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Vision 2050: a revolution in academic medicine for better health for all

The chairs of the BMJ Commission on the Future of Academic Medicine set out principles for transforming academic medicine and to help improve population and planetary health

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Academic medicine is in urgent need of a revolution,[1] now more than ever following recent attacks on it in the United States.[2 3] Academic medicine brings together science, humanities, social science, health, and social care to improve the health and wellbeing of people and planet in an equitable manner. For decades, its role has been to train doctors who have led on generating research and provide services to improve health outcomes in a growing global population.[4] Some countries such as France, Germany, and India offer domestic students free or minimal tuition fees. However, the past decade of rising costs of publicly and privately funded medical education in many countries disproportionately favours a minority of students who can fund themselves through medical training.[5] For example, current total costs (excluding living expenses) for private medical education for international students to the US, UK, and Australia or domestic students who do not qualify for local state education range from $200 000 to $400 000 (£150 000-£300 000; €185 000-€370 000). These students then pursue a clinical career to repay their debt rather than entering academic medicine, where salaries are often lower.

Alongside a crisis in the academic workforce there are challenges to research funding. The bulk of academic medical research increasingly takes place within institutes of biomedicine or technology, whose funders and industry partners prioritise technological advances that promise financial profit. This can result in scientific censorship and disinvestment in unprofitable interventions with potential to improve population health.

These shifts mean that the goals and success measures of academic medicine are no longer aligned with improving health and wellbeing outcomes in the population. The misalignment has negatively affected the morale of clinical academics, who are under increasing pressure to bring in large research grants to universities. They have been struggling to do this alongside teaching workloads and delivering health services that are already stretched and insufficient to meet the population's health needs. Few academic medical institutions devote attention towards talent development to build academic capacity and nurture progression of clinical academic careers.

In addition, the entire process of applying for funding, producing research, and publishing has not kept pace with the speed at which new health threats emerge or technology has advanced. Thus, much of the research that is generated is not used, or is seen as irrelevant by the people who have the greatest health needs. Importantly, major medical advances with proved benefit, such as vaccines, are being rejected or mistrusted by the public, and now even by senior officials in the US and elsewhere.

These longstanding problems are exacerbated by the policies of the current US administration. These have resulted in loss of funding and academic workforce, destruction of data, and restricted freedom of speech, creating fear, despair, and anger among the global academic community and increasing public mistrust of science.[3 6] The BMJ Commission on the Future of Academic Medicine began before this abrupt change and focuses on the longstanding issues. Nevertheless, it is clear that many of the principles discussed here are being bluntly disregarded, and this will have negative consequences for academia and the population without strong challenge.[2]

Our 2024 *BMJ* editorial laid out a list of historical misalignments, siloed thinking, and challenges within academic and health service structures and pathways that have led to the current crisis within academic medicine.[1] The recent global health shocks from pandemics, wars, and geopolitical conflicts have added to a widening health gap between rich and poor, between and within countries, underscoring the need to do radically better.[7 8]

In this, the first in a series of papers from the BMJ commission, we examine progress and failures against reforms to academic medicine that were envisaged at the start of the 21st century. We propose five core principles intended to realign the goals of academic medicine and health institutions towards population and planetary health improvement. Other articles will examine regional perspectives from across the world and deal with focused topics including equity, corporate, and other key drivers of the research agenda and the needs of the future generation of clinical and public health academics.

Progress and failures in the past 25 years

Two decades ago, the International Campaign for Revitalising Academic Medicine (ICRAM) identified key reforms needed for academic medicine.[9] It developed five scenarios—"Academic Inc" (a privately funded model of academic medicine), "reformation" (dissolution of academic institutions and absorption into mainstream health care), "in the public eye" (populism), "global partnership," and "fully engaged" (multidisciplinary and stakeholder led academic medicine)—and identified key instabilities that would need to be secured for positive change.

