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Marginalized Mission: The Challenging Future for Medical Education

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U.S. medical education is facing unprecedented challenges that threaten its sustainability and effectiveness. The convergence of physician shortages, financial pressures, evolving clinical learning environments, and the rapid emergence of artificial intelligence (AI) demands a fundamental rethinking of how medical education is structured, financed, and delivered. The quality of medical education depends on engaged clinical faculty and robust partnerships between medical schools and health systems. However, financial and operational pressures are pushing institutions toward transactional, rather than integrated or partnered, relationships—undermining the educational mission and risking disengagement of clinical educators. We contend that committed and collaborative action by health systems, medical schools, and policy makers will be needed to limit the marginalization of medical education.

A Time of Challenge—and Change

One year ago, the Liaison Committee on Medical Education (LCME), the accrediting body for medical education programs which confer doctor of medicine (M.D.) degrees, began a strategic visioning process to review and potentially revise accreditation requirements. These requirements are the basis for ensuring the educational quality of medical schools and, ultimately, protecting public trust in how our doctors are trained. As a starting point, the LCME identified the significant challenges academic medicine and medical education programs will encounter over the coming decade.[1]

The Top Five Challenges	The Next Five Challenges
1. Financing medical schools/health care and organizational models of medical education/ interaction of health systems and medical education programs	6. Political interference with accreditation and the practice of medicine
2. Impact of technology (AI) on medical education, assessment, and health care delivery	7. Building resiliency/addressing system barriers to combat depression, anxiety, and burnout in students, faculty and staff
3. Competition for clinical clerkship sites and residency positions	8. Meeting the national workforce needs/diversity/ cultural competence
4. Emerging curriculum content expectations (e.g., systems-based practice) and curriculum management	9. Faculty wellbeing/health care mergers/time for teaching and scholarship/changes in expectations/ attitudes/value of clinician teachers
5. UME/GME continuum of medical education/ competency-based education	10. Implications of dispersed education and unionization

Medical Education Landscape

The U.S. faces a projected shortfall estimated at 86,000 to 187,000 physicians by 2036, driven by population growth, aging demographics, and an aging physician workforce.[2] Rural areas are expected to face disproportionately severe shortages, and critically inadequate numbers are anticipated in primary care and behavioral health in all geographies.

Recognizing the need for more physicians, since 2002, more than forty new medical schools have opened to help meet the demand—about two-thirds grant M.D. degrees and one-third grant Doctor of Osteopathic Medicine (D.O.) degrees. Seven new schools have applicant or candidate status with the LCME and several others are in the planning stages. Overall medical school enrollment today is over 50% higher than 2002.

Despite this added capacity for physician medical education, there remains a critical mismatch between the rate of medical school expansion and the number of Medicare-funded GME positions, which remain largely capped at 1996 levels under the Balanced Budget Act. In 2025, there were 40,041 first year (PGY-1) slots and 47,208 active applicants.[3] This imbalance reflects the growth in M.D. and D.O. graduates and the large number of international medical graduates who compete for residency slots and who form a vital part of the physician workforce, accounting for approximately 25% of physicians in practice.

The Role of Clinical Faculty

The training of a physician is unique in at least two important ways. First, it is a combination of graduate education, trade school-like apprenticeship, and professional finishing school. Second, it is accomplished across a continuum involving three stages: medical school education (often referred to as "undergraduate medical education" or "UME"), specialty residency training, and, for some, subspecialty fellowship experience. Although medical school provides foundational medical education and its graduates earn an M.D. or D.O. degree, the newly minted doctor is an unfinished product and cannot practice until they complete a minimum of one year of graduate medical education and sit for and pass necessary licensure exams. Well over 90% of medical school graduates complete specialty residency training of three (for instance, family medicine, pediatrics, internal medicine) to seven years (neurosurgery) and, depending on their specialty, a majority of those go on to subspecialty fellowship apprenticeship ranging from one to four years. If a primary goal of institutions is to improve physician workforce capacity in a region, then aligning medical education across the continuum serves a critical role. Nationally, two-thirds of those who complete both their undergraduate and residency in the same state have subsequently practiced in that state.[4]

Although a variety of faculty professionals (Ph.D. and R.N. teachers, librarians, allied health providers, et al.) and multiple staff have essential roles in physician education, the cornerstone is the clinical faculty, who ideally participate in all phases of the medical education program.

