Medical Education and the Practice of Medicine in the Muslim countries of the Middle East

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Abstract & Overview

Recorded history shows the ancient countries and populations of the Middle East were among the first in the world to teach and practice the science of medicine, and from the region, it spread to the rest of the known world.

This paper provides firstly a history of the regional development of the science of medicine followed by a brief snapshot of current regional medical education and research, to see if it is matching the needs of the people of the region, and reaching and setting the same high standards as it did centuries ago.

Introduction and History

The Middle East region was not just the *cradle of civilisation*, the place where humans stopped their nomadic hunting and gathering, and started to form towns and cities and complex cultures, it was also where some of the more complex sciences and arts were first practised and recorded.

Historical records show that the practice of medicine occurred in the early history of Egypt, Persia, Mesopotamia, China, India, Greece and the city of Rome, before the third century AD (1).

In the history of the Middle East the practice of medicine was first recorded in Persia (Iran). The Vendidad, a surviving collection of texts, devotes many chapters to the practice of medicine. One of these texts describes three kinds of medicine: medicine by the knife (surgery), medicine by herbs (pharmacology), and medicine by divine words (counselling or placebo) (1, 2).

An encyclopaedia of medicine in Pahlavi literature listed 4,333 diseases (1, 2).

The city of Gondi-Shapur in Persia (226 to 652 AD) had the first institution we would recognise as a modern day hospital and academic centre of learning. These institutions were called *bimarestan*, a Persian word for 'a place for the sick,' and as well as providing medical services they also retained patients' medical records (1-6).

The academy of Gondi-Shapur was established between 309 to 379 AD and consisted of a university, a library and a teaching hospital. Similar to modern academic medicine the bimarestan of Gondi-Shapur were a place where medical students worked in the hospital under the supervision of a medical faculty. There is evidence that the graduates had to then pass an examination in order to practice as accredited physicians (1).

After the Arabs conquered Persia in 638 AD, Gondi-Shapur became the Arabian School of Medicine. The entire system was gradually transferred to Baghdad, where it became known as the 'Golden Age of Islamic Medicine' (1).

The philosophy behind this Golden Age of universal healthcare was the Islamic belief in the Qur'an and Hadiths, which stated that Muslims had a duty to care for the sick (3-6). In the Islamic Age such hospitals were paid for through charitable donations. They were founded as early as the 8th Century and eventually were set up across the entire Islamic world (3-6). The hospitals also provided free medical services to the poor and sent physicians and midwives into rural areas. Some hospitals provided early 'specialist services' such as midwifery and care for lepers and the disabled (3-6).

Al-Razi, (850 - 923), of Persia, was an early medical researcher. He produced over 200 books about medicine and philosophy, including a book where he compiled all known medical knowledge in the Islamic world. This book was translated into Latin and was the basis of the early western medical education system (4).

Al-Razi, also initiated scientific methods promoting experimentation and observation. He wrote on the relationship between doctor and patient, believed in a holistic approach to medicine and was instrumental in early 'history taking,' not just of the medical background of the patient but also the patients' family members. He advanced medical diagnosis through looking for the cause of the symptoms (4-6) and described human physiology and understood how the brain and nervous system worked (4-6).

In 14th century Persia, the book *Tashrih al-badan* (Anatomy of the body), was written by Mansur ibn Ilyas (c. 1390), and contained an early Atlas of Anatomy with diagrams of the body's structural, nervous and circulatory systems (4-6).

Current situation

Human history has seen the rise and fall of many Empires, Kingdoms and regions. The entropy that pervades matter on the micro scale seems to also work on the macro scale and while we will not look at the philosophical or psychosocial reasons for these cycles in this article, the glorious past of the Middle East region is now undergoing some needed revival in these scholarly disciplines.

The Islamic religion fostered early the view of medicine as a science to be learned and understood, as well as the concept of parity of healthcare for all members of society, (universal healthcare) irrespective of the patient's ability to afford it.