The ensuing debate concluded that the four pillars of academic medicine—research, evidence based medicine, medical education, and health improvement— were crumbling.[10] Not surprisingly many of the "instabilities" identified 20 years ago remain today, although some progress can be identified. Here we consider the relevance of the five scenarios to our mission to provide a new vision for academic medicine.

Corporatisation and globalisation

The ICRAM group correctly predicted rising private investment from an international pool of industry competitors, particularly in technical and digital innovation.[11] Leaders of academic medicine institutions have prioritised technological advances that can be commodified for profit over services that improve population health. Many of these new technologies focus on the health problems of wealthier people and countries. They offer limited population health gain and are likely to increase inequities. An important reason for this is that research is increasingly done in specialised powerful research institutions with links to big pharma and biotechnology, inevitably influenced by their drive for profits. Public health research is much less generously funded than even clinical research, accounting for just 9% ($2.84bn) of the $30bn spent on healthcare research globally a year.[12]

Corporatisation and globalisation have also led to an uncontrolled increase in private medical and educational faculties and new medical schools that has intensified competition for students. In India, nearly half of medical school places are now privately funded and their high cost—up to $115 000 in total—denies access to less privileged students.[13] Similarly, the reduction in public funding for higher education has led universities in high income countries to rely more on overseas students and introduce or increase fees for domestic students, widening the educational attainment gap between rich and poor domestic students.

Reformation

The reformation scenario accurately depicted shifts of teaching, research, and improvement science from universities to team led activity in point-of-care clinical settings. Teamwork and multidisciplinary working are increasingly accepted in clinical medicine globally. However, services, specialty and subspecialty medicine remain fragmented and need better integration with communities, as seen during the covid-19 pandemic.[14] The medical workforce globally came under intense pressure to deliver services while producing research in a crisis situation. Many people experienced intense burnout, which has resulted in high attrition rates. The drive to specialise has meant it is increasingly difficult for academics to be competent in all areas, and academics are often forced to choose between research or teaching and training. Financial pressures have reduced the number of tenured academic positions, and many universities now expect staff to bring in the equivalent of their salary costs in research grants, lowering morale and resulting in clinical academics opting for the security of permanent clinical roles.

Within academic medicine, a persisting culture of competition and elitism prevails. Universities and academic medicine institutions reward individuals whose metrics show the highest research income and number of high impact publications and citations rather than recognising that team science and collaboration can improve scientific rigour.[15] These criteria are used for academic promotion and have reinforced gender and racial inequalities in recruitment, pay, and career progression and retention of clinical academics.[16] Recognition is growing that the system is unfair because performance metrics reward first or last author publication without sufficient consideration of teaching workloads or leaves of absence for parenting or caring (more commonly falling to women). However, many institutions are recognising the need to include a broader set of performance metrics that reward team building as well as individual competence and achievements.[17]

Rise of celebrity culture and populism

The third scenario of popular "public eye" culture in academic medicine has increased exponentially through global digital technologies and social networks. A lack of regulation was correctly predicted to lead to disinformation and erosion of public trust in health systems, professions, and science. Populism, celebrity, and influencer culture were accelerated by social media platforms such as TikTok, X, and YouTube. Although media platforms enhance rapid knowledge exchange, the goal of reliable science communication has yet to be achieved.

Academic institutions and medical journals have developed ways of disseminating science using digital media in friendly formats that are accessible and appealing to public audiences. The challenge is to bring academic knowledge to a mostly non-academic society, bridging knowledge and information in a more accessible way to individuals who dedicate less time and effort to reading, so that the impact of academic medicine, and science more broadly, is positive and that it is seen as honest, trusted, and welcome.

