
Review of medical education in the Eastern Mediterranean Region: challenges, priorities and a framework for action**Executive Summary**

1. Health system strengthening for universal health coverage is one of the five strategic priorities endorsed by the WHO Regional Committee for the Eastern Mediterranean for WHO's work with Member States in the Eastern Mediterranean Region 2012–2016. Human resource development is the backbone of any health system and imparting quality medical education is essential to enable physicians of the future to assume diverse roles as service providers, academics, researchers, managers, leaders and builders of the health system. The number and density of physicians in the population increased significantly in the Region between 1990 and 2013 in the majority of countries. There has been a rapid increase, especially since 1990, in the number of medical schools, while private medical schools have doubled in number since 2000. The major challenge has been to ensure the quality of medical education.

2. WHO undertook a comprehensive review of the situation of undergraduate medical education with a view to identifying the challenges facing medical education in the Region, determining priorities and developing a framework for action. A total of 157 of the 297 medical schools invited (53%) responded to a survey, including at least 20% of the medical schools of each country. Almost 75% of the respondents were deans or department chairs. The survey was complemented by an extensive literature review and interviews with key informants.

3. The results of the review showed that more than half of medical schools are registered with the Ministry of Higher Education, and the rest with the Ministry of Health or medical councils. More than 70% of schools are funded by the public sector, and 60% have some form of accreditation. Key governance challenges were identified in the areas of regulation, needs assessment, accreditation, social accountability, distribution of medical schools and migration of graduates. Many medical schools offer more than one track of curricula, with the majority of medical schools offering traditional, discipline-based curricula, or integrated, system-based curricula. Key challenges were identified in teaching methodology and curriculum design and relevance. In the area of student assessment and programme evaluation, most medical schools were unable to provide a written policy for student assessment and continue to rely on recall of facts rather than testing cognitive functions, such as integration and application of knowledge, problem-solving and critical thinking. The key challenges concern methods, training and quality. The principal criteria for faculty promotion are years of work experience and research and publications. More than 65% of medical schools reported having a weak or no development programme for teaching faculty. Key challenges in the area of faculty recruitment and development include availability, student:faculty ratios, recruitment criteria and development activities. Medical schools in most countries are inadequately equipped with regard to providing an enabling environment and learning resources, with particular challenges in availability of educational resources to support student-centred education and clinical skills training.

4. Medical education is a lifelong endeavour and comprises a continuum of undergraduate, postgraduate and continuing education. This paper focuses mainly on undergraduate medical education but also highlights the importance of postgraduate or continuing medical education, which is also the subject of ongoing review by WHO in the Region. A regional framework for action is proposed that identifies strategic priorities and outlines short- and long-term actions for countries and for WHO support towards the reform of medical education. Countries are encouraged to take urgent action by: establishing a multi-stakeholder steering committee to guide the reform of medical education in the country; establishing or strengthening medical education departments in medical schools; developing and implementing leadership programmes for deans of medical schools; reviewing the current status of accreditation of medical schools and strengthening independent national accrediting bodies; and

developing national action plans based on the regional framework for action. The Regional Committee is invited to consider the evidence for reform presented and to endorse the regional framework for action to strengthen undergraduate medical education in the Region.

1. Introduction

5. Health system strengthening for universal health coverage is one of the five strategic priorities endorsed by the WHO Regional Committee for the Eastern Mediterranean for WHO's work with Member States in the Eastern Mediterranean Region 2012–2016 (1). Developing a balanced, motivated, well-distributed and managed health workforce with the appropriate skills mix is among the seven priorities identified for strengthening health systems by the Member States (2). The production of health professionals, in particular physicians, in the quantity needed and to the quality standards required is essential for any well performing health system. Physicians assume multiple roles as service providers, academics, researchers, managers, leaders and builders of the health system.

6. WHO has a long history of investing in human resources development in the Region, including medical education, and has provided significant support to the field. In the 1950s and 1960s, it supported the establishment of departments of public health in medical schools. These departments were catalytic in introducing changes in the way medicine was taught and practised by making medical education more relevant to community health needs. In the late 1970s and early 1980s, WHO provided support to countries to establish educational development centres in medical schools. These have played an important role in developing curricula and enhancing the skills of teaching faculty. In the past two decades, collaboration with Member States shifted to other priorities but it became clear that medical education was not always keeping pace with the rapid developments taking place across the Region.

