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Health systems strengthening in countries of the Eastern Mediterranean Region: challenges, priorities and options for future action

Executive summary

1. Inequities in health, rising exposure to health risks, increasing health care costs and unacceptably low levels of access to quality health care represent the most important challenges facing many countries of the WHO Eastern Mediterranean Region. Confronting these challenges, to achieve better health, universal health coverage and equitable health financing policies, demands that governments develop a clear vision and strategies for their health systems. Health system strengthening is among the five strategic priorities identified by the WHO Regional Office for the Eastern Mediterranean for the next five years. The objective of this paper is to review, with policy-makers of the Region, the constraints and challenges based on best available evidence and to discuss the way forward in strengthening health systems in the Region. For the purpose of this paper, the countries of the Region have been categorized into three groups based on population health outcomes, health system performance and level of health expenditure. Group 1 comprises countries where socioeconomic and health development has progressed considerably over the past decades. Group 2 comprises largely middle-income countries which have developed extensive public health infrastructure but face resource constraints. Group 3 comprises countries which face constraints in improving population health outcomes as a result of lack of resources, political instability and other complex development challenges.

2. Noncommunicable diseases are the leading killers in the Region, while communicable diseases and nutritional disorders remain on the agenda and preventable deaths from injuries constitute a serious proportion of overall mortality. For several decades the Region has been politically volatile and economic activity has slowed in a number of countries. Many countries are striving for the fulfilment of human rights. The sociopolitical movement for change taking place in several countries is likely to influence population health.

3. The overarching challenges that influence health system performance across the Region include: the need for high-level political commitment to the achievement of universal health coverage; strengthening of the capacities of Ministries of Health; reduction in the share of out-of-pocket payment; enhancement of the contribution of the private sector to public health and its regulation; development of a balanced, skilled and motivated health workforce and adoption of workable models of family practice; reinforcement of health information systems; improvement in access to essential technologies; and support for priority public health programmes. The paper proposes seven priorities for improving health system performance. Achieving universal health coverage is the principal priority. Others include strengthening leadership and governance in health; strengthening health information systems; promoting a balanced and well managed health workforce; improving access to quality health care services; engaging with the private health sector; and ensuring access to essential technologies.

4. For each priority the paper proposes a set of strategies and options. Each option has two elements: what a Member State can do and how WHO and partners can assist in its achievement. The agenda is long and ambitious for both countries and WHO. Countries will have to take the lead in considering the options proposed for improving the performance of their health system, expanding social and financial health protection, promoting access to quality health services and technologies,

and monitoring progress towards universal health coverage. At the same time, WHO recognizes the challenge of rising to the expectations of countries to deliver the required technical support.

Introduction

5. Inequities in health, rising exposure to health risks, increasing health care costs and unacceptably low levels of access to quality health care represent the most important challenges facing many countries of the WHO Eastern Mediterranean Region. Confronting these challenges, to achieve better health, universal health coverage and equitable health financing policies, demands that governments develop a clear vision and strategies for their health systems (*1*). Health system strengthening is among the five strategic priorities identified by the WHO Regional Office for the Eastern Mediterranean for the next five years.

6. In recent years, the Region has generally witnessed the building of extensive modern networks of health infrastructure, an increasingly skilled health workforce and wide deployment of medical technologies. However, the gains are not shared evenly across the Region and within countries; and major gaps exist even in countries where impressive health gains have been made over the last three decades. Individual countries differ widely in regard to the specific health challenges they face.

7. Strengthening health systems in the Eastern Mediterranean Region is based on and guided by the values and principles of primary health care (*2*); the four reform areas outlined in The World Health Report 2008: universal coverage, service delivery, leadership and public policy reforms (3); and the Qatar Declaration on Primary Health Care.[i]

8. The objective of this paper is to review, with policy-makers of the Region, the constraints and challenges based on best available evidence and to discuss the way forward in strengthening health systems in the Region. In doing so the paper attempts to undertake a systematic analysis of the challenges, identify priorities and propose strategies and options.

Part one. Health system challenges in the Eastern Mediterranean Region

Framework of analysis

9. The paper follows the definition of health systems of the World Health Report 2000: “all actions whose primary purpose is to promote, maintain and restore health” (*4*). Health system strengthening is defined elsewhere as “an array of initiatives and strategies that improves one or more functions of the health system, leading to better health through improvements in access, coverage, quality, or efficiency” (*5*).

10. The countries of the Region have been categorized, for the purpose of this paper, into three broad groups based on population health outcomes, health system performance and level of health expenditure. *Group 1* comprises countries where socioeconomic development has progressed considerably over the past decades, supported by high income, *Group 2* comprises largely middle-income countries which have developed extensive public health service delivery infrastructure but face resource constraints. *Group 3* comprises countries which face major constraints in improving population health outcomes as a result of lack of resources for health, political instability, and other complex development challenges.[ii] The challenges encountered by each of the three groups of countries have been further analysed according to the six building blocks of the health system as presented in the WHO Health System Conceptual Framework (*6*).

[i] The Qatar Declaration on Primary Health Care was endorsed by all Member States of the Region in an international conference in Doha, Qatar in November 2008.

[ii] Group 1: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates. Group 2: Egypt, Islamic Republic of Iran, Iraq, Jordan, Lebanon, Libya, Morocco, occupied Palestinian territory, Syrian Arab Republic and Tunisia. Group 3: Afghanistan, Djibouti, Pakistan, Somalia, South Sudan, Sudan and Yemen.

11. The analysis in this paper is based on the best available evidence from countries and relies on review of documents on health systems presented to the Regional Committee over the past 10 years, regional policy papers, meeting reports, the Regional Health Observatory and published literature.

Analysis of health system challenges in the Region

Overview of population health

12. In 2012, of the world's population of 7 billion, 8.8% live in the Eastern Mediterranean Region. Countries in Group 3 account for 48% of the Region's population, while Group 1 countries account for 7%. Around 60% of the Region's population is between 15 and 59 years of age and one-third is below 15 years (*7*). At the beginning of the 1990s, the average total fertility was more than 5 children per woman, which has remained unchanged in Group 3 countries. However Group 2 and Group 1 countries have made strides towards reducing fertility by reaching rates of 3 and 2 children per woman respectively (Table 1). This decline has mainly been due to higher contraceptive prevalence rates, ranging between 35% and 50%, and increase in age at first marriage. For Group 3 countries, the contraceptive prevalence rate stands at 21.5% and has started to increase only in the past 5 years (*8*).

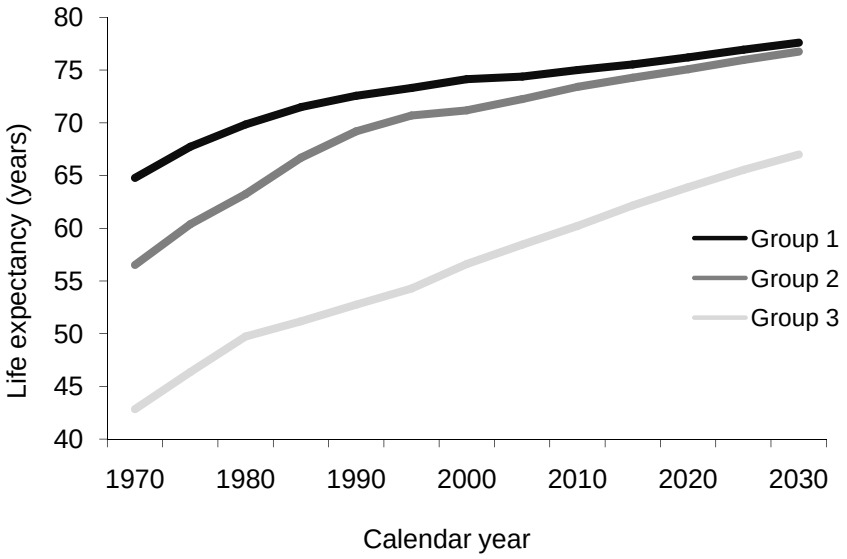
13. The life expectancy at birth is still below 60 years in half of Group 3 countries, while it is above 70 years in most Group 2 and Group 1 countries. The gap in the projected life expectancy across the three groups will remain wide despite the steady improvement in Group 3 countries (Table 1 and Figure 1). There has been a 50% or greater reduction in maternal mortality ratios between 1990 and 2010 as reported by most countries. However, with the levels still high in Group 3 countries, reaching the target of Millennium Development Goal 5 of three-quarters reduction by 2015 may prove to be difficult even for some Group 2 and Group 1 countries, unless concerted efforts are urgently mounted (*9*). The infant mortality rate dropped substantially in all Group 2 and Group 1 countries between 1990 and 2010. The predicted pace of decline in Group 3 countries, based on the current evidence, is lower than the annualized rate set to achieve the MDG target by 2015. Similarly, the under-five mortality rate dropped by more than 50% in Group 1 and Group 2 countries during the same period. The reduction in Group 3 countries has not been satisfactory, and one in 10 children still die before reaching the age of five years (*10*).

