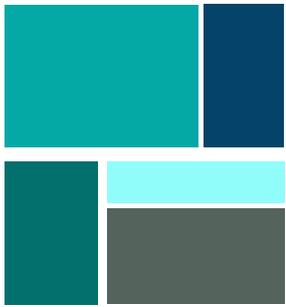


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ORGANISATION OF ISLAMIC COOPERATION

STATISTICAL ECONOMIC AND SOCIAL RESEARCH
AND TRAINING CENTRE FOR ISLAMIC COUNTRIES





OIC HEALTH REPORT 2015



ORGANISATION OF ISLAMIC COOPERATION
STATISTICAL ECONOMIC AND SOCIAL RESEARCH AND
TRAINING CENTRE FOR ISLAMIC COUNTRIES

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ACRONYMS

AMR	Adult Mortality Rate
ANCC	Antenatal Care Coverage
CVDs	Cardiovascular Diseases
CDs	Communicable Diseases
CDC	Centre for Disease Control and Prevention
DRM	Disaster Risk Management
DTP	Diphtheria-Tetanus-Pertussis
EAP	East Asia and Pacific
ECA	Europe and Central Asia
EDRMH	Emergency and Disaster Risk Management for Health
EMS	Emergency Medical Services
EPI	Expanded Programme on Immunization
FCTC	Framework Convention on Tobacco Control
GDP	Gross Domestic Product
HF	Health Facility
HSI	Hospital Safety Index
ICHM	Islamic Conference of Health Ministers
IDP	Internally Displaced People
IHR	International Health Regulations
IMR	Infant Mortality Rate
LAC	Latin America and the Caribbean
LEB	Life Expectancy at Birth
MDGs	Millennium Development Goals
MENA	Middle East and North Africa
MMR	Maternal Mortality Rate
NCDs	Non-Communicable Diseases
OIC	Organization of Islamic Cooperation
PAHO	Pan American Health Organization
PHI	Private Health Insurance
PSM	Procurement and Supply Chain Management
SA	South Asia
SSA	Sub-Saharan Africa
TCU	Tobacco Control Unit
U5MR	Under 5 Mortality Rate
UNAIDS	The Joint United Nations Programme on HIV/AIDS
UNFPA	The United Nations Population Fund
UNICEF	The United Nations Children's Fund
WB	World Bank
WHO	World Health Organization

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FOREWORD

The level of the socio-economic development of a country is highly influenced by the state of health and the quality of health services provided to the people in that country. Healthy people have potential to contribute more significantly to economic progress, since they live longer and are more productive. As a basic principle, all people should have the right to access to health services equally irrespective of their social status or other socially determined circumstances.

Many countries have recently paid special attention to the issue of health and development of modern and sustainable health systems through allocating more resources in health sector than ever before. However, while the people today are healthier, wealthier and live longer than 50 years ago, many developing and least-developed countries are still seriously lagging behind in terms of the progress achieved over the years in health sector compared to the developed countries. This is especially clear in the developing regions of South Asia and Sub-Saharan Africa, where health care coverage and health services remained significantly poor in many countries, including most of the OIC countries in these regions.

In the case of OIC countries, the progress achieved in universal health care coverage remained highly uneven. In many of them, health care system is seriously suffering from various challenges related to adequate financial resources and infrastructure, workforce and appropriate national health policies and regulations. Latest estimates show that OIC countries allocate, on average, only 4.4 per cent of their GDPs for health and health expenditures account only for 7.9 per cent of their total government expenditures.

According to the latest available data, one in every 15 children dies before celebrating his/her fifth birthday. Nearly half (48 per cent) of pregnant women do not receive WHO recommended four antenatal checks up and more than one third (38 per cent) of total births take place unassisted. Every year, nearly 20 per cent of children do not receive the vaccination against Diphtheria-Tetanus-Pertussis and the last two polio endemic countries in the world are OIC countries.

In the light of this backdrop, the *OIC Health Report 2015* offers a comprehensive analysis of the state of health in OIC countries by looking into the latest comparable data and trends on key health indicators. The report is mainly structured around the six thematic areas of cooperation identified in the OIC Strategic Health Programme of Action (OIC-SHPA) 2014-2023, namely Health System Strengthening; Disease Prevention and Control; Maternal, New-born and Child Health and Nutrition; Medicines, Vaccines and Medical Technologies; Emergency Health Response and Interventions; and Information, Research, Education and Advocacy.

Amb. Musa Kulaklıkaya
Director General
SESRI C

EXECUTIVE SUMMARY

Health System Strengthening

Health Expenditures and Healthcare Financing

Health financing is a critical component of health systems. It is mainly related with generation, allocation and use of financial resources to provide health care services to all people at a reasonable and affordable cost. Per capita total expenditure on health is an important indicator that indicates consumption of health goods and services at the micro level. In 2013, average per capita total health expenditure in OIC countries amounted to US\$ 186. This contrasts unfavorably even with the corresponding figure for the non-OIC developing countries, which was US\$ 325. As per cent of their total GDP, spending on health in OIC countries was about 4.4 per cent compared to 6.4 per cent in non-OIC developing countries and 10.0 per cent in the world. Overall, health expenditures accounted for only 7.9 per cent of all government expenditures in OIC countries, compared to 18.1 per cent in developed countries, 15.6 per cent in the world and 11.0 per cent in non-OIC developing countries.

Public financing covered 54 per cent of total health expenditures in OIC countries compared to 59.5 per cent in the world and 53 per cent in non-OIC developing countries. In general, the coverage of prepayment schemes, both public and private, remained very low in OIC countries whereas, 38 per cent of total health expenditures were financed through out-of-pocket payments in these countries compared to 19 per cent in the world and 34 per cent in other developing countries.

Health Workforce and Healthcare Facilities

Evidence suggests that there is a strong positive correlation between health workforce density and service coverage and health outcomes in a country/region. With only 8 physicians and 17 nurses and midwives, density of health workers in OIC countries (25 workers per 10,000 people) was recorded just above the critical threshold of 23, which is considered necessary to deliver the basic health services in a country/region. This ratio was reported at 41 for non-OIC developing countries, 46 for the world and 118 for developed countries.