7. In 2006, seven countries in the Region were classified as crisis countries for human resources for health (3). Nevertheless, all three groups of countries in the Region face considerable challenges to, as well as opportunities for, medical education¹ in relation to workforce governance, entry, active phase and exit:

- **governance:** lack of comprehensive national health workforce strategies, insufficient multi-stakeholder coordination; deficient regulatory and management capacity; and inadequate stewardship of health professionals' education;
- **entry:** inadequate and imbalanced production of health workers; recruitment constraints in the form of underemployment and unemployment; and high reliance on expatriate staff with discrepancy in employment conditions (group 1);
- **active workforce:** overall shortage of physicians, nurses, midwives and paramedics; geographic imbalances of all cadres; weak retention in rural areas; weak regulation of practice for physicians, nurses, midwives and paramedics; and low performance and health worker motivation;
- **exit:** inadequate management of workforce migration, despite shortages of health workers in supplier countries; high turnover of expatriate workers in recipient countries and lack of regional cooperation on health worker mobility; and, in some countries, an ageing health workforce and lack of replacement strategy.

¹ Three groups of countries are defined in the Region, based on population health outcomes, health system performance and level of health expenditure: group 1: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates; group 2: Egypt, Islamic Republic of Iran, Iraq, Jordan, Lebanon, Libya, Morocco, Palestine, Syrian Arab Republic and Tunisia; group 3: Afghanistan, Djibouti, Pakistan, Somalia, Sudan and Yemen.

Table 1. Density of physicians in the Eastern Mediterranean Region (per 1000 population 1990–2013)

Country group	1990	2013
Group 1	10.8–19.0	19.5–34.5
Group 2	2.2–6.8	6.1–24.5
Group 3	1.4–2.5	0.3–3.7

8. The number and density of physicians in the population improved significantly in the Region between 1990 and 2013, except in group 3 countries (Table 1), as a result of a steady increase in the number of medical schools. During the past 6 decades there has been a 17 fold increase in medical schools, from 18 in 1950 to over 300 at present, the majority being established after 1980 (4).

9. The broader challenges that have influenced medical education in the Region include the changing burden of disease, fast growing privatization of health care, increasing expectations of patients and communities, and political instability and conflict. Most schools continue to use traditional approaches characterized by teacher-centred, discipline-based, non-integrated training programmes that focus on factual knowledge and recall, rather than critical thinking and clinical reasoning. Clinical training is mainly conducted in tertiary hospitals with less exposure to the community and primary care settings. Many countries lack national accreditation programmes or reliable quality assurance systems.

10. With this situation in mind, in the past 2 years, WHO undertook a comprehensive review of the situation of undergraduate medical education. The aim of the review was to identify the challenges facing medical education in the Region, determine priorities and develop a framework for action. This paper summarizes the results of that review and proposes a framework for action. Medical education is a lifelong endeavour and comprises a continuum of undergraduate, postgraduate and continuing education. This paper focuses mainly on undergraduate medical education but also highlights the importance of postgraduate or continuing medical education, which is also the subject of ongoing review by WHO in the Region.

11. The Regional Committee is invited to consider the evidence for reform presented and to endorse the regional framework for action to strengthen undergraduate medical education in the Region.

2. Review of undergraduate medical education

2.1 Objectives of the review

12. WHO launched the Eastern Mediterranean Medical Education Study (EMMES) in 2014. The study was aimed at developing evidence-informed strategies for reforming medical education in the Region, in the same way that the World Medical Schools Survey did when it was conducted in 1998–2001 (5). The specific objectives of the study were to:

- map medical schools in terms of numbers, distribution, annual intake and output, gender distribution, training programmes and ownership;
- review the different components of the medical curricula adopted by medical institutions;
- identify the outputs and outcomes of medical education in terms of quality of graduates; and
- determine the challenges and priorities facing medical education and recommend options to address these.

Table 2. EMMES survey: response rate of medical schools

Countries	Number of medical schools invited	Number of medical schools responded	Response rate (%)
Group 1	46	33	71.7
Group 2	119	64	53.8
Group 3	132	60	45.5
Total	297	157	52.9

2.2 Approach and methods

13. An analytical framework, describing how the different contextual and system variables influence policies and quality of medical education, was used as a basis for the development of survey instruments (6). The study used several methods for data collection. Literature search identified articles published in online sources and in non-indexed regional journals. Data on medical education was collected through a comprehensive online questionnaire covering aspects related to governance, social accountability, curriculum development, student selection and assessment, programme evaluation, accreditation and educational resources. Finally, in depth interviews with key informants provided supplementary qualitative information.

14. It is estimated that more than 750 health professions institutions currently exist in the Region of which more than 300 are departments, faculties or schools of medicine (7). A total of 157 of the 297 invited medical schools (53%) responded to the online questionnaire (Table 2). At least 20% of medical schools from each of the 22 countries responded to the request. Ten countries had a response rate of 100%. Almost 75% of the respondents were either deans (52%) or department chairs (22%).