In the early years of medical school (the pre-clerkship phase), clinical faculty is often involved in training basic clinical skills and increasingly in pre-clerkship team teaching of the basic science materials to emphasize clinical relevance. In the clerkship phase of medical school, physicians ideally serve as preceptors and as role models and best sources of advice for students regarding senior year elective choices, specialty career selection, and residency program application. The LCME requires that all physicians who teach or assess students must hold some form of faculty appointment (full, part-time, or volunteer/adjunct) with an accredited medical school.

For the second and third stages of physician training, residency and fellowship programs are developed and administered by physicians who then serve as teachers and mentors. The Accreditation Council for Graduate Medical Education (ACGME) requires that supervising physicians must be designated as program faculty, credentialed and privileged by the sponsoring institution, and be provided with "adequate time" and support. A medical school faculty appointment is not required for resident/fellow supervision, though in academic medical centers most supervising physicians are appointed faculty.

The Clinical Learning Environment and Affiliation Models

Because of the training model, medical schools are required to have affiliation agreements with hospitals and physicians who agree to provide the clinical learning environment (CLE), in which the school's medical students complete their required third year and elective fourth year clerkships. In practice, the degree of affiliated physician involvement and engagement in the medical education program is quite variable. The relationships between medical schools and affiliated hospitals and physicians span transactional, contractual, collaborative, integrated, and partnered.

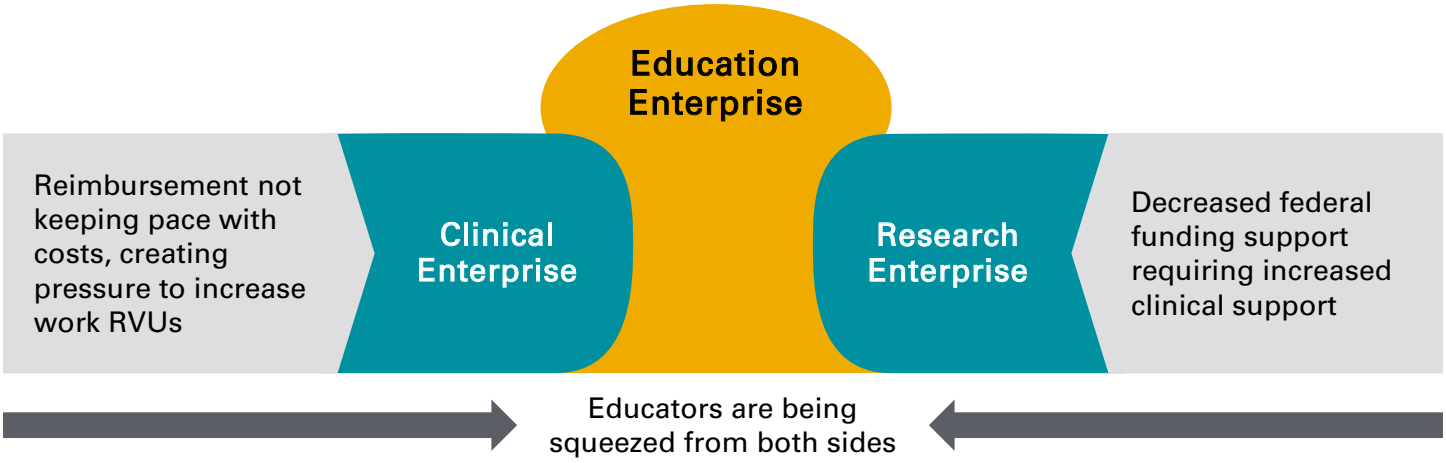
In a typical **transactional relationship**, the extent of physician commitment is to provide clerkship opportunities in exchange for a faculty appointment and a weekly stipend per student. In a **contractual relationship**, usually a group of physicians agree to provide several services additional to student clerkship opportunities in exchange for an aggregate amount of money and defined benefits; among other things, additional physician services might include student career counselling and physician benefits might include free continuing medical education (CME) offerings. In a **collaborative relationship**, the physician faculty serve as preceptors, provide additional services, and work together with the medical school administration, staff, and other faculty to achieve goals determined by the medical school, using a contract—often with milestone incentive payments. In an **integrated relationship**, the physician organization and the medical school are unified, frequently by way of shared leadership positions, and work together to assess and continually improve the medical education program, approaching this as a shared investment between the school and the physician organization's health care system. In a **partnered relationship**, the faculty physicians are employed within the medical school and have primary responsibility for the success and quality of the medical education program.

