

Barriers to Effective Teaching

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Abstract

Medical school faculty members are charged with the critical responsibility of preparing the future physician and medical scientist workforce. Recent reports suggest that medical school curricula have not kept pace with societal needs and that medical schools are graduating students who lack the knowledge and skills needed to practice effectively in the 21st century. The majority of faculty members want to be effective teachers and graduate well-prepared medical students, but multiple and complex factors—curricular, cultural,

environmental, and financial—impede their efforts. Curricular impediments to effective teaching include unclear definitions of and disagreement on learning needs, misunderstood or unstated goals and objectives, and curriculum sequencing challenges. Student and faculty attitudes, too few faculty development opportunities, and the lack of an award system for teaching all are major culture-based barriers. Environmental barriers, such as time limitations, the setting, and the physical space in which medical

education takes place, and financial barriers, such as limited education budgets, also pose serious challenges to even the most committed teachers. This article delineates the barriers to effective teaching as noted in the literature and recommends action items, some of which are incremental whereas others represent major change. Physicians-in-training, medical faculty, and society are depending on medical education leaders to address these barriers to effect the changes needed to enhance teaching and learning.

Lee Iacocca once said, “In a completely rational society, the best of us would aspire to be teachers and the rest of us would settle for something less, because passing civilization along from one generation to the next ought to be the highest honor and highest responsibility anyone could have.”¹ Medical school faculty members are charged with this critical responsibility. They must effectively prepare the future physician and medical scientist workforce for practice in the 21st century.

In October 2008, the Josiah Macy Jr. Foundation convened a conference entitled “Revisiting the Medical School Educational Mission at a Time of Expansion.”² The resulting conference report stated that although medical school faculties have revised their curricula and teaching practices over the years, medical education has not kept pace with societal needs. It emphasized that students too often graduate without the knowledge and skill sets 21st-century physicians need and that graduates do not fully appreciate the

professional values needed to sustain medicine as a moral enterprise.²

The majority of faculty members want to be effective teachers and to graduate highly knowledgeable and capable professionals, but multiple and complex factors—curricular, cultural, environmental, and financial—impede their efforts. The purpose of this article is to delineate several barriers to effective teaching and suggest action steps to address them.

Curricular Barriers

Unclear learning needs

What knowledge, skills, and values do medical school graduates need to meet society's expectations of a physician who practices ethically and effectively in an increasingly complex and costly health care environment? Medical education experts agree that major changes, rather than minor curricular adjustments, are urgently required to effectively educate physicians for practice in the 21st century. Although implemented with good intentions, the scope of current curricular changes does not sufficiently meet future physicians' learning needs. Examples of critical subject matter not yet sufficiently integrated in the typical curriculum include principles of public health and patient safety, the role of nonbiologic determinants of illness, and the application of information sciences and systems thinking.^{2,3}

Faculty members do not always know, or agree on, what trainees need to learn.^{2,4–6} For example, Coody and colleagues⁴ noted a lack of agreement both within and among groups of rheumatologists, orthopedic surgeons, general practitioners, and geriatricians as to what musculoskeletal skills medical students should learn. Astin and colleagues⁶ noted that although most of the physicians they surveyed recognized the importance of psychosocial factors in treating certain health problems, a significant number of respondents were skeptical that teaching these was worthwhile. Others have cited similar barriers to nontraditional topics including complementary and alternative medicine.⁷ Teaching and learning efforts are further obstructed when clinical faculty, who are powerful role models, give the impression that certain topics are less important than others.⁸

Goals and objectives

Skeff and colleagues^{9,10} noted several phenomena that hinder effective clinical teaching including, among others, that instructors are too often expected to address a wide range of educational goals that are unachievable, given not only the clinical setting and limited time allotted (see Environmental and Financial Barriers), but also the variability of learners' prior knowledge and experiences. Instructional content and learning activities will vary according to faculty members' differing perceptions of

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session objectives or intended outcomes.^{4,11} In addition, vaguely defined or too broadly construed goals and objectives create confusion about teaching priorities.⁵