On average, there were 6.7 health posts per 100,000 people in OIC countries; a level which is quite lower than the world average of 14.8 and the average of non-OIC developing countries (24.4). Similarly, the average number of health centers was reported at 2.1 per 100,000 people in OIC countries compared to 2.9 in the world. With an average of 0.9 hospitals per 100,000 people, OIC countries are also lagging behind the world and non-OIC developing countries averages (1.3 and 1.5, respectively) in terms of availability of district, provincial and specialized hospitals. Number of hospital beds is an important indicator of resources available for inpatient care and overall access to hospital services. In 2007-2013, there were 9.5 hospitals per 100,000 people in OIC countries compared to 22.6 in non-OIC developing countries, 24.5 in the world and 66.6 in developed countries.

Maternal, New born and Child Health and Nutrition

Maternal and Child Mortality

Over the last two decades, many OIC countries have witnessed significant improvement in health care coverage and services and, consequently, they recorded declining trends in maternal, new-born and child mortality rates. According to the latest estimates, starting from a higher base rate of 520

deaths per 100,000 live births in 1990 OIC countries managed to reduce maternal mortality rate (MMR) by 44 per cent to 293 deaths per 100,000 live births in 2013. Similarly, child mortality rate has also declined from 125 deaths per 1000 live births in 1990 to 66 per 1000 live births in 2013, corresponding to a decline of 47 per cent. Nevertheless, despite this improvement, OIC group made the least progress in reducing maternal and child deaths since 1990. Maternal and child mortality has declined across the OIC regional groups but Sub-Saharan Africa and South Asia remained the most difficult places for a mother and child to survive.

Major Causes of child Mortality

The major causes of under-five mortality in OIC countries are similar to those in other developing countries. In 2013, about 43 per cent of under-five deaths were caused by three infectious diseases: pneumonia/sepsis (23 per cent), malaria (11 per cent), and diarrhoea (9 per cent). Among the pregnancy and birth related complications, prematurity (15 per cent) remained the major cause of under five deaths followed by birth asphyxia (11 per cent) and congenital abnormalities (6 per cent).

Health Care Coverage

Majority of maternal, new-born and child deaths are preventable through interventions like antenatal care, skilled attendance during birth, immunization, and early care seeking for infectious diseases. The provision of quality antenatal care remained a major concern in many OIC countries with 80 per cent of total pregnant women benefiting from one antenatal checks up and 56 per cent benefiting from the recommended four antenatal checks up. In both cases, OIC average remained below the averages of world and non-OIC developing countries during 2008-2012. A significant number of births in OIC countries are still taking place unassisted as only 62 per cent of deliveries were assisted by a doctor, nurse or midwife in 2008-2012 compared to 70 per cent in non-OIC developing countries and 67 per cent in the world. DTP3 vaccination has increased in OIC countries from 67 per cent in 2000 to 80 per cent in 2013. Though OIC coverage remained slightly below the world (84 per cent) and non-OIC developing countries average (83 per cent), they are catching up rapidly with a 13 percentage point increase during 2000-2013.

Nutritional Status

Latest estimates show that about 33 per cent of under-five children in OIC countries were stunted in 2009-2013 compared to 29 per cent in other developing countries and in the world. During the same period, proportion of children under five years old who were underweight was recorded at 21.3 per cent in OIC countries compared to 20.8 per cent in the other developing countries. Wasting represents an acute form of under nutrition with heightened risk of disease and death for children. Globally, more than 50 million children under 5 years of age were moderately or severely wasted in 2009-2013, accounting for about 10 per cent of children. Wasting prevalence remained more or less the same in OIC and other developing countries with a rate of 11.1 per cent and 9.4 per cent, respectively. Though overweight was once associated mainly with high-income countries, 72 per cent of world total overweight children of 42 million were living in low-and middle-income countries in 2009-2013. OIC countries accounted for 32 per cent of the world total overweight children with an overweight prevalence rate of 7.4 per cent compared to 4.6 per cent in other developing countries.

Feeding Practices

Proper feeding especially during the first two years of life is critical for a child's survival, growth and development. The latest estimates on feeding practices reveal that in spite of its crucial importance

for the nutritional status of children, a significant number of infants and children are not breastfed. In OIC countries, only 42.9 per cent of infants were put to the breast within first hour of birth, and 34.9 per cent were exclusively breastfed during the first six months of life compared to 44.9 per cent and 37.4 per cent in the world. The coverage of breastfeeding until age 2 remained comparatively better in OIC countries with 46.7 per cent of the total children breastfed until age 2. The estimates for appropriate feeding of children with adequate and safe complementary food reveal that about two third of infants in OIC countries were introduced to solid, semi-solid or soft foods at 6 to 8 months.

Micronutrient Deficiencies

Micronutrient deficiencies like deficiencies of vitamin A, iron, iodine, zinc and folic acid are very common among women and children in low income developing countries, including some OIC countries. Globally, about two-third of children aged 6 to 59 months received two doses of vitamin A in 2009-2013 while this ratio was recorded at 69 per cent for OIC and 61 per cent for non-OIC developing countries. During the same period, 59 per cent of households were consuming adequately iodized salt in OIC countries compared to 74 per cent in non-OIC developing countries and 69 per cent in the world. Iron deficiency anaemia also remained a major health challenge, affecting over 43 per cent of under 5 children in the world in 2011. While prevalence of anaemia was just 12 per cent for developed countries, the numbers were staggering in non-OIC developing and OIC countries with 42 per cent and 53 per cent of children suffering from anemia respectively.

Disease Prevention and Control

Burden of Diseases

Prevention and control of diseases and pandemics is one of the most significant areas to be addressed in the domain of health. A look at the general trends in the cause-specific morbidity and mortality (i.e. prevalence of deaths due to communicable and non-communicable diseases, as well as injuries) reveals that in OIC countries non-communicable diseases caused 55.3 per cent of all deaths in 2012. Each year increasing number of people dies from non-communicable dis (NCDs) in the OIC countries stemming from the positive trends seen in the risk factors (e.g. harmful use of alcohol and obesity). In OIC countries, communicable diseases were responsible for 33.8 per cent of all deaths in 2012, which was far exceeding the average of non-OIC developing countries (27.5 per cent) and the world average (25.4 per cent). As the development levels of the OIC countries go up; NCDs become a more serious problem within the OIC group in general. However, a significant number of OIC countries continue to struggle with epidemics of communicable diseases, which are preventable.

