

Initiative to Transform Medical Education

Phase 3: Program implementation

Recommendations for optimizing the medical education
learning environment

**Final report of the
December 2007
working conference**





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Introduction: Summary of Phases 1 and 2 of ITME

Many quantitative measures, such as the excellent academic qualifications of the increasing number of applicants to medical school and the performance of physicians-in-training on national examinations, indicate that U.S. medical education is doing well. However, a number of recent national reports point to inadequacies in physicians' preparation to practice in the evolving health care system, including meeting increased expectations for safety, quality and teamwork. These concerns have been linked to gaps in the system of physician training.¹⁻³

In recognition of the need expressed by many to comprehensively review and strategically revise the training of physicians, the American Medical Association (AMA) Initiative to Transform Medical Education (ITME) began in 2005. The goal of ITME is to:

Promote excellence in patient care by implementing reform in the medical education and training system across the continuum, from premedical preparation and medical school admission through continuing physician professional development.

ITME activities have been guided by the principle that transformation in medical education must include, but not be limited to, changes in what is taught, in where and how teaching occurs, and in how learners' attainment of the desired outcomes is assessed. To appropriately change the product of the medical education system, that is, the practicing physician, it will be necessary to make targeted changes in all phases of the educational continuum. Previous efforts to reform medical education have not had this as a focus. There are, however, promising developments, which include examples such as the diffusion of the Accreditation Council for Graduate Medical Education (ACGME)/American Board of Medical Specialties (ABMS) competencies into medical schools and the continuing professional development (education) of physicians.

From its beginnings in 2005, ITME has been a collaborative effort, bringing together individuals from a number of stakeholder groups to share their perspectives and pool their

expertise. Participants in ITME activities have been medical school and residency program administrators and faculty; representatives from medical education organizations; practicing physicians; payers and purchasers; members and staff of accreditation, certification, and licensure organizations; medical students and residents; representatives from consumer groups and the public; medical education researchers; and policymakers from the federal government and the states.

Phase 1 of ITME (2005–2006) identified current strengths in the preparation of physicians, as well as gaps and opportunities for improvement in physicians' ability to interact with patients, function effectively and efficiently in their own health care organizations and in the health care system, and act as caring professionals in society (Appendix 1). Phase 2 (2006–2007) developed general recommendations for change in the medical education system to address the gaps, identified barriers to be overcome in order to implement the changes, and prioritized the stakeholder groups whose participation would be necessary to overcome the barriers and bring about needed change (Appendix 2). Phase 3 (2007–2010) consists of developing more focused strategies for change in selected priority areas.

ITME priority area: The medical education learning environment

Many forces act to influence learners' acquisition of the attitudes, values and behaviors, as well the knowledge and skills, of the practicing physician. The learning environment plays a critical role in this professional development process as the physician-in-training enters into medical school and proceeds through residency training.

The learning environment is not unitary. Medical students begin their education with lectures, small group sessions and hands-on experiences, such as laboratories and clinical skills teaching with both physician and non-physician faculty. What students learn during the preclinical phase of the curriculum tends to be scientific information that they are expected to master. Humanities, ethics, behavioral sciences and socioeconomic subjects typically are included, but often do not fit seamlessly into the educational program and may not be evaluated in a manner perceived by students to be as rigorous as the evaluation in the sciences. The way the curriculum is structured may, therefore, give learners an impression that non-biomedical subjects are less relevant to and important for their development as physicians.

As medical students move into the predominantly clinical phase of training, they function both as learners and junior members of the health care team. They become more aware of ambiguities and uncertainties as they begin to experience and participate in the art of medicine and the complexities related to applying clinical judgment in the care of individual patients. They also function in a multitude of health care delivery settings, ranging from the subspecialty and research-oriented hospital to the offices of generalist and community physicians. These settings each have their own cultures, based on their history, their goals and the personalities of their members. Students may experience mixed messages and conflicting values, which they may find hard to reconcile.

As learners move into residency training, additional tensions become apparent. There is a gradual role shift from learner to practitioner, and residents often become responsible for supporting the learning of others. They, therefore, have a significant role in creating the learning environment for their junior colleagues. There is evidence that negative features in the environment, such as harassment and abuse, may come

from residents as well as faculty and staff.⁴ Residents may experience tensions related to education versus service commitments and may be affected by limitations on their duty hours. For example, standards related to resident duty hours adopted by the Accreditation Council for Graduate Medical Education (ACGME)⁵ have been cited as a factor in changing the environment within the teaching hospital.