Table 1. Trends in key health outcomes in the Eastern Mediterranean Region, 1990–2010*

Health status indicator	Group 1 countries			Group 2 countries			Group 3 countries		
	1990	2000	2010	1990	2000	2010	1990	2000	2010
Life expectancy at birth (years) (*7*)	72.6	74.1	75	69.2	71.2	73.4	52.8	56.6	60.2
Maternal mortality ratio (per 100 000 live births)(*9*)	24	18	17	115	79	63	750	625	360
Infant mortality rate (per 1000 live births) (*7*)	17.5	–	8.5	36.5	–	19	95.5	–	71.5
Under 5 mortality rate (per 1000 live births)(*10*)	21.5	–	9.5	45.5	–	22	126.5	–	97
Total fertility rate (*8*)	5.2	3.9	2.2	5.6	3.7	2.9	6.6	6.3	6.0

* Values are medians

– Information not available



Source: (*7*)

Figure 1. Projected trend in life expectancy at birth by country group, 1970–2030

14. Currently, it is estimated that over 60% of the disease burden and over 50% of mortality burden in the Region is due to noncommunicable diseases, mainly: cardiovascular disease, diabetes, cancer and chronic lung disease (*11*). The changing pattern of morbidity in the Region is aggravated by a rising trend in the prevalence of risk factors for these diseases. Table 2 shows the crude cause-specific mortality rate in 2008 by major disease group. Nearly three out of four deaths in Group 2 and Group 1 countries are due to noncommunicable diseases, compared with two out of every five deaths in Group 3 countries. Injuries account for 15%, 12.5% and 9.4% of total mortality in the Group 1, Group 2 and Group 3 countries, respectively.

15. Nearly half of the deaths in Group 3 countries are due to communicable diseases. In 2011, Group 3 countries reported 99.8% of the 7 million malaria cases in the Region. With regard to tuberculosis, the distribution of the 426 000 cases reported by Group 3, Group 2 and Group 1 countries was 82%, 16% and less than 2%, respectively (*12*,*13*). The Eastern Mediterranean Region is one of the two regions in the world with the fastest growing HIV epidemic. While noncommunicable diseases are clearly the leading killers, and their magnitude is rapidly escalating in Group 1 and 2 countries, the unfinished agenda of communicable diseases is of great concern in Group 3. In all three groups, preventable deaths from injuries constitute a serious proportion of overall mortality.

Table 2. Crude cause-specific mortality rates (per 100 000 population) in the Eastern Mediterranean Region, by main cause, 2008

Global burden of disease: mortality by main causes	Group 1		Group 2		Group 3	
	Rate	%	Rate	%	Rate	%
Communicable, maternal, perinatal and nutritional conditions	42.9	12.6	84.4	15.5	461.8	48.8
Noncommunicable diseases	245.0	72.2	392.0	72.0	395.5	41.8
Injuries	51.5	15.2	67.8	12.5	88.5	9.4
Total	339.4	100.0	544.2	100.0	945.9	100.0

Source: (*11*)

Geopolitical and socioeconomic context

16. The Eastern Mediterranean Region comprises 22 countries in addition to the occupied Palestinian territory and is estimated to have a population of 620 million. Despite its geographic continuity, cultural compatibility and common historical background, the Region exhibits a high degree of diversity in the macroeconomic and developmental profiles of its countries, which invariably reflects on the status of population health and health systems performance.

17. For several decades the Region has been politically volatile. During the past 10 years, at least 10 countries have been, or continue to be, in a state of crisis, internal conflict or complex emergency. Responding to such challenging situations puts additional demands on already constrained health systems due to weak governance, exodus of the health workforce, disruption of supply systems, destruction and neglect of health infrastructure, and the inevitable disruption of health services. Inflow of external assistance and poor donor coordination impose additional challenges.

18. Economic activity slowed sharply and unemployment rose in a number of MENAP[iii] oil-importing countries in 2011. Growth among these countries (Afghanistan, Djibouti, Egypt, Jordan, Lebanon, Morocco, Pakistan and Tunisia) fell from 4.3% in 2010 to 2.2% in 2011, as social unrest in some of them led to large declines in tourism and investment, compounded with higher energy prices and slower economic global growth (*14*). Many governments have had to put a cap on development expenditures for social services, including health. In order to maintain the integrity of the public health system, policy-makers have introduced cost containment and cost recovery strategies, thereby jeopardizing the goal of fair financing and financial risk protection in health.

19. The right to health is enshrined as one of the fundamental human rights in many international treaties and conventions. All WHO Member States as signatories to the WHO Constitution are committed to the principles and elements of the right to health (*15*,*16*) and most countries have signed at least one international treaty or convention that recognizes health as a human right. Yet these are not always reflected in national constitutions and policies and when they do their enforcement is questionable.

20. Climate change is expected to trigger, compound and increase disasters and exacerbate existing humanitarian situations, thereby presenting a new set of health challenges for the Region which will be most pronounced in Group 3 countries.

21. Finally, the sociopolitical movement for change under way in several countries of the Region is likely to influence population health. The challenge for these countries is to put in place a process of health reform that will build a sustainable health system with a reliable finance plan, ensure equity of service access and expand geographic coverage (*17*).

Overarching health systems challenges

22. Health systems in the Region face many challenges that are generally cross-cutting in nature and apply to most countries irrespective of socioeconomic and health development. Addressing these challenges is key to the achievement of universal health coverage. The need for high-level political will and commitment to move towards universal health coverage with quality health care is the predominant challenge in many countries. Once such commitment is secure, policy-makers also have to consider the following challenges.

23. **Strengthening the capacity of the Ministry of Health in formulating and evaluating evidence-based policies and plans and regulating the health sector**. The overall capacity of ministries of health to provide direction, formulate legislation and regulation, and set and enforce

[iii] MENAP – Middle East and North Africa and Pakistan

standards varies across the Region. The engagement of non-health sectors in developing and implementing national health development plans and initiatives is often weak and needs to be strengthened. Countries need to put in place effective mechanisms for facilitating multisectoral action, based on international experience and lessons learned.

24. **Achieving an adequate and sustainable level of financing and reducing the share of out-of-pocket payment on health in Group 2 and 3 countries**. The high share of out-of-pocket payment made directly by individuals at the point of receiving care in some low-income countries is as high as 75% of the total health expenditure. High levels of out-of-pocket payment expose households to the risk of financial catastrophe and impoverishment and are a major impediment to the move towards universal health coverage and equitable health systems in most countries.

25. **Strengthening the potential contribution of the private health sector towards public health and regulating it to ensure quality and prevent inappropriate practices**. The private sector rivals the public sector in provision of primary care services in several Group 3 and 2 countries. According to information available from four countries, the proportion of private sector outpatient services used by the population ranges from 33% to 86%. The percentage of private sector services used by the poorest quintile in the same four countries ranges between 11% and 81%. However, generally, the role of the non-state sector is not well defined, its capacities are poorly understood, information is lacking and practices are generally not monitored. The range of services provided is variable and, in many countries, standards are questionable, regulation is poor and there is insufficient information on the financial burden to the users of these services.