Life Expectancy at Birth

Although the average life expectancy at birth (LEB) in the OIC countries has followed a positive trend over the last decades, it was recorded at 66.3 years in 2013; a rate which was far below the average of the non-OIC developing countries (70.1).

Communicable and Non-Communicable Diseases

Compared with the 1990s, HIV/AIDS cases showed an increasing trend in the OIC countries. In 2013, 1.44 per cent of all population in the OIC group were diagnosed with HIV. On average, 64.4 per cent of population with access can reach improved sanitation facilities and 82.1 per cent of population with access can use improved water sources as of 2012 in OIC countries. These figures imply that many children and adult are at risk of dying due to diarrhoea that mainly stems from unclean

drinking water and unhygienic sanitation. The number of people with malaria also increased in OIC group. The total malaria cases reported in OIC countries climbed from about 14.1 million in 2001 to 20.4 million in 2013. In contrast, the number of tuberculosis cases in OIC countries followed a negative trend. The incidence of tuberculosis went down from 144.3 (per 100,000 people) in 1990 to 125.5 in 2013. In 2015, only two countries namely Afghanistan and Pakistan remain polio-endemic in the world, which are both OIC countries. An analysis on the mortalities caused by the NCDs displayed a mixed picture for OIC countries. For instance, while the mortality rate caused by cardiovascular diseases was 378 in 2000, this rate decreased to 337 (for both sexes) in 2012. Between 2000 and 2012, however, OIC countries recorded a small increase from 40 to 42 in the mortality rate caused by diabetes.

Risk Factors

An alarming message for the overall health situation and disease prevention and control for the OIC group emerged as a result of an analysis on the risk factors ranged from harmful use of alcohol to obesity. The harmful use of alcohol in OIC countries shows an increasing trend with average per capita alcohol consumption increased from 1.95 litres in 2001 to 2.38 in 2011. Although there is a decreasing trend in the use of tobacco, smoking remains as an important risk factor especially among male population in OIC countries. In addition, on average, the prevalence of insufficient physical activity in OIC countries was the highest (27.8 per cent) among all country groups. As a natural result of insufficient physical activity and unhealthy diet, prevalence of obesity increased from 15.2 per cent in 2010 to 17 per cent in 2014 in OIC countries. In particular, high-income OIC countries suffer more from obesity.

Medicines, Vaccines and Medical Technologies

Medicines and Vaccines

In 2013, world pharmaceutical market was valued at US\$ 989 billion with a growth rate of 2.5 per cent over the previous year. In 2014, OIC pharmaceutical exports valued at US\$ 0.7 billion compared to US\$ 0.5 billion in 2010, corresponding to an increase of 40 per cent. MENA remained the top OIC exporting region with a share of 38 per cent in 2014. On the other hand, OIC pharmaceutical imports have witnessed an upward trend and increased from US\$ 4.5 billion in 2010 to US\$ 6 billion in 2013 before declining to US\$ 4.8 billion in 2014. The median availability of selected generic medicines for public sector health ranged between 35 per cent and 96.7 per cent (with an overall average of 71.9 per cent) (Figure 5.2). Similarly, for the private health sector, OIC countries represented a heterogeneous structure, with the median availability ranging from 57.8 per cent to 96.7 per cent (with an overall average of 77.6 per cent). Vaccines production capacity also remained very low across OIC countries. According to the latest estimates, only two OIC countries namely: Indonesia and Iran have good manufacturing capacities whereas other vaccine producers like Senegal, Uzbekistan, Bangladesh, Tunisia and Egypt are characterized by low production capacities. Indonesia remained the star performer with 10 per cent share of the global vaccine production and it is the third largest vaccine producer after China and India.

Medical Technologies

In 2013, 19 out of 44 OIC countries (43 per cent) have a health technology national policy. However, 25 out of 44 OIC countries (57 per cent) do not have any. Computed Tomography (CT) scan units from the public and private sectors represent the highest density of medical devices among OIC countries with 151 CT per million populations.

Emergency Risk Management for Health

Conflict Affected Countries and Health

Conflict-affected countries experience severe consequences in health services and outcomes. Although some OIC countries has made progress in managing disaster risks and associated health response, the capacities of countries remain extremely variable. Weak health and emergency risk management systems, continuing insecurity due to conflict and lack of access to resources and technology are among the major factors affecting the capacities. This section also provides brief information about health cluster approach, safe hospitals and integration of foreign medical teams in the overall response mechanism.

Capacities for Emergency Health Services

While there is no country level data to assess and compare the existing capacities and needs of countries in emergency health services, there is only one global assessment study conducted by WHO in this area in 2008 and few individual country assessment reports prepared by WHO Europe Office. These reports reflect that there are large discrepancies across countries in terms of emergency health management capacity. In order to make a comprehensive analysis on the existing capacities of OIC countries, there is a need for assessment studies for each country. The toolkit developed by WHO to assess the emergency management capacities can be used by OIC countries to evaluate their existing capacities and address the gaps.

Information, Research, Education and Advocacy

Quality of Health Education

There is a strong link between level of information, education and advocacy and health outcomes in a country. Right diagnosis and an effective curing can save millions of people both in OIC countries and in other parts of the world. The discussion in this section reveals that many OIC countries, especially those situated in the Sub-Saharan Africa, suffer from insufficient number of health professionals. In addition, because of changes in the characteristics of patients and developments in technology raised concerns on the quality of health education and training of health professionals globally. OIC countries are not an exception of this fact. In this context, many OIC countries need to upgrade the quality of health education delivered at educational institutions.

Public Awareness and Health

The importance of public awareness to have healthy societies is well acknowledged. According to the WHO, majority of heart diseases, strokes, Type 2 diabetes and cancer cases could be prevented just by educating and informing people about healthy diet, physical activity/exercise and not using tobacco. Like their developing counterparts, many OIC countries are suffering from the poor level of health information and awareness. The situation is particularly critical in low income countries where many myths and taboos prevail, which lead to the low usage of health care services that are critical for the healthy survival of people.

