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RESEARCH ARTICLE

Lessons from studies in South Asia and Sub-Saharan Africa on improvement of basic medical education and related health services

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ABSTRACT

South Asia and Sub-Saharan Africa are facing rapid proliferation of medical schools especially in the private sector stimulated by demand for doctors in the mainly curative private health sector. Accreditation has failed to stem declining standards of basic medical education and its increasing irrelevance to national health care needs. Medical graduates tend to opt for careers in high paying specialties and frequently migrate to Western countries for career progression and a better organized lifestyle.

However, some recent developments hold promise for improvement and are potential solutions to the problem: (a) the trend towards decentralization of health systems favours strengthening of district health services that hold the key to serve populations equitably, with district hospitals as hubs for integrating clinical care and Primary Health Care; (b) the trend towards diversification of basic medical education to district health services is potentially beneficial for both as they are interdependent; and (c) the realization that accreditation of health professional education must influence health outcomes through practice provides the impetus to improve related health services.

The aim of the present review was to find evidence of successful implementation of these measures in South Asia and Sub-Saharan Africa.

Evidence of improvements in performance and health outcomes from decentralization of health systems and strengthening of district health services is forthcoming, although provision and management of human and financial resources are challenging. Similarly, there is growing evidence from Sub-Saharan Africa that improvement of health professional education and quality of health care occurs when experiential learning is based at district level hospitals and its related health services; albeit the evidence is presently limited to externally supported projects.

Accreditation based on successful integration of medical education and health services, is the weakest link. Although there is growing pressure for national accreditation agencies to implement global standards of basic medical education, without the context of professional development associated with coordinated improvement in related health services the notion that global standards will improve health care lacks credibility.

Eventually, effective convergence of these measures is required if the daunting health challenges in South Asia and Sub-Saharan Africa are to be addressed sustainably.

Key words: basic medical education; accreditation; district health services; coordinated improvement of health services; South Asia; Sub-Saharan Africa.

INTRODUCTION

Private medical schools have proliferated rapidly in countries of South Asia (SA) and Sub-Saharan Africa (SSA) during the last two decades,¹ prompted by the need for more doctors in a predominantly curative model of health care. There has been a general decline in the standards of education and their relevance to national health care needs. Medical graduates who pay high tuition fees feel entitled to specialize in high paying specialties and work in communities that can pay for their services. Migration to the West begins with opportunities for professional training, leading to growth in careers, financial rewards, and improved lifestyles. Public institutions are also affected by commercialization: revenue is enhanced by admitting students who pay high tuition fees in a parallel stream; moreover, limited commitment of faculty's time to the institution and salaries lower than market potential encourage faculty to devote time to provide private clinical care.

Unfortunately, national accreditation authorities have not been effective in regulating medical schools in SA and SSA.² Recently, national accreditation agencies in India and Pakistan were dissolved following charges of incompetence. There is pressure on countries to accept Global Standards for Basic Medical Education (BME) provided by the World Federation of Medical Education (WFME)³; on the one hand this provision could improve educational outcomes, but on the other it promotes brain drain.

This situation of basic medical education is untenable at a time when nations have signed up for United Nation's Sustainable Development Goals aiming to provide Universal Health Coverage. As things stand, health services that should provide the foundation of experiential learning for basic medical education and postgraduate medical education and training for most medical practitioners are poorly integrated in SA and SSA.

Public health fails to adequately address behavioural and environmental risks; access to clinical care is limited; and the quality of care, when accessed, is poor: cursory clinical encounters; lapses in diagnosis, treatment, and continuity; lack of dignity and respect are common and there is discrimination against the less educated poor.⁴⁻⁵

Yet SA and SSA are where 90% of the world's poorest billion live.⁶ District hospitals that should be the hub of health care delivery are in a state of neglect. Deficiencies ranging from water supply to X-ray machines have been reported from several countries across both continents.⁷⁻⁸ Important

contributing factors are paucity of government funds that favour referral hospitals, and preferential diversion of donor funds to vertical programs.

It is not surprising that the Human Development Indices in countries comprising SA and SSA are less than 7. Health indicators are correspondingly inferior; deaths from sixty-one conditions that the Sustainable Development Goals refer to are far more frequent than in other countries. Years of Life Lost per 1000 population are highest in South Asia followed by Sub Saharan Africa.⁹

With a view to align health professional education, particularly basic medical education, to support health services in SA and SSA, we propose convergence of three distinct actions that are already under wide consideration: (a) strengthening of district health services with district hospitals serving as hubs for integrating clinical care and Primary Health Care; (b) diversification of basic medical education to district health services to influence outcomes of service and education, which are naturally interdependent; and (c) national accreditation of basic medical education to ensure that graduate competences can effectively address local health needs.