Accreditation agencies require curricular objectives, yet many faculty members neither read the objectives nor use them to guide instruction or evaluation.¹² Further, faculty across disciplines rarely know one another's learning objectives. For example, some objectives (e.g., understanding breast disease and urinary tract infections) are relevant to multiple clerkships, yet faculty from multiple disciplines rarely come together to discuss or collaborate on the teaching or evaluation of these objectives, which results in curricular inefficiencies, including unplanned and inconsistent redundancies or unintentionally omitted objectives.¹¹

Assessments that measure learning outcomes are increasing.¹³ Still, much remains to be done in this area, including both standardizing core goals and objectives and developing a complementary performance evaluation system that assesses students' proficiency in a way that tracks changes in their knowledge and understanding over time.³

Curriculum sequencing

The traditional medical student curriculum is structurally disjointed. Cooke and colleagues¹⁴ emphasize that basic science faculty often teach the discipline-based courses (anatomy, physiology, microbiology, etc.) with little coordination or reference to clinical relevance. They note that basic science and clinical faculty do not always know what the other faculty are teaching, which leaves students to determine for themselves the content relationships across domains and the relevance of various subjects to patient care. One critical consequence of the lack of structure is a loss in the continuity of exposure to the same faculty. The random sequencing of clinical experiences inherent in clinical education makes for chaotic and inconsistent learning. Faculty members need time with their learners to know their capabilities, to reinforce strengths, and to address weaknesses. Time together is critical to establish the teacher–student

bond that makes teaching and learning rewarding and meaningful.¹⁵

Students rotate among multiple clerkships but not necessarily in a uniform sequence. The variety of pathways for learners may be logistically necessary and may seem positive given the flexibility, but for those responsible for teaching, this lack of uniformity poses a significant challenge. The clinical curriculum becomes a “catch as catch can” teaching experience which is inconsistent and impedes the repetition of clinical experiences that serves to improve and deepen skills, concepts, and problem integration. Reteaching is as common as teaching because, given the variation in pathways and experiences, faculty cannot be assured of what the students already know and, even worse, they cannot guarantee what content students will encounter or what skills they will practice after a clerkship.^{16,17}

Cultural Barriers

Cultural barriers to effective teaching refer to the attitudes, traditions, and mores of medical schools and stakeholders, including students, faculty, and medical school and hospital leaders.^{18,19}

Students' attitudes

Shell²⁰ noted that students' attitudes and expectations were the single greatest barrier to the implementation of critical-thinking teaching strategies in that students prefer lectures over instructional strategies that require active learning. Some students expect faculty to deliver content through methods that make for easier memorization, which some students feel is critical for passing information-dense examinations.²⁰ Such “spoon feeding” constrains teachers from emphasizing reflection and curiosity, rather than short-term memorization.²¹ Further, students' attitudes also dissuade faculty from using nontraditional instructional strategies, such as community-based field activities.²²

Faculty attitudes

Faculty members' attitudes toward teaching and toward faculty development for improving teaching skills are also barriers to effective teaching. Some faculty members pursue an academic career because they want to teach, whereas others see teaching more as a

chore, an adverse challenge, or a diversion from patient care or research.²³ This attitude may be a result of social learning; Friedland⁸ explains, “The ‘outsider’ role generally assigned to the educational process per se has projected a powerful negative image.”

Faculty members often lack belief in the usefulness or importance of faculty development because they underestimate the need for it and/or the potential it has to improve their teaching.⁹ Some instructors overestimate their teaching strengths and believe being a good clinician or basic scientist is all that is required in order to be a good teacher, not recognizing teaching itself as a discipline to be mastered.⁸

Studies have shown that although faculty may think they are good teachers, without formal preparation for that role, they can, at the same time, lack the confidence needed to use unfamiliar teaching techniques. This lack of confidence either in one's teaching skills beyond traditional methods or in one's ability to teach certain topics impedes creative and novel instruction.^{4,24} Faculty commonly identify both the absence of formal training on teaching and the lack of protected time to participate in the programs that do exist as barriers to effective teaching.^{25,26}

Faculty attitudes also influence performance evaluation outcomes and compliance. Faculty members tend not to fail learners, even when they deserve to fail. Dudek and colleagues²⁷ found that showing faculty how to complete evaluation forms has limited success either in improving compliance or in increasing the number of justly failed students because the problem is not so much faculty members' ability, but their willingness.