2.3 Summary of key findings

15. The key findings of the study are presented under six major areas related to undergraduate medical education: a) overview of medical schools; b) governance, social accountability and accreditation; c) curriculum development; d) student selection, assessment and programme evaluation; e) faculty recruitment, development and evaluation; and f) enabling environment and learning resources.

a) Overview of the situation of medical schools

16. There has been a steady increase in the establishment of medical schools across all three groups of countries over the past six decades, which has especially been steep since the 1990s. The number of private medical schools has doubled since 2000 (Fig. 1).

17. Over 55% of medical schools award the degree of Bachelor of Medicine, Bachelor of Surgery (MBBS); 16% Medicinae Baccalaureus, Baccalaureus Chirurgiae (MBBCh); and 29% Doctor of Medicine (MD). The average duration of the programme offered is 6.2 ± 1.0 years. The average duration of the preparatory phase is 1.0 ± 0.7 years, pre-clinical 2.3 ± 0.7 years, clinical 2.5 ± 0.6 years, and internship 1.0 ± 0.4 .

b) Governance, social accountability and accreditation of medical schools

18. Over 50% medical schools are registered with the Ministry of Higher Education, 33% with the Ministry of Health and the rest with the medical councils. Licensing of new medical schools is not based on needs assessment and needs closer regulation. The public health sector continues to play a major role in financing medical education in the Region. Over 70% of medical schools reported receiving financial support from the public sector.

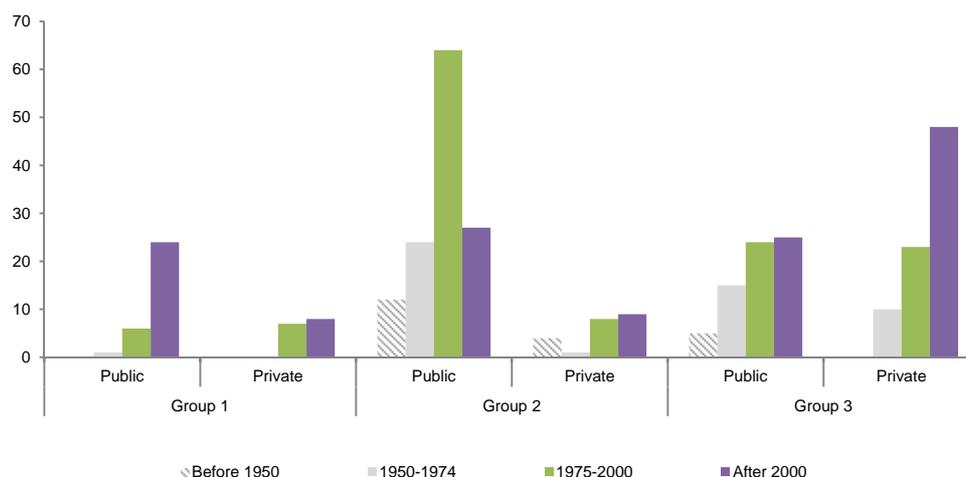


Fig. 1. Growth in public and private medical schools in the Eastern Mediterranean Region 1950–2014

19. In the past decade, many medical schools in group 2 and 3 countries increased the annual intake of students, which on average (\pm SD) is $303(\pm 311)$ and $241(\pm 267)$ respectively. The output of graduates was reported to be substantially higher in group 2 than group 3 countries. On average there are 100 more female students than male students in every medical school in the Region (Table 3) with a more marked difference in group 3 countries. The entry of greater numbers of female graduates into the workforce is a positive trend as governments seek to reach vulnerable population groups and underserved communities but will require the attention of policy-makers to working and security conditions in rural and remote areas.

20. The extent of social accountability of medical schools did not reveal major differences across the three groups of countries (Table 4). Mission statements, when written expressing commitment to producing graduate physicians responsive to community needs, do not reflect actual practice by most medical schools. Many efforts are currently ongoing in the Region to advance social accountability².

21. Almost 60% of medical schools reported some form of accreditation, either by a national or international accrediting body. The main areas where accreditation was reported to have had a positive influence are curriculum design (73%), faculty development (77%), team work (51%), better recognition of school (67%), and financial gain (23%).

Table 3. Annual intake, production and distribution by gender of medical graduates

Country group	Average annual intake (2014)	Average number of graduates (2013)	Male students	Female students
Group 1	157 \pm 162	75 \pm 30	386 \pm 314	370 \pm 259
Group 2	303 \pm 311	277 \pm 122	739 \pm 828	796 \pm 889
Group 3	241 \pm 267	102 \pm 123	368 \pm 275	568 \pm 777
All countries	247 \pm 280	151 \pm 142	519 \pm 595	617 \pm 768

² Including, for example, the Group on Social Accountability of the Association of Medical Education in the Eastern Mediterranean Region (AMEEMR).