The aim of the present review is to see to what extent each of the proposed actions has received attention in the regions concerned without for the moment being concerned about synergy between these actions required for sustainable improvements in education and service.

POTENTIAL FOR IMPROVEMENT OF BASIC MEDICAL EDUCATION AND RELATED HEALTH SERVICES

Strengthening of district health services

Most countries have pledged to provide Universal Health Coverage to their populations under the United Nations' Sustainable Development Goals 2030. The Lancet Non-Communicable Disease and Injuries Poverty Commission recommends health sector reform for Universal Health Coverage in addition to intersectoral measures to address behavioural and environmental risk factors.⁶ 'Right-placing' of services at community, health centre, district hospital and referral centre levels would enable access to timely, cost effective care on an equitable bases; this would include appropriate management of established disease in district hospitals.⁶ The Lancet Commission on Global Surgery 2030 came to a

similar conclusion with enhancement of the capacity of the first level referral or district hospitals to provide appropriate access to surgical care.¹⁰ Given the large numbers of people in rural and remote locations in SA and SSA, the enormous burden of NCDs and surgical conditions, and the associated socioeconomic impact, the importance of decentralization of health systems is obvious, including upgradation of district or first level referral hospitals.

Decentralization generally relates to shifting authority for service delivery from central government to sub-national levels of government.¹¹ The process is underway in most countries around the world including in SA and SSA. The shift is based on the premise that decentralization provides more flexibility in accommodating local health needs, optimizes resource allocation, and engages the local community.¹¹ Various components of a health system may be decentralized: governance, financing, human resources, technology, information system, and service delivery.¹²

It is difficult to evaluate the impact of decentralization because contexts differ, and health outcomes are attributable not only to health services but also social and environmental factors. However, a systematic analysis of impact studies on decentralization of health systems in low-middle-income countries (LMIC) suggests improvement in indicators of performance and outcomes, even though indicators of resource support may not be favorable.¹¹

Using a more general definition of health systems strengthening that included strategies to sustainably improve health systems' performance in LMIC, the United States Agency for International Development (USAID) conducted a systematic review of the literature. The review showed reductions in mortality and morbidity and improvements in service utilization, financial protection, and quality service provision, depending on who delivered the health services and how they were organized and financed.¹³ These findings validate the importance of investment for strengthening health systems in LMIC.

The state of the district hospital in the countries of SA and SSA presents a serious obstacle to service improvement.⁷ A district hospital in these regions serves 100,000 to upwards of one million people. World Health Organization envisages that a district hospital should offer emergency obstetrical, general surgical, orthopaedic, and medical specialty care, supported by laboratory investigations and diagnostic imaging services.¹⁴

Moreover, to achieve Universal Health Coverage the district hospital should also serve as a hub to support Primary Health Care including primary clinical care. This requires working closely with the district health and public health management teams to provide clinical information for improvement of health of the community and assist in planning for assessment of health outcomes.⁷

Financial and human resources are limiting factors for sustenance of quality district health services that encompass health promotion, disease prevention and provision of clinical care. Competent and motivated health professionals are required at community, health centre and district hospital levels who have received education and training in the local context. With respect to financial sustainability, cost-effectiveness of services would need to be considered alongside equity while long term solutions are developed such as insurance schemes with pooling of risk to reduce point of contact payments and partnerships with private providers to operate services efficiently.¹⁵

Diversification of Basic Medical Education

Strengthening of the district health service in SA and SSA requires attention to education and training of a suitable health workforce. From the standpoint of basic medical education, students' experiential learning, at present limited mainly to tertiary care hospitals in the city, should be diversified to district health services. Medical students need to be exposed to the appalling conditions of life in underserved rural and urban areas and the consequent poor health outcomes. Given the experiential basis of training to practice, situational learning is important as it would enable the development of competencies appropriate to the context of need, resources, and outcomes. Further enhancement of competencies during internship and postgraduate education and training in specific fields would lead to competent, reliable independent practitioners who are capable to develop younger professionals and contribute to improvement of health services.¹⁶ With appropriate conditions for health care in place within an effective functioning health service, all fields of knowledge and practice would be available for basic medical education.

Diversification of the clinical experience in basic medical education to district hospitals, referred to as 'decentralization', is already well established in Australia, Canada and USA which have large rural and remote populations; it is also gaining ground in South Africa.¹⁷ A scoping review

was undertaken to study approaches to decentralization of BME in these countries.¹⁸ The objective was to see what factors were regarded as contributing to success and what parameters of success were used; this would enable extrapolation to decentralization of BME in LMIC.

The following programmatic factors were found to be effective: selection of students with a rural background and / or deep social consciousness; immersion in rural clinical experience with sufficient continuity; outcome-based assessment; conducive learning environments; committed and trained clinical supervisors; integration of clinical services with primary care and community health; and deep community engagement.