Institutional support

Some faculty may not value teaching or the need to develop their teaching skills as much as they value research or patient care,^{8,9} but medical schools do not always clearly communicate teaching expectations and responsibilities or the standards that constitute *effective* teaching.

Furthermore, faculty members do not receive instruction or guidance on how to balance and meet their simultaneous patient care and teaching responsibilities²⁵ or on how to balance learner autonomy with supervision.²⁸

This void in faculty development leads to differing perceptions and practices in supervision and in balancing patient care and teaching responsibilities. Lack of faculty development opportunities to address these important challenges can also lead to frustration on the part of sincere faculty attempting to successfully achieve this balance.²⁵

The importance of medical school and hospital support of not only the teaching mission but also the faculty responsible for carrying it out is fundamental.^{3,9} Faculty members often believe the leaders of their medical schools do not value teaching activities because promotion and tenure committees make decisions demonstrating that educational scholarship is not as esteemed as traditional forms of scholarship. To counter this belief, Fleming and colleagues²⁹ have emphasized the importance of equitable promotion tracks for clinician–educators. Some schools have developed rigorous standards of educational scholarship that are valued on par with success in other missions. In the last several years, several institutions created academies of medical educators to reinvigorate their educational missions.^{13,30–32} Such efforts are critical to make education-focused faculty feel valued, to reduce the loss of faculty, and to set criteria for meeting standards of educational excellence.^{33–37}

The teaching faculty also need to feel the support of their institution and accreditation agencies against malpractice litigation. Faculty report that because of the perceived prevalence of lawsuits and claims made against physicians, they increase their supervision, give learners less autonomy in patient care, limit opportunities for learners to perform procedures, and provide fewer opportunities for learners to deliver bad news to patients.³⁸ Institutions need to explicitly address malpractice and teaching to clarify the issues and help faculty effectively manage both teaching and clinical care responsibilities.

Search committees rarely consider either teaching expertise or enthusiasm for teaching when appointing new faculty members. This lack of forethought is due largely to the difficulty of measuring these attributes and the infrequency of using education portfolios for review. Search committees rarely discuss the

teaching abilities of new faculty member hires; rather, they assume that new faculty members will teach and have the skills to do so. This assumption perpetuates the practice of hiring faculty members who may not have a passion for teaching, who may view teaching as something to do only when time permits, and who may have poor teaching skills.⁸

Environmental and Financial Barriers

Environmental barriers are associated with the physical settings and milieu in which medical education occurs, including limitations such as time, space, and instructional, human, and technological resources. Financial barriers include the revenue and resource needs in medical education.

Time and resources

The busy, complex setting of a teaching hospital is not an ideal environment in which to teach all the competencies future physicians need to master. Service needs soar as duty hours restrictions limit resident availability, as documentation requires more faculty time, and as clinical relative value unit targets increase. Time is one of the major barriers to effective teaching.^{2,4,9,10,15,25} Clinical faculty do not typically have specific institutional financial support for the time they spend teaching in the preclinical or clinical curriculum. Hospitals and other clinical care settings also discourage teaching by applying pressure on faculty members to use facilities efficiently so as to maximize facility-based revenues.³⁹

Although medical school administrators are examining systems to objectively measure teaching effort and to provide mission-based compensation to faculty through, for example, such approaches as the “educational value unit” designation, the financial pressures on medical schools still limit the funds available to compensate educators.⁴⁰ The funding sources for such systems seldom arise from new external revenues but, rather, from the reapportionment of currently available internal resources.