26. **Developing a balanced, motivated, well-distributed and managed health workforce with the appropriate skills mix**. The overall workforce density in the Region is below the global average of 4 skilled health workers per 1000 population. Furthermore, eight countries are classified as facing a crisis situation in regard to human resources for health (*18*). Much of this is due to: insufficient measures at entry, in particular lack of preparation of the workforce through strategic investment in education and effective and ethical recruitment practices; inadequate workforce performance due to poor management practices in the public and private sectors; and problems at exit, in particular lack of policies for managing migration and attrition to reduce wasteful loss of human resources. Underpinning these are serious challenges relating to governance, stakeholder coordination, and information and evidence for decision-making, all of which need strengthening.

27. **Adopting workable models of family practice for the delivery of primary care services**. Many countries are making efforts to establish effective family practice programmes as the principal vehicle for delivering primary health care. However, major constraints exist in all countries, including a lack of adequately trained family physicians, nurses and other practitioners, maldistribution of the health workforce and insufficient engagement with hospitals to provide the necessary back-up and support.

28. **Reinforcing health information systems, including civil registration, risk factor and morbidity monitoring and health systems performance**. Health information systems in the Region are generally deficient in terms of reporting quality and timeliness. There is duplication and fragmentation of data collection and lack of rigorous validation within the different programmes. Not all countries have credible registration of births and deaths, and most do not report complete and accurate causes of death. Information disaggregated by age, gender, location and/or socioeconomic status is not available in most countries and there is a scarcity of human resources trained in epidemiology and health information systems. Based on the Health Metrics Network assessment tool (*19*,*20*), several countries scored either “not adequate at all” or “not adequate” in most of the six components relating to the health information system (*19*).

29. **Improving access to and rational use of essential technologies (medicines, vaccines, biologicals and medical devices)**. More than 90% of the countries of the Region have national regulatory authorities.[iv] However, their performance is inadequate in many countries[v], mainly focusing on the regulation of medicines and not on the proper regulation of biological products (vaccines, labile blood components, plasma derivatives, immunoglobulins), medical devices and clinical technologies including laboratories. In addition, the regulatory authorities have generally been ineffective in quality management and in monitoring the private sector and protecting public goods from commercial interests.

30. **Supporting priority public health programmes by overcoming system-wide barriers**. Poor health system performance is a constraint to programmes that target priority diseases, life-cycle interventions and the achievement of the Millennium Development Goals. System-wide barriers negatively affect the provision of services and reduce programme performance.

31. **Preparing health systems to respond to crises and disasters and strengthening their resilience in complex and extended emergencies**. Many countries face complex emergencies and most health systems are not well-prepared to respond to these situations. Shortcomings exist in collaboration, coordination and planning; communications and information exchange; education and training; legislation and regulation; and health system surge capacity.

Specific health system challenges by health systems building block

Governance and leadership

32. Governance[vi] has been assessed in several countries of the Region based on a framework that includes 10 principles. The major principles are: strategic vision, participation, rule of law, accountability and transparency (*21*). In Group 3 countries national policies and strategies are not regularly updated. Four out of the seven countries in this group have updated national strategies, while in three updating is either in process or has yet to be completed. Information and data for policy formulation and for strategic planning are inadequate. Outdated legislation, lack of enforcement of public health regulations and a widely unregulated private sector leave consumers unprotected. Group 3 countries receive external assistance, yet donor coordination and aid effectiveness continue to be challenges, despite the fact that most have endorsed the Paris Declaration on Aid Effectiveness (*22*).

33. Decentralization in health has remained ineffective in several countries. Among the many reasons for this are: wavering political commitment, resistance from higher tiers to redistribute authority and responsibility; lack of clarity in the decision-making space awarded to the peripheral level, as well as lack of training and capacity; and absence of a federal level entity to coordinate essential functions, such as developing consensus on national policies, sector regulation or donor coordination.

34. In Group 2 countries, while evidence to support decision-making is more abundant, clear policies are often deficient and the capacity to develop norms and standards and monitor progress needs considerable strengthening. Strategic health plans and related legislation have not been updated in two countries; and where they exist, implementation and enforcement is a challenge. A stronger

[iv] The term 'national regulatory authority' includes independent regulatory authorities, regulatory authorities or departments in ministries of health, and/or the exercise of core regulatory functions in one or more of the health technology domains by ministries of health.

[v] This information is based on WHO national regulatory authority assessments, country visits and assessment reports (http://apps.who.int/medicinedocs/documents/s16874e/s16874e.pdf, accessed August 2012) conducted during 2010-2011.

[vi] Governance is the exercise of political, economic and administrative authority in the management of a country's affairs at all levels.

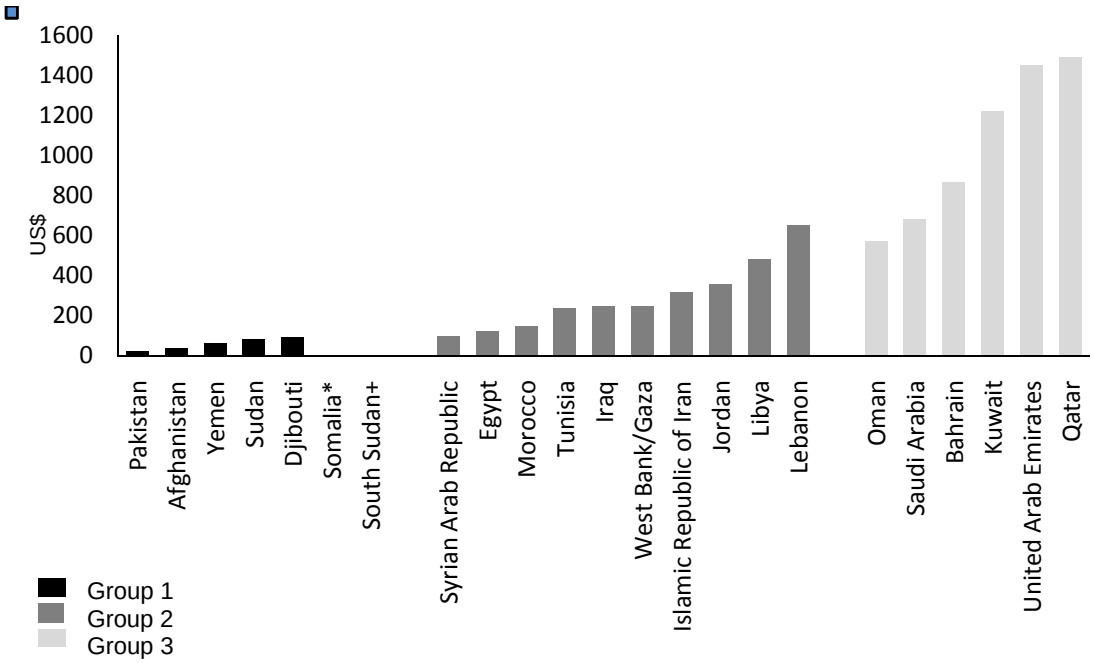
culture of accountability, transparency and inclusiveness needs to be developed in decisions related to resource allocation and distribution.

35. Most ministries of health in Group 2 countries – as in Group 3 countries – have not succeeded in effective regulation of the expanding for-profit private health sector. In many countries, relevant legislation either does not exist or is obsolete and standards have not been updated. Many ministries of health are increasingly engaging with the non-state sector through formal contractual arrangements. There are opportunities for improvement by ensuring that contracting is competitive, transparent, well monitored and achieves the desired results.

36. In Group 1 countries, the public sector is prominent and caters to most health care needs of the population. Strategic plans for health are available in all Group 1 countries. However, the focus of these plans is usually on infrastructure development and they lack a multisectoral approach to addressing priority health problems, such as noncommunicable diseases. National plans are biased towards curative care with less attention given to promotion and prevention. A significant challenge is the lack of responsiveness of the national health system to the needs of the large expatriate population in these countries.

Financing

37. In 2010, total health expenditure[vii] in the Region exceeded US$ 100 billion – representing 1.6% of world health spending for 8.8% of the world's population. The average per capita total health expenditure was US$ 183 in 2010, compared to US$ 4380 in Organization for Economic Co-operation and Development (OECD) countries (*23*) – with wide variation between and within the three groups of countries (Figure 2).



Source: *(23)*
* Data not available
+ Data incorporated within Sudan in 2010

Figure 2. Per capita total health expenditure, by country group, 2010

[vii] Health expenditure data in this section are extracted from the Global Health Expenditure Database http://apps.who.int/nha/database/ accessed June 2012, unless otherwise indicated.