Within the clinical environment, faculty also experience pressures from demands for clinical productivity and pressures related to reimbursement. These stresses have the potential to decrease the availability of faculty time for teaching and to negatively affect the attitudes of physicians and others in the setting.

A core goal of medical education should be to promote learners' acquisition and retention, throughout the medical education continuum, of appropriate professional attitudes, values and behaviors. It is clear that medical students and residents gain in knowledge and skills as they proceed through training, yet there is evidence that many trainees suffer a decline in positive attitudes and values, such as empathy, and an increase in negative characteristics such as cynicism.⁶⁻⁸

The environments in which all trainees learn have been recognized by many as a key factor in their professional development.⁹⁻¹⁰ ITME, therefore, chose the learning environment as its first Phase 3 priority.

Working conference on the learning environment

It has been ITME's practice to gather broad-based input in the consideration of issues. The ITME activities related to the medical education learning environment began at a Dec. 13–14, 2007, invitational working conference that included representation from medical school and residency program faculty and administrators, researchers from a variety of disciplines and perspectives, medical students, residents and medical education organizations (a list of conference participants is included in Appendix 3).

The conference objectives were to:

- ▼ Develop a comprehensive definition of the medical education learning environment.
- ▼ Identify and prioritize factors in the learning environment that may affect learner outcomes.
- ▼ Determine how to ensure that the learning environment supports the development of appropriate attitudes, values and behaviors. Identify gaps in current understanding about the learning environment that limit the ability to bring about positive change.
- ▼ Create recommendations for change that would add to existing knowledge about how to mitigate negative and enhance positive factors in the medical education learning environment.

Defining the medical education learning environment

Prior to the working conference, a literature search was conducted to gather definitions and descriptions from a variety of academic and professional disciplines that could be used to help understand the nature of the medical education learning environment in operational terms. This resulted in a compendium of quotes from individuals writing from the perspectives of anthropology, education, health sciences, medical education, medicine, nursing, organization and management studies, public health, psychology and sociology. This broad-based approach to literature review was adopted to correspond with the varied backgrounds of the meeting participants. The literature review was meant to provide a stimulus for participants to conceptualize the medical

education learning environment utilizing their own words and perspectives.

It is useful to consolidate the definitions from the literature into three general categories:

- ▼ Culture functions at the organizational level and includes the values of the organization. Organizational culture, for example, has been defined as the values underlying assumptions and norms present in an organization.¹¹⁻¹²
- ▼ Curriculum is the means by which educational expectations are conveyed to learners. The formal curriculum includes the planned activities that allow learners to achieve the defined and sanctioned objectives of the educational program. The informal, or hidden, curriculum consists of values transmitted from teacher to learner that may be outside the bounds of the formal curriculum.¹³
- ▼ Climate functions at the individual level and is based in the perceptions of learners or teachers. The educational climate, for example, has been defined as the environment that is perceived by students.¹⁴

The categories of culture, curriculum and climate all have the potential to affect learning outcomes (attitudes, values and behaviors). The three categories interact to produce the characteristics of the learning environment.

Meeting participants developed the following description of the elements that contribute to the learning environment:

At any point in time, the learning environment is a social system that includes the learner (including the external relationships and other factors affecting the learner), the individuals with whom the learner interacts, the setting(s) and purpose(s) of the interaction, and the formal and informal rules/policies/norms governing the interaction.

From the perspective of the learner, the learning environment represents the context for learning as he/she functions within the educational program. It profoundly influences the

messages that the learner receives. For any learner, the learning environment is fluid and changes day to day and year to year. Collectively, the impact of the learning environment is great. As described by one of the meeting participants, it acts to create meaning for the learner about “what a doctor is and what a doctor does.”

Relevant factors in the learning environment

Given the breadth of each of the elements in the learning environment, participants then considered what factors might be most influential. As a trigger, quotes were used from actual autobiographies or Web logs, where physicians-in-training or physicians reflected on their educational experience as medical students or residents.¹⁵

The following constellations of factors were identified as most significant.