Table 4. Compliance with measures of social accountability reported by medical schools

Country group	Communities around medical school, surveyed and feedback provided on social accountability	Vision and mission inspired by the concept of social accountability	Commitment to working in close partnership with other stakeholders in health	Medical schools recruit and support medical students who reflect social diversity
Group 1	2.5	3.4	3.5	3.5
Group 2	2.9	3.3	3.4	3.2
Group 3	2.5	3.0	3.2	3.1

(5 point Likert scale:1 = lowest and 5= highest level of compliance)

Key challenges

- Regulation with regard to opening of new medical schools is weak and comprehensive guidelines based on needs assessment are lacking.
- Privatization of medical education in most countries is rapid and unregulated.
- Independent accreditation bodies are lacking in many countries, and 40% of medical schools are not accredited.
- Social accountability is not embedded in mission statements, and educational leaders lack awareness of the concept.
- Substantial variation exists in the distribution of medical schools between and within countries
- Migration of physicians out from group 2 and 3 countries to group 1 and countries outside the Region is heavy.

c) Curriculum development

22. There were over 200 responses from almost 150 medical schools, suggesting that many offer more than one track of curricula. Of these, 26% of medical schools offer traditional, discipline-based curricula, 28% offer integrated, system-based curricula, and 15% each offer problem-based, community-oriented or hybrid curricula. Based on the six elements of the well recognized SPICES model for curriculum review (8), most medical schools scored in the middle of the 10-point scale (Table 5). All countries scored low on the availability of electives within the curricula of medical schools. Private medical schools reported higher scores for all six elements than public medical schools.

23. Other topics now widely accepted to be essential to a fully competent medical professional in medical education, such as leadership development and professionalism, medical ethics, communication skills, evidence-based medicine and patient safety, were not adequately covered in the curricula. Sixty per cent (60%) of medical schools reported revising curricula every 5 years compared to 40% who revised on irregular intervals or never.

Table 5. Incorporation of SPICES model into curricula of medical schools (n=116)

Country group	Student centred vs teacher centred	Problem-based vs subject-based	Integrated vs discipline-based	Community-based vs hospital-based	Elective vs standard programme	Systematic vs opportunistic
Group 1 (n=23)	6.9	6.7	8.0	5.0	4.1	6.3
Group 2 (n=44)	4.4	4.6	4.8	4.9	3.8	4.8
Group 3 (n=49)	5.5	5.2	5.5	5.5	3.9	5.6
All countries	5.4	5.3	5.8	5.1	4.0	5.5

10 point scale:1= lowest and 10 = highest

24. Older medical schools in group 2 and 3 countries continue to follow the more traditional approaches. The main reasons behind the persistence with teacher-centred learning include resistance from teaching faculty, particularly in basic medical sciences, and the additional resources required for building small group tutorial rooms, library support and recruitment of more teaching faculty. The perceived risk of failure with newer approaches, the perception that the existing curriculum is graduating 'safe physicians', and the lack of educational leaders are additional factors.

Key challenges

- A large number of medical schools continue to adopt traditional curricula characterized by being teacher-centred, discipline-based and hospital-focused.
- Didactic teaching is the dominant method of instruction and innovative methods such as problem-based, team-based and community-based learning are not well applied in the majority of medical schools.
- Mission statements, when present, do not guide curriculum design, implementation and development.
- Topics such as evidence-based medicine, medical ethics, research methodology and patient safety are not adequately covered.
- Revision and update is irregular and student involvement in curriculum development is lacking in a large number of medical schools.

d) Student assessment

25. Almost 85% medical schools reported having a clear policy for student assessment, although only 8 provided written evidence. Assessment was strongly aligned with graduate competencies in 49%, moderately in 37%, and slightly or not at all in 14%. The lack of written assessment policy calls into question the existence of well stated learning objectives and competencies, the methods adopted by the school to assess outcomes, and procedures that are clear and transparent to assessors and students.

26. More than 90% medical schools use single best answer multiple choice questions as one of the methods of written test, in both clinical and preclinical phases. However, essays are still used by 40% medical schools as a tool for written testing and in the area of clinical assessment, methods such as case assessment are also widely practised. These testing methods have been proven to be of low reliability. Overall, student assessment continues to rely on recall of facts rather than testing cognitive functions, such as integration and application of knowledge, problem-solving skills and critical thinking.

27. Over 70% medical schools reported reliance on students' rating of different curricular activities, including lectures and clinical sessions for programme evaluation, while 75% reported the involvement of teaching faculty in programme evaluation. The external evaluation of programmes is still not fully developed and implemented.