Global academic partnerships

Despite rising educational attainment worldwide, ICRAM's vision of a global academic partnership for health equity appears to have failed. The high cost of international fees has introduced selection bias towards educating students from wealthier families and nations, further widening the gap for talent development between high income countries and low and middle income countries.[5 12 13] In many countries the expansion of student numbers has reduced student satisfaction and teaching quality is variable, particularly where tutor support does not match student numbers. International students experience many hurdles and may struggle to learn in a second language (usually English) with stringent curriculums in a culture that is not their own. Logistical difficulties in obtaining visas for medical and specialty training are also increasing, and migrating students require resilience to navigate the challenges of acculturation, assimilation, or marginalisation. Educational institutions and teaching staff need an increasingly broader skill set, supported by sufficient funding, to support students and trainees to learn and assess competencies from diverse multicultural groups effectively. The ICRAM scenario also predicted intensification of the brain drain, reducing the supply of physicians in many lower income countries as more students and graduates from the Caribbean islands, Central Asia, and sub-Saharan Africa travel to study and seek employment in high income countries, predominantly the US, UK, and Europe.[18]

Widespread engagement

The scenario of development of new institutions integrating widespread voices has not materialised. Some funders mandate consultation with patients and the public in grant applications to ensure relevance, but this remains sporadic and can be tokenistic. Community engagement where researchers are invested in ascertaining meaningful input throughout the research process often takes time and effort but can be critical to addressing population needs and for improving the sustainability and acceptability of clinical interventions and population health initiatives.

Unforeseen changes

The past 25 years have also seen major geopolitical changes, including a global polycrisis of pandemics, austerity, conflicts and displacement, and extreme weather patterns and climate disasters, that are widening the global health divide. The covid-19 pandemic revealed the fragility of even the best health and social care systems when faced with disasters.[14] It also showed the reluctance of high income countries and the pharmaceutical industry to share vaccine technologies and covid-19 treatments equitably. The scale and impact of technological advances and digital innovation (including artificial intelligence (AI)) are much greater, however. Technology is transforming how societies are structured and function, and rapidly affecting how medicine and care are delivered. AI will continue to evolve and become embedded in everyday patient care (diagnosis, treatment planning, and communications). Many aspects of medical education, such as lectures and simulations, pivoted during the pandemic in 2020, and education is likely to become increasingly virtual.

Vision 2050

A new set of principles is required if academic medicine is to support improving health and wellbeing oucomes for people and the planet. By aligning goals of academic medicine to those of health services and community voices, tackling health inequalities, and ensuring science is applied to make positive changes, academic medicine can show the way to better health for population and planet.[19] At the same time health systems will ensure that medical education is affordable and that academics are protected from burnout and can experience lives which balance family, recreation, and work. We propose five underpinning principles that should underwrite academic medicine globally for today and the future, irrespective of current disruptive sociopolitical views (table 1).

Table 1 | Recommendations for action on the five principles to revolutionalise academic medicine by 2050