The following institutional factors contributed to success: visionary leadership complementing institutional mission; establishment of functional partnerships with stakeholders; adequate funding; and periodic program evaluation with feedback.

With respect to markers of successful professional development, it was observed that students undergoing decentralized training were not at a disadvantage as compared to their counterparts who were subjected to traditional tertiary hospital experience; rather, the experience of decentralized BME tended to better equip graduates for service and made them more likely to work in remote settings. Similarly, in a study of factors associated with rural retention of doctors in LMIC (Asia-Pacific region), Putri et al¹⁹ pointed to rural background being particularly important, especially in association with other factors such as rural clinical experience, and provision of various incentives for work in rural areas.

Notwithstanding the advantages, diversification of BME to district health services is uncommon in low and middle-income countries (LMIC). Unprecedented growth of private medical schools, the continuing migration of graduates to richer countries, and weak accreditation policies are interdependent factors that go against diversification.

Nevertheless, under suitable conditions, it has been shown in two notable externally funded projects in SSA that decentralization of Health Professional Education, including basic medical education, to district health services resulted in positive outcomes for education as well as health services. The Medical Education Partnership Initiative (MEPI) was a US government funded program that supported collaboration between US

medical schools and a network of eleven medical schools in ten countries in SSA over 5 years (2010-2015).²⁰ Its objectives were to increase the training capacity of the African medical schools and enable effective retention of the graduates in the country, as well as to increase the capacity for local research. The results were encouraging both for education and health service performance: students acquired competencies for 'the case mix, demographics and resources available in the communities served', and enhanced their understanding of community medicine and the social determinants of health; at the same time, the students were regarded as 'valuable resources, who serve(d) to strengthen the quality of clinical care by supporting overburdened staff and bringing about rigor and accountability into the work environment'. To a lesser extent, students' visits to patients' homes were seen as enhancing access through provision of health education and screening for disease. The authors²⁰ felt there were lessons to be learnt for other medical schools planning to expand into low-resource settings.

Another project (2005-2013) was a joint venture involving the Rwanda Ministry of Health and Faculty of Medicine and School of Public Health, on one hand and US Partners in Health, Harvard Medical School, and Brigham Women's Hospital on the other.²¹ In this case the aim of the project was to strengthen district health services for achieving quality and establish new and strengthen existing education (including BME) and in-service training programs to achieve sustainable human resources for health. Here too the results were positive. Rwandan health personnel acquired competencies 'relevant to challenges at the point of care', and an increased number of persons were trained as family medicine practitioners and public health experts. Improvements were noted in clinical outcomes in the district hospitals involved as well as in public health indicators in the populations served. Additionally, there were expanded opportunities for training and research in global health for the US partners. There were lessons to be drawn for other LMIC in SSA and in Nepal.²¹

Similarly, with support from the Bill and Melinda Gates Foundation, Muhimbili University of Health and Allied Sciences in Tanzania partnered with University of California San Francisco in the USA to develop inter-professional competencies for communication with communities, and cross disciplinary systems-based practice to improve health care in Tanzania.²² Likewise, the Consortium of New Southern African Medical Schools

(CONSAMS) which involves a partnership between five new medical schools in southern Africa (in Namibia, Zambia, Botswana, Lesotho and Mozambique) and two facilitating partners (Vanderbilt University in the US and Oulu University in Finland) has provided expertise and resources to enhance students' experiences in community settings and also trans-professional education and training.²³

Community Based Medical Education, an older education reform with a similar purpose, is being implemented in some schools in SA and SSA.²⁴ Likewise, social accountability of medical schools has been vigorously advocated and even though very few institutions worldwide have achieved excellence, a public sector school in Nepal is credited with making the effort.²⁵

Strengthening national accreditation

In a consensus paper the International Health Professions Accreditation Outcomes Consortium has recommended that accreditation of health professional education must contribute to improving health outcomes; accreditation would

achieve this by influencing the quality of training, aligning the curriculum with population needs and improving learning environments.²⁶ In keeping with the Consortium's recommendation we propose that national accreditation in SA and SSA, from policy and organizational perspectives, must be unambiguous in its criteria for supporting the central concept of interdependence of education and service; furthermore, it must play a constructive and dynamic role in ensuring complementary improvement of basic medical education related health services.

However, the role we propose for national accreditation agencies differs from current practice. In the case of Pakistan, the Pakistan Medical Commission places emphasis on rigid rules for student selection, curriculum content and examinations, but not on essential components of medical education, such as faculty, the nature of health services where experiential learning for professional practice takes place, or provision of sustainable infrastructure and finance (see the text box below for our observations).