Key challenges

- Many medical schools lack a policy for student assessment that is well aligned with learning objectives and graduate competencies.
- Methods with proven low reliability and validity, such as true/false MCQs, essays and cases for clinical skills assessment, are practised by the majority of medical schools
- Teaching faculty lack training in the principles of assessment and in how to write high quality assessment items and many medical schools lack assessment banks.
- The quality of student assessment is not regularly tested for reliability, validity and acceptability.

Table 6. Faculty promotion and development programmes (n=126)

Promotion criteria		Development	
Years of work experience	91%	Not available	10%
Research publications	95%	Ad hoc programme	33%
Teaching experience	83%	Regular weak programme	23%
Community service	53%	Regular programme	34%
Patient care	33%		

e) Faculty recruitment, support, development and evaluation

28. The principal criteria used for promotion and development of teaching faculty are illustrated in Table 6. The major topics covered under development programmes include student assessment (88%), principles of teaching and learning (83%), clinical skills teaching (72%), and curriculum design (71%).

29. Most development programmes for teaching faculty are ad hoc and are not based on needs assessment. This implies a need to strengthen leadership and management in educational development, programme design and the ability of faculty to cover competencies in their role as effective medical educators. Indeed, medical faculty have multiple roles, as teachers, assessors, student mentors, curriculum designers, educational leaders, health service providers, researchers and collaborators with other sectors and strong faculty development programmes are therefore requisite.

30. The student: faculty ratio ranges between 8 and 30 per faculty for basic sciences and between 4 and 10 for clinical sciences in group 3 countries. There is a serious shortage of teaching faculty in basic medical sciences departments, which is caused by out-migration, mainly from group 3 to group 1 countries. Low remuneration in source countries in basic medical sciences faculties is an important factor for migration. The better ratio in clinical sciences can be attributed to the recruitment of part-time faculty, in addition to the full-time staff in teaching hospitals. Lack of training of part-time faculty limits their involvement in areas related to curriculum development and evaluation.

Key challenges

- A serious shortage of teaching faculty exists in group 3 countries, especially in basic medical sciences.
- Faculty recruitment relies on professional qualification and research outputs and excludes criteria such as educational skills, management and community services.
- Part-time staff are not well integrated into educational and curriculum development activities.
- Faculty development activities are not conducted in a comprehensive manner, and are not based on needs assessment and areas such as educational leadership.

f) Enabling environment and learning resources

31. A conducive learning environment has an impact on student achievement and influences how, why and what students learn. The assessment of the enabling environment and learning resources indicated that medical schools in most countries are inadequately equipped with such facilities as skills laboratories, clinical simulation centres, assessment facilities and small group tutorial rooms (Fig. 2).

32. Forty-one per cent (41%) of respondents reported the lack of a separate academic university hospital. Alternative sites for clinical training included urban primary health care centres (85%) and district hospitals (65%). Rural settings, family attachments and community facilities were not generally used for training purposes.