Recommendations	Success measures
Principle 1: Focus on health outcomes of populations and the planet	
Develop a global health security agenda to protect, promote and preserve the health of people and the planet Health, research and social care institutions show how human and planetary health are part of their vision and strategic plans	Integration of economies, social, and health care towards better planetary and human health Medical institutions focus research and teaching on preventing diseases, reducing healthcare costs, tackling social determinants of health including climate change and improving overall population health
Training prioritises primary health physicians willing to work in community settings and unhealthy environments, where there is the highest need	Academic medical workforce matches health needs of current and future populations
Principle 2: Align goals of academic medicine and health systems	
University and clinical academic goals aligns with those of the health systems and health professionals Improve working conditions and pay structures for clinical academics Universities' performance indicators prioritise quality of teaching and health and societal impact of generated knowledge Academic performance is rewarded for team approaches rather than individual star performance Interdisciplinary and transdisciplinary knowledge exchange, education, and training should occur between academic and health professions, across different health professional and non-medical professions	Health and academic medicine institutions have adequate funding and infrastructure, including a trained workforce, technology, and resources to achieve their goals A sustainable clinical academic workload, career structure, and supply of medical academics There is a culture of collaboration not competition and team science is valued Academic medicine becomes multidisciplinary, thereby raising scientific rigour
Principle 3: Embed ethics, participation, and relevance	
Disinvestment needed for health harming industry (tobacco, food, fossil fuel, gambling) Investment in sustainable interventions and health systems Medical education and training includes awareness and understanding of social and commercial determinants of health and the importance of public health in addressing detrimental impacts on health	New health interventions and policy do not harm people or the environment Professionals and health systems develop clear understanding of how they can respond to social and commercial determinants of health Increasing awareness of the need for protection of people against abusive interventions (non-approved drugs in low quality or non-regulated clinical studies have been largely banned) and false news
Develop ongoing dialogue between stakeholders and the public to identify common health and social care outcomes valued by society	Co-creation from research inception to implementation in partnership with patient and public stakeholders
Bring skills in community engagement, social science, and humanities into medical curriculums	Education of the public (participative, non-patronising, illustrative) plays a key role in combating misinformation
Principle 4: Deliver equitable health outcomes	
Public and private funding for research expands beyond illness management to considerations of health, wellbeing, and prevention for the whole population with explicit mention of how interventions will improve equity	Access to safe, effective, comprehensive healthcare for all The health gap is reduced
A culture of equality and service should be promoted and modelled among medical students and academic staff during their passage through the university (courses, seminars, group working)	Academic culture, practice, and policy are inclusive, multidisciplinary, and benefit from a global pool of talent Glass ceilings in academia are a thing of the past Institutional processes are fair and reduce current inequalities Levelling of gender, racial, and income inequalities in the academic career pipeline
Public sector funding to ensure access to medical education exists for all Academic capacity building globally to support regions and countries and under-represented disciplines that need investment to avoid "brain drain"	A global movement for health equity will reshape academic medicine. Institutions prioritise training medical professionals to address health inequalities, promoting inclusivity and developing solutions for underserved populations
Principle 5: Have real world impact	
Research is timely, responsive, evaluated, and shared in the real world Researchers work more closely with stakeholders and health authorities to apply research to care pathways and close the implementation gap	Research results are rapidly produced and applied with better health outcomes for all

Focus on health outcomes of populations and the planet

The effects of climate change and conflicts are intensifying threats to population health. Both trends are forcing mass migrations. Although average life expectancy is increasing globally, for some disadvantaged groups and in some parts of the world it is declining.[20] Chronic diseases are more prevalent as a result of increasing life expectancy, driven by the aggressive marketing of ultraprocessed foods and drinks, tobacco, and alcohol. Increased air pollution is leading to cancers, respiratory conditions, and other diseases. Hence, by 2050 medical institutions will focus research and teaching on preventing diseases, reducing healthcare costs, tackling social determinants of health, including climate change, and improving overall population health. This includes action on the social and commercial determinants of health and encouraging action to prevent further global warming.

Research funders and health systems will have human and planetary health as part of their vision. They will support high quality studies that focus on health and wellbeing outcomes and prioritisation of cost effective and high value interventions, including those that embrace new technologies and sources of data, for better clinical and policy decision making, especially for the neglected and deprived communities. Financial incentives and corporatisation that now drive the academic medicine agenda will be challenged, particularly where there is a risk that they will harm health.

Align goals of academic medicine and health systems

By 2050 we envisage that the mission of university and academics will align with that of the health service and health professionals and public health practitioners to improve health outcomes. Central to this is building a fulfilling and sustainable career structure for the next generation of medical academics. This will require strong leadership and integration of education, training, and knowledge exchange between academic and health professions. Importantly, it will require public sector funding to enable access to medical education and better working conditions and pay structures for clinical academics that reward effort, which will ultimately build academic capacity and reduce inequalities in the medical workforce by making access to medical education more equitable.[16]

A culture of unhealthy competition between academic medical institutions will shift towards rewarding collaboration and ultimately improve the quality of science and speed of its delivery and application. The covid-19 pandemic has shown this is possible when leaders come together. The gap that has developed between universities and health systems will be closed so that instead of competing they work cooperatively and encourage joint appointments between clinical and public health units and universities.