INTRODUCTION

1

Health is a crucial factor in the well-being of humanity. It has important contributions to economic progress since healthy people live longer and are more productive. Many and diverse factors influence health status and a country's ability to provide quality health services for its people. Ministries of health play a key role for the provision of health services; however, government agencies, donor institutions, and civil society organizations also contribute to the overall functioning of the health sector.

Over the recent decades, the issue of health has gained greater importance as a major driver of socio-economic progress around the globe, with more resources than ever being invested in this sector. Looking broadly, today people are healthier, wealthier and live longer than 50 years ago. Latest estimates show that if children were still dying at 1990 rates, there would have been 4.5 million deaths in OIC countries in 2013 (where the actual figure was 2.9 million). This difference of 1.6 million means that 4,372 children's lives were saved every day. However, despite this remarkable progress, OIC countries as a group made the least gains in reducing maternal and child deaths since 1990. As a result, many OIC countries are going to miss the target of Millennium Development Goal 5 (MDG 5) of three-quarters reduction in maternal mortality and the MDG4 target of two third reductions in child mortality by the end of 2015.

People living in many OIC countries, especially in South Asia and Sub-Saharan Africa regions, are still suffering from poor health care services mainly due to the lack of adequate and sustainable financial resources, poor health infrastructure and insufficient trained health workforce. The nature and magnitude of these key challenges require a greater commitment from the governments to put health sector higher on the national development agendas and build health infrastructure and train workforce to meet the current and future demands for the health services. In this regard, the OIC Strategic Health Programme of Action (OIC-SHPA) 2014-2023, which has been prepared by SESRIC in collaboration with OIC countries and relevant international organizations, and adopted by the 4th Islamic Conference of Health Ministers, is expected to play a key role by strengthening and enhancing the cooperation and collaboration on various health issues in OIC countries.

Against this background, *OIC Health Report 2015* looks at the state of health in OIC countries in a comparative perspective. To set the stage, Section 2 of the report evaluates the performance of health systems in OIC countries by underlining some of the most important building blocks like health expenditures and financing, health workforce and health infrastructure. Section 3 discusses

the current status of maternal, newborn and child health and nutrition by highlighting the current maternal and child mortality trends vis-à-vis implementation of WHO recommended interventions like antenatal checks-up, vaccination, skilled attendance of delivery, and breastfeeding etc. to curtail the MNC mortality and malnutrition. Recent trends in prevalence of communicable and non-communicable diseases, their death burden and progress towards addressing major risk factors are being discussed and analyzed in Section 4. Section 5 elaborates on the status of medicines, vaccines and medical technologies production and procurement mechanisms in OIC countries along with the availability of essential medicines. Section 6 highlights the current resources and capacities for emergency health response and interventions in OIC countries along with some common gaps in the humanitarian health sector response related with information management and analysis, strategic planning and coordination and service delivery. Section 7 focuses on the linkages between level of information, education and advocacy and health outcomes in OIC countries by investigating the quality of health education and level of awareness about adverse drug reactions and irrational use of medicines. The main findings of the report are summarized in Section 8. The report concludes with policy recommendations aiming to enhance the implementation of interventions at both national and intra-OIC and international cooperation level to improve the state of health in OIC countries.

HEALTH SYSTEM STRENGTHENING

2

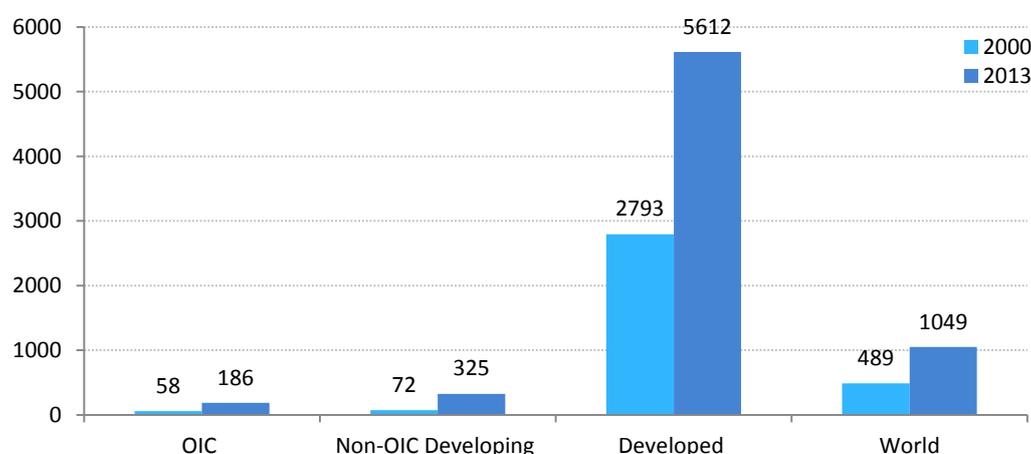
According to the definition of World Health Organization (WHO), a health system is the sum totals of all the organizations, institutions and resources which are available with the primary purpose of improving the state of health. A well-functioning health system paves the way for a healthy population, healthy society and healthy economy. In order to deliver, however, health system requires robust financing mechanism, a well-trained and adequately paid workforce, reliable information on which to base decisions and policies, well-maintained facilities and logistics to deliver quality medicines and technologies (WHO, 2014). In general, health system strengthening encompasses all those actions, activities and measures that aim to improve the situation regarding aforementioned building blocks of health system in a country/region. In the light of this understanding, this section evaluates the performance of the health systems in OIC countries in terms of health financing, workforce and infrastructure.

2.1 Health Expenditures and Financing

2.1.1 Health Expenditures Per Capita

Total health expenditure per capita is an important indicator on consumption of health goods and services at the micro level. As shown in Figure 2.1, per capita total health expenditures (in terms of current US dollars) have increased across the world between 2000 and 2013. In 2013, the per capita total health expenditure in OIC countries amounted to US\$ 186. This contrasts unfavorably even with the corresponding figure for the non-OIC developing countries, which was US\$ 325. The per capita expenditures on health recorded in the developed countries was 30 times higher than the OIC average in 2013. However, it is worth noting that the per capita health spending in OIC countries tripled in 2013 from its level of US\$ 58 in 2000.