Educational and clinical settings, access to patients, student variability, teaching support services, and research funding

Other environmental and financial barriers to effective teaching and learning

include insufficient or inappropriately designed physical space for teaching, inconsistent access to pertinent patients, limited or no access to educational specialists, and limited resources to purchase instructional materials and technology.

The physical spaces and settings that are necessary to support the education mission are not always integrated into facilities planning processes. State-of-the-art instructional technology, simulation models, and other learning resources represent a non-revenue-generating cost and are therefore not consistently a priority purchase.

Although physician faculty members are highly skilled clinicians, they practice in a setting that may be quite different from the health care environment in which their learners will eventually work. Faculty members tend not to focus their teaching on how their current clinical practices apply to other health care settings, changing patient demographics, or tomorrow’s delivery system. This reluctance reduces the likelihood of faculty emphasizing the transfer of learning from one setting/patient population to another, which is important given the reality that many students will not practice in an academic environment.

Patient participation and student variability also complicate teaching and learning. Several authors have reported problems with patients resisting learner involvement in their care, and others have reported fear among some faculty that patients might endure additional discomfort as a result of student participation.^{41,42} A lack of patients for teaching certain pathologies and skills serves as another environmental barrier.^{43,44} Students do not all learn at the same rate, and the “see one, do one, teach one” approach does not consistently work. Some students may need to see two or three patients before they understand a problem, whereas others may need to see more. Some students may master a skill after only a few attempts, whereas others will need additional practice opportunities. Some require more—and some require less—faculty feedback to correctly learn a skill. A faculty member needs the time and enough appropriate, willing patients to accommodate differences in learners’ abilities and paces.

In addition to increasing protected time and institutional support for physician educators, hiring professionals with educational expertise from multiple other disciplines is important. These experts (i.e., cognitive psychologists, evaluation specialists, instructional designers) have contributed over the last century to the understanding of teaching and learning and to their application in medical education.^{8,45,46}

Finally, for advancement and growth to occur, research in medical education needs to move to the forefront of donor and government priorities. Even small educational grants have increased the amount of educational research and scholarship produced at an institution.⁴⁷

Recommendations

Several of our recommendations on how to enhance teaching are consonant with the action items recommended in the recent Carnegie Foundation book entitled “Educating Physicians: A Call for Reform of Medical School and Residency.”^{3,14} Our recommendations do not constitute an exhaustive list that addresses each of the barriers to effective teaching that we have outlined; rather, together they are a compendium of critical action steps that require fundamental change at the national and institutional levels.

1. Establish and measure desired education outcomes of graduates

Faculty members require a clear understanding not only of student learning needs and goals but also of how those goals will be measured. Although the competencies are an excellent starting point, we medical educators need to ensure that all medical school graduates possess a core set of knowledge, skills, and professional attributes that are appropriately defined and which all stakeholders, including the public, understand. We need to be able to articulate and defend in clear, concise, and common language what graduates should be capable of doing. Physician employers, patients, health care professionals, faculty, learners, health care policy makers, and others must be involved in the process.

2. Determine acceptable evidence of performance proficiency and use

Faculty need to be informed of their students’ performance on assessments in order to plan learning experiences and instruction as needed, to adjust their teaching if students do not meet established criteria, and to note students’ achievements and failures in areas for which they (individual faculty members) have teaching responsibility. Longitudinal performance-tracking systems should be required for all medical schools so that faculty, learners, and leaders can review changes in students’ knowledge and abilities over time. Additionally, benchmarks for performance are critical.⁴⁸

3. Build systems into the curriculum that will increase the capacity for strong patient–learner and teacher–learner relationships

Systems that encourage students to cultivate long-term relationships with faculty and with patients will likely require enhanced mentorship programs with learners, an increase in early immersive clinical learning experiences, and longitudinal exposure to faculty and patients. Longitudinal exposure to patients will promote continuity of care and patient ownership.