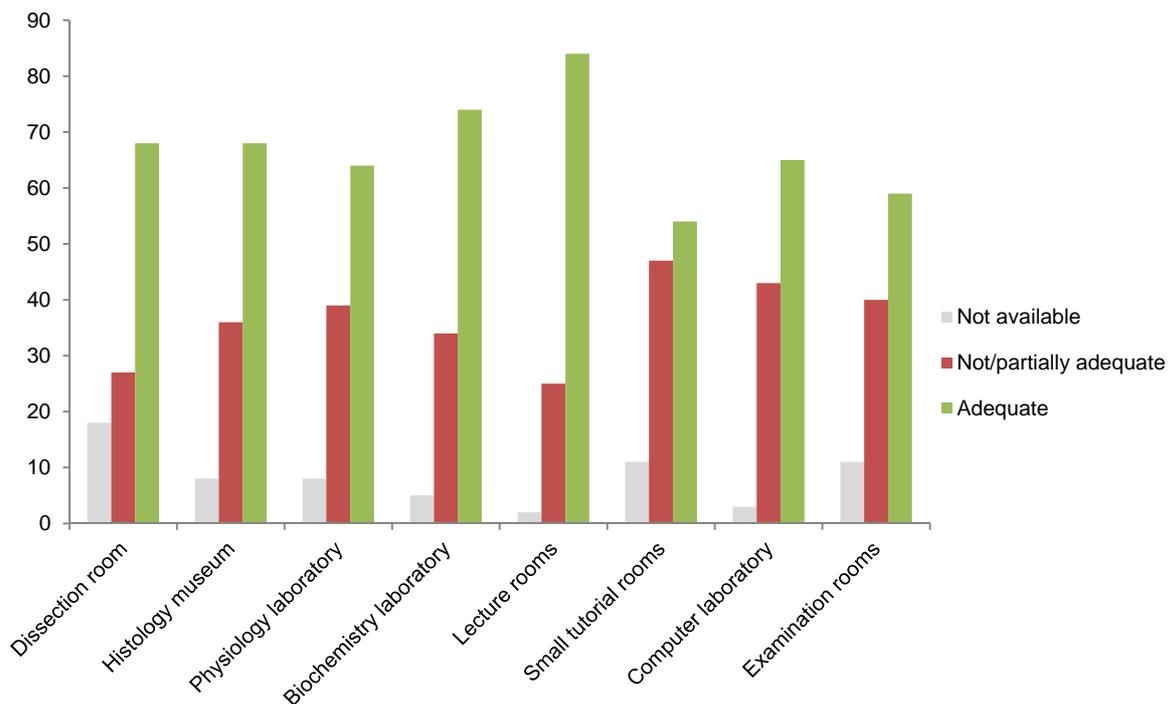


Fig. 2. Enabling environment and availability of standard and advanced learning resources (n=113)

33. Facilities which promote student-centred learning, such as small group tutorials, are largely inadequate compared to the availability of resources that support didactic learning, such as lecture rooms. Skills laboratories and simulation centres are not available in many medical schools, especially in group 3 countries.

34. Many medical schools have now established medical education units or departments. However, most are not staffed by full-time qualified medical educators. The units are limited to managing examinations, scheduling curriculum activities and conducting development programmes on an irregular basis. Specialized academic departments for medical education exist in only a few medical schools. The reasons for not having well functioning units include lack of awareness of their importance in enriching the curriculum and the educational process, and the lack of resources and facilities.

Key challenges

- Inadequate educational resources exist, in particular the facilities that support student-centred education and clinical skills training.
- Many medical schools lack a separate academic teaching hospital and emphasis on clinical training is declining.
- Advanced methods of clinical teaching and assessment are not sufficiently available and/or utilized by many medical schools.
- Non-hospital facilities, including primary health care and community-based sites are not optimally utilized by most medical schools.

3. Continuing and postgraduate medical education

35. Physicians in most countries of the Region continue to practise until retirement without attending a single continuing medical education (CME) activity. CME is aimed improving the performance of health professionals and responds to developments in medical practice and to the rising expectations of consumers and the public in the delivery of health care (9). Nine countries reported having regulatory bodies for CME, four from group 1, three from group 2 and two from group 3 countries. Five of these

Table 7. Status of family medicine departments and graduates

Countries	Medical schools with family medicine departments (No.)	Graduates opting for family medicine (%)	Output of family medicine graduates per year (No.)
Group 1	1–22	10–50	10–120
Group 2	0 – 6	0–10	0–240
Group 3	0–7	1– 10	0–10

regulatory bodies are affiliated with the Ministry of Health. Their roles and functions include promotion, development of standards, accreditation, and monitoring and evaluation of CME activities.

36. Six countries reported having standards as a means to ensure the quality of CME delivered by providers, accredit providers and benchmark with like-minded international accrediting organizations. Three countries reported using the system of CME for recertification or re-licensure. Credit hours and duration interval are the criteria currently being used for recertification. Seven countries employ credit hours for granting recertification, while 3–5 years is the required duration interval for re-licensure. Between 15 and 30 credit hours are required annually for recertification.

37. Providers of CME are predominantly institutions affiliated with the Ministry of Health, universities and medical professionals' associations. Other providers include private institutions, pharmaceutical companies, military hospitals and international associations.

38. Postgraduate medical education includes training following a basic medical degree and can either be professional training leading to membership or fellowship of national boards or academic training leading to a scientific degree (MSc, MPhil, PhD). This section focuses on the former. Sixteen countries reported having a national board while another 10 countries reported having other institutions that offer postgraduate programmes. All national boards are involved in both certification and structured training.

39. All 16 countries provide postgraduate medical education in most general specialties, while postgraduate medical education in subspecialties is also offered by many with wide variation, ranging between 60 and 20. Many group 3 countries face difficulty in absorbing qualified postgraduates, including Sudan (33%), Pakistan (30%), Yemen (29%) and Somalia (5%). Postgraduate training in family medicine attracts less than 10% of graduates in most group 2 and 3 countries and between 10% and 50% in group 1 countries (Table 7).

40. The Arab Board for Medical Specializations was established in 1978 as a WHO initiative. It has contributed to providing high quality postgraduate medical education, graduating specialists as care providers, trainers and leaders, and has helped to encourage similar national programmes. With the establishment of national boards, the Arab Board has now become a source of secondary certification for those graduates who wish to obtain dual qualifications. This situation has led to unnecessary duplication of resources and requires review.