38. Countries belonging to Group 3 on average spent less than US$ 40 per capita on health in 2010, of which less than one-third came from general government sources and more than 50% was out-of-pocket with the exception of Djibouti (Figure 3). The general government expenditure on health in Group 3 countries is inadequate and ranges from US$ 4.4 to US$ 59.8 per capita. In the absence of adequate social protection, financing of health care relies heavily on out-of-pocket spending and is thus a significant source of catastrophic health spending and impoverishment.

39. Countries belonging to Group 2 spent more than US$ 200 per capita on health in 2010, with almost half of the amount coming from general government sources. The share of out-of-pocket expenditure as a percentage of total health expenditure is variable, ranging from 18.8% to 61.2% (Figure 3). Most Group 2 countries have mixed financing systems, including tax-based and social health insurance. In recent years, renewed interest in social health protection has emerged and some countries are making efforts to move closer to universal health coverage by enhancing the share of health care cost covered using prepayment schemes. Equity studies carried out in some Group 2 countries have found that up to 5% of households face financial catastrophe following ill health and that half of these are pushed into poverty due to health care payments (*24*).

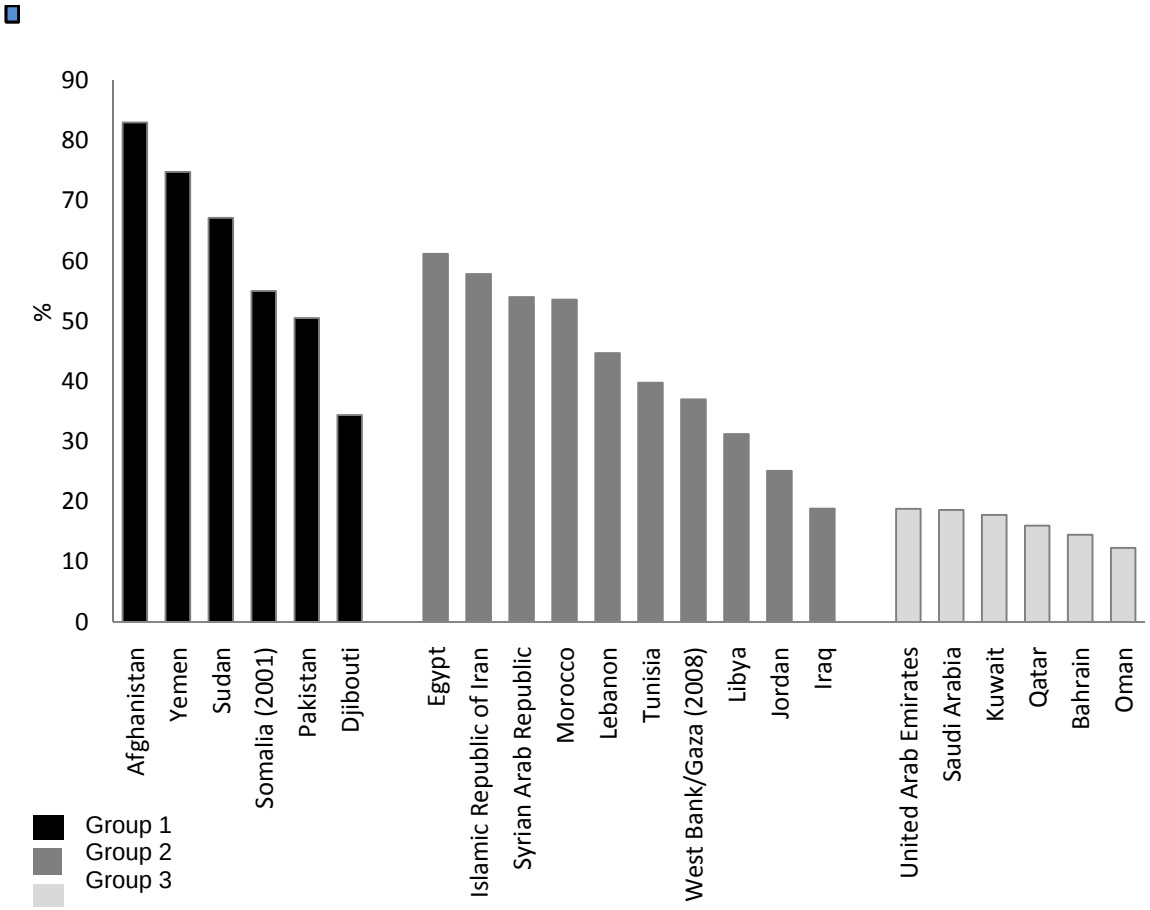


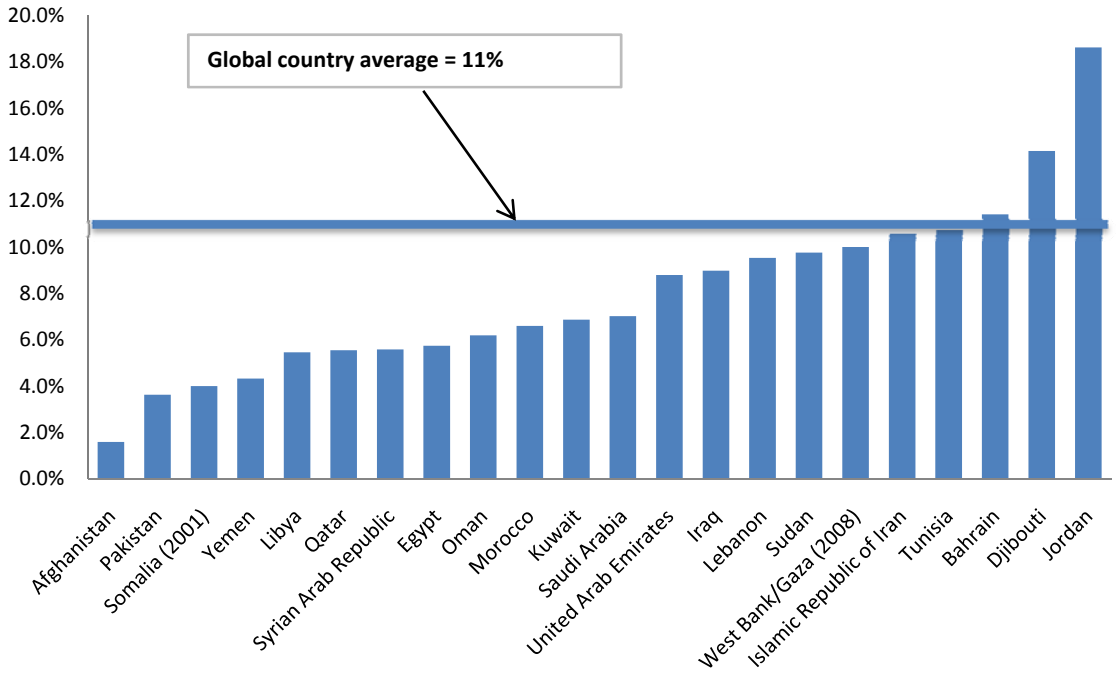
Figure 3. Share of out-of-pocket expenditure in total health expenditure by country group, 2010

40. Countries belonging to Group 1 spent close to US$ 900 per capita on health in 2010, with more than two thirds of health spending coming from general government sources. Out-of-pocket spending did not exceed 20% of total health expenditure in these countries, ranging from 12% to 19%. Health care is financed mainly through government revenues, which ensures coverage of all nationals with a comprehensive package of health services. The expatriate population in these countries is increasingly covered by private health insurance schemes, which are being piloted to mobilize further resources to cover the cost of their care. Substantial disparities exist in the way nationals and expatriates are provided with social health protection between and within Group 1 countries.

41. The Abuja Declaration which targets countries of the African Union calls for allocating at least 15% of annual budget to health (*25*). As a benchmark, in the Eastern Mediterranean Region as a whole only one country has reached such a target, while only two countries exceed the global country average of 11% of general government expenditure on health (Figure 4).

42. Low government health spending is not merely due to public financial constraints but is also the result of the low priority given to health. This can be seen in the proportion spent on health out of general government expenditure (Figure 4). General government expenditure in most countries of the Region accounts for a relatively high share of gross domestic product (GDP) (close to 35%), indicating available fiscal space for increased spending on health. Universal health coverage is difficult to achieve if general government health spending as a percentage of GDP is below 4–5% (*26*). So far only four countries in the Region have reached this level of spending.