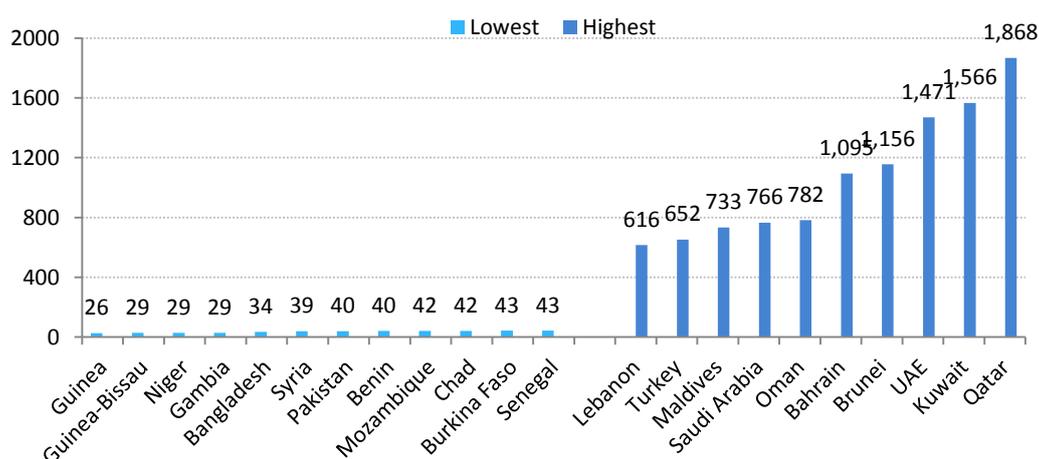
Figure 2.1: Health Expenditures per Capita (Current US dollars)



Source: SESRIC staff calculations based on WHO, Data Repository

Much variation in health spending levels can be observed in OIC countries (Figure 2.2), ranging from Qatar with a total health spending per capita of US\$ 1868 to Guinea with spending of only US\$ 26. In general, per capita health expenditures remained highest in the OIC countries in MENA region. Among these countries, Qatar reported the highest per capita total health expenditures followed by Kuwait and United Arab Emirates. On the other hand, majority of the OIC countries in Sub-Saharan Africa region were ranked among the worst performing countries. The situation remained particularly critical in Gambia, Niger, Guinea-Bissau and Guinea, with per capita health spending less than US\$ 30. In 2013, per capita expenditures on health remained below the OIC average for 30 OIC countries.

Figure 2.2: OIC Countries with Lowest and Highest per Capita Health Expenditures, 2013



Source: WHO, Data Repository

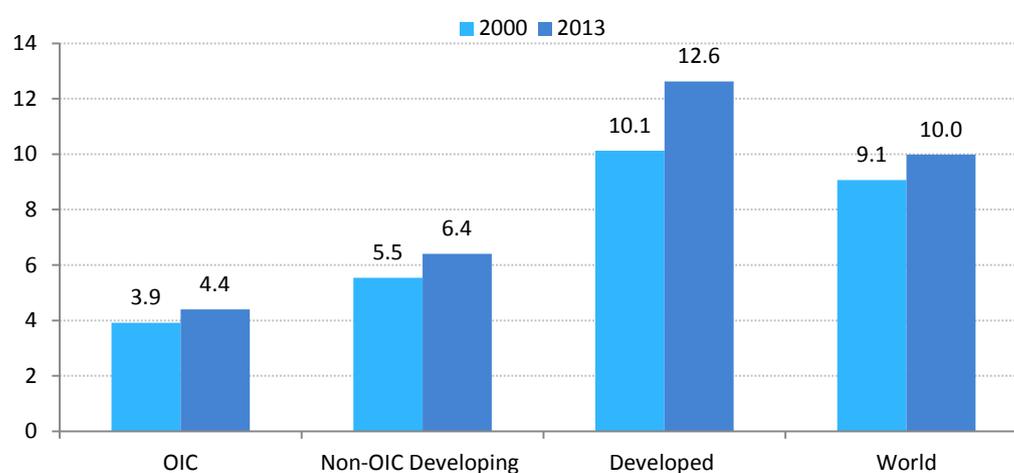
2.1.2 Health Expenditures as Per cent of GDP

The latest estimates show that the world spent a total of US\$ 7375 billion on health care in 2013. The geographical distribution of financial resources for health is uneven and global health spending remained highly concentrated in developed countries which accounted for 76 per cent of world total health spending. Health spending remained a major concern in OIC countries. While accounting for nearly a quarter of the world population, OIC countries accounted only for 4.0 per cent of the global health spending. As shown in Figure 2.3, the total expenditure on health in OIC countries was about 4.4 per cent of their GDP in 2013 compared to 6.4 per cent in non-OIC developing countries. This is also far below the global and developed countries averages of 10.0 per cent and 12.6 per cent, respectively. Between 2000 and 2013, the share of GDP allocated to health increased by only a half percentage points in OIC countries, while it increased by 0.9 percentage points both in non-OIC developing countries and in the world. During the same period, developed countries reported an increase of 2.5 percentage points (Figure 2.3).

In the majority of OIC countries, for which the data are available, total health expenditure ranged from 4.0 percent to 7.0 per cent of GDP. As shown in Figure 2.4, Sierra Leone and Maldives are the top health spenders with 12 per cent and 11 per cent of GDP, respectively, dedicated for health. All the top-5 spenders are low income countries except Djibouti and Maldives, which are lower middle-income and upper middle-income countries, respectively. On the opposite side of the scale, health expenditures accounted for only 2 per cent of GDP in Turkmenistan, United Arab Emirates and Qatar. Between 2000 and 2013, share of health expenditures in GDP increased in 35 OIC countries, ranging from 1.0 percentage points increase in the United Arab Emirates to 4.0 percentage point increase in Maldives, Togo, Algeria, Sudan and Iraq. Meanwhile, it declined between 1.0 to 4.0

