer and simulated patients under direct observation by faculty. Post-interview feedback in the group allows students to critique their own "performance," classmates to offer observations, and faculty facilitators to provide clear and specific suggestions. Preceptors in the Clinical Experience course give feedback to students on both interviewing and oral presentation skills. Students enjoy the classroom-based interviewing practice in their small groups and report high levels of satisfaction with this aspect of the curriculum (Table 3). We also require students to write four patient histories in the Introduction to the Patient course. Small group facilitators provide both written and verbal feedback on the organization and content of the written case histories.

PHYSICAL EXAMINATION SKILLS

The Clinical Examination, a required course for second year students, concentrates on the teaching of physical examination skills. The emphasis in the first part of the course is on rote practice of each skill required to conduct a screening examination of an adult, system by system, from head to toe, with particular attention paid to positioning the patient, giving clear directions, learning to use the examination instruments, and performing maneuvers correctly. The screening examination is taught and practiced in ten, two-hour classroom sessions with groups of eight students pairing off and examining each other with instruction by a faculty preceptor. The students enjoy the sessions and indicate that they believe they are learning the required skills (Table 4).

Once students master the screening physical examination on a peer, they spend ten afternoons interviewing and examining hospitalized patients (Table 5). Faculty preceptors in the hospitals observe and provide feedback on students' interviewing, physical examination, and case presentation skills and on required case write-ups. At this point in their education, second-year students begin to learn to recognize and to elicit abnormal physical find-

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TABLE 4 | STUDENT SATISFACTION WITH PEER PRACTICE OF PHYSICAL EXAMINATION SKILLS

Clinical Examination Course, Part 1 – Class of 2004

Data reported as mean ratings on a 5-point scale where 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree.

AGREEMENT WITH COURSE OBJECTIVES	MEAN RATING n = 163
Helped me gain confidence to begin examining actual patients	4.6
Provided sufficient opportunity for me to develop familiarity with the use of instruments commonly employed in the medical examination of patients	4.6
Increased my knowledge of the proper sequence for performing the physical examination	4.7
Acquired some competence in performing the complete sequence of the physical examination and in handling instruments	4.6
Developed adequate skills for the Student Competency Exam at the conclusion of Part 1	4.7

TABLE 5 | FOUR YEAR TRENDS IN STUDENT SATISFACTION WITH CLINICAL EXAMINATION PRACTICE ON HOSPITALIZED PATIENTS

Clinical Examination Course, Part 2 – Classes of 2001, 2002, 2003, and 2004

Data reported as mean ratings on a 5-point scale where 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree.

AGREEMENT WITH SELECTED COURSE OBJECTIVES	1998-1999* n = 130	1999-2000* n = 142	2000-2001* n = 117	2001-2002* n = 130
Interact with each patient	4.2	4.4	4.4	4.4
Take a complete medical history	4.1	4.3	4.4	4.4
Know the sequence of a physical exam	4.1	4.2	4.3	4.4
Perform a screening physical exam	3.7	4.0	3.9	4.0
Recognize the range of normal findings	3.6	3.6	3.8	3.9
Begin to recognize abnormal findings	-	3.7	3.8	3.9
Begin to develop a differential diagnosis	3.6	3.6	3.6	3.9
Deliver concise, relevant, organized oral presentations	3.8	3.9	3.8	4.1
Preceptor sessions	4.1	4.3	4.3	4.4
Patient examination sessions	4.0	4.2	4.1	4.2

* Academic year that the course was given

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ings. An accompanying series of narrated slide shows of common physical abnormalities are given at the medical school and are available on the AECOM web site (<http://www.aecom.yu.edu/>). In addition, faculty preceptors help students develop their diagnostic reasoning abilities. We do not as yet have a formal curriculum to teach and evaluate these cognitive skills. We are beginning a process of formalizing the teaching of diagnostic reasoning and are working in collaboration with the Department of Emergency Medicine to design a curriculum using principals of evidence-based medicine.

Concurrent with the students' in-hospital clinical training, several "hands-on" workshops are offered at the medical school. Some of these workshops utilize computer software and audio simulators to recreate and manipulate actual patient conditions. For instance, we recently purchased a state-of-the-art cardiac simulator, which gives students the opportunity to listen to normal and abnormal heart sounds via headphones while viewing the concomitant electrocardiogram and phonogram on a large screen. The simulator can alter the heart rate and cardiac dynamics to illustrate for students how patient conditions can change depending on circumstances. Another workshop allows students to practice taking blood and starting intravenous lines using artificial arms. In addition, in the latter workshop students are formally taught universal precautions to protect patients and themselves while handling needles.

COMPETENCY-BASED EVALUATION

Competency-based evaluation provides the opportunity for ongoing assessment of technical skills and specific

feedback to students about their level of skill (Boulet et al., 2002; Carraccio et al., 2002). Standardized evaluation exercises offer the added benefit of creating a mechanism to compare individual students to one another, document progress, and pinpoint areas of needed improvement. The United States Medical Licensing Examination will incorporate a clinical skills competency evaluation of graduating medical students starting with the class of 2005 (Margolis et al., 1998). This new examination requirement has focused all United States schools on developing improved skills competency evaluations.