Observations about national accreditation of basic medical education in Pakistan
a. The highly significant matter of national accreditation of medical education and its effects on the function of health services is in a state of disarray with ineffective development in Pakistan.
b. The authors have observed over 40 years the outcomes of rigid control of medical education by Pakistan Medical and Dental Council (PMDC) and poor value for improvement of health services. Presently the Ordinance of its successor, 'Pakistan Medical Commission' (PMC), specifies at length criteria and processes of selection of medical students, and the courses and examinations that medical colleges must conduct (see PMC Ordinance extract below). Scant information is given at the PMC website and the reader is referred to Wikipedia - Pakistan Medical Commission , which indicates that functions of PMDC have been incorporated in PMC.
c. Moreover, the Ordinance assumes that a university will award degrees but essential components of medical education and assessment, such as faculty, the nature of health services for experiential learning of professional practice, provision of sustainable infrastructure and finance are not indicated. The serious significance of a university degree, to certify competence of graduates to practice medicine under supervision, is superseded by concern for control by PMC and its component PMDC over medical school admissions, curriculum content and examinations.
d. The matter of particular concern is incognisance of the fact that undergraduate and postgraduate professional development are intertwined with provision of competent, broad-based integrated health services. If national accreditation agencies were to overcome this shortcoming and relinquish detailed involvement in academic matters that should be the concern of universities since their degrees certify attainment of specified competences, they (the agencies) could broaden their scope to include definition and guidance of health services related to the provision of BME, so that both functions would improve together for the benefit of society.
e. Given the paucity of national standards of accreditation in SA and SSA, acceptance of World Federation of Medical Education (WFME) Global Standards for Basic Medical Education will be used as a surrogate measure to improve medical education in the concerned countries. ² However, as will

be explained later, WFME Global Standards of Basic Medical Education are not appropriate for operational contexts in Pakistan and other SA and SSA countries.
f. Moreover, failure of national accreditation agencies to adopt the “WFME Global Standards” will render their graduates ineligible to apply for postgraduate medical education in USA from 2023. ³ This fact points to the need to consider medical education widely, beyond BME, to retain graduates nationally for attainment of effective comprehensive health care.
g. National governance of health care ought to be concerned about rational requirements for constructive support, conduct and certification of medical education so that graduates are competent for work and appropriate professional development for the breadth of health services needed to improve health outcomes.
h. What is required is a national accreditation policy that concomitantly aims to improve health services in the country.
PMC Ordinance. Extract from CHAPTER III -- CURRICULUM ²⁷
12. Curriculum of Undergraduate Programs- Each college and university shall strictly follow the curriculum for MBBS and BDS programs as formulated by the National Medical and Dental Academic Board and approved by the Medical and Dental Council in pursuance of the respective degree programs.
13. Teaching Methodology- (1) Each university or college may formulate a syllabus based on the approved curriculum for the relevant MBBS or BDS program for purposes of teaching students at the college. (2) A college may follow any teaching methodology as may be permissible by its affiliated university and subject to such methodology not being in conflict with any general teaching methodology structures prescribed by the National Medical and Dental Academic Board.

MBBS=Bachelor of Medicine; Bachelor of Surgery; BDS=Bachelor of Dental Surgery

To further validate our observations, we conducted a literature search using Scopus and PubMed and the terms 'basic medical education (or equivalent), accreditation, and the countries constituting South Asia and Sub-Saharan Africa. The search yielded 180 articles of which only 18 were relevant; additionally, we obtained 7 articles through Google Scholar. The paucity of literature, particularly from SA and SSA, on the role of accreditation, has been noted before.² The findings from our review of these 25 articles are summarized below.

1. Accreditation is absent in most low-income countries, the majority of which are in SA and SSA; only 7 of 34 low-income countries had accreditation agencies until 2018.²⁸ In some countries, general standards of accreditation for higher education are applied rather than standards specific for BME.²⁹

2. Where national accreditation agencies exist, their standards for BME have been criticised for lacking relevance in terms of preparing physicians for competent medical practice in local settings. Standards related to curriculum, assessment, clinical experience, and student selection have been regarded as inappropriate.³⁰⁻³³ Anomalies have been pointed out e.g., in Pakistan, basic scientists are discouraged from teaching basic sciences in

medical colleges.³⁴ From the point of view of educational outcomes, it has been pointed out that there is inattention to distribution of medical graduates, their career choices, and their performance as independent practitioners.^{30-31,35-37} In some instances the problem with standards is compounded by lack of transparent accreditation practices in the wake of the rapid expansion of private medical schools.^{31,33,36-37}