43. Donors play a significant role in financing the health sector in countries in complex emergencies, with a high as 32% of total health expenditure in one country. External resources for health are often unpredictable and in many circumstances are ineffectively channelled to their final use.



Source: WHO estimates for 2010, global average per country including countries with population greater than 600 000

44.

Figure 4. General government health expenditure as percentage of general government expenditure, 2010The main sources of inefficiency in financing health in Group 3 countries relate to inappropriate skills mix, problems of procurement, and use of inappropriate technology in the delivery of health

services. Important sources of inefficiency in most Group 2 countries relate to imbalances in health workforce production and utilization, in addition to disproportionate spending on curative and hospital care compared to preventive and primary care. Furthermore, the absence of strategic purchasing approaches and performance-linked provider payment mechanisms has led to significant inefficiencies in the use of health resources in the Region. Traditionally, the public sector purchases service inputs by recruiting staff and providing medicines, supplies and equipment rather than purchasing these strategically in a manner that guarantees desired outcomes.

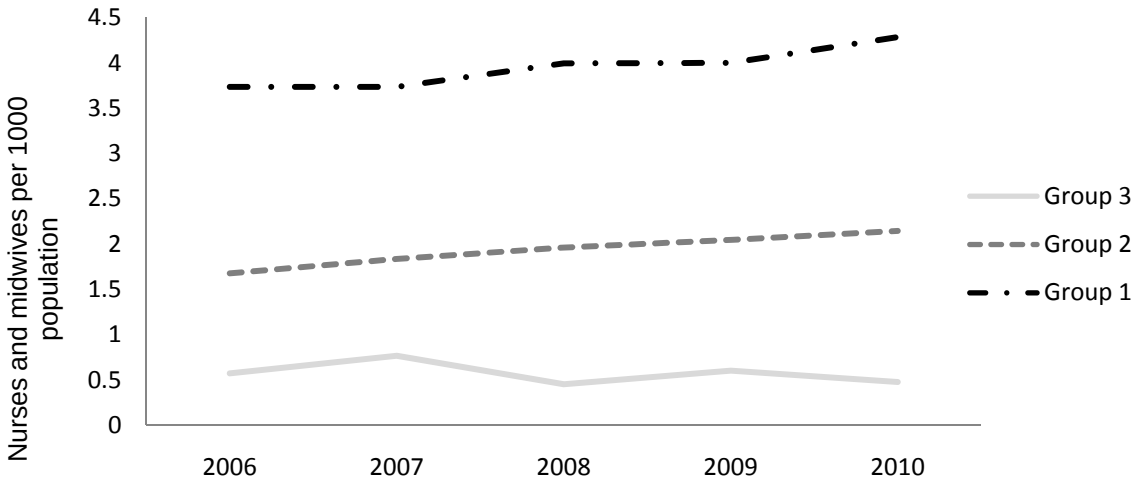
45. Almost all Group 2 and several Group 3 countries have produced at least one round of national health accounts. Three countries have produced more than three rounds. Preparatory work for undertaking a round of national health accounts was initiated by all Group 1 countries. Other health financing policy tools need to be implemented to assess the level of social health protection, especially of the expatriate population in these countries. The institutionalization of national health accounts production and the systematic use of various analytical tools is needed to inform health financing policies and priority setting in the health sector in all countries.

Workforce

46. Most Group 3 countries are among those classified as facing a crisis situation in regard to human resources for health. The average health workforce density of around 1 per 1000 population is well below the benchmark of 2.3 per 1000 population. Figure 5 shows trends in the density of physicians and Figure 6 of nurses and midwives across the Region for the period 2006–2010. The limited access to an adequately trained health workforce, particularly in rural and underserved urban areas, is the single most important factor in the inability to ensure access to essential health services and achieve the Millennium Development Goals. Workforce development is facing serious challenges in the domains of planning, production, deployment/retention and governance. Effective use of the limited pool of locally produced human resources for health requires strengthening of workforce management, supportive work environments, training, better productivity and effective approaches to retain staff. Educational programmes are of questionable quality due to declining support to the higher education institutions. The inability to prioritize investment in the production of a suitable workforce mix, including community level health workers, which meets population health needs and is sustainable, is an important challenge for workforce development in these countries. The need to strengthen regulatory functions poses an additional challenge as the private for-profit sector assumes a progressively bigger role in workforce production.

Source: WHO Regional Office for the Eastern Mediterranean. Regional Health Observatory

Figure 5. Physician density by country group, 2006–2010



Source: WHO Regional Office for the Eastern Mediterranean. Regional Health Observatory

Figure 6. Nursing and midwifery density by country group, 2006–2010

47. Group 2 countries have an average health workforce density ratio of around 5.2 per 1000 population. The most important challenge is the inability of the system to coordinate and optimize production, deployment and productivity. Underpinning these is the need to strengthen evidence-based planning, policies and regulations; national coordination, investment in health workforce development and regulatory functions in the face of expanding non state actors. While the production capacity is adequate in many countries, the health system, in some countries, has limited capacity to absorb the workforce it produces. Concerns about the quality and consistency of standards, and about the social accountability of higher education institutions are prompting efforts to establish national accreditation programmes in most of these countries. The workforce management system in Group 2 countries is inefficient and rigid. It is largely based on statewide civil service rules, which in many instances are outdated and unable to address issues related to deployment, career development and retention of a well motivated and high performing workforce.

48. Group 1 countries have an average health workforce density of seven health workers per 1000 population, which is considered satisfactory and compares favourably with the global average for middle-income countries. However, these countries continue to rely heavily on expatriate workforces, which in the case of nurses can be up to 90% in some countries. Countries in Group 1 are now focusing on workforce production capacity. This includes efforts to increase the number of training institutions, to nationalize the workforce and to project future needs. Other key challenges for these countries include workforce management, in particular the contractual mode of employment, the temporary nature of much of the workforce, the lack of career development and the rapid turnover. Language barriers and socio-cultural adaptation pose additional challenges.

49. The challenges in the area of medical and nursing education are more or less common to all three groups of countries. Despite progress made in updating medical and nursing curricula in selected institutions, the majority of schools still follow traditional programmes which, by and large, have not evolved to become competency-based. Family medicine training programmes have been initiated in several countries, however their scope remains limited. Underlying factors in the lack of progress in this area include: the lack of effective coordination between service providers including ministries of health and higher education institutions, the limited institutional capacity to provide large-scale training for family physicians, as well as for converting the existing cadre of general practitioners to family physicians through customized programmes; and the inability to establish family medicine as an attractive career path for fresh graduates (*27*,*28*). The key challenges to ensuring access to quality nursing education in the Region pertain to the inadequate investment and low priority given to

nursing education; lack of capacity in nursing schools in terms of the availability of trainers as well as infrastructure; the need to further update nursing curricula in order to bridge the service–education gap; the limited institutional capacity to offer post-basic training programmes; and inadequate emphasis on continuous professional development programme (*29*).

Information

50. In Group 3 countries, the information challenges are numerous and wide in scope. There are gaps in the components of the health information system, which include resources, indicators, data sources, data management, information products and information use (*19*). In addition, the legislative and regulatory framework required to ensure a functioning health information system is sometimes lacking. Resources (such as personnel, finance, information and communication technology) are scarce and coordination is often inadequate, resulting in fragmented and weak data collection systems, both facility- and population-based, that ultimately produce low quality information products related to health risks, morbidity, mortality and intervention coverage. Civil registration and vital statistics systems face similar challenges. Not all births and deaths are registered and cause-of-death reporting either does not exist or is limited.

51. Group 2 countries generally have health information systems that produce useful and relevant information products. However, major gaps still exist and quality is often a major concern. Evidence has shown that despite almost complete registration of births and deaths, the quality of cause-of-death statistics produced by the current systems requires major improvement. Population surveys are conducted sporadically, some do not use standardized methodologies and some are conducted by multiple agencies with little joint planning and coordination leading to duplication and ineffective use of data for policy development and evaluation. The main gaps are lack of proper assessment of data using standardized and robust tools for quality and analysis. The information products are incomplete and are under-utilized by policy-makers and decision-makers at national and subnational levels.