4. Involve other health professionals as collaborators in the education mission

Nurses, nurse practitioners, physician assistants, and various other specialists working in health care are integral to balanced health care teams. Increasing their intentional and collaborative involvement in educational activities and the education infrastructure (e.g., curriculum committees, remediation programs, teaching) will increase interdisciplinary exposure, enhance teamwork skills, and promote quality patient care. These individuals can supplement clinical faculty teaching efforts or, in some cases (i.e., skills teaching), actually *replace* clinical faculty, thus saving time and avoiding loss of revenue.

5. Require systems that recognize and reward excellence in teaching and educational scholarship and hold faculty accountable for the quality and amount of teaching

Accreditation bodies and medical school leaders should emphasize the importance of promotion and tenure systems that

include clear criteria for advancement based on educational and scholarly contributions. Medical school leaders should ensure that their faculty members have access to teacher development programs. They should routinely hold individual faculty members accountable when they do not take their teaching responsibilities seriously or when they do not perform their teaching duties with adequate quality and consistency. Increased accountability would resolve many of the problems that learners and clerkship and program directors experience: missing or incomplete performance evaluation forms, incomplete or missing feedback for learners, and faculty who regularly receive deservedly poor teaching ratings but do not change their teaching practices. Faculty members must be held accountable for the amount and the *quality* of the teaching to which they agreed as part of their faculty position. They must clearly understand their educational duties and the criteria for excellence, and they must receive appropriate interventions to remediate substandard performance. They must be afforded the opportunity to learn how to change. Faculty must be guaranteed the time they need to prepare their lessons and materials, to teach their students and residents, and to improve their teaching skills.

6. Allocate adequate space, budgets for supplies, professional resources, equipment, and compensation to optimize the education mission

Faculty who forfeit clinical income to invest time in teaching should receive compensation, and faculty whose focus is mainly on clinical activity must understand that some revenue accruing from that activity must be designated to support their colleagues carrying out the education mission. Educational leaders—as well as learners—need to be involved in new facility planning so that appropriate spaces and resources for education are fully considered and prioritized.

7. Recruit educational specialists with the appropriate expertise to optimize faculty efforts as clerkship or residency directors, course directors, or teachers

Educational specialists can help foster educational scholarship and provide coaching to faculty who want to assess

and improve their teaching effectiveness. They can also provide the expertise needed to renew curriculum, build psychometrically sound evaluation systems, design electronic instructional materials, and otherwise contribute to the education mission. Collaborating with experts in education can conserve basic science or clinical faculty time and may result in scholarly projects.

8. Develop a national or global health care professions institute whose aim is to advance the development of health professions educators and educational research

An institute to promote medical teaching and medical education research would involve health professions schools and would provide a variety of faculty development and educational research programs. Faculty development programs that focus on teaching and educational research could range from a workshop series on core teaching skills to fellowship programs that offer advanced degrees. The degree programs could offer a variety of “majors” and “minors” through which a faculty member could complete a set of standard courses and then focus on an area of interest, such as the neurobiology of learning, motor learning science, cognitive psychology, statistics and measurement, or evaluation methodologies, the name a few. The institute could offer these faculty development programs locally or nationally through distance learning technologies. Some fellowships, workshops, and advanced degree programs do already exist, but additional coordination of these programs is needed to address ongoing faculty development learning needs. The institute could also conduct large-scale studies. For example, investigators, supported by the institute, could explore the need for and feasibility of a national medical educator certification program to enhance and standardize core preparation for the role of the medical educator. The results of this and other large-scale studies would help educators make informed decisions and steer their efforts toward the development and quality of medical education.

9. Increase grant dollar availability for educational development and research in health professions education at the federal and local level

Although behavioral and social science research funding is available through the

National Institutes of Health, few grant dollars are distributed for the purpose of developing health professions research compared with other research disciplines. Similarly, few grant dollars from the hospital and/or medical school are available for educational research. Health professions schools face difficult and varied challenges brought on by ongoing changes and shortages in health care. Further, they must implement unfunded mandates and new accreditation regulations such as resident duty hours limits. These institutions need grant dollars to support educational research that can inform these and other education-related challenges and decisions. Medical schools and teaching hospitals also need funds to conduct large-scale evaluations of new curriculum models and other teaching innovations.

