

Three nations, three doctors, three generations: what global medical education can learn from itself

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Abstract

Three clinician-educators, drawing upon experience of training in Pakistan, Germany and the United Kingdom, across three generations, and currently teaching together in a Western medical school, here offer a reflective commentary on undergraduate medical education. Between us, we represent nearly 60 years of medical teaching across three continents and a shared conviction that the most underutilized resource in global medical education reform is not technology, funding, or curriculum innovation—but a disciplined, honest exchange between systems that have already found different answers to shared problems.

Medical education continues to evolve rapidly, yet its reform remains tightly tied to national contexts. We examine what each of our nation's systems do distinctively well. The United Kingdom has early clinical socialization, communication skills and a culture of professionalism into its framework. Germany has preserved scientific rigor, research literacy and a debt-free funding model that other nations would do well to

examine. Pakistan, working under resource constraints, has developed clinical immersion, adaptability and bottom-up innovation that wealthier systems, often slowed by their own complexity, have rarely achieved.

Yet all three systems share the same frustrations: strained clinical placements, underdeveloped faculty support, and persistent questions about whether today's graduates are genuinely *better prepared*, or simply *differently prepared*. These are not isolated national problems. They are shared challenges that call for shared thinking.

We argue that reform can take place with academic partnerships, faculty exchanges and joint curricular initiatives that are genuinely bidirectional, not simply the export of Western models under the guise of quality improvement. This represents the most realistic and underexplored route to meaningful reform.

Keywords: Medical education, undergraduate curriculum; cross-system learning; global health; faculty development; clinical training; educational reform

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Background

Some of us still remember the moment we first stepped into the dissection hall. The sting of formalin, the stillness of the cadavers, and the sense of crossing a threshold into the profession. That rite of passage shaped generations of doctors. We appreciated the respect for life and death.

When we face the medical students of today, equipped with natural and artificial intelligence, we may wonder—do we have to cling to the traditional

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memorizing of structures and facts? Most of these facts are neither remembered for long, nor required by all. Our medical students must maneuver complex healthcare systems, recent technological advances and stay patient-centered. While traditional methods may teach theoretical foundations, they do not inculcate adaptive learning, clinical reasoning nor interdisciplinary thinking. Our medical schools have replaced dissections with digital anatomy and simulation, reflecting a broader shift in learning modalities,

which may, or may not, have improved our students' learning; a question we find ourselves returning to time and again.¹

Medical education has evolved through successive reforms: from the Humboldtian university model in Germany, through the Flexnerian reforms of the early 20th century,² to problem-based learning.³ The question is not simply whether change has occurred, but whether it has consistently improved the doctors we produce.

As three medical educators trained in Pakistan, Germany and the United Kingdom, and now teaching together within a contemporary UK medical school, we have often reflected on how differently we experienced undergraduate medical education in different decades, and how surprisingly similar many current challenges have become. Between us, we represent nearly 60 years of medical teaching across three continents.

We return repeatedly to the same question: *Are we making better doctors today, or simply different ones?* Despite unprecedented transformation, medical education remains strongly shaped by national history, policy, culture and resources.⁴ We argue that the most underutilized resource in medical education reform is not technology, funding, or curriculum innovation, but the disciplined, honest exchange between systems that have already found different answers to shared problems.

This Commentary is not a systematic review. It is a reflective, evidence-informed perspective from three clinician-educators who have lived experience in these systems, and who now argue that structured cross-system exchange represents the most realistic and underexplored route to meaningful reform. We examine what each of our three systems does distinctively well, what they share in their struggles, and what a more deliberate exchange between them might look like in practice.

The Three Systems

The United Kingdom

British medical education has progressively moved from discipline-based teaching toward integrated, patient-centered curricula. The GMC's Outcomes

for Graduates framework promotes early clinical exposure, communication skills, professionalism, integrated curricula and reflective practice.⁵ Simulation, structured communication teaching and small-group learning techniques are now embedded within most programs. Early and longitudinal patient contact helps contextualize biomedical learning and builds the clinical identity and empathy that later instruction struggles to construct from the start.