Key challenges

Continuing medical education

- Policy-makers and professionals lack awareness of the importance of CME programmes are conducted in isolation and regulation is not linked to acquisition of competencies, career development and promotion, and recertification or re-licensure
- Many countries do not have standards for programmes or accreditation of providers

Postgraduate medical education

- The demand for certain specialties (e.g. cardiology, surgery, gynaecology etc.) does not align with the needs of countries (e.g. family medicine, public health and emergency medicine).
- Focus is placed on curricular processes to complete assigned rotations, following an opportunistic approach rather than a systematic approach to the acquisition of competencies and learning outcomes.
- Assessment focuses on demonstrating that the learner has acquired specific knowledge rather than the acquisition of skills, professional behaviour and attitudes;

4. Priorities for strengthening undergraduate medical education in the Eastern Mediterranean Region

41. Based on the analysis of the review, seven strategic priorities are proposed to address the challenges across the various domains of undergraduate medical education. It is important to bear in mind that while the emphasis of this paper is on medical education, implementing these strategic priorities will require the commitment of the entire medical school as an institution, thereby mobilizing in addition its research and service delivery capacities.

Governance, social accountability and accreditation

- **Strategic priority 1:** Strengthen the regulatory capacities of the governing institutions and provide standards and guidelines for establishing new medical schools
- **Strategic priority 2:** Establish/strengthen independent national accrediting bodies that have the mandate and the resources to ensure quality medical school governance, including social accountability as an essential element of the national accreditation standards

Curriculum development, student assessment and programme evaluation

- **Strategic priority 3:** Encourage schools to establish medical education units or educational development centres to review curriculum regularly and support faculty development
- **Strategic priority 4:** Build the capacity of educational leaders to lead curricular reform that will result in curricula that are student-centred, community-based, competency-based and integrated
- **Strategic priority 5:** Develop merit-based student selection criteria, and establish valid and reliable student assessment and programme evaluation systems

Faculty development and enabling environment

- **Strategic priority 6:** Attract and retain competent teaching faculty, especially in basic medical and public health sciences, by adopting merit-based recruitment and promotion policies
- **Strategic priority 7:** Ensure adequate educational resources to promote student centred training, strengthened clinical training and increased use of primary care and other community-based sites

42. Several of the strategic priorities converge on institutional strengthening and thus have particular relevance for the sustainable development of a health workforce that meets national needs. These strategic priorities are thus also likely to be of particular interest to national authorities as they seek to develop a health system that meets the needs of the future, as well as development partners, especially WHO which has a mandate to advise its Member States on matters pertaining to health policy.

5. Framework for reforming undergraduate medical education in the Eastern Mediterranean Region

43. This in depth review has lent itself to developing a framework for action for reforming undergraduate medical education in the Region. For each strategic priority, the framework (Annex 1) provides a set of short (6–12 months) and medium term (13–24 months) actions for countries to implement in the various domains of medical education. It also delineates a role for WHO and its partners, especially the World Federation for Medical Education, to provide technical support. Each

country will need to adapt the regional framework for action, based on its level of development and needs assessment.

44. In order to initiate the reform process in every country, five key points are considered to require urgent action.

1. Establish a multi-stakeholder steering committee led by the Ministry of Higher Education or the Ministry of Health to guide the reform of medical education in the country.

2. Establish or strengthen medical education departments in medical schools to offer the necessary technical input for curriculum review, student assessment, programme evaluation and faculty development.

3. Develop and implement executive programmes to build the leadership capacity of deans of medical schools in the area of medical education, including social accountability.

4. Review the current status of accreditation of medical schools and establish or strengthen independent national accrediting bodies that are mandated and have the resources to ensure quality medical education.

5. Develop a national level action plan based on the regional framework for action for reforming medical education over the short and medium term.

6. Conclusion

45. Medical education in the Region has made progress over the past several decades. The increase in the density of physicians per population and in the number of medical schools, and the efforts to accredit these are important steps towards improving the quality of medical education. However, many challenges remain and new challenges are emerging as the Region itself develops.

46. The EMMES study has provided an opportunity to revisit undergraduate medical education in the Region. It provides a useful baseline assessment, which can serve as a benchmark for future years. A regional framework for action has been proposed that identifies strategic priorities and outlines short- and long-term actions for countries and for WHO support towards the reform of medical education. Countries are encouraged to take urgent action by: establishing a multi-stakeholder steering committee to guide the reform of medical education in the country; establishing or strengthening medical education departments in medical schools; developing and implementing leadership programmes for deans of medical schools; reviewing the current status of accreditation of medical schools and strengthening independent national accrediting bodies; and developing national action plans based on the regional framework for action.

47. The onus for the reform of medical education lies with the political and educational leadership in countries. WHO and its partners are committed to supporting Member States in implementing such reform. The Regional Committee is invited to consider the evidence for reform presented and to endorse the regional framework for action to strengthen undergraduate medical education in the Region.