52. Group 1 countries generally have challenges similar to Group 2. For example, evidence shows that only half of the countries in this group regularly report accurate cause-specific mortality data and key health risks and morbidities are not always regularly monitored. In addition, an important challenge is the need to modernize health information systems through state-of-the-art information and communication technology that focuses on evidence related to health outcomes. This group of countries has a high proportion of non-nationals in the workforce and thus high turnover which hinders the development and sustainability of the system.

Health technologies – essential medicines, vaccines, medical devices and diagnostics

53. In Group 3 countries, over 50% of the increase in annual expenditure of ministries of health is consumed on health technologies[viii] yet a high percentage of the population lacks regular access to quality essential medicines and other products (*30*). Efficient systems for quality assurance and surveillance do not exist in many countries and sale of counterfeit medicines is a major problem. Over 90% of medical products are imported, and irrational use is widespread (*31*). In the absence of government policies or capacity to regulate, markets are mainly supply-driven, which partially explains why major investments made in procurement are wasted on inappropriate medical products. Medicines procured as branded medicines are, on average, 2.9 times higher in price than the generic equivalent (*32*,*33*). A major challenge for Group 3 countries is the lack of regulation of vaccines and other biological products, particularly those used in the private sector. Health technology management is affected by system-wide weaknesses, such as limited financial resources, lack of production

[viii] According to WHO, 'health technologies' are defined as: "The application of organized knowledge and skills in the form of medicines, vaccines, devices, procedures and systems developed to solve a health problem and improve quality of lives". Health technologies and medical products are used interchangeably.

capacity, and absence of health technology assessment agencies to investigate clinical safety, appropriateness, efficacy and efficiency of new technologies (*34*).

54. In Group 2 countries, up to 30% of the budget of ministries of health is spent on medical products (*35*). The majority of countries have written policies on medical products. However, they are either not formally endorsed or remain unimplemented. Countries import between 60% and 90% of medical products (*36*). Almost 60% of countries do not have procurement guidelines for medical devices (*37*). Only two countries have a health technology assessment agency to inform decision-makers with regard to effective and appropriate use of new technologies.

55. Information on access to medicines is not readily available. As a proxy of access, a survey in nine Group 3 and 2 countries showed that: a) availability of core medicines varied considerably among countries, and b) availability of medicines was generally lower in the public sector than in the private sector (*32*). Pharmacovigilance is weak in detecting, investigating and reporting adverse events following immunization. Studies on transparency in the pharmaceutical sector in eight countries have shown that policies for management of conflict of interest are absent and vulnerabilities exist in several important functions of pharmaceutical systems (*38*).

56. Group 1 countries spend 2 times more per capita on procurement of medical products compared to Group 2 countries (*39*). However, improper distribution and over-supply of the procured products leads to escalation of delivery costs and inequitable access among the population. Available information indicates that on average, the return on investment in high-tech medical devices procured at the national level is low for Group 1 and Group 2 countries. The reasons for this low return include incorrect procurement and over-sophistication of the product procured, misuse and lack of proper corrective and preventive maintenance (*40*). Concepts such as standard operating procedures, health technology assessment and health technology management have yet to be recognized by many national health planners. Misuse and medical errors associated with health technologies are major concerns in these countries. Despite the benefits of bulk procurement shown in Group 1 countries, high demand for sophisticated medical products leads to escalation of health care delivery costs.

Service provision

57. In Group 3 countries, access to primary health care services is a challenge due to lack of or destruction of health infrastructure, physical inaccessibility and insecurity. Based on reports provided by Member States, access to local health services ranges from 24% to 97%. Three Group 3 countries are at different stages of implementing an essential package of services. So far, they have not met optimal quality standards provided for in the treatment protocols and guidelines.

58. Hospital bed to population ratio ranges from 4 to 14 per 10 000 population. Hospitals consume between 50% and 80% of the total government health expenditure (*41*). The factors associated with poor performance of these institutions include inadequate financial and human resources management, employment of user fees and lack of protection for the poor, inadequate referral and support to primary health care, lack of effective hospital autonomy and poor quality and safety of care. The prevalence of adverse events among hospitalized patients in one country was estimated at 18% (*42*) but similar information is lacking for other Group 3 countries.

59. In Group 2 countries it is estimated that over 80% of people have physical access to primary health care services. However, the big challenges are quality and financial affordability. Four countries have developed and are implementing an essential package of health services. The most important challenges in primary health care relate to quality, utilization and responsiveness to the changing disease burden and specific needs of the ageing population. In some countries, many of the services are delivered through the private sector, largely unregulated.

60. Hospital bed to population ratio ranges from 5 to 37 per 10 000 population. In the area of hospital care, challenges affecting performance include limited coordination with other tiers of the health system, under-funding and increasing dependency on user fees, dysfunctional referral systems, and inadequate management of resources. A recent study on patient safety showed that up to 14% of inpatient admissions in hospitals in Group 2 countries are associated with adverse events (*42*). Despite encouraging progress in some countries, many countries have not yet developed national accreditation programmes as a means of improving the quality of care delivered to patients.

61. In the case of Group 1 countries, access to primary health care services does not pose a challenge. The inadequate focus of primary health care programmes on quality, safety, cost-effectiveness, utilization and responsiveness to the changing disease burden and specific needs of the ageing population is a major challenge.

62. There is an elaborate network of public sector hospitals with a bed to population ratio ranging between 11 and 21 per 10 000 population. It relies on expatriate workforce for the delivery of services. Many of these institutions use expensive technology and rapidly increasing costs. An important challenge is the need to reduce hospital costs through efficient management, rational use of technology and use of home health care by shifting certain disciplines out of the tertiary setting into outreach services. Reliance on commercially focused accreditation systems in these countries and the lack of national or regional systems for health care standards are important gaps.

Health system support to public health programmes and complex emergencies

63. There is a growing recognition globally and in the Region that weak performance of national health systems is a major constraint to all programmes that target priority diseases, life-cycle interventions and achievement of the MDGs. System-wide barriers[ix] negatively affect the provision of services and reduce programme performance. In response, many global initiatives, such as the GAVI Alliance and the Global Funds to Fight AIDS, Tuberculosis and Malaria, have created funding opportunities for health system strengthening that currently cover seven countries of the Region.

Part two. Priorities and options for health system strengthening in the Eastern Mediterranean Region

64. The analysis in part one of this paper indicates major gaps and a wide range of challenges that influence health system performance in all countries of the Region. Many of these challenges are shared by all countries although their expression and the approaches to address them are likely to differ in the three groups. To address these challenges, part two of the paper proposes a limited set of seven key priorities (Box 1) that need to be seriously considered by policy-makers in Member States. Taking strategic actions in the seven priority areas is essential for building strengthened and resilient national health systems.

[ix] System-wide barriers are factors outside the control of public health programmes, such as immunization or nutrition programmes, which affect programme performance.

Box 1. Priorities for health system strengthening in the Eastern Mediterranean Region

1. Move towards universal health coverage
2. Strengthen leadership and governance in health
3. Strengthen health information systems
4. Promote a balanced and well managed health workforce
5. Improve access to quality health care services
6. Engage with the private health sector
7. Ensure access to essential technologies – essential medicines, vaccines, medical devices and diagnostics

Strategies and options for health system strengthening a collaborative effort between countries and WHO

65. The following represent strategic actions and options recommended for consideration by Member States under each of the priorities mentioned above. The Regional Committee is invited to provide input on the recommended actions. WHO will be expected to work closely with other partners to support Member States. The Regional Committee is therefore also requested to advise on the proposed contributions from WHO and its partners.

1. Move towards universal health coverage

What Member States can do

66. Establish a high-level multisectoral health council with representation from other public sector ministries, nongovernmental organizations, the private health sector and other stakeholders to prepare a roadmap for achieving universal health coverage.

67. Expand prepayment schemes relying on general government revenues or social health insurance programmes to provide financial risk protection to the population thereby moving progressively towards universal health coverage.

68. Establish or strengthen the health economics unit in the Ministry of Health or central statistics offices that would be responsible for undertaking regular national health accounts analysis and health utilization and expenditure surveys.