In integrated and partnered relationships, the value proposition for the medical school is increased because the faculty physicians, through direct and indirect shared responsibility, are significantly engaged in assessing and optimizing the medical education program and assuring the well-being of the medical students. The value propositions for physicians, their health care system, and their communities are similarly enhanced because health care systems in such relationships retain and attract the best trained and highest quality physicians as educators, provide highly specialized and complex clinical care as part of the CLE, and make cutting-edge innovative therapies locally available through involvement in clinical trials research—all hallmarks of academic medical centers and cornerstones of high quality health care.

Despite these benefits, our experience suggests that, over recent decades, many health systems and clinicians increasingly view educational roles as a marginal or secondary commitment, owing in part to compensation models that favor work Relative Value Unit (wRVU)-driven productivity, intensifying demands on clinician time, competition for research funding, and high levels of burnout among academic physicians. Due to these factors, many clinical faculty who teach must make personal sacrifices, such as working nights, weekends, and holidays, to complete their work.[5] Others seek to minimize their involvement in education and psychologically withdraw from meaningful engagement with their medical school and its students.

As we look ahead, the skies grow darker for sustainable support of medical education due to rapidly worsening financial conditions developing for universities and health systems. On the one hand, significant reductions in the research indirect rates by the federal government will result in ever larger research deficits, impacting the fiscal health of the university or health system. On the other, Medicaid cuts and reductions in eligibility, combined with flattening commercial reimbursements, will reduce clinical margins which have in the past supported the CLE.

The Challenge of Sustaining Medical Education



These forces push health systems and their affiliated physician practices toward transactional teaching arrangements and away from long-horizon educational investments. As this occurs, the educational mission becomes pushed from the core to the periphery—from integrated to transactional. The effect is already profound and will become more so: marginalized engagement of physicians in medical education and diminished health system commitment has the potential to become an existential threat to medical education as we know it.

The Arrival of AI

Generative AI use cases in medical education are under evaluation around the country. A recent systematic analysis of 455 studies prepared for the Josiah Macey Foundation identified five domains where AI could most enhance the educational process: admissions, classroom (preclinical) learning, workplace (clinical) learning, assessment/feedback/certification, and program evaluation.[6]

The following table, summarized with the support of ChatGPT from the report just mentioned and refined by us, identifies the value proposition of each use case:

Domain	Value Proposition and Considerations
Admissions	• AI (predictive models, neuro-linguistic programming, chatbots) is being explored to augment holistic applicant review and support. Implementation requires transparency, bias monitoring, and clear guidance for applicants. Human oversight essential.
Classroom/preclinical learning	• AI-powered virtual patients and curriculum tools support personalized learning, and provide novel practice opportunities. Need to validate educational effectiveness.

Domain	Value Proposition and Considerations
Workplace/clinical learning	• AI diagnostic and interpretive tools underscore the need for AI literacy (capabilities, limitations, ethics) and supervised integration into clinical teaching. Risks include deskilling, over reliance, and diminished social interaction.
Assessment and feedback	• Automated grading and learning analytics can accelerate feedback and reduce faculty workload. Predictive analytics help identify at-risk learners. Faculty oversight is essential.
Program evaluation and research	• AI applied to learner and program data can help target resources and track outcomes, but robust data governance and fairness safeguards are critical.
Risks and guardrails	• Key concerns include bias, validity, opacity, and privacy. The report recommends governed pilots, disclosure, and continuous monitoring, as well as no high-stakes use without validation.

The promise of AI to support "precision education"—defined as "a system of personalized and continuous learning, assessment, and feedback for trainees and practicing physicians"[7]—appears great. AI determination of individual student learning styles, lessons personalized for each style, identification of individual student knowledge gaps, and remediation content targeted at those gaps hold promise for precision education and competency-based promotion and advancement. AI is already entering the practice of medicine, and it is imperative that students be taught how to determine which tools are best, how to prompt them effectively, how to assess validity of the results, and how to use them responsibly, while simultaneously practicing and promoting professionalism and humanism in care. Effective use of AI has potential to result in faculty workload relief; better student satisfaction; competency-based education; advanced preparation for residency; and ultimately improved medical care, while also enhancing the overall educational experience and outcomes.