This spirit lives on in the universal health systems most Middle Eastern countries have adopted, particularly in Iran, which the WHO describes as one of the most robust health systems worldwide, drawing its strength from its pioneering and well established primary health care system, which emphasizes equity, community and intersectoral participation, as well as government financing of essential and other services (7).

As well as University based medical schools most regional countries now have postgraduate colleges to focus on standards and ongoing medical education to support and address the needs of practising doctors and specialists. The region hosts many international medical conferences and quite a few overseas universities have set up campuses in the region. Some Universities that have recently re-appraised their focus and customs are high in the list of the top universities in the world, (e.g. Aga Khan University and Hospital in Karachi, Lahore University of Management Sciences, and Sharif University in Iran) (2).

Many countries have ongoing medical education programs, in the form of Continuing Medical Education (CME) and Continuing Professional Development (CPD) e.g. UAE, Jordan, Turkey and Lebanon.

Generally however, and additional to the march of time from the glorious days of the past, a multitude of factors has led to various problems in most countries of the region. Before discussing these factors, the following provides a snapshot of the main features of the health and medical education status of each major Middle East country compared with some non-regional Muslim countries, Malaysia and Indonesia.

Health and Education data of major Muslim Countries of the Middle East and the World (7, 8)

Afghanistan	
General information and indicators	
Density of physicians per 1000 population (2010)	0.194
Total expenditure on health as % of GDP (2011)	9.6
General government expenditure on health as % of total government expenditure (2011)	3

Health Systems
Afghanistan's health system has been steadily progressing over the last 13 years, with an increasing coverage of primary health care services throughout the country.
Postgraduate Family Medicine
Afghan Family Medicine Association (AFMA)

(United) Arab Emirates	
General information and indicators	
Density of physicians per 1000 population (2007)	1.93
Total expenditure on health as % of GDP (2011)	3
General government expenditure on health as % of total government expenditure (2011)	8.8

Health Systems
The health sector in the United Arab Emirates (UAE) is administered by two authorities, the Ministry of Health for regulating the public health sector and the Emirates health authorities responsible for service delivery at state level (in Dubai and Abu Dhabi). Health care is provided for all nationals and health insurance is mandatory for non-nationals. Total expenditure on health was on average per capita expenditure of US$ 1078. However, the there is an increasing demand on the health care services due to the increasing level of ageing population estimated to be over 15% of the population, by 2020.
Postgraduate Family Medicine
Emirates Medical Association, The Family Medicine Section

Bahrain	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	4.7
General government expenditure on health as % of total government expenditure	11.4

Health Systems
Comprehensive health services are provided to the citizens in Bahrain free of charge. The Ministry of Health offers most services through primary health care which is the cornerstone of the health system. The accessibility and coverage are almost 100%. Bahrain's national health strategy for the period 2002–2010 is the action framework for long term development of the health system. The government provides the major source of health service funding in Bahrain, and non-Bahrainis are also heavily subsidized by the government. A health insurance scheme with extensive deliberations by all stakeholders was introduced in 2006. Bahrain has achieved success in human resources development: the College of Health Sciences has graduated nurses and allied health professionals and has helped in training of personnel from other countries.
Postgraduate Family Medicine
Bahrain Family Physicians Association

UA = Unavailable

Egypt
General information and indicators

Density of physicians per 1000 population (2010)	UA
Total expenditure on health as % of GDP (2009)	4.8
General government expenditure on health as % of total government expenditure (2009)	5.6

Health Systems
The health care system in Egypt is quite complex with a large number of public entities involved in the management, financing and provision of care. Egypt's wide network of public (several ministries beside the military and police), NGO, faith based charity organizations and private health facilities allow good geographic accessibility and coverage. The Ministry of Health and Population is responsible for overall health and population policy as well as the provision of public health services, and is responsible for health insurance organization that provides services too. The Ministry of Higher education is however responsible for health profession education (medical, nursing, dentistry and pharmacy etc.) and also runs university teaching hospitals.
Postgraduate Family Medicine
Egyptian Family Medicine Association

Indonesia
General information and indicators

Density of physicians per 1000 population (2012)	0.204
Total expenditure on health as % of GDP (2011)	2.7
General government expenditure on health as % of total government expenditure (2011)	5.3