10. Create an international health professions education statistics database

An international database similar to the education statistics database overseen by the U.S. Department of Education’s National Center for Education Statistics (NCES) would be beneficial. Such a database would complement the database that the Association of American Medical Colleges currently maintains. This “International Health Professions Database” would help identify and communicate ongoing and emerging issues germane to health professions education. Similar to the NCES database, it would promote the quality, comparability, and utility of education data and information, and it would support education policy development, implementation, and evaluation. Examples of variables and trends that the database should track to enhance teaching efforts include attitudes on education, international comparisons of education processes, performance trends, and outcomes of education.

In Sum

Some of these recommendations are incremental and easy to accomplish, whereas others represent major change or development. If implemented, these action steps could help restore the respected status of post-Flexnerian medical education and enhance research and patient care, the interdependent missions of the medical school. In such

an environment, faculty will be able to succeed in a career track focused on teaching—progressing from teacher to master educator, capable of having a significant impact not only on learners but also on education policies and practices beyond his or her own institution.⁴⁹ Several current practices in medical education require urgent change. The recommendations detailed above could begin to break down curricular, cultural, environmental, and financial barriers, paving the way for us to truly achieve and sustain effective teaching. Our learners and society are depending on us.

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Teaching and Learning Moments

Taken

Having a beautiful, healthy baby is something that health professionals probably *don't* take for granted. We see how illness can ravage the body. We worry that our child will be the one to have leukemia or that we may not be able to have children at all. But that's because bad things happen to health care provider families, right? As a doctor, I think the bad things will happen to my family. But on my last night shift, I was witness to my biggest nightmare. The gut-wrenching, emotional pain that my patient was feeling was so intense that it felt like it was happening to me. As I raced the clock to help my patient, the memory of my daughter wrapping her tiny fingers around my pinky just hours earlier felt like a betrayal, not like the comfort it should have been.

Olivia had a history of ovarian torsion and a right oophorectomy two years ago. That night, she told me that the pain she was having was the same pain she'd had back then. She was so scared; she desperately wanted children and thought that chance was now being taken from her. As I examined her, I was fearful for her too. Medically, she was stable, but her dreams were absolutely threatened.

She was crying, her mom was crying, her boyfriend was crying. They knew what was at risk. The ultrasound confirmed all of their fears. I held her hand as I told her that yes, her remaining ovary had torsed and that we needed to transfer her to the women's hospital for immediate treatment. I ached for her need that we all thought would remain unfilled. She smiled through her tears and thanked me for caring for her. She was facing a huge loss, and yet she took the time to say thank you for caring *about* her. When I got home that morning, I picked up my sleeping Grace, held her, and cried. I have never taken for granted what a miracle she is.

The empathy I unintentionally showed Olivia, as a new mother, helped her. Whether or not the help would also come in the form of saving her remaining ovary, I didn't know. And that killed me—I wanted so desperately for her to have children. I could feel the ache in the depths of me where my beautiful baby girl had grown for nine months. I live in a close-knit community and part of me hoped that someday I would run into Olivia, with a baby who had eyes like

hers in her arms. Knowing that I would never know what happened to her and whether or not she would experience that awful morning sickness, or feel those little feet kick her ribcage, or hear her baby's first cry was awful. Thankfully, Olivia saved me from that ignorance.

A thank-you note arrived a few months later. She had been transferred in time, and her ovary was saved. She would have the chance to be a mommy. Her words of appreciation will resonate with me forever. What a feeling to know that our hospital's quick action helped not only one life that night, but potential future little lives as well. She thanked me for helping to save her ovary, but she almost thanked me more for showing her empathy. She told me that she will keep in touch, although whether or not we will ever meet again, I don't know. I hope she keeps in touch with me. I hope she sends me pictures of 10 little fingers and 10 little toes.

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