Institutional culture

Institutional norms and values may be reflected in such things as faculty recruitment and promotion policies, admissions criteria for students and residents, and organizational structures and relationships (such as a flat versus a hierarchical organizational structure, a siloed versus a matrix system of management). These organizational representations of underlying values send powerful messages. For example, though education may be stated as an explicit institutional goal, faculty may receive more financial compensation or opportunities for promotion for participating in patient care or research at the expense of time spent in teaching or advising learners. Since learners perceive these messages, the institutional culture strongly influences the learning environment. Because these norms and values are codified as policies, learners, as well as their teachers/role models, may experience a feeling of helplessness and a resulting belief that change in the learning environment is not possible.

Formal curriculum

Institutional values, in turn, may influence the formal curriculum. For example, an institutional culture that promotes a siloed and hierarchical organizational structure may also lead to a strictly discipline-based curriculum where there is a lack of collegiality between teachers and learners.

The medical school curriculum across the continuum is structured to favor acquisition and mastery of an increasingly specific body of concrete knowledge and skills, as opposed to the attitudes, values and behaviors of a humanistic physician. Physician education in the preclinical years focuses on acquisition of a broad base of facts and scientific knowledge. Clinical training for medical students emphasizes learners’ acquisition of cognitive and procedural skills, and leaves the impression that there are, or should be, clear fact-based choices in patient care based on experience or evidence. Residency and fellowship training further enhance the development of cognitive and procedural skills in increasingly narrow aspects of a specific discipline. As the resident leaves training and enters practice, he/she is likely to have left behind many of the basic sciences, including the social and behavioral sciences, that were addressed early in training.

Evaluation drives learning. What typically is tested both within the medical school and residency program, as well as in external high-stakes evaluations of trainees, tends to be knowledge and skills. These evaluations focus learners on demonstrating they know the “right” answer and leave learners unprepared to deal with the real-life ambiguities and uncertainties inherent in clinical care.

Since medical education generally is structured to be discipline-based, at least in the clinical years, evaluation also is discontinuous. Students within each discipline are assessed on discrete parts of competencies, such as problem solving and patient management in a given clinical specialty. There is a need for a more comprehensive approach to formative and summative clinical assessment of desired competencies. One positive example is that many medical schools have instituted a comprehensive objective structured clinical examination, or OSCE, at the end of the clerkship year. While this type of evaluation can cut across disciplines to assess general competencies, it is not clear that certain desirable learner attributes, such as professionalism, are being evaluated comprehensively. The sum of what is assessed is, therefore, not equal to what is desired by many as the outcomes of the medical education system.

This is especially true regarding the acquisition of attitudes, values and professional behaviors. There have been significant advances in evaluation methods to measure some of the competencies believed to be important to independent medi-

cal practice. These include techniques such as multi-source evaluations, self- and peer assessment. However, there are insufficient tools to measure many of the professional attributes generally deemed to be important to clinical care, such as altruism and the skills of lifelong learning.

Informal, or hidden, curriculum

The overt behaviors and expressed attitudes/values of individuals with whom the learner is in contact, including teachers/supervisors and peers, have a significant influence on the development of a learner's professional identity. Teachers may not think to question the values inherent in their own behaviors or consider the impact of those behaviors on learners. Since these values are not made explicit and discussed, learners must attempt to identify and copy them in order to be part of and fit into the environment, which they believe that they must do in order to succeed.

As they proceed through medical school and residency training, learners move through many settings, from classrooms to hospitals, clinics and physician offices. Each of these settings has a unique culture, based on such factors as history, values/mission/goals, and the characteristics of their leaders. Learners moving among settings often need to adapt their behaviors based on their understanding of what is valued in that setting. This acts against the ability of learners to crystallize their own values and does not facilitate the development of explicit and shared values among teachers/role models and learners.

The intersection of the formal and informal curriculum with the institutional culture creates the learning environment

The formal and informal curriculum are not independent of the institutional culture. The choices made of what, how and where to teach may be grounded as much in values and assumptions inherent in the organization and its members as they are in established educational theory and research-based evidence related to learning outcomes. However, this is not typically made explicit to learners, who may believe that there is an objective and evidence-based reason for the curricular choices that are made and the expectations that are placed on them.

The existing state of the art

In the context of the preceding factors, meeting participants generated questions in the following three general areas as a means to determine the current state of the art related to the learning environment.

▼ **Research and evaluation.**

What is the current level of understanding about the learning environment, including how to evaluate its effects and how to change it? By what methods should the learning environment be studied to determine if it supports the development of desired learner outcomes?