Health Systems
Indonesia is engaged in the process of ensuring effective decentralization and functioning of the health system while at the same time responding to urgent health needs brought about by natural disasters as well as emerging and re-emerging communicable and non-communicable diseases. Implementation of universal health coverage (UHC) through national health insurance system (SJSN) is in place since January 2014 with the aim of reaching the entire population of Indonesia by 2019.
Postgraduate Family Medicine
Perhimpunan Dokter Keluarga Indonesia (PDKI)

Iraq
General information and indicators

Density of physicians per 1000 population (2010)	0.607
Total expenditure on health as % of GDP (2011)	8.3
General government expenditure on health as % of total government expenditure (2011)	10.2

Health Systems
The Iraqi health sector faces considerable and complex challenges. These challenges primarily relate to improving access to quality health services by transforming the hospital oriented system to a primary health care model, overcoming recurring shortages of essential medicines, dealing with budget deficits, rehabilitation of infrastructure, training and deployment of human resources. In 2013 a number of policy documents have been finalized in Iraq. These include the National Health Policy (2014-2023), the National Development Plan (2014 – 2017) and the UNDAF. The Ministry of Health is working on developing a three year health strategy linked with a program-based budget. The Ministry of Health is the main provider of health care, both curative and preventive.
Postgraduate Family Medicine
Iraqi Family Physicians Society

Iran	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP (2009)	5.7
General government expenditure on health as % of total government expenditure (2009)	10.5

Health Systems
The health system has been cited in all WHO and global health literature as one of the most robust health systems worldwide, drawing its strength from its pioneering and well established primary health care system, which emphasizes equity, community and intersectoral participation, as well as government financing of essential and other services. Without doubt, the primary health care system is at the basis of the good national health indicators, but the main challenge remains for out-of-pocket health expenditure, which is 58%. The Ministry of Health and Medical Education finances and delivers directly primary health care while public secondary and tertiary care are financed through public insurance schemes.
Postgraduate Family Medicine
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Jordan	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP (2009)	9.6
General government expenditure on health as % of total government expenditure (2009)	11.3

Health Systems
Primary health care has nationwide coverage; 2.4 centers per 10 000 population (2010) are available, with an average patient travel time of 30 minutes to the nearest centre. This represents a high density system by international standards, with 99.0% access (2010).
Postgraduate Family Medicine
Jordan Society of Family Medicine (JSFM)

Kuwait	
General information and indicators	
Density of physicians per 1000 population	1.716
Total expenditure on health as % of GDP (2011)	10.7
General government expenditure on health as % of total government expenditure (2011)	5.9

Health Systems
The national health plan, 2010-14, for Kuwait focused on a major expansion of the health sector. Kuwait has one of the most modern health care infrastructures in the region. An overwhelming share of health services is provided by the public sector, but there is a growing private sector involvement in health services. The public health system is built on the primary health care principles with three levels of health care delivery: primary, secondary and tertiary. A robust primary health care infrastructure has been developed, with a clear vision and the integration of noncommunicable diseases and mental health within the system. Adequate hospitals, health centers and clinics manned by skilled health staff provide safe and effective health care to people.
Postgraduate Family Medicine
Kuwaiti Association of Family Physicians and General Practitioners

Lebanon	
General information and indicators	
Density of physicians per 1000 population (2007)	3.062
Total expenditure on health as % of GDP (2011)	6.3
General government expenditure on health as % of total government expenditure (2011)	5.8
Health Systems	
The past decade has witnessed significant efforts of the Lebanese government to address the detrimental effects on the health system structure caused by the long lasting civil war that ravaged the country in the 1970s and 1980s.	
Postgraduate Family Medicine	
Lebanese Society of Family Medicine	