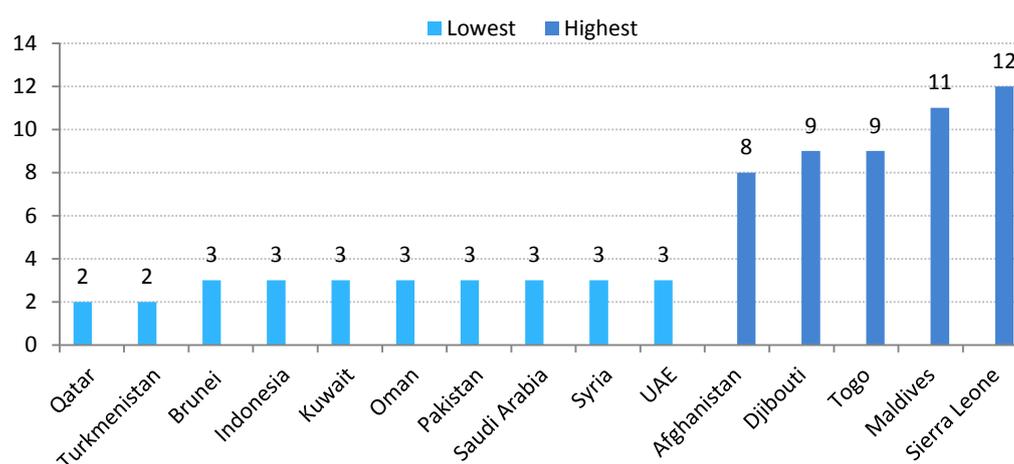
percentage points in 10 OIC countries. Lebanon and Surinam reported the highest decline of 4.0 percentage points followed by the Jordan with a decrease of 3.0 percentage points.

Figure 2.3: Health Expenditures as per cent of GDP



Source: SESRIC staff calculations based on WHO, Data Repository

Figure 2.4: OIC Countries with Lowest and Highest Share of Health Expenditures in GDP, 2013

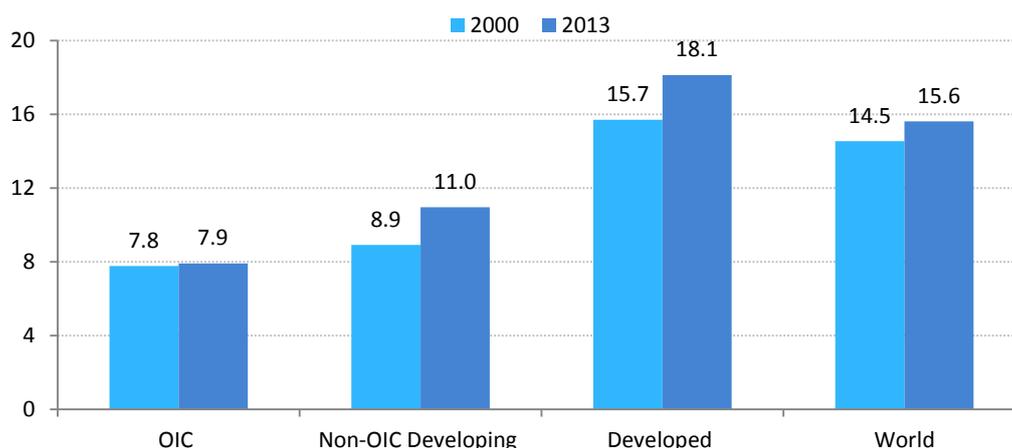


Source: WHO, Data Repository

2.1.3 Government Expenditures on Health

The share of government health expenditures in its total spending is an important indicator on the relative importance of the health sector in the national development agenda and, thus, the extent of the government financial support for the health system. As depicted in Figure 2.5, government spending on health in OIC countries was only 7.9 per cent of total government expenditures in 2013, compared to 18.1 per cent in developed countries, 15.6 per cent in the world and 11.0 per cent in non-OIC developing countries. Low share of health spending in the budgets of OIC countries is not merely due to public financial constraints but is also due to low priority given to health sector. General government expenditures in these countries account for a relatively high share (30 per cent) of their GDP, indicating available fiscal space for increasing spending on health. Between 2000 and 2013, the share of total government expenditures allocated to health increased by only 0.1 percentage points in OIC countries, while it increased by 2.0 percentage points in the non-OIC developing countries and by 1.6 percentage points in the world (Figure 2.5). During the same period, developed countries reported an increase of 2.4 percentage points.

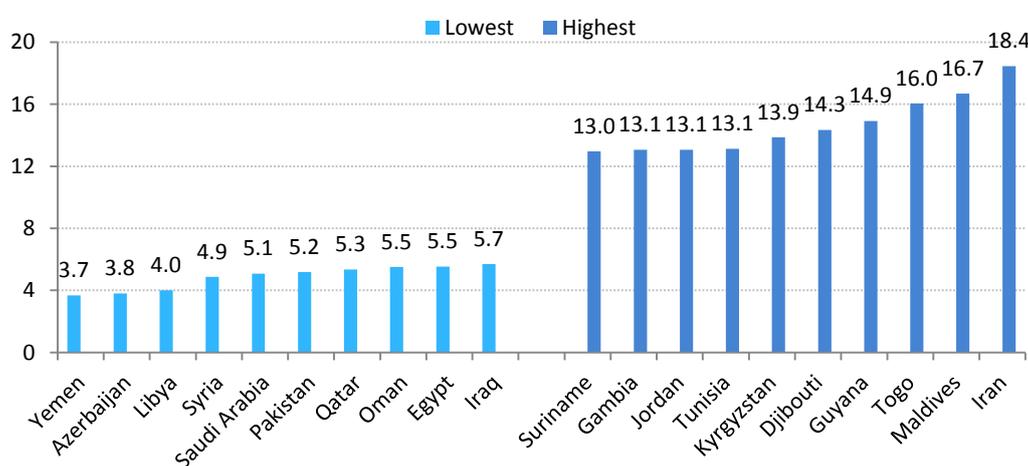
Figure 2.5: Government Health Expenditures Per cent of Total Government Expenditures



Source: SESRIC staff calculations based on WHO, Data Repository

At the individual country level, 20 OIC countries allocated more than 10 per cent of their national budgets for the health sector in 2013. Among these countries, Iran, Maldives and Togo reported the highest figures of 18.4 per cent, 16.7 per cent and 16.0 per cent, respectively (Figure 2.6). On the opposite side of the scale, four OIC countries allocated even less than 5 per cent of their total budgets for the health sector in 2013. Among these countries, Yemen reported the lowest share (3.7 per cent) followed by Azerbaijan (3.8 per cent) and Libya (4.0 per cent). Between 2000 and 2013, share of health expenditures in government spending has increased in 35 OIC countries, ranging from 0.6 percentage points increase in Malaysia to 7.9 percentage points increase in Togo. Meanwhile, it declined between 0.1 to 7.5 percentage points in 18 OIC countries, with Mozambique, Chad and Turkmenistan reporting the highest decline of 7.5, 5.7 and 5.3 percentage points, respectively.