▼ **Education and clinical training.**

How should education and training be structured to enhance positive learner outcomes? How can an institution assure that the formal and informal curriculums do not provide mixed or contradictory messages?

▼ **Policies and standards.**

How can internal organizational policies and external regulatory requirements (such as accreditation/certification/licensure) be designed to support a positive learning environment and to assure the development of desired outcomes in learners?

Research and evaluation

The research literature on the learning environment is substantial and constitutes an important base on which to build. Many studies have been done to examine specific aspects of the learning environment using instruments developed for that purpose. The following are examples of studies, grouped under the headings defined previously:

- ▼ Culture (organizational level)
 - Behavioral norms, organizational values
- ▼ Curriculum
 - Role modeling, students' patient-centered care experiences, and student-teacher relationships
- ▼ Climate (individual level)
 - Staff perceptions of well-being

However, the literature does not represent a comprehensive and easily applied body of knowledge. Meta-analysis could be used to consolidate existing areas of research into a more comprehensive whole and to identify gaps in knowledge that should be filled through future research.

Future research also should focus on measuring the influence of the learning environment on the acquisition of desired learner outcomes and on how to enhance identified features determined to result in positive outcomes. A primary goal should be identifying aspects of the learning environment that both contribute to positive learner outcomes and are amenable to change. This includes taking into account feasibility and cost in determining what to study. The constructs of culture, curriculum and climate can be used as an organizing framework for future studies. These studies should have the goal of determining how these three constructs affect desired outcomes, such as empathy, altruism, commitment to self-assessment and lifelong learning, and other aspects of professionalism.

The following were identified as barriers to the conduct of future research:

- ▼ There is little funding to support medical education research.
- ▼ Research has tended to be discipline-based and come from a single methodological perspective. The ability to conduct more comprehensive studies will require that researchers work collaboratively across disciplines and utilize both quantitative and qualitative methods.

Education and clinical training

The learning environment could support the development of professional attitudes, values and behaviors through such things as positive role modeling by teachers and supervisors, use of teaching and assessment methods that support collegial interactions among learners and between faculty and learners, opportunities for relevant experiential learning, and the availability of social networks with shared values. The formal and the informal/hidden curriculum should be designed to provide congruent messages to learners so that they are clear about desired learning outcomes and see these demonstrated by role models in all educational settings, including the clinical setting. Evaluation of learners should be directed at determining whether all the desired outcomes have been achieved.

The formal and the informal curriculums could be designed more effectively to achieve desired learning outcomes. Instructional methods and formats and methods of learner evaluation should be selected to reinforce this goal. Non-biomedical subject areas should be given appropriate

weight in both teaching and student evaluation throughout the curriculum, and should receive respectful and knowledgeable attention from all faculty. For example, faculty involved during learners' clinical years should address the ethical, socioeconomic and behavioral dimensions of patient care, as well as the diagnosis and management of disease. Students and residents also should be expected to understand the patient perspective, so that they develop appropriate patient-centered attitudes, values and behaviors.

A number of barriers were identified that inhibit the ability to structure a learning environment that contains the previously-described positive elements. These barriers include:

- ▼ Financing mechanisms provide greater incentives for participation in research and patient care. Rewards for faculty are based on productivity in these areas or, perhaps, on absolute teaching time in the formal curriculum. Faculty rewards are not explicitly linked to mentoring and role modeling to assist trainees to acquire appropriate professional attitudes and values. Small group teaching and mentoring, which allow role modeling and provide opportunities for discussion of topics related to professionalism, are becoming more difficult to staff due to competing pressures for faculty time.
- ▼ Faculty have less time for participation in faculty development due to competing financial and organizational pressures. In general, faculty are not rewarded for participation in activities that enhance their own skills in teaching and evaluation. In addition, faculty development may not address important content areas and support the development of some necessary skills. For example, while faculty are experts in their disciplines, they may need assistance in teaching learners how to integrate multiple non-biomedical subject areas in the context of care of an individual patient. Faculty development may also inadequately prepare faculty members to serve as role models and mentors to medical students and residents who need to acquire appropriate professional attitudes and values.
- ▼ Current mechanisms for medical education financing limit the opportunities for learners to experience a wide variety of community-based clinical settings that might provide excellent and unique learning environments.
- ▼ There are not yet a broad-based array of instruments and methods to assess learners' acquisition and maintenance

of competencies related to professional behaviors and identity or to evaluate faculty members' success as role models.