Malaysia	
General information and indicators	
Density of physicians per 1000 population (2012)	UA
Total expenditure on health as % of GDP (2010)	4.4
General government expenditure on health as % of total government expenditure (2010)	9.2
Health Systems	
UA	
Postgraduate Family Medicine	
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Morocco	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP (2009)	5.2
General government expenditure on health as % of total government expenditure (2009)	7.2
Health Systems	
Morocco currently has 2,689 (2011) basic health care facilities. Despite this increase in basic infrastructure, access to care remains difficult, mainly for populations with low resources. 25% of the Moroccan population lives more than 10 km away from a basic health facility. The GP Sector is poorly organized, Continuing Medical Education is expensive and not appropriate, hence the need for a new dynamic in the medical profession, it is then in 2003 in Casablanca was born the association MG Morocco, with the slogan: General Practitioner, Doctor First Action and Community Health Workforce Actor	
Postgraduate Family Medicine	
National Collective of General Practitioners of Marocco (MG Maroc)	

Oman	
General information and indicators	
Density of physicians per 1000 population (2010)	2.048
Total expenditure on health as % of GDP (2011)	2.3
General government expenditure on health as % of total government expenditure (2011)	4.9
Health Systems	
The majority of the health services are provided by the MOH; however, there is a growing private sector. Primary health care is the basic building block of the health system with provision of near free-of-charge service in the public sector and near universal access.	
Postgraduate Family Medicine	
Oman Family and Community Medicine Society	

Pakistan	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP (2009)	2.2
General government expenditure on health as % of total government expenditure (2009)	3.3

Health Systems
Pakistan has a multi-tiered and mixed health care delivery system that has grown exponentially during the past three decades, with an increasing number of programs, projects, interventions and facilities, many of them on a fragmented and time bound basis
Postgraduate Family Medicine
Pakistan Society of Family Physicians, Lahore

Saudi Arabia	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	5.3
General government expenditure on health as % of total government expenditure	6.9

Health Systems
The Ministry of Health is the main provider of health care services. Health has featured in the national five-year development plans since 1970, and is seen as a key part of overall development in the country. The ninth national development plan (2009–2013) addressed a number of public health issues. The number of primary health care centres was increased by 9.5% in the last five years, with 150 new centres planned each year until 2016 as part of the ten-year Ministry of Health strategy.
Postgraduate Family Medicine
Saudi Society of Family and Community Medicine

Syria	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	3.4
General government expenditure on health as % of total government expenditure	5.6

Health Systems
The disruption of the health system throughout the Syrian Arab Republic has had a direct impact on the provision of primary, secondary and tertiary health care (preventive and curative), including support for referral of patients with injuries, treatment of chronic diseases, maternal and child health services, vaccination and nutrition programmes as well as communicable disease control and other urgent conditions. The health situation is exacerbated by a disrupted health care delivery system: 57% of public hospitals have been damaged or are out of service, as well as a major loss of medical staff who have been killed, kidnapped, injured or displaced. Lack of fuel and electricity has forced many hospitals to operate with limited capacity as the number of patients grows.
Postgraduate Family Medicine
Syrian Family Medicine Association

Turkey	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	6.1
General government expenditure on health as % of total government expenditure	12.8

Health Systems
The health status of people in Turkey has significantly improved in recent years. Improvements in the health status are mostly attributable to the successes of health reform, the so-called Health Transformation Program (HTP) with the tag line "People First". The Government of Turkey is implementing the second phase of a major health sector reform that aims to improve the governance, efficiency, and quality of the health sector. A serial legal change was enacted within the frame of health reform with the new legislation re-structuring the Ministry of Health (MoH) and re-organizing functions of her units and affiliates. Re-structuring aims at strengthening the steward-ship function of the Ministry and enhancing its role in health system policy development, planning, supervision of implementation, monitoring and evaluation.
Postgraduate Family Medicine
Turkey Qualification Board of Family Medicine (Turkish Board of Family Medicine)

Yemen	
General information and indicators	
Density of physicians per 1000 population	UA
Total expenditure on health as % of GDP	5.2
General government expenditure on health as % of total government expenditure	4.3

Health Systems
The Ministry of Public Health and Population is responsible for the health sector and is one of the largest public employers in the country. Health units provide the most basic curative and preventive care within a catchment area of 3,000 to 5,000 people. Coverage with health services, although improving, does not cover more than 30% of the rural population nor more than 45% of the total population.
Postgraduate Family Medicine
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The practice of medicine is to ultimately address the current health needs of a population, through medical education and training, research and public health policies, along with affordable healthcare.