3. On the other hand, when national accreditation agencies are absent or deemed to be inadequate, individual institutions have taken the initiative to function as substitutes. In Uganda, faculty of Makerere University College of Health Sciences took it upon themselves to develop basic medical education standards using the WFME Global Standards for BME as a template; they are hopeful that their initiative will have national and regional impact.³⁸ Similarly, the College of Medicine, University of Ibadan in Nigeria, with help from a 5-year MEPI grant from the US government, has taken the initiative to revise its basic science curriculum to make it competency based.³⁹ The Consortium of New Southern African Medical Schools (CONSAMS) developed its own accreditation standards keeping the context of regional medical practice in mind and avoiding global standards.²³ The University of Nairobi

took the initiative to provide decentralized clinical experiences at 14 sites for its medical students with help from the University of Washington under the MEPI funding arrangement.⁴⁰

4. A noticeable phenomenon is the wide acceptance of WFME Global Standards as a means to improve the quality of BME even though many institutions in LMIC do not have the resources to meet the standards even at a basic level.^{29,34,41-43} The Education Council for Foreign Medical Graduates' imposition of conditional entry of foreign doctors to North America for specialized training and career progression adds urgency; as only graduates of medical schools accredited by a national agency espousing WFME Global Standards for BME will be allowed to apply after 2024 (delayed from the previous 2023 deadline).³³⁻³⁴

Our contention that accreditation must support the central concept of interdependence of education and service and play a constructive, dynamic role in ensuring complementary improvement of basic medical education and the related health service differs from the thrust of 'global' educational standards, such as those proposed by WFME. Evidently, WFME Global Standards for BME 2015, are insufficiently conditioned by prevailing problems and resources for health care in SA and SSA; for example, they emphasize the paramount status of medical education content and processes, whereas they underestimate the foundational dependence of education on health services.⁴⁴ In effect, they support preparation of graduates for specialized private clinical practice, not the imperative to strengthen national health care systems. In this way they would serve primarily to filter graduates who might be considered for postgraduate medical education and training in North America, thereby perpetuating the brain drain. In fact, a plausible reason for accreditation agencies to adopt WFME standards might be demand from medical graduates to apply for postgraduate training abroad, notwithstanding the intensely competitive nature of the process. Sadly, such perseverance of medical graduates widely from SA and SSA remains an unheeded indicator for countries in these regions to develop their own postgraduate training programs that would result in competence for work, development of services and human resources, and meaningful research for their countries.

Weisz and Nannestad,²⁸ in documenting the history of affiliation between WHO and WFME, point to the growing criticism about standardization of medical education, especially the 'difficulty of reconciling global standards with local needs'; incompatibility with local cultural values being highlighted as a major problem. The Consortium of New Southern African Medical Schools has taken a different approach to developing accreditation standards for its medical schools; CONSAMS insists that standards should be developed regionally so they are appropriate to the regional context of medical practice rather than conforming to global standards.²³ Similarly, in Ethiopia, the federal ministries of health and of education jointly led a New Innovative Medical Education Initiative, starting in 2012, to develop and implement basic medical education programs and strengthen relevant health services concomitantly throughout the country with the help of international partners.⁴⁵

Governance of Accreditation

The idea of ensuring complementary improvement of basic medical education and related health services is logical, based on their interdependence. However, sustainable implementation requires effective governance of a constructive, dynamic national accreditation system. For this to be realised, it is essential for the accreditation body to be established by the national legislature, to ensure freedom from all political manipulation, equipped with its own financial and management systems and a director who reports to a Board of Governors. The Board of Governors should be responsible for effective management and support of the accreditation system and should be answerable to the government and the public, for its efforts to facilitate academic institutions, and the ministry of health but not managed by it. Reports should be evidenced by widely accessible information, audits and planning for sustainable, efficient medical education and related effective health services.

Rational considerations for accreditation

The role we propose for national accreditation of BME and related health care services, has the potential for trial in SA and SSA. Accordingly, in the Table below we have outlined strategic requirements of accreditation for consideration in LMIC; unsurprisingly they

correspond with factors regarded as important for the success of decentralized BME in LMIC and the retention of doctors in rural services.¹⁸⁻¹⁹

Table: Accreditation criteria to consider for aligning basic medical education to evolving health services in South Asia and Sub Saharan Africa.