Policies and standards

Changes in institutional policies, such as organizational reward systems, and in national standards, such as accreditation requirements, could stimulate change in the learning environment. Internal to medical schools, there are systems in place at some institutions for an explicit funding stream for undergraduate and graduate medical education. The policies for distribution of these funds could take into account a faculty member's success as a teacher (formal curriculum) and mentor/role model (hidden curriculum), if appropriate criteria were available.

Some national "regulatory" bodies also are directing attention to the learning environment. For example, the Liaison Committee on Medical Education, which accredits educational programs leading to the M.D. degree, has a new accreditation standard requiring that medical schools assure that their learning environment promotes the development of professional attributes in medical students. The ACGME, which accredits residency programs and sponsoring institutions, has also recently focused on how to bring about change in the learning environment. The outcomes resulting from these changes in national requirements will need to be assessed and successful models disseminated.

The ability to bring both internal organization policies and national regulation to bear across the medical education continuum is hampered by several factors.

- ▼ Medical education is organized as a discontinuous sequence. Undergraduate and graduate medical education are planned, implemented and regulated in isolation, even though learners often share the same settings. Accreditation, certification and licensure systems may act independently of each other to determine requirements and set standards.
- ▼ The learning environment for clinical education often is under the control of an authority (for example, hospital administration) that is separate from the administration of the medical education program and whose priorities may be different.

- ▼ Evaluation systems within the medical school and residency program, as well as external evaluations such as national licensure examinations, drive learning since they are key to the learner's success and progression through the educational continuum. Areas that are extensively assessed tend to be more highly valued by learners. In contrast, areas that are not viewed as being rigorously tested are less valued. The latter include the acquisition of professional skills, such as self-assessment, problem solving and ethical decision-making, as well as attributes such as empathy. The development of valid and reliable measures to assess a learner's acquisition of such desired skills and attributes at the institutional level has lagged behind the technology to assess factual knowledge and clinical skills.

Action steps

Participants at the working conference then considered needed changes in the areas of research and evaluation, education and clinical training, and policies and standards. The suggested action steps from each study group have been synthesized, as there was considerable overlap among the findings of the three groups. It was recognized by participants that the recommendations cannot be accomplished by any one organization or stakeholder group. Collaboration among relevant stakeholders is essential to accomplish the goal of transformative change. For example, all institutions in the AMA Innovative Strategies for Transforming the Education of Physicians (ISTEP) research collaborative, which comprises medical education institutions from across the country, each with representation from undergraduate, graduate and continuing medical education, has expressed a commitment to transformative change in medical education.

The following recommendations, which include action steps and timelines, identify categories of stakeholders whose involvement is necessary to bring about positive change in medical education.

Encourage funders to support efforts to create a positive learning environment

Recommendation:

Seek financial support from various public and private sector agencies for multi-institutional pilot projects and/or action research on the learning environment.

Process

Create proposals to public and private funding agencies to support multi-institutional research and program development projects that aim to bring about changes in the learning environment. Focus on the importance of a positive learning environment for learner attitudes, values and skills, such as the willingness and ability to create a culture of safety, engage in quality improvement and patient-centered care, and exhibit social accountability.

Implementation

Interested medical education organizations and institutions should form a collaborative to identify funding sources to support needed research. The planning should identify appropriate funding agencies based on the specific research questions to be addressed. Once identified, the funders should be invited to participate in the collaborative.

Timeline

Ongoing

Conduct research to determine the characteristics of a positive learning environment

Recommendation:

Develop and implement a research agenda that identifies the factors in the learning environment that contribute to learners' acquisition of appropriate attitudes, values and behaviors as well as knowledge and skills.

Process

Review the existing literature to determine the current state of research on the learning environment. Identify remaining gaps in the evidence about which factors contribute to a positive learning environment. To accomplish this, collect existing and/or create new tools to study the relationship of the learning environment to desired learner outcomes.

Research should incorporate multiple research methods and multi-disciplinary research teams. Develop plans to systematically study the learning environment in multiple preclinical and clinical educational settings using teams that come from multiple perspectives. For example, design studies using quantitative and qualitative observational methods to determine how relevant competencies, such as professionalism and patient-centeredness, develop in learners over time,

and how this development is affected by the characteristics of the learning environment. Study the effects of different educational formats on learner acquisition of professional attributes.

In addition, review the literature on existing attempts to change the institutional culture and the learning environment. Identify evidence-based best practices that result in a positive learning environment.