The people of the Middle East now face much the same disease states as the rest of the developed world and medical education and health policy must now meet these changing needs.

The change of lifestyles in the Middle East and elsewhere has introduced a new range of disease states, particularly those of a cardiovascular nature (e.g. diabetes and heart disease). This in turn has necessitated a change of both health priorities and educational focus. In the Middle East and North Africa region, incidence of non-communicable diseases such as heart disease are up by 44%, stroke up by 35%, and diabetes up 87% since 1990 and these diseases are causing more premature death and disability than they did in the past (9). The region has succeeded in reducing disease burden from many communicable, newborn, nutritional, and maternal conditions. However, lower respiratory infections, remain the second leading cause of healthy years lost in the region (9). Aging populations and longevity add another dimension to economic burden, and new diagnostic equipment, techniques and therapeutics have created higher expectations of successful medical outcomes in patient populations. At the same time these innovations have greatly increased the cost of both medical education and delivery of universal health care. This also applies to the cost of medicines, particularly highly priced pharmaceutical products, with many nations of the world now having to subsidise their high costs to make them available to their patient populations.

At the same time, poorer countries in the region, including Yemen, Djibouti, and Iraq, continue to struggle with a high burden from infectious diseases (9).

Among the Muslim countries in the region, the leading causes of disease burden range from preterm birth complications in Algeria and Palestine, depression in Jordan, and ischemic heart disease, or coronary artery disease, in Egypt, Iran and Lebanon (9).

When comparing rates of diseases and injuries across countries in the Middle East and North Africa and taking into account differences in population growth and ages, Lebanon, Syria, and Tunisia performed best relative to other countries in the region while Iraq, Yemen, and Djibouti performed the worst (9).

In places such as Palestine (and currently Syria, Iraq, and Libya) even greater burdens of war are placed on health systems that are being destroyed and made ineffective. It seems it may even now be policy to deliberately target doctors and hospitals to demoralise such communities.

Climate change and environmental problems, often exacerbated by war or government dysfunction, (e.g. no collecting of waste, scarcity and quality of clean drinking water, air pollution) contribute to the picture as does an upsurge in road accidents.

There is need for specific public health promotion to limit lifestyle disease and poor health habits such as cigarette smoking and drug taking as well as addressing mental health issues such as the rising incidence or diagnosis of depression.

Refugees within the region bring their own set of problems – not just in additional healthcare needs but sequelae of war: malnutrition, injuries, mental health issues, overcrowded conditions and disease risk.

Medical Education Needs

Current regional Medical Education does not always match or meet the high principle of universal healthcare. Varying standards of education within the region often result in new regional graduates unable to find employment, or even qualify for employment in the region. At the same time well educated doctors are often poached by overseas employers who can offer greater financial returns.

Conversely some Middle East countries preferentially hire overseas doctors and nurses to meet their own internal needs putting a greater burden on health systems.

The opportunities for higher levels of research and publication can also be lacking in the region.

Most countries of the Middle East, and Muslim countries generally do now endeavour to provide universal healthcare but with varying success. It must be said that most countries of the world have now also adopted the principle of universal healthcare but with some notable exceptions, even among developed countries.

Curricula Needs

The reasons why the Universities are not providing adequately trained doctors to meet the needs of the regions' medical hiring organisations are complex and may differ from country to country. Governments, academics and administrators of regional universities will need to address any deficiencies in their curricula and postgraduate institutions.

The Organisation of Islamic Cooperation (OIC) in its Report of 29 October 2015 recommended that governments must give universities more autonomy. Professors need to be free to teach topics that are not tightly regulated by ministries (2).

Universities need to also be free from political or religious opinion or influence. There is precedent. In Pakistan, two private universities established in the 1980s, the Aga Khan University and Hospital in Karachi and Lahore University of Management Sciences, revolutionized medical and business education within a decade of their creation. Students elsewhere began demanding the standard set by these educational pioneers (2).