Figure 2.6: OIC Countries with Lowest and Highest Share of Health in Budget, 2013



Source: WHO, Data Repository

2.2 Financing of Health Care

Health financing is a critical component of the health system. It is mainly related with generation, allocation and use of financial resources to provide health care services to all people at a reasonable and affordable cost. Total health expenditure comprises both the public and private sources for health care. Public financing mainly includes funds from government budget and social security schemes whereas private financing includes mainly private health insurance and out-of-pocket payments. The relative share of these sources in total health expenditures has many implications for

access, equity and financial sustainability of health care services in a country. There is a global evidence that to achieve the goal of universal health coverage it is necessary to generate a significant amount of financial resources for providing health services through prepaid and pooled contributions like tax-based financing, social health insurance and private health insurance; whereas the share of direct out-of-pocket spending on health needs to be reduced (WHO, 2005).

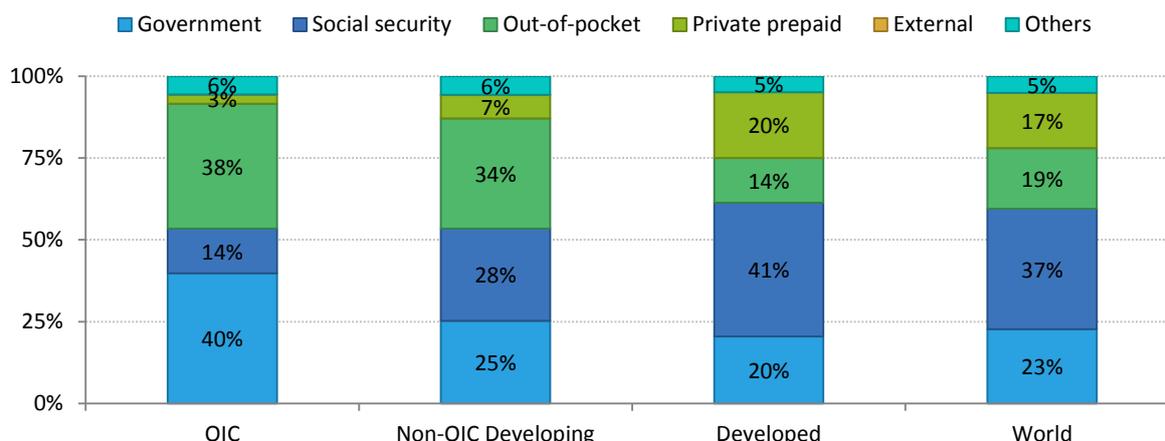
Worldwide, public sector is the main source of health financing. However, in general, public health financing remained quite higher in advanced and high income countries compared to the developing and low income countries. As indicated in Figure 2.7, public sector accounted for 59.5 per cent of global health spending in 2013, with major contribution from social security schemes (37 per cent). A similar situation could also be observed in the case of developed countries. Nevertheless, public financing covered only 54 and 53 per cent of total health expenditures in OIC and non-OIC developing countries, respectively. Social security or social health insurance is one of the most important sources of financing to achieve universal health coverage. According to the latest estimates, it is widely used in developed countries (41 per cent) and it is the second major source of health care financing in these countries. The relative contribution of social security schemes in health financing remained significantly low in OIC countries. In 2013, social security based prepaid plans accounted for 14 per cent of total health expenditure and about 26 per cent of general government expenditure on health in OIC countries.

In fact, private sources especially the out-of-pocket spending play a significant role in the financing of health expenditures in OIC countries. In 2013, out-of-pocket expenditures accounted for approximately 82 per cent of private health expenditures, or about 38 per cent of the total health spending in OIC countries. Compared to other groups' averages, the share of out-of-pocket health spending in total health expenditures remained the highest in OIC countries (Figure 2.7). This indicates the OIC countries' heavy reliance on out-of-pocket payments, which is the most regressive way of health financing and has variety of harmful consequences especially for the low income and poor households. Globally, an estimated 100 million people are pushed into poverty every year when they pay out-of-pocket for health services (WHO, 2014).

At the individual country level, out-of-pocket payments form the major part of health financing in 17 OIC countries. Among these countries, out-of-pocket spending represents 79.3 per cent of total health expenditures in Yemen, 74.7 per cent in Afghanistan and 70.8 per cent in Sudan. On the other hand, less than a quarter of total health expenditures were financed through out-of-pocket payments in 13 OIC countries. Among these countries, out-of-pocket payments accounted for even less than 10 per cent of total health spending in Mozambique, Brunei Darussalam and Qatar (Figure 2.8).