Implementation

Based on the availability of needed funding, medical education researchers should conduct a meta-analysis of the existing literature. The research should determine the adequacy of existing tools to evaluate the learning environment. If required, new tools to evaluate the learning environment should be developed.

Timeline

2008–2009

Implement interventions that successfully change the learning environment

Recommendation:

Develop, implement and evaluate model programs designed to create a positive learning environment.

Process

Create a broad-based network of institutions and individuals with relevant expertise. Include the participation of individuals with expertise in systems design (for example, industrial engineering). Use this network to develop principles for the creation of an effective learning environment that is grounded in evidence-based research on learner development.

Use the principles to plan, design and implement model programs at partner institutions aimed at creating a positive learning environment. In program design, utilize information from different disciplines related to professional development but assure that planning for educational change focuses on the development of professional identity in medicine. Assure that the programs are longitudinal and cover the range of settings in which medical students and residents have learning experiences.

In developing model programs, consider utilization of teaching and evaluation methods for learners that contribute to a positive learning environment. For example, consider team learning and competency-based assessment, as well as other methods that promote positive interactions and decrease competition among learners.

Evaluate the success and generalizability of these programs. Disseminate the results, including lessons learned and barriers to be overcome.

Implementation

Build upon the AMA ISTEP collaborative of institutions, which has representation from medical schools and residency training programs. Add organizations, if needed, to create a group of teaching institutions with diverse characteristics. Utilize the results of the meta-analysis of the literature on characteristics of a successful and supportive learning environment to inform educational program development within this cadre of institutions. Include relevant faculty and administrators from each institution as part of the planning and implementation team.

Timeline

2009–2010

Re-design the culture of teaching institutions to support a positive learning environment

Recommendation:

Design interventions to bring about changes in the culture of training institutions and sites that would support a positive learning environment.

Process

Develop strategies to change the institutional culture that include top-down (for example, changes in institutional policies and priorities) and bottom-up (for example, focused faculty and staff development programs) interventions. Include participation in design and implementation activities by representatives from all constituencies, including medical schools, residency programs and their sponsoring institutions, and affiliated clinical sites, as well as learners.

Institutional policies and priorities should be examined and, if necessary, revised to assure that they contribute to

a positive learning environment. This includes policies related to faculty reward systems; expectations of professional behavior of teachers, learners and staff; and processes and systems for student and resident evaluation. The governance of medical schools should place more emphasis on creating an educational continuum that spans medical school and residency training. This could support program development efforts that result in a more competency-based approach to education and evaluation of students and residents.

The evaluation of faculty at all sites should include an assessment of their contributions both to the formal and to the informal/hidden curriculum, and to learners' attainment of appropriate professional attributes (attitudes, values and behaviors). This information should be systematically collected through evaluations by students/residents, patients and peers. There should be appropriate faculty development so that students and residents encounter role models and mentors who explicitly demonstrate positive characteristics such as professionalism, patient centeredness and self assessment. Faculty should be expected to participate in relevant faculty development and should be allotted sufficient time for this activity. The contributions of others in the learning environment, such as other health professionals, should also be evaluated and mechanisms should be created for staff development.

Implementation

Select schools from the ISTEP collaborative and other interested institutions. Using standardized instruments that have been previously validated, organizational members should evaluate the learning environment at each institution. Medical school deans and hospital administrators should determine feasible organizational changes to support a positive learning environment, which then would be implemented and evaluated at the selected schools.

Timeline

2008–2010

Assure the medical education “regulatory system” supports the goals of change efforts

Recommendation:

Groups responsible for accreditation, certification and licensure should consider how “regulation” can best facilitate a positive learning environment throughout the continuum.

Process

Review current policies/practices/standards of accreditation, certification, and licensure bodies to determine what explicit or implicit messages they contain that could affect the learning environment. Encourage the development of changes in these policies/practices/standards, if necessary, to permit positive innovation. This includes such things as the content of accreditation standards and the timing and content of national high-stakes examinations.

Discussions should occur between accrediting bodies for undergraduate and graduate medical education to assure that accreditation requirements that affect the learning environment are conceptually consistent across the continuum. Discussion should include options and concrete plans for enhancing the consistency and integration of standards.

Those responsible for evaluations linked to licensure and certification should consider how the content, format and timing of these assessments can be designed so as to support a formal and informal curriculum that results in appropriate learner attitudes, values and behaviors.