Some Solutions to Strengthen Medical Education

What medical schools can do to improve the training of medical students

Foundational steps medical schools can take include deepening their integration with health system partners—for instance, with shared governance, raising up education as a primary affiliation goal with shared commitment, and utilizing robust metrics for educational assessment—while de-emphasizing solely transactional arrangements. These steps will help stabilize the CLE. Forward-looking steps include working with health system affiliates to stand up a "core clinical faculty"—(i.e., a concentrated, highly committed cohort which engages with the biomedical sciences faculty in administering, managing, assessing, and continually improving the overall medical education program, participates in pre-clerkship team teaching, and has primary educational responsibility for clerkships).[8] Medical schools can continue to create or expand clinician-educator tracks to value and recognize teaching excellence and related pedagogical scholarship, even using defined objective metrics to award incentives for exceptional teaching performance.

A construct increasingly being considered by medical schools to facilitate integration of their teaching faculty, regardless of the type of affiliation they have with their hospital and physician partners, is creation of a department of medical education in which the core teaching faculty have primary, secondary, or adjunct appointments. When engaged in activities of such departments the faculty bring the perspectives

of their basic science disciplines and clinical specialties but focus primarily on overall medical education program improvement and scholarship through innovation in education. In some instances, departments of medical education have initially been formed to lead curriculum transformation and periodic refreshment, while allowing the traditional medical school departments to continue their majority focus on discipline and specialty specific teaching, research, and clinical care. Such medical education departments have often lead transitions from a traditional 2+2 lecture-based curriculum to the more modern curriculum incorporating team-based teaching, early clinical exposure, flipped classrooms, and small group problem-based and case-based learning. Bringing the biomedical sciences faculty together with the clinical faculty has facilitated assimilation of new curriculum content across blocks of existing curriculum for things like self-directed learning, interprofessional education, life-style medicine, and systems-based practice.

What health systems and physician practices can do to increase the capacity of the CLE

The sustainability of the medical education system depends upon the support of the clinical enterprise. Health systems and faculty practice organizations should consider their investment in UME as an essential part of their identity, their differentiation, and their competitive edge for survival. The main strategy here is to "rationalize" the portfolio of learners and prioritize slots and teaching faculty support for academic affiliates that produce the best physicians, that will match into their residency programs and enter practice or continue into fellowship with them. Health systems can support a core faculty model for clerkships. They can rebalance their compensation plans to explicitly recognize, compensate, and incent quality teaching, a recognition long sought by educators. As their health systems grow into new geographies, they can support new or expanded residency programs at community sites, while also leveraging ACGME's Rural Track Program (RTP) designation and the Centers for Medicare and Medicaid Services' updated RTP policy to support rural programs. They can also extend their relationships with VA hospitals to increase GME rotations and positions. They can align their AI programs for patient care to support AI capabilities for precision education in both the classroom and in the CLE.

What states can do to provide enhanced funding for GME

Medicaid is a significant funder of GME and medical schools and academic medical centers (AMCs) should work with their state agencies to formulate GME strategic plans that support increased programs and positions. Many states support GME through Medicaid supplemental payments and by adding enhanced payments to base rates for teaching hospitals, for a total annual spend of $4.9 billion.[9] Some states have utilized state plan amendments (SPAs) to form pools which support enhanced GME funding to teaching providers. Some states are also using state-directed payments (SDPs) to increase payments for designated teaching providers as a means of supporting policy goals for primary care, psychiatry, and rural access, amongst others. Inter-governmental transfers from public hospitals, AMCs, and medical schools can provide the needed support for SDP expansion of GME funds. A potential scenario is for a fee-for-service SPA pool (for baseline DGME/IME enhancements) to be positioned along with an SDP (for priority specialties).

What the federal government can do to increase residency positions

As strongly advocated by the American Hospital Association[10] and others, the critical action the government could take would be to increase the number of Medicare-funded residency positions, by signing into law the bipartisan Resident Physician Shortage Reduction Act of 2025.

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