69. Undertake health expenditure review to assess the public sector's contribution in order to initiate and sustain dialogue with ministries of finance and planning and to mobilize additional funds from domestic sources, including innovative financing approaches such as taxes on tobacco products and unhealthy foods (e.g. foods high in sugar).

70. Consider strategic purchasing and innovative provider payment mechanisms (e.g. payment by capitation for primary care and case-based for inpatient care) to influence the behaviour of providers and users and evaluate these to assess their influence on efficiency and equity in the health sector.

How WHO can support

71. Review international experience and lessons learned from countries that have achieved universal coverage; review existing experiences of the role of high-level health councils and share best practices with countries.

72. Build capacity of staff working in health economics units to undertake national health accounts analysis and health utilization and expenditure surveys.

73. Collaborate with partners such as the World Bank to support countries in conducting health expenditure reviews.

74. Document and share best practices and experience in the area of innovative financing, including sin taxes or excise taxes on tobacco and unhealthy foods.

75. Develop a policy brief that clarifies the concept and operational aspects of ‘strategic purchasing’; document and disseminate successful examples of strategic purchasing and innovative provider payment methods.

2. Improve leadership and governance in health

What Member States can do

76. Establish and/or strengthen the health policy and planning units in the Ministry of Health by building the capacity of staff in such skills as evidence-based policy analysis, priority-setting, costing and cost–effectiveness analysis, and developing and monitoring the implementation of national policies and strategic plans.

77. Review and update public health laws and strengthen the capacity of the department responsible for regulatory aspects of the health sector in enforcing laws that target public health problems, protect consumers and regulate (licensing, certification, accreditation) health providers and facilities.

78. Develop a framework based on a well-defined set of indicators to monitor health system performance and produce an annual report that assesses performance of the health sector including achievement of outcomes.

How WHO can support

79. Strengthen expertise within WHO and develop the capacity of staff to support countries and review national health policies in terms of process and content.

80. Develop the capacity of national staff in health policy analysis and planning skills and tools, including priority-setting, option appraisal, cost–effectiveness analysis and stakeholder analysis.

81. Establish a network of international experts who have experience in the review and drafting of public health laws.

82. Develop technical guidance on a core framework and a set of indicators for health system performance.

3. Strengthen health information systems

What Member States can do

83. Review the current status of the national health information system and its key elements (monitoring health risks and morbidity, registering cause-specific mortality statistics and assessing health system capacity and performance) including collaboration with key stakeholders such as the Central Statistical Office, Registrar General, Ministry of Interior and Ministry of Justice; develop a plan for addressing gaps and strengthening areas that require further input and support.

84. Undertake periodic health surveys in countries where surveys are not institutionalized and focus assessment of risk factors, morbidity, health system responsiveness and other health-related domains.

How WHO can support

85. Develop technical guidance and a regional plan for reinforcing health information systems in countries, jointly with other regional partners such as the United Nations Economic and Social Commissions, Health Metrics Network and relevant international and regional institutions, with special emphasis on capacity building in epidemiology and health information.

86. Develop a cadre of master trainers and provide opportunities for training of national staff in key aspects of civil registration and vital statistics processes, including medical death certification and International Classification of Disease (ICD) coding.

87. Support Member States in establishing pilot community-based projects for registering births and deaths and causes of death using Sample Vital Registration with Verbal Autopsy (SAVVY), as a temporary measure to improve statistics, especially in settings where births and deaths are not being registered by national authorities.

88. Develop a standard survey methodology for undertaking periodic health surveys in countries and train nationals in undertaking such surveys.

89. Provide support in adapting the survey to the specific needs of countries and in data analysis and preparation of final reports.

4. Promote a balanced and well managed health workforce

What Member States can do

90. Conduct a detailed review of the current status of the health workforce and develop comprehensive health workforce plans that are aligned with national health plans, covering production, training and retention of the health workforce, in collaboration with the Ministry of Higher Education, academic institutions and other partners.

91. Collaborate with higher education institutions to review the current status of the production and training of family physicians and develop concrete short- and medium-term plans for addressing the gaps in quality and number of family medicine practitioners.

92. Institute measures to improve the retention, motivation and performance of staff by developing performance-based incentive schemes such as partial compensation fee sharing and better work environment, in-service training programmes and career development opportunities to reduce the urban–rural imbalance and so-called “brain drain”.

93. Launch and/or strengthen programmes for the accreditation of academic institutions in order to ensure high quality training programmes for all cadres of the health workforce.

How WHO can support

94. Develop valid tools to help Member States make reliable future projections for different workforce cadres and strengthen the technical capacity of the planning units in ministries of health.

95. Review regional and international experience in family medicine training programmes and disseminate best practices for scaling up the production of appropriately trained primary health care professionals, including short-term bridging programmes to cover acute shortages within a reasonable period of time.

96. Provide support to countries in the development and review of competency-based curricula for the bridging programme, as well as the long-term training programme.

97. Document and disseminate best practices of performance-based incentive schemes that have helped improve health service provision in difficult to reach areas.

98. Develop, adapt and review standards for establishing accreditation programmes for different categories of training institutions.

5. Partner with the private health sector to achieve public health objectives

What Member States can do

99. Undertake mapping studies of the private health care providers and facilities to document distribution, utilization, quality of care and cost of services to ensure that these are registered and licensed with the appropriate regulatory bodies.

100. Review and update relevant laws and regulations and consider incentives to modify the behaviour of private providers by recognizing good performance, providing essential medicines for priority health problems and offering in-service training opportunities.

How WHO can support

101. Develop and validate assessment tools for mapping private providers, support updating of laws and standards related to the quality of care by private providers and strengthen the capacity of accreditation agencies and ministries of health for implementing mechanisms to improve quality of care and enhance consumer protection.

102. Share evidence on the impact of outsourcing health services on access, quality, efficiency and equity.

6. Ensure access to essential technologies – essential medicines, vaccines, medical devices and diagnostics

What Member States can do

103. Strengthen national regulatory authorities with adequate resources and staff to ensure quality, safety and efficacy, and widen their scope to cover all health technologies including medicines, vaccines, medical devices and diagnostics.

104. Improve access to essential medicines and other technologies by monitoring availability in primary health care facilities and by adopting approaches to improve affordability of essential medicines, as summarized above.

105. Prioritize on the basis of health technology assessment, which includes clinical effectiveness, as well as economic, social and ethical impacts of the use of medicines, vaccines and medical devices.

How WHO can support

106. Develop a policy brief on the concept, functions and organizational aspects of national regulatory authorities and share with countries models of national regulatory authorities that function successfully.

107. Support the updating of lists of essential medicines, devices and other technologies for hospitals and primary care facilities based on country needs and priorities.

108. Assist in the development, promotion and dissemination of independent, evidence-based clinical guidelines for common conditions.

109. Support countries in building capacity in the area of health technology assessment for all technologies – medicines, vaccines, and biological and medical devices.

7. Improve access to quality health care services

What Member States can do

110. Develop an essential package of health services at the primary health care level and explore different options for its implementation, through an integrated network of primary health care facilities, community health workers, outsourcing to nongovernmental organizations, or a combination of these.

111. Review the performance of public sector hospitals and develop an action plan to improve quality, safety and efficiency of services provided.

112. Improve quality and patient safety in hospitals by launching a nationwide programme, selecting hospitals in the first phase, estimating the prevalence of adverse events, and assessing bottlenecks and instituting measures to address these.

113. Improve quality and safety of care in health facilities by developing national or regional accreditation programmes.

How WHO can support

114. Develop technical guidance on the development of an essential package of primary health care services; support pilot programmes to implement the essential package before scaling up.

115. Develop a regional strategy that identifies the challenges and priorities for hospitals; develop or adapt valid and reliable instruments to assess hospital performance; assist in implementing training programmes for hospital managers in coordination with WHO collaborating centres and other WHO partners.

116. Assist in measuring the prevalence of adverse events in hospitals including the level of morbidity and mortality associated with these and promote the use of patient safety assessment manuals to determine systemic weaknesses and to develop plans to address them.

117. Provide best evidence on the effectiveness and efficiency of accreditation programmes in improving the quality of care; review existing accreditation standards, assess their feasibility and develop regional experts able to monitor national accreditation programmes.