Implementation

Encourage communication and coordination among accreditation, certification and licensing authorities so that they deliver a consistent message and create congruent strategies that support positive characteristics of the learning environment.

Timeline

2008–2010

Conclusions

Participants at the working conference agreed that the medical education learning environment has the potential to positively or negatively affect learners' acquisition of professional attributes, including attitudes, values and behaviors. While much has been studied about various aspects of the learning environment, many gaps remain. Assuring that medical students and residents experience a positive learning environment will require cooperation among many different constituencies, including: researchers from many disciplines; administrators and faculty at medical schools, residency programs and clinical facilities; learners; funders; and regulators.

References

1. Ad Hoc Committee of Deans. *Educating Doctors to Provide High Quality Medical Care: A Vision for Medical Education in the United States*. Washington, DC: Association of American Medical Colleges; 2004.
2. Committee on the Quality of Health Care in America; Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academies Press; 2001.
3. Committee on the Health Professions Education Summit; Institute of Medicine. *Health Professions Education: A Bridge to Quality*. Washington, DC: National Academies Press; 2003.
4. Association of American Medical Colleges. 2007 Medical School Graduation Questionnaire. All Schools Summary Report (item 20b). Association of American Medical Colleges Web site. www.aamc.org/data/gq/allschoolsreports/2007.pdf. Accessed October 13, 2008.
5. Accreditation Council for Graduate Medical Education. Common Program Requirements. Accreditation Council for Graduate Medical Education Web site. www.acgme.org/acWebsite/dutyHours/dh_dutyHoursCommonPR07012007.pdf. Accessed October 13, 2008.
6. Hojat M, Mangione S, Nasca T, et al. An empirical study of decline in empathy in medical students. *Med Educ*. 2004;38:934–941.
7. Bellini L, Baime M, Shea J. Variation of mood and empathy during internship. *JAMA* 2002;287:3143–3146.
8. Newton B, Barber L, Clardy J, Cleveland E, O’Sullivan P. Is there hardening of the heart during medical school? *Acad Med*. 2008;83(3):244–249.
9. Wear D, Castellani B. The development of professionalism: curriculum matters. *Acad Med*. 200;75(6):602–611.
10. Brainard A, Brislen H. Learning professionalism: A view from the trenches. *Acad Med*. 2007;82(11):1010–1011.
11. Berrio A. An organizational culture assessment using the competing values framework: A profile of Ohio State University Extension. *J Extension*. 2003;41(2). www.joe.org/joe/2003april/a3.shtml. Accessed October 13, 2008.
12. Gershon R, Stone PW, Bakken S, Larson E. Measurement of organizational culture and climate in healthcare. *J Nurs Adm*. 2002;34(1):33–40.
13. Hafferty F. Beyond curriculum reform: confronting medicine’s hidden curriculum. *Acad Med*. 1998;73(4):403–407.
14. Seabrook M. Clinical students’ initial reports of the educational climate. *Med Educ*. 2004;38:659–669.
15. Poirier S. *Doctors in the Making: Memoirs and Medical Education*. Iowa City, IA: University of Iowa Press. In press.

Appendix I:

ITME Phase 1: Opportunities for improvement in physician preparation

Stakeholder groups identified the following general areas for improvement in the current preparation of physicians.

Treating the health care system

There are gaps in physicians' preparation to diagnose and treat problems in their own health care organizations and in the health care system. This includes the ability to engage in a continuous quality improvement approach to system evaluation and improvement at a macro level (the health care system) and micro level (within their own health care organization). Specifically, physicians are not prepared to evaluate the care they provide in their own practices, and to use the results of that evaluation to improve patient safety and the quality of care they provide.

Serving as advocates for patients

Physicians are generally not prepared to be advocates for patients on issues related to social justice (for example, elimination of health care disparities, access to care) or to be citizen leaders inside and outside of the medical profession. This also includes engaging in advocacy on public health issues.

Losing altruism and the caring aspects of medicine

Physicians often lose altruism and qualities of caring as they proceed through training and enter the practice environment. Applicants to medical school and residency training are selected for their abilities to acquire knowledge and to problem-solve, and our current system of medical education reinforces these traits. This may lead physicians to perceive and interact with patients simply as sources of data and "problems to be solved," instead of as individuals in need.