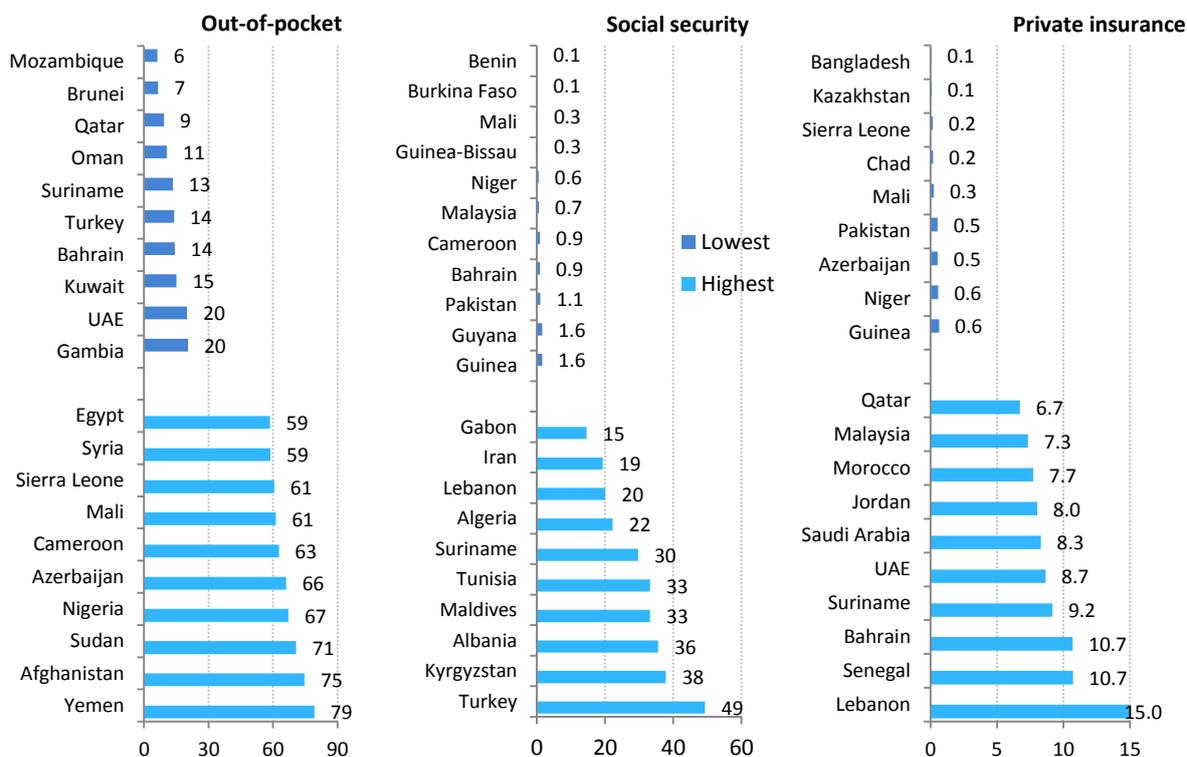
In general, the coverage of prepayment schemes, both public and private, remained very low across the OIC countries. According to the latest available estimates, social security schemes accounted for less than 10 per cent of total health expenditures in 22 out of 33 countries for which the data are available in 2013. As shown in Figure 2.8, Turkey reported the highest share of social security payments in total health expenditures followed by Kyrgyzstan, Albania and Maldives. On the opposite side of the scale, these schemes accounted for even less than one per cent of total health expenditures in 8 OIC countries, with the lowest share (0.1 per cent) reported by Benin and Burkina Faso. Contribution of private health insurance schemes in total health expenditures also exhibits a similar trend. Among the 38 OIC countries for which the data are available, private health insurance provided less than 5 per cent of health financing in 28 countries. In Lebanon, Senegal and Bahrain, private health insurance spending represents 15 per cent and 10.7 per cent of the total health expenditures, respectively; whereas this ratio was reported at only 0.1 per cent in Bangladesh and Kazakhstan (Figure 2.8).

Figure 2.7: Sources of Health Finance, 2013



Source: SESRIC staff calculations based on WHO, Data Repository

Figure 2.8: OIC Countries with Lowest and Highest Shares in Health Financing, 2013



Source: WHO, Data Repository

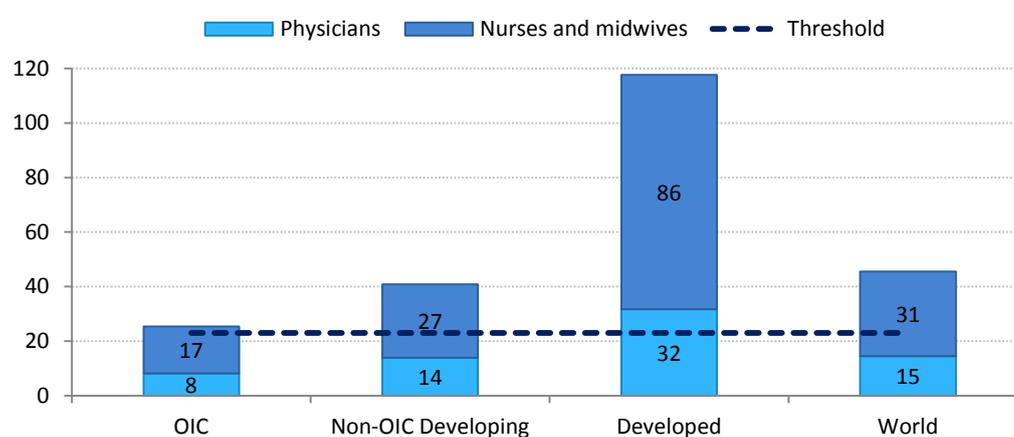
2.3 Health Workforce

Today, it is a well-recognized fact that the size, skill mix, geographical distribution and productivity of health workers play an important role in the prompt and efficient delivery of high quality health care. Health workers, particularly doctors and nurses, are the backbone of health care system. According to the latest estimates, in 165 countries worldwide there were about 32.4 million physicians, nurses, and midwives in 2007-2013. The geographical distribution of these health workers remained highly skewed towards the developing countries, which accounted for about 72 per cent of the world total. With 4.2 million physicians, nurses, and midwives, OIC countries accounted for only 13 per cent of the world total. In line with the global trend, nurses and midwives

outnumber physicians in OIC countries, with a share of 68 per cent that is similar to the world and non-OIC developing countries shares.

Overall, there is a strong positive correlation between health workforce density and health service coverage and outcomes in a country/region. Density of health workers (physicians, nurses and midwives per 10, 000 people) varies widely across the world. As shown in Figure 2.9, there were around 15 physicians and 31 nurses per 10, 000 people in the world in 2007-2013. Although developed countries accounted for only 28 per cent of the world total physicians, nurses and midwives, there were 32 physicians and 86 nurses per 10, 000 people in these countries compared to 14 physicians and 27 nurses in other developing countries. The density of both physicians and nurses and midwives remained comparatively very low in OIC countries as there were only eight physicians and 17 nurses and midwives per 10,000 people in 2007-2013. In fact, density of health workers in OIC countries (25 per 10,000 people) was recorded just above the critical threshold of 23, which is considered necessary to deliver the basic health services in a country/region.