Criteria	Additional explanation
1. Institutional mission must aim to situate BME within an integrated health service.	A functioning health system includes strong PHC, competent primary clinical care, and effective access to hospital-based care of good quality.
2. Faculty must be committed to develop proficiencies for fulfilling roles in an integrated health service.	Clinical faculty must: work inter-professionally, delegating tasks appropriately to achieve accessible care of good quality; support primary care through appropriate referral of patients, and population health through advocacy and valid information for HMIS; and be able to adapt to changes in conditions of health and health care.
3. Student selection must reflect breadth of assessment, beyond evidence of academic ability to follow the curriculum and privileged achievements, to include socioeconomic diversity and represent disadvantaged groups. Students should be assessed for their sense of social responsibility. Social and academic support must be provided to accommodate student diversity.	A diverse student body promotes learning from peer interactions and drive for equity that condition performance and the development of effective health care for a diverse population.
4. The program should provide a foundation of broad education to develop students' general intellectual ability and sense of responsible citizenship.	Broad education will compensate for students' young age on admission (average 18 years) and background of narrowly focused secondary education.
5. The program must enhance students' clinical observation and reasoning skills by development of sound basic science concepts and their application for understanding and managing clinical problems.	Clinical observation and reasoning are indispensable for diagnosis, patient safety and efficient use of resources in challenged settings. Deep conceptual understanding of basic sciences would serve this purpose better than overload of detailed content that invariably leads to memorizing information for examinations.
6. The program must ensure students' experience associated with learning at the practice interface, including postings in the district health service, which leads to development of relevant competence within health services.	Continuity of in-service experience with graded responsibility in selected clinical teams would serve this purpose and assessment of learning better than multiple mainly observational clerkships to familiarise students with specialised care.
7. Assessment of students must include direct observation of their performance in the workplace and feedback as well as assessment of progress.	Formative assessment of learning is a powerful educational strategy that requires investment in faculty development.
8. Provision of a conducive learning environment must be ensured that pays due attention to sociocultural as well as physical and virtual factors that impact learning	Tolerance of diversity, acceptable norms of communication and behaviour, interprofessional collaboration, consideration for student wellbeing, and resource availability including information technology will contribute towards a conducive learning environment.

9. Opportunity for PGME must be provided in diverse health care fields including primary care and population health.	Quality of PGME is important for establishing a continuum of medical education and professional competence to sustain effective health services; it will enable retention of BME graduates.
10. Institutional policies, governance, and allocation of space, equipment, finance, time, and teachers must be aligned to support BME that is interlocked with the sustenance and development of effective health services.	Faculty commitment is particularly dependent on institutional policies related to performance appraisal, professional development, promotion, compensation, and work-satisfaction. Factors affecting admission of a diverse student body are also dependent on institutional policies and include acceptable development in secondary education for continuity in higher education, criteria for selection to medical school, cost of tuition and sustenance, availability of scholarships, financial assistance, and terms of loan repayment.
11. Periodic review and update of the BME program should be based on graduates' experiences and performance in practice and feedback from employers	In addition to students' evaluation of teaching and the learning environment, performances as postgraduate trainees and later as independent practitioners will provide constructive feedback to the BME program supported by effective tracking of alumni.
12. Partnerships with service providers must be sustainable.	This is a prerequisite criterion to achieve constructive co-evolution of health service with BME.

BME=Basic Medical Education; PHC=Primary Health Care; PGME=Postgraduate Medical Education; HMIS=Health Management Information System.

Conclusion

Rapid proliferation of medical schools in SA, SSA and other LMIC, with generally falling standards of education and its increasing irrelevance to national health care needs must be addressed urgently for safety of the populations concerned.

The general trend for decentralization of health systems provides a unique opportunity to develop effective district health services and is in keeping with national commitments to Universal Health Coverage.

Diversification of BME to district health services is a tried and tested idea with obvious advantages for preparing individuals who are fit to understand the multifarious functions of health care and direct their actions accordingly.

A crucial step for enabling diversification of BME to district health services is for national accreditation of basic medical education in SA and SSA to mandate conditions that support the central concept of interdependence of education and service; and for providers of health care, including professional organisations, to accept and abide by

the extended role of accreditation to ensure coordinated improvement of health services in the national context. This may seem challenging, but then do we have a choice?

CONFLICT OF INTEREST:

The authors have no conflict of interest.

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MA and CWV then considered how modification of basic medical education could improve health services and the role of national accreditation in this context, as distinct from global standards.

Dr Khawaja Mustafa, Head Librarian, Faculty of Health Sciences Library of Aga Khan University, searched the literature for accreditation of basic medical education in SA and SSA countries.