By 2025, academic promotion will no longer be linked exclusively to performance indicators, which tend to drive unhealthy competition between individuals, and instead will move to encourage collaborative teamwork. Universities will broaden staff performance indicators beyond academic publication in peer reviewed science journals, placing more emphasis on student and staff research and teaching quality and experience.[21] Research and teaching teamwork will be promoted in many institutions, and grant funding for translational teamworking will grow over the years. The transdisciplinary approach will gain strong momentum and will be central to universities as it will enable the complex problems driving the ill health of people and the planet to be addressed more effectively.[22]

Embed ethics, participation, and relevance

In our vision 2050, citizens, patients, communities, and health professionals will co-create ethical research agendas around key questions relevant to addressing their health. For years, community and stakeholder engagement has been tokenistic or omitted altogether. Why would people care what happens to academic medicine if they cannot appreciate what it does for them? Without this engagement, patients and end users may reject changes or interventions they perceive have been imposed or do not recognise as fit for purpose.

Knowledge exchange and participative, non-patronising, illustrative public consultation is not only an important ethical principle, it is vital for improving the relevance, applicability, and sustainability of interventions. It is essential for increasing health literacy and combating misinformation, which is an increasing threat to societal health. As a result of misinformation, the benefits of evidence based lifesaving medical interventions, such as vaccines, have been refuted by political authorities, which should be the first to defend robust and sound knowledge.

In our vision, the social and commercial determinants of health will be included in the training of health professionals and this knowledge used to inform interventions to improve patient care and more effective public health. Universities will be prepared to back their academics who challenge inappropriate corporate or political interests in the name of improved health.[23]

Deliver equitable health outcomes

Our equity principle envisages that everyone will have access to timely health information and care regardless of where they live or their personal wealth. This is in line with the central promise of the United Nation's Agenda for Sustainable Development for 2030 to not only "leave no one behind" and eradicate poverty but also end discrimination and exclusion along lines of race, gender, and other forms of identity.[24] Despite recent progress, 15% of the world's population still lacks access to essential health services and disaggregated data are often unavailable on race and ethnicity. In 2050, academic medicine will help deliver information on equity of health outcomes within and between countries. Addressing this will require a strong focus on better data and interventions to mitigate the social and environmental drivers of poor health—including growing income and wealth inequality, housing and food insecurity, education and employment, and access to clean, affordable, and renewable energy—which are a major cause of inequity globally.[25]

Medical students and trainees will have a strong appreciation of the power of the social and commercial determinants of health. Promoting a culture of equality and service among medical students during their university training is vital, as is the need for more community based training and less emphasis on highly specialised medicine to encourage more of the workforce into primary care and public health roles. Investment in academic medical capacity is needed globally to support regions and countries and under-represented disciplines to reverse the effect of the brain drain of health professionals from regions where they are most needed. If universal coverage is the goal, prioritising cost and equity in medical education will be key to achieving it.

By 2050, institutional processes will be fair and reduce current inequalities in academic recruitment, representation, and academic career progression, including for women and people in minority groups. This will require the international academic community to stand up to defend basic principles of humanity against the

economic, transactional mode of dealing with profound human suffering currently being promoted in the US.

Have real world impact

In our vision 2025, people and health and social care systems will benefit from academic medicine and humanities in a timely way. While many effective interventions are not implemented, others are not evaluated and too many studies conclude "more research is needed" to demonstrate reproducibility. This leads to avoidable waste.[26] In the future we strongly recommend funders increase support for policy and practice relevant research to care pathways that close the implementation gap. Universities will work closer with healthcare authorities to address and solve the highly complex issues of contemporary societies, apply research to care pathways, and close the implementation gap.