The OIC report found that the Muslim countries on average invest less than 0.5% of their gross domestic product (GDP) on research and development (R&D). Students in the Muslim world who participate in standardized international science tests perform below the standards of their peers worldwide, and the situation seems to be worsening (2). An obvious reason for this however may be a non-standardised curriculum.

The OIC recommend that Universities in OIC nations need to be granted more autonomy to transform themselves (2).

University science programmes are often found to be using restricted content and outdated teaching methods. The OIC report also stated scientific research must be relevant and responsive to society's intellectual and practical needs and students must receive a broad, liberal education. Some basic scientific facts are still seen as controversial, and marginalized e.g. evolution (2).

Another problem is that faculty members rarely receive any training or evaluation in pedagogy. In many OIC universities, didactic teaching methods persist (2).

In many universities, curriculum changes, faculty appointments and promotions are dictated by governments Ministries of Health and other agents.

Research

The 57 countries of the Muslim world that are a part of the Organisation of Islamic Cooperation (OIC) are inhabited by nearly 25% of the world's people. But as of 2012, they had contributed only 1.6% of the world's patents, 6% of its academic publications, and 2.4% of the global research expenditure (2). The number of scientific papers they produce remains below the average of countries with similar GDP per capita.

A few institutions attempt to relate their students' learning to their cultural backgrounds and contemporary knowledge. The Times Higher Education world university rankings named Sharif University as the top Iranian university and number eight in the OIC (10). Habib University, in Pakistan, also follows the same model.

Textbooks are often imported from outside the region. Although of a high standard, they assume a Western undergraduate experience and are written in English or French (2). Having English as the standard international medical and scientific language disadvantages students from all countries that are not native English speakers.

The heavy requirements on academics to publish whether there is research of any importance or repute occurring in their institution or if there is anything of significant merit to report or not, can also cause problems. There should be less emphasis on meeting quotas, and more on quality and the merit of publishing particular research or study (11). This also applies worldwide.

While it is necessary to acknowledge the workload and academic pressure during medical training there should also be time and budgets allocated for meaningful research and publication (10, 11). Quality academics themselves need to be properly salaried and remunerated.

Regional medical journals are assisting young researchers and academics (10, 11).

Postgraduate Needs

A healthy national medical education consists of both tertiary and postgraduate medical education institutions. It is well recognised these days, especially in times of great change, that education does not stop once the graduate goes into practice (lifelong learning). Not only are there new developments and techniques, new therapeutics and new diagnostic equipment at the primary care population level, we have seen the emergence of quite a few new diseases (e.g. Ebola) and mutations of existing diseases (e.g. Zika). There is also place and requirement for the practising doctor to contribute to ongoing knowledge regarding emergence and epidemiology of emerging and mutating viral diseases (15).

Socio-economic and psychosocial issues affecting the practice and delivery of medicine can and do vary from nation to nation.

It is no longer good enough to 'keep your eye' on the medical journals; doctors need a consistent approach to ongoing medical education. Many postgraduate medical colleges have brought in firstly, Continuing Medical Education (CME), then Continuing Professional Development (CPD), with the latter a step ahead in that it is no longer good enough to know 'what's new', doctors need to evaluate new information and know if, when and why they should introduce it into practice. It is not acceptable to put patients on a new therapy unless doctors are sure it works in all patients and all situations and if its trials have been sufficient in time, enrolled numbers and efficacy and with no longterm adverse effects on patients. QA&CPD (Quality Assurance and Continuing Professional Development) was brought in to provide a level of science (and mathematics) to CME/CPD. Postgraduate Education Providers need to know and be able to show that the doctor-student has indeed learned something (accurate) from their post graduate education and that the education they provide to the doctors has done its job at the level of patient care. There also needs to be someone to ensure the quality of postgraduate continuing education and this is usually done by the Postgraduate College or Academy testing and training and evaluating postgraduate education providers, be they tertiary colleges, universities, a medical society, or independent providers.