REFERENCES

1. Rigby PG, Gururaja RP. World medical schools: the sum also rises. *JRSM Open* 2017;8(6):2054270417698631.
2. Tackett S, Zhang C, Nassery N, Caufield-Noll C, van Zanten M. Describing the evidence base for accreditation in undergraduate medical education internationally: a scoping review. *Acad Med* 2019;94:1995-2008. DOI 10.1097/ACM.0000000000002857
3. Tackett S. Examining the Educational Commission for Foreign Medical Graduates announcement requiring medical school accreditation beginning in 2023. *Acad Med* 2019;94:943-9. DOI : 10.1097/ACM.0000000000002675
4. Kruk ME, Gage AD, Arsenault C, Jordan K, Leslie HH, Roder-DeWan S. High-quality health systems in the Sustainable Development Goals era: time for a revolution. *The Lancet Glob Health* 2018;6:e1196-1252. DOI [https://doi.org/10.1016/S2214-109X\(18\)30386-3](https://doi.org/10.1016/S2214-109X(18)30386-3)
5. Roder-DeWan S, Gage A, Hirschhorn LR, et al. Level of confidence in and endorsement of the health system among internet users in 12 low-income and middle-income countries. *BMJ Glob Health* 2020;5:e002205. DOI: <http://dx.doi.org/10.1136/bmjgh-2019-002205>
6. Bukhman G, Mocumbi AO, Atun R, et al. The Lancet NCDI Poverty Commission: bridging a gap in universal health coverage for the poorest billion. *Lancet* 2020; 396(10256):991-1044. DOI: [https://doi.org/10.1016/S0140-6736\(20\)31907-3](https://doi.org/10.1016/S0140-6736(20)31907-3)
7. Rajbhandari R, McMahon DE, Rhatigan JJ, Farmer PE. The neglected hospital-the district hospital's central role in global health care delivery. *N Engl J Med* 2020; 382:397-400. DOI: 10.1056/NEJMp1911298
8. Leslie HH, Spiegelman D, Zhou X, Kruk ME. Service readiness of health facilities in Bangladesh, Haiti, Kenya, Malawi, Namibia, Nepal, Rwanda, Senegal, Uganda and the United Republic of Tanzania. *Bull World Health Org* 2017;95:738. DOI: 10.2471/BLT.17.191916
9. Kruk ME, Gage AD, Joseph NT, Danaei G, Garcia-Saiso S, Salomon JA. Mortality due to low-quality health systems in the universal health coverage era: a systematic analysis of amenable deaths in 137 countries. *Lancet* 2018;392(10160):2203-12. DOI: [https://doi.org/10.1016/S0140-6736\(18\)31668-4](https://doi.org/10.1016/S0140-6736(18)31668-4)
10. Meara JG, Leather AJ, Hagander L, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Lancet* 2015;386(9993):569-624. DOI: [https://doi.org/10.1016/S0140-6736\(15\)60160-X](https://doi.org/10.1016/S0140-6736(15)60160-X)
11. Dwicaksono A, Fox AM. Does decentralization improve health system performance and outcomes in low- and middle-income countries? *Milbank Q* 2018; 96 (2):323-368
12. Munoz DC, Amador PM, Llamas LM, Hernandez DM, Sancho JMS. Decentralization of health systems in low- and middle-income countries: a systematic review. *Int J Public Health* 2017;62:219-229 DOI 10.1007/s00038-016-0872-2
13. Hatt L, Johns B, Connor C, Meline M, Kukla M, Moat K. Impact of health systems strengthening on health. The Health Finance and Governance Project 2015; Abt Associates, Bethesda.
14. World Health Organization. The hospital in rural and urban districts: report of a WHO study group on the functions of hospitals at the first referral level [meeting held in Geneva, 30 October-5 November 1990]. World Health Organization; 1992.
15. Zaidi S, Saligram P, Ahmed S, Sonderp E, Sheikh K. Expanding access to healthcare in South Asia. *BMJ* 2017 11;357. DOI: <https://doi.org/10.1136/bmj.j1645>
16. Crisp N, Chen L. Global supply of health professionals. *N Engl J Med* 2014;370:950-7. DOI: 10.1056/NEJMra1111610
17. Dreyer AR, Rispel LC. Context, types, and utilisation of decentralised training platforms in undergraduate medical education at four South African universities: Implications for universal health coverage. *Cogent Education* 2021;8:1906493. DOI: <https://doi.org/10.1080/2331186X.2021.1906493>
18. de Villiers M, van Schalkwyk S, Blitz J, et al. Decentralized training for medical students: a scoping review. *BMC Med Educ* 2017;17:196 DOI 10.1186/s12909-017-1050-9
19. Putri LP, O'Sullivan BG, Russell DJ, et al. Factors associated with increasing rural doctor supply in Asia-pacific LMICs: a scoping review. *Human Resour Health* 2020;18:93