Advancing health for everyone

Our vision for academic medicine in 2050 is first and foremost about working with other stakeholders to promote the health and wellbeing of people and the planet and will require a revolution to resuscitate our current broken system (table 2). Achieving this will require a focus on the needs of a planet ailing from the pressures of climate change and an ageing population facing a heavy burden from chronic disease, both of which are increasing inequities. Research provides the evidence to underpin efforts to improve health and health equity, and the expertise and knowledge that come from education are needed to improve science and care. Strengthening human capacity through training the next generation of health scientists and leaders becomes ever more vital. Hence, the backbone of our vision will be talent development across the globe to create a sustainable career structure for those who choose academia but also to improve the research capacity and capability across the medical and health professions.

Table 2 | Academic medicine now and in 2050

2025	2050
Public and private funding focuses on new and often costly technologies that benefit a minority	**Science is focused on improving health outcomes in the population and planet**
Medical graduates and specialists are not necessarily aligned with current and future societal healthcare needs	Academic medical workforce matches health needs of current and future populations
Insufficient training on social and commercial determinants of health and the importance of public health	Medical education and training includes awareness and understanding of social and commercial determinants of health and the importance of public health in addressing detrimental effects on health
Insufficient training of primary healthcare physicians willing to work in community settings with high levels of disadvantage	Training prioritises primary health physicians willing to work in community settings and unhealthy environments, where there is the highest need
Widening rift between universities and health systems	**Goals of academic medicine and health systems are aligned**
Financial pressures and constraints in higher education negatively affect research and education leaving little time for teaching, resulting in patchy learning and poor pastoral care for students	Health and academic medicine institutions have adequate funding and infrastructure including a trained workforce, technology, and resource to achieve their goals
Universities' performance indicators are focused on individual gain, and reputations are built on academic publication in peer reviewed science journals	Universities' performance indicators prioritise quality of teaching and health and societal impact of generated knowledge
A focus on individual performance drives unhealthy competition	Academic performance is rewarded for team approaches rather than individual star performance
There is job insecurity and glass ceilings in clinical academic career structures with stark racial and gender inequalities that drive apart clinicians and those working in academic medical careers	A sustainable clinical academic career structure with improved pay and working conditions and inclusive culture
Science is unethical, irrelevant, or ignored	**Academic medicine is rapid, responsive, and relevant**
Science that is celebrated in academic circles is too slow, lacks application to improving health outcomes through practice or policy or is perceived as irrelevant to practice and ignored or rejected by patients and the public	Academic medicine is participatory with co-creation of research with patient and public stakeholders from inception to implementation Research dissemination is speedy and has timely effect on health outcomes and is sustainable in the real world Cost effectiveness and impact studies will aid in better defining strategies that can actually reduce healthcare costs
Avoidable waste in medical research is fuelled by scientists pressed for funding, who consistently conclude more research (and funds) are needed	Interventions are sustainable. New health interventions and policy do not harm people or the environment
Widening gap in health and access to healthcare	**The health gap is closed**
Funding of research is inequitable globally	Public and private funding for research focuses on health and prevention for the whole population and on interventions that will reduce health inequality
Globalisation and rising costs of medical education favour the wealthy and have created a brain drain from poorer nations	Investment for growth in academic medical capacity globally to support regions and countries and under-represented disciplines that need investment to avoid brain drain

When resources for health are in short supply, the need to better understand the fundamental drivers of health and to improve knowledge on the effectiveness and cost effectiveness of clinical and policy decisions, become more important, not less. Consideration of the social and commercial determinants will be vital to inform health services, target actions to reduce health inequities, and improve health and wellbeing outcomes. Finally, our vision is that academic medicine, in its broadest possible definition, will drive positive change in the real world and no longer be an abstract concept that is misaligned with what matters to patients and the public.

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doctoral research fellowships for NIHR Academy. She is president of the child and adolescent health section of the European Public Health Association. FB is a NHMRC investigator fellow and holds grants from the Australian NHMRC and Austalian Research Council. She is a member of the Advisory Council of the Global People's Health Movement, life member of the Public Health Association of Australia, and fellow of the Academy of Social Sciences in Australia and the Australian Academy of Health and Medical Sciences.

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