Finally Quality Improvement (QI) has become the current norm. The doctor undergoing postgraduate CME/CPD has to now show that the postgraduate education has brought Quality Improvement into their practice. There are many ways to go about this – even though they require a bit of subjective evaluation on the part of the practising doctor.

To enforce Quality Assurance (QA) and Lifelong learning as part of regular practice, it has become a requirement for maintaining ongoing Professional Vocational Registration (VR) in some countries.

The Vocational Registration requirement approach can however be punitive to the patient populations if there are not enough doctors practising (quality assured or not) - on the assumption that those practising have some basic skills. In countries greatly lacking in doctors another aim of CME should be to improve the skills of doctors already in practice.

Some of the first family medicine programs in the region occurred in Turkey in 1961, in Bahrain in 1978, in Lebanon in 1979, in Jordan in 1981, and in Kuwait in 1983. Family medicine programs have also been established in Qatar, the United Arab Emirates, Libya, and Iraq. In most programs, family medicine training occurs mostly in hospitals, even though few Middle Eastern family physicians practice in hospitals on completion of residency training. Thus, there is a need for better outpatient training, but resistance from those responsible for traditional medical education can make it difficult to change the current model. There is need for better opportunities for professional development after graduation and for establishing research activities in family medicine (12).

Financial Needs

Financing the medical education and health sector is an increasing national burden and involves major and obvious considerations – good coordinated governance across all sectors, national wealth and development being the most obvious.

Some Middle East countries have a 'patronage' system whereby institutions need to continually apply for separate items of funding preventing them to some degree from being able to plan ahead and invest in necessary infrastructure.

Overseas universities have also set up in the region and thus provide their own curricula and own education and their graduates often then proceed to practice overseas. It does however allow those employers seeking 'western trained doctors' to employ graduates from the region.

Regular and ongoing funding and sufficient levels of funding are needed to ensure that each country produces sufficient numbers of doctors to adequately care for population health. Political will and allocation of government budgets is tied together.

Of course investing in tertiary education facilities and professional staffing, needs to also be weighted against the potential student population. Small populations on a pro rata basis require heavier financial commitments.

The Way Forward

While the principles and practice of 'universal healthcare for all' is well championed in the Middle East region there seems to be need for improvement in the quality and availability of undergraduate and ongoing medical education to meet the ongoing needs and expectations of the populations of each country. This may need a review of numbers entering the education system as well as the curriculum in medical schools, to ensure they meet all population health needs.

There is discrepancy between health planning and the application in practice (14). In most countries the medical education system is not producing enough primary care doctors, or to the standards now required by the region and the world.

The health care system still tends to be specialist orientated. It is well accepted globally that primary care is the optimum approach for cost effective healthcare for all (14). Keeping patients out of the hospital system and the more expensive specialist system reduces national health costs and saves those services for the patients who really need them.

There needs to be a coordinated governance system looking at all sectors and making sure they work together in an efficient and complementary fashion.

Medical schools should meet three criteria, i.e. educating medical students in sufficient numbers to quality international standards to meet national requirements and needs, conducting research, and being a community advocate for national and regional health and medical issues and ensuring curriculum meets these, and thirdly, providing, via suitably educated graduates, health and medical care to all members of society based on ethical guidelines. Medical schools should consider the needs of the communities which they serve and deliver their services based on socially and culturally acceptable criteria (13).

It is incumbent on governments to make the necessary financial allocations to the education sector and to secure ongoing budgets to allow them to plan for the future. The more money spent on ensuring a fit and proper medical education and health delivery system, the less money spent later on public health needs.

In turn, universities and medical schools must seek to contain the costs of education and educate students on cost effective treatment and processes of care. A socially accountable medical school provides its services based on the criteria of cost-effectiveness, relevance, equity and high quality (13).

One process however may not necessarily meet the specific needs of all communities or nations, and it is incumbent on, firstly, governments and health administrators to plan national needs and then have the education systems capable of producing the trained medical professionals to meet those needs. Universities and medical schools need to meet these challenges with the appropriate curriculum and processes if they are to remain viable and relevant to community needs.

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