Dealing with uncertainty

Physicians are trained to believe it is important to have the answer. They are expected to convey this impression to supervisors while they are in training and subsequently behave this way with patients and colleagues when they are in practice. This makes it difficult for physicians to deal with the inevitable uncertainty arising from incomplete or conflicting information. Additionally, physicians typically are not prepared to convey their uncertainty when interacting with patients and colleagues.

Managing Information

In the context of the rapidly expanding knowledge base, many physicians are not prepared to rapidly acquire, evaluate and synthesize information in the context of care for an individual patient. While there are generational differences, many physicians are not prepared to utilize information technology to assist in information acquisition and management. Further, they are not prepared to develop and carry out their own lifelong learning curriculum, including "identifying their own learning needs and establishing learning goals to meet these needs."

Expecting to be autonomous

Physicians are socialized to be "in charge" and desire to act as autonomous decision-makers in the care of their patients. This philosophy can be a barrier to providing patient-centered care, where patient values and desires are an integral part of shared decision-making. Physicians need additional preparation in balancing their own values and expectations with those of their patients, while taking into account changing societal needs and expectations.

This expectation of autonomy starkly contrasts with increasing requirements for physicians to be more accountable to various constituencies, including the public, payers and government. Physicians must continue to take a leadership role in professional self-regulation or that privilege will be threatened and diminished.

Lastly, the expectation of autonomy diminishes the ability of physicians to act as “team players” with other physicians and other health professionals. They may be reluctant to learn from other professions and disciplines and to work with others as partners in the care process, which may hamper the care that is provided to patients.

Balancing the patient and population perspectives

Physicians are prepared to do what they believe is best for individual patients. They are not, however, equally well prepared to participate in ethical and political discussions about the allocation of health care resources, which are not limitless.

Exercising skills in communication with patients

Physicians need additional preparation in communicating with patients about difficult issues, such as those related to death and dying. There is a need to expand skills in cultural competence/awareness and the ability to recognize that some patients may have health literacy issues.

Additional gaps and opportunities for improvement in the medical education system were identified:

Absence of a true educational continuum

The system of medical education in the United States often is referred to as a continuum encompassing medical school (undergraduate medical education), residency and fellowship training (graduate medical education), and continuing physician professional development (continuing medical education). While the physician does progress through each of these stages of professional development, the stages have developed and are regulated in isolation. There are separate accrediting bodies for each phase of the continuum, so there is little curriculum coordination across phases. The evaluation of learners also occurs with less coordination than is desirable, so it is difficult to assure that learners are moving toward mastery in a systematic way. This is especially the case for practicing physicians.

Limitations in educational and career pathways

The total length of training from medical school through fellowship continues to increase, based primarily on the addition of multiple new subspecialty areas. The current structure of the medical education system constrains physicians to participate in such advanced training at the beginning of their careers. Current regulatory guidelines (licensure, certification and credentialing) impact the ability of physicians to make mid-career adjustments (such as specialty or practice changes) based on personal circumstances or changes in how health care is delivered. Further, there are limited pathways for practicing physicians who leave practice for a period of time to re-enter.

Appendix 2:

ITME Phase 2: Recommendations for change across the medical education continuum

The following general recommendations were developed to address the gaps in physician preparation identified in Phase 1 of ITME.

1. Apportion more weight in admissions decisions to characteristics of applicants that predict success in the interpersonal domains of medicine. Use valid and reliable measures to assess these traits during the admissions process.
2. Consider creating alternatives to the current sequence of the medical education continuum, including introducing options that can enable physicians to re-enter or modify their practice.
3. Introduce core competencies across the medical education continuum in new and expanded content areas that are necessary for practice in the evolving health care system.
4. Introduce new methods of evaluation (such as multi-source evaluations, self- and peer-assessment, and competency-based assessment) that are appropriate to assess the core competencies.
5. Ensure that faculty at all stages of the educational continuum are prepared to teach new content, employ new methods of teaching and evaluation, and act as role models for learners.
6. Ensure that the organizational environment in medical schools and teaching hospitals tangibly values and rewards participation in education.
7. Ensure that the learning environment throughout the medical education continuum is conducive to the development of appropriate attitudes, behaviors and values, as well as knowledge and skills.
8. Enhance coordination among accreditation, certification and licensing bodies.
9. Support enhanced funding for medical education research, planning and delivery across the continuum.
10. Evaluate the effectiveness of changes in the medical education system based on their outcomes.

Appendix 3:

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