- <https://doi.org/10.1186/s12960-020-00533-4>
20. Talib Z, van Schalkwyk S, Couper I, et al. M. Medical education in decentralized settings: How medical students contribute to health care in 10 sub-Saharan African countries. *Acad Med* 2017;92:1723. DOI: 10.1097/ACM.0000000000002003
21. Cancedda C, Farmer PE, Kyamanywa P, et al. Enhancing formal educational and in-service training programs in rural Rwanda: a partnership among the public sector, a nongovernmental organization, and academia. *Acad Med* 2014;1117–1124. DOI: 10.1097/ACM.0000000000000376/
22. Leshabari S, Lubbock LA, Kaijage H, et al. First steps towards interprofessional health practice in Tanzania: An educational experience in rural Bagamoyo district. *J Public Health Policy* 2012 (December) 33:S138–S149
23. Eichbaum Q, Hedimbi M, Bowa K, et al. New medical schools in Africa: challenges and opportunities. CONSAMS and the value of working in consortia. *Ann Glob Health* 2015; 81(2):265-269. ISSN 2214-9996 <http://dx.doi.org/10.1016/j.aogh.2015.03.005>
24. Baral KP, Upadhyay SK, Bhandhary S, Gongal RN, Karki A. Development of community-based learning and education system within undergraduate medical curriculum of Patan Academy of Health Sciences. *J Nepal Health Res Counc* 2016 Jun 6; 14(32):58-65
25. Prihatiningsih TS, Kamal Y, Woollard R, Fisher J, Abdalla ME, Boelen C. Social accountability and accreditation: impacting health system performance and population health. *Social Innovations Journal* 2020 Sep; 18:3.
26. Frank JR, Taber S, van Zanten M, Scheele F, Blouin D. The role of accreditation in 21st century health professions education: report of an International Consensus Group. *BMC Med Educ* 2020;20(Suppl.1):305 <https://doi.org/10.1186/s12909-020-02121-5>
27. Pakistan Medical Commission. PMC Medical and Dental Undergraduate Education (Admission, Curriculum and Conduct) Regulations 2021.pdf
28. Weisz G, Nannestad B. The World Health Organization and the global standardization of medical training, a history. *Glob Health* 2021; 17:96
- <https://doi.org/10.1186/s12992-021-00733-0>
29. Mishra GV, Shrivastava T, Waghmare L, Patwa PA, Singh RK. Current status of accreditation of medical education: a systematic review. *Journal of Krishna Institute of Medical Sciences University* 2021;10(4):1-12
30. Biggs JSG. The social responsibilities of medical colleges in Pakistan. *J Coll Physicians Surg (Pakistan)* 2013;23(1):24
31. Solanki A, Kashyap S. Medical education in India: current challenges and the way forward. *Med Teach* 2014; 36(12):1027-1031.
32. Khan AW, Sethi A, Wajid G, Yasmeen R. Challenges towards quality assurance of basic medical education in Pakistan. *Pak J Med Sci* 2020; 36(2):4-9. Doi; <https://doi.org/10.12669/pjms.36.2.1319>
33. Pandya H, Chacko T, Mohammed CA. Regulatory system to promote the culture of quality at Indian medical schools: are we doing enough? *Natl Med J India* 2021; 34(5):298-301.
34. Rafi A, Anwar I. Challenges for implementing WFME standards for accreditation in health professions education in low-middle-income countries: a scoping review. *J Pak Med Assoc* 2021; 71(3):966-976.
35. Drislane FW, Akpalu A, Wegdam HHJ. The medical system in Ghana. *Yale J Biol Med* 2014; 87:321-326.
36. Adhikari B, Mishra SR. Urgent need for reform in Nepal medical education. *Lancet* 2016; 388:2739-2740.
37. Raman SK. Medical education in India. *The Asia Pacific Scholar* 2018; 3(2):55-57.
38. Galukande M, Opio K, Nakasujja N, et al. Accreditation is a sub-Saharan medical school: a case study at Makerere University. *BMC Med Educ* 2013; 13:73
39. Olopade FE, Adaramoye OA, Raji Y, Fasola AO, Olopade-Olaopa EO. Developing a competency-based medical education curriculum for the core basic sciences in an African medical school. *Adv Med Educ Pract* 2016;7:389–398
40. Child MJ, Kiarie JN, Allen SM, et al. Expanding clinical medical training opportunities at the University of Nairobi: adapting a regional medical education model from WWAMI program at the University of Washington. *Acad Med* 2014; 89(80):S35-S39. Doi:00.1097/ACM.0000000000000350

41. Begum S, Talukder MHK. Opinion of policy makers regarding the need of 'global accreditation' of undergraduate medical education in Bangladesh. *Bangladesh Journal of Medical Education* 2016; 7(2):9-16.
42. Karunathilake IM. The concept, application and relevance of minimum standards of medical education. *South-East Asian Journal of Medical Education* 2016; 10(2):1-3.
43. Al Mahdi TAS. Overview of the course of undergraduate medical education in the Sudan. *Sudan Journal of Medical Sciences* 2019; 14(4):188-201. DOI 10.18502/SJMS.v14i4.5899
44. World Federation of Medical Education. Global Standards for Quality Improvement 2015 – BME: WFME Standards for Basic Medical Education; <https://wfme.org/download/wfme-global-standards-for-quality-improvement-bme/>.
45. Abraham Y, Ajaze A. The new innovative medical education system in Ethiopia: background and development. *Ethiop J Health Dev* 2013; 27 Special Issue 1:36-40.