Yet the system is under strain. Rising student numbers have weakened the traditional apprenticeship model, and the breakdown of the clinical firm, where students were integral members, has cost important mentoring and role-modeling relationships.⁶ Clinical placements are increasingly difficult to sustain at scale, and students often feel peripheral within overstretched clinical environments. There is also a quieter cost: the UK's trajectory towards practice-oriented, compressed curricula has moved away from scientific scholarship. Research training at undergraduate level is rare, and the risk is that graduates emerge well-rounded but under-equipped to critically engage with an evidence base that is growing faster than any individual can absorb.

Germany

German medical education experience, shaped by the Humboldtian tradition, has strong national standardization, rigorous licensing examinations, and a lasting emphasis on scientific scholarship.⁷ Students undertake supervised research during medical school, reinforcing critical appraisal skills and an understanding of medicine as an evidence-generating as well as evidence-applying profession. The Praktisches Jahr (practical year) provides concentrated final-year clinical training. Germany's public funding model, which shields students from the substantial educational debt seen in fee-paying systems, also represents a structural equity advantage that deserves serious international consideration.

The system's relative rigidity is its main limitation. Clinical exposure usually comes late, and adoption of newer pedagogical methods has been slow and uneven.⁸ Nevertheless, at a time when curricula internationally risk becoming excessively practice-

driven, Germany demonstrates the enduring value of scientific depth. Its insistence on research literacy at the undergraduate level is a relevant argument, not merely a tradition.

Pakistan

Pakistani medical education evolved from British colonial structures and has emphasis on discipline-based teaching, factual knowledge and summative examinations.⁴ Large class sizes and resource constraints reinforced lecture-centered approaches. The curriculum carries significant cognitive load: several subjects—forensic medicine, community medicine, ophthalmology, ENT—are retained as compulsory stand-alone disciplines with their own university examinations, despite having been integrated into core medicine and surgery in most Western schools. Extensive anatomy curricula persist,⁹ and early clinical contact and formal communication skills teaching remain limited in many institutions. As theoretical instruction is emphasized, the Pakistani medical graduates have traditionally been well represented among international training pathways.

Yet Pakistan's system offers genuine, under-recognized strengths. Students in large public teaching hospitals encounter clinical volumes and pathological diversity rarely seen in high-income settings at an equivalent stage of training. This immersive exposure to complex presentations, resource-limited management decisions, and a breadth of pathology builds a clinical instinct that cannot easily be simulated. Faced with constrained resources, Pakistani medical schools have shown real adaptability: hybrid learning models, locally developed low-cost simulation, and rapid adoption of blended teaching have all emerged from institutions where necessity drove innovation.^{10,11} Ironically, the institutional fragmentation often cited as a weakness has also enabled the kind of bottom-up experimentation that heavily bureaucratized systems find difficult to replicate. The resilience this instils in graduates is an intangible but professionally significant asset.

Shared Struggles: More Alike Than Different

Despite their geographic and cultural differences, all three systems face remarkably similar challenges that receive insufficient attention in comparative

analyses. Clinical training resources are strained in each context. The UK struggles with limited placements relative to expanding student cohorts. Germany faces bottlenecks in major teaching hospitals. Pakistan's newer private institutions often lack the hands-on experience that its large public hospitals still provide. Simulation offers a partial solution, but its cost remains prohibitive in lower-resource settings, and it cannot fully substitute for the unpredictability of real patient care.

Faculty development has been inadequately supported across all three systems, which rely heavily on clinical faculty who are often overworked, under-supported and under-paid. Teaching is undervalued, compared to research or clinical service. Most of us began teaching before receiving any formal training in medical education, a pattern common to all three countries. Concerns about graduate preparedness are similarly voiced everywhere: soft skills, clinical reasoning under uncertainty, and real-world problem-solving are recurring gaps even as programs nominally address them. Whether contemporary graduates are *better* prepared overall, rather than *differently* prepared, remains an open question.

What Each System Can Offer the Others?

Rather than viewing cross-system differences as evidence of deficiency, we propose treating them as a structured resource. Each of our three systems has, through different historical routes, found workable solutions to problems that the others are still struggling with.

The UK's strength lies in early clinical socialization. Students who encounter real patients and structured communication training early begin constructing a clinical identity and developing empathic skills that factual instruction alone cannot build. The GMC framework's explicit attention to professionalism, ethics and team-based working has produced graduates who are, by international standards, socially and interpersonally well-prepared for practice. This is directly exportable—not as a wholesale curriculum transplant, but as a set of pedagogical principles and tools (simulated patients, reflective writing, early ward contact) that other systems could adopt with modest adaptation.