Conclusion

118. It is recognized that well-performing health systems play a major role in promoting population and personal health in times of stability as well as emergency. Health systems also constitute a vehicle for disease-specific programmes to achieve their objectives. Despite tangible progress in the Eastern Mediterranean Region, inequities in population health and access to health care prevail. The inequities in health, rising exposure to health risks, increasing health care costs and unacceptably low levels of access to quality health care in the Region call for the strengthening of national health systems in order to provide universal access to a comprehensive package of quality health services (including prevention, promotion, treatment and rehabilitation) while ensuring social and financial health protection.

119. To address the challenges faced by health systems, a set of key priorities for actions are identified in this paper for consideration by Member States. For each priority, a set of strategies and options is proposed. Each option has two elements: what a Member State can do and how WHO and

its partners can assist in its achievement. The agenda is long and ambitious for both countries and WHO and the options will need to be further tailored to the specific needs of individual countries. Needless to say, there is a pressing need for countries to take the lead in considering appropriate actions in order to improve health system performance, expand social and financial health protection, promote access to quality health services and technologies and monitor progress towards universal health coverage. At the same time, WHO recognizes the challenge of rising to the expectations of countries to deliver the required technical support.

References

1. *Shaping the future of health in the WHO Eastern Mediterranean Region: reinforcing the role of WHO*. Cairo, WHO Regional Office for the Eastern Mediterranean, 2012.
2. *Primary health care: report of the International Conference on Primary Health Care, Alma-Ata, USSR, 6–12 September 1988*. Geneva, World Health Organization, 1978.
3. *The World Health Report 2008: Primary health care: now more than ever*. Geneva, World Health Organization, 2008.
4. *The World Health Report 2000: Health systems: improving performance*. Geneva, World Health Organization, 2000.
5. *Sustaining health gains – building systems. Health systems report to Congress*. Washington DC, United States Agency for International Development, October 2009.
6. *Everybody's business: strengthening health systems to improve health outcomes. A framework for action*. Geneva, World Health Organization, 2007.
7. United Nations, Department of Economic and Social Affairs, Population Division. *World Population Prospects: The 2010 Revision*, CD-ROM Edition, 2011. Available at: http://esa.un.org/unpd/wpp/index.htm
8. WHO Regional Office for the Eastern Mediterranean. Regional Health Observatory , Women and Reproductive Health, Contraceptive prevalence (%). Available at: http://rho.emro.who.int/rhodata/
9. *Trends in maternal mortality: 1990 to 2010. WHO, UNICEF, UNFPA and The World Bank estimates*. Geneva, World Health Organization, 2012.
10. *Levels and trends in child mortality, report 2011*. Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation,
11. WHO global burden of disease death estimates 2008. Available at http://www.who.int/gho/mortality_burden_disease/global_burden_disease_death_estimates_sex_2008.xls, accessed 31 August 2012.
12. *Global tuberculosis control 2011*. Geneva, World Health Organization, 2011.
13. *World malaria report 2011*. Geneva, World Health Organization, 2011.
14. *Regional economic outlook update. Middle East and Central Asia Department*. International Monetary Fund, April 2012. Available at http://www.imf.org/external/pubs/ft/reo/2012/mcd/eng/pdf/mena-update0412.pdf
15. Preamble to the WHO Constitution, 1946.
16. United Nations Economic and Social Council. General Comment No. 14 (2000). The right to the highest attainable standard of health (article 12 of the International Covenant on Economic, Social and Cultural Rights).
17. Dowton SB. Health Reconstruction after the Arab Spring – Libya: an emerging opportunity. *Dowton Consulting International*. Available at http://www.dowton.com/journal/2011/09/health-reconstruction-after-the-arab-spring-libya-an-emerging-opportunity-2/. Accessed 14 July 2012.
18. *The World Health Report 2006: Working together for health*. Geneva, World Health Organization, 2006.
19. *Framework and standards for country health information systems*. Second edition. Geneva, Health Metrics Network and World Health Organization, 2008.
20. *Assessing the national health information system: an assessment tool, version 4.00*. Geneva, Health Metrics Network and World Health Organization, 2008.
21. Siddiqi S et al. Framework for assessing governance of the health system in developing countries: gateway to good governance. *Health Policy*, 2009, 90:13–25.
22. *The Paris Declaration on Aid Effectiveness and the Accra Agenda for Action*. OECD, 2008. Available at http://www.oecd.org/dac/aideffectiveness/34428351.pdf

23. *WHO Global health expenditure atlas 2011*. Geneva, World Health Organization, 2012.
24. Sabri B, Elidrissi Z, Mataria A. Health care financing in the Arab World: the bottleneck of the right to health. In Jabbour S et al, eds. *Public health in the Arab world*. Cambridge, Cambridge University Press, 2012.
25. *Abuja Declaration on HIV/AIDS, Tuberculosis and other Related Infectious Diseases*. African Summit on HIV/AIDS, Tuberculosis and other Related Infectious Diseases, Abuja, Nigeria, 24–27 April 2001. Available at: http://www.un.org/ga/aids/pdf/abuja_declaration.pdf
26. *The World Health Report 2010. Health systems financing: the path to universal coverage*. Geneva, World Health Organization, 2012.
27. Abdulrazak A et al. Development of family medicine in the Middle East. *Family Medicine*, 2007, 39(10):736–41.
28. Hamad B. *Community-based education in Gezira, Sudan*. Paper commissioned by WHO for the international meeting on community-based education, Geneva, November 1986.
29. *Promoting nursing and midwifery development in the Eastern Mediterranean Region*. Technical paper presented to the Fifty-fifth Session of the WHO Regional Committee for the Eastern Mediterranean. Cairo, WHO Regional Office for the Eastern Mediterranean, 2008 (Document EM/RC55/5).
30. Pammolli F et al. *Medical devices: competitiveness and impact on public health expenditure*. Report of a study for the European Commission. Rome, CERM – Competitiveness, Markets and Regulation, 2005. Available at http://www.cermlab.it/_documents/MD_Report.pdf
31. *Health technologies*: *the backbone of health services*. Geneva, World Health Organization, 2003.
32. *Medicine prices, availability, affordability and price components: A synthesis report of medicine price surveys undertaken in selected countries of WHO Eastern Mediterranean Region*. Cairo, WHO Regional Office for the Eastern Mediterranean, 2008.
33. *Medicine prices and access to medicines in Eastern Mediterranean Region*. Technical paper presented to the Fifty-fourth Session of the WHO Regional Committee for the Eastern Mediterranean. Cairo, WHO Regional Office for the Eastern Mediterranean, 2007 (Document EM/RC54/Tech.Disc.1).
34. *The role of medical devices and equipment in contemporary health care systems and services*. Technical paper presented to the Fifty-third Session of the WHO Regional Committee for the Eastern Mediterranean. Cairo, WHO Regional Office for the Eastern Mediterranean, 2006 (Document EM/RC53/Tech.Disc.2).
35. Khatib R, Mirza Z, Mataria A. Access to essential medicines: impediments and the way forward. In: Jabbour S et al, eds. *Public health in the Arab world*. Cambridge, Cambridge University press, 2012:413–25.
36. Parker PM. *The 2003–2008 world outlook for medical equipment*. United States of America, Icon Group Ltd, 2003.
37. *Baseline country survey on medical devices 2010*. Geneva, World Health Organization, 2011. Available at http://www.who.int/medical_devices/countries/en/. Accessed June 2012.
38. *Measuring transparency to improve good governance in the public pharmaceutical sector.* Cairo, WHO Regional Office for the Eastern Mediterranean, 2009.
39. *Essential health technologies: Strategy 2004–2007*. Geneva, World Health Organization, 2004.
40. Tawfik B. *Health care technology management: strategies and draft policies for the Ministry of Health and Population*. Cairo, Egyptian-Swiss Radiology Project (ESRP) Report, 2005.
41. Barnum H, Kutzin J, eds. *Public hospitals in developing countries. Resource use, cost, financing.* Baltimore, John Hopkins University Press, 1993.

42. Wilson RM et al. Patient safety in developing countries: retrospective estimation of scale and nature of harm to patients in hospital. *British Medical Journal*, 2012, 344:e832.