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Annex 1. Framework for action for reforming of undergraduate medical education in the Eastern Mediterranean Region

Priorities	Actions for Member States		WHO technical support
	Short-term (6–12 months)	Medium-term (13–24 months)	
Governance, social accountability and accreditation			
Strategic priority 1: Strengthen the regulatory capacities of the governing institutions and provide standards and guidelines for establishing new medical schools	Review and adapt national standards and guidelines for establishment of new medical schools based on the regional guidance developed by the World Federation for Medical Education and WHO	Establish/strengthen regulatory capacity of governing institutions by make resources available to ensure new and old medical schools meet the required standards of medical education	Develop standards and guidelines for opening new medical schools based on international standards and regional needs in collaboration with the World Federation for Medical Education
Strategic priority 2: Establish/strengthen independent national accrediting bodies that have the mandate and the resources to ensure quality medical school governance, including social accountability as an essential element	Develop national standards for medical education based on the regional accreditation guide and integrate social accountability in the standards Conduct training activities for deans and health leaders on social accountability	Strengthen national accreditation bodies by seeking accreditation with international bodies (World Federation for Medical Education) Implement social accountability standards by building partnership among medical schools and health service providers	Produce a guide on regional standards and build country capacity in developing an accreditation system for medical education Partner with international and regional networks to promote social accountability and develop workshops and other aids for educational leaders on social accountability
Curriculum development, student assessment and programme evaluation			
Strategic priority 3: Encourage schools to establish medical education units or educational development centres to review curriculum regularly and support faculty development	Announce policy by governing institutions to establish medical education units in medical schools Make available resources to develop and strengthen faculty enhancement programmes	Establish adequately resourced medical education units that offer medical education activities such as curriculum review and faculty development programmes	Develop terms of reference and a guide for the establishment of medical education units
Strategic priority 4: Build the capacity of educational leaders to lead curricular reform that will result in curricula that are student-centred, community-based, competency-based and integrated	Build capacity of educational leaders to review and reform curricula by offering structured courses	Review and monitor the implementation of reforms that ensure curricula are contextual, competency-based, integrated and student-centred Assess effectiveness of curriculum reform by undertaking process and outcome evaluation studies	Develop workshops and a guide for curriculum design and for evaluating the impact of different curricular approaches Disseminate successful experiences in curricular reform from within and outside the Region
Strategic priority 5: Develop merit-based student selection criteria, and establish valid and reliable student assessment and programme evaluation systems	Assess current practices, identify gaps and develop evidence-based, feasible, reliable criteria for student selection Assess the current practice of student assessment, and identify gaps and priorities Develop policies and regulations for student assessment approved by national regulatory and accrediting bodies	Monitor the effectiveness, reliability, validity and educational impact of student selection criteria and update based on implementation experience Incorporate student assessment within curricula, and ensure it is well aligned with teaching and learning strategies and outcomes Establish a bank of high quality national assessment items to be shared by medical schools	Develop a practical guide on the assessment, revision and update of student selection criteria Develop a regional guide/toolkit for establishing a comprehensive student assessment and programme evaluation system; and for the establishment of national assessment banks

Priorities	Actions for Member States		WHO technical support
	Short-term (6–12 months)	Medium-term (13–24 months)	
Faculty development and enabling environment			
Strategic priority 6: Attract and retain competent teaching faculty, especially in basic medical and public health sciences, by adopting merit-based recruitment and promotion policies	Review existing package of remuneration and incentives for faculty in basic sciences and public health and compare with regional and international market trends Review current criteria for recruitment and promotion of faculty and develop merit-based policies in consultation with the civil service commission	Seek approval to mobilize additional funds, implement the new package, and monitor trends in retention of faculty in the country Endorse and implement merit-based criteria and policies for staff recruitment and promotion	Undertake a comparison of remuneration and incentive packages for faculty in basic and public health sciences and disseminate information Convene a regional forum on migration and management of physicians in line with the Code of Practice for International Recruitment of Health Personnel
Strategic priority 7: Ensure adequate educational resources to promote student centred training, strengthened clinical training and increased use of primary care and other community-based sites	Incorporate a list of minimum requirements for educational resources among standards when re-licensing existing or opening new medical schools	Monitor implementation and update the list of essential requirements to accommodate advances in education and health services delivery	Provide a list of optimum or minimum essential requirements for educational resources for a socially accountable and competency-based medical school
	Institutionalize partnership between academic and health care institutions for the use of non-hospital health sites for training and health care	Evaluate the impact of partnership between health service providers and medical schools on improvement in education and health services	Disseminate case studies of successful experiences of partnership between trainers and providers