Germany's strength lies in scientific rigor and equitable access. As medical programs globally become more practice-oriented and clinically compressed, the risk is that graduates emerge technically capable but poorly equipped to critique evidence or contribute to research. Germany's culture of undergraduate research literacy, through a supervised scientific thesis and strong pre-clinical foundations, creates graduates who understand the science behind the medicine, not merely its application. Even a shorter, more focused research requirement in UK and Pakistani programs could meaningfully elevate graduate critical thinking. Germany's debt-free public funding model is equally worth examining, particularly given ongoing international concerns regarding the influence of educational debt on career decision-making.¹²

Pakistan's strength lies in adaptability and clinical immersion. Institutions that have developed context-specific learning and community-based teaching have done so without the institutional infrastructure or bureaucratic inertia of high-income systems.^{10,11} There is genuine bottom-up creativity here that wealthier systems, slowed by their own complexity, may find instructive. The breadth and volume of clinical exposure in Pakistan's large public teaching hospitals also represents an asset: the sheer diversity of pathology encountered, and the resourcefulness required to manage it, cultivates a clinical instinct that simulation approximates but cannot replicate.

The most valuable innovations are often not derived from educational competition, but from educational exchange. Practical mechanisms for achieving this already exist. Faculty visits expose educators to alternative curricular views and assessment cultures. Shared virtual seminars and collaborative online learning allow students to engage with peers across the world, and their healthcare systems. Joint curriculum development initiatives may also enable institutions to combine complementary strengths, such as Germany's research orientation, the United Kingdom's emphasis on communication and professionalism, and Pakistan's extensive clinical exposure. Such collaborations need not involve wholesale adoption of foreign models; rather, they

provide opportunities for mutual learning and contextual adaptation.

Technology, Global Health and the Shared Horizon

No modern discussion of medical education can exclude digital transformation. COVID-19 accelerated adoption of virtual learning and remote assessment across all three contexts. While the UK had infrastructure to adapt swiftly, Pakistan demonstrated a capacity for rapid transition despite significant resource constraints, even if uptake was uneven.¹³ Germany, more cautious in its digital transition, lagged only temporarily.¹⁴ These patterns themselves tell a cross-system story: agility is not the monopoly of well-resourced systems.

Artificial intelligence is arriving faster than our ability to evaluate it. It has promise; so is the risk of adopting it uncritically. Its potential to personalize learning, support assessment and enhance clinical reasoning is real.¹⁵ We need to adapt it, but keep patients, not technology, at the center of clinical education.

All three systems are also recognizing that training 'local doctors' is no longer sufficient. Pandemics, global workforce migration, health inequity and planetary health challenges require graduates who are adaptable, collaborative and internationally literate.¹⁶ These are shared aspirations and shared responsibilities that make cross-system exchange not merely academically interesting but professionally necessary.

Final Reflections

No single educational model offers a universally superior solution. Each system reflects historical compromises shaped by culture, policy, resources and societal expectations. Yet having trained in three countries across three generations, and now working together in one institution, we are struck not by how different these systems are, but by how much they *share*: same aspirations, same frustrations, and same fundamental tasks: preparing graduates who can think critically, adapt to uncertainty and care effectively.

The UK brings communication, professionalism and early clinical identity. Germany brings scientific

rigor, research literacy and structural equity. Pakistan brings adaptability, resilience and extensive clinical depth. None has the complete answer. Together, they point toward something closer to one.

The central argument of this Commentary is simple: the most underutilized resource in global medical education reform is not technology, funding, or curriculum innovation, but disciplined, honest exchange between systems that have already found different answers to shared problems. Academic partnerships, faculty exchanges, and joint curricular initiatives can accelerate this process. These

exchanges must be genuine, not the mere export of Western models to lower-income settings. We hope for truly *bidirectional conversation* in which each system is prepared to learn and teach.

What is missing is not the means but the will. Medical educators, institutions and policymakers must now act on what comparative reflection makes plain. Flexner travelled across two continents to observe, compare and challenge. More than a century later, the strongest argument for doing so again is not academic curiosity—it is professional necessity.

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