Over the past five years, we have established competency measures to evaluate first- and second-year students' medical communication and physical examination skills. First-year students perform individual videotaped interviews with simulated patients (Table 6). Faculty preceptors provide both formative and summative evaluations of each student's skills using a check list of specific communication skills within each of the functions of the interview. In the second year, students must pass an observed, timed, screening physical examination of a peer at the end of the first part of their Clinical Examination course prior to examining hospitalized patients in Part 2 of the course. At the completion of the second part of the Clinical Examination course, students are videotaped in a clinical encounter with a standardized patient to evaluate both their medical communication and physical examination skills. This competency evaluation coincides with the end of the second-year of medical school just prior to the start of the clinical clerkships. In both years, students also must pass written examinations to evaluate their cognitive knowledge of medical communication, the doctor-patient relationship, and diagnostic reasoning.

TABLE 6 | SCHEDULE FOR VIDEOTAPED INTERVIEW COMPETENCY EVALUATION CONDUCTED AT THE CONCLUSION OF THE INTRODUCTION TO THE PATIENT COURSE

Facilitator and student review goals and objectives for the session.	5 minutes
Student is videotaped eliciting the history of present illness from a simulated patient.	5 minutes
Facilitator and student debrief and discuss areas of the videotape that merit particular attention during the review.	3 minutes
Facilitator and student watch the videotape together - stopping, replaying, and discussing the student's interviewing techniques.	15 minutes
Facilitator completes written evaluation score sheet (student is scored on both relationship-building and data-gathering skills)	2 minutes
TOTAL TIME	30 MINUTES

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WEAVING IN CULTURAL THEMES

Preparing medical students to be culturally competent is perhaps one of the most compelling tasks of medical educators today (Loudon et al., 1999; Robins et al., 2001). The AAMC recently passed a resolution mandating that medical schools address cultural issues in their curriculums and develop measures to assess students' competency in this area (AAMC 1998). We have incorporated a variety of educational strategies into the ICM program to address the wide spectrum of cultural issues affecting medical care including diversity, spirituality, complementary and alternative medical practices, and end-of-life care. While an exhaustive exploration of each topic is unrealistic given the confines of time, sessions are designed to weave these themes into the overall curricular objectives of teaching medical interviewing, physical examination, and the doctor-patient relationship. For example, the session in the Introduction to the Patient course entitled "Loss and Grief" begins with a demonstration interview by a faculty physician of a family member suffering the recent loss of a loved one. Among other topics, the interviewer explores how issues of culture and spirituality impacted on the departed family member's death experience and the survivors' ability to cope. Immediately after the demonstration interview, the issues that emerged are discussed by groups of students and faculty facilitators. Not only do students begin to understand that patients differ in their reactions to loss and grief, but that reactions are varied among peers and faculty as well as among patients. Since our student body is diverse, different cultural and spiritual backgrounds and previous experiences with death and dying shape the unique reactions and responses to patients' grief that are articulated in the discussions.

Workshops are another venue for incorporating themes into the ICM program and providing an opportunity to enhance students' cultural competence. In the Introduction to the Patient course, we offer four, half-day workshop series: Culture and Spirituality, Violence, Human Sexuality, and Health Policy. Each afternoon consists of concurrent presentations of eight different workshops all on the same theme. Presenters repeat each workshop once. Students choose to attend two of the eight workshops (Table 7). In 2002, ICM initiated a hands-on workshop on complementary and alternative medicine in the Clinical Examination course. The objective is for second year students to learn about non-traditional methods of stress-reduction such as massage, meditation, and acupuncture so they will better understand the treatments their patients are getting from alternative practitioners.

EVALUATING CULTURAL COMPETENCY

We have just begun to work on assessing cultural competency in our ICM program, thus we are not expert in

TABLE 7 | WORKSHOP SERIES ON CULTURAL DIVERSITY IN CLINICAL PRACTICE: INFLUENCE ON THE DOCTOR PATIENT RELATIONSHIP

Introduction to the Patient Course – Class of 2005

TITLES OF WORKSHOPS

1. Principles of Conducting the Cross-Cultural Medical Interview and Use of Interpreters
2. Breaking Down the Barriers to Health Care Provided to the Lesbian and Gay Community, and Addressing the Community's Needs
3. Cultural Diversity: Alternative Medicine
4. African-Americans and Disparities in Health Care
5. Vision Impairment: In the Eye of the Beholder?
6. "La Vida Loca:" Health Realities for Latino Patients
7. Cultural Diversity and End-of-Life Care
8. Exploring Patients' Health Beliefs

this area. Because of the scope of the topics addressed, our current evaluation tools assess student satisfaction. Students provide written feedback on all of the workshops immediately after each session. The workshop series on Culture and Spirituality, in particular, have been very well received, earning ratings of greater than four on a five-point Likert-type scale for overall content. This evaluation method, however, does not assess student competency. Currently, we are developing interviewing checklist items to assess how well students explore patients' culturally-based health beliefs and we plan to incorporate additional evaluation methodology to assess cultural competency throughout the ICM curriculum. As part of a research study, we are training a subset of our Introduction to the Patient course faculty facilitators in cross-cultural communication techniques and measuring (by videotape analysis) their students' ability to conduct culturally competent interviews.

SUMMARY

The ICM Program at AECOM continues to be a work-in-progress. We have accomplished much but still have much to do. We are ensuring that our students are competent in medical communication and physical examination skills, and we are moving toward adding assessments of cultural competency and competency in diagnostic reasoning. The 300 medical school faculty who teach in the various ICM courses cannot be forgotten either. They also must be kept current, happy, and rewarded for their dedication and hard work with the

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students. Our goal for the next few years is to continue to strive for excellence as we help our students to face the demands of medical practice in the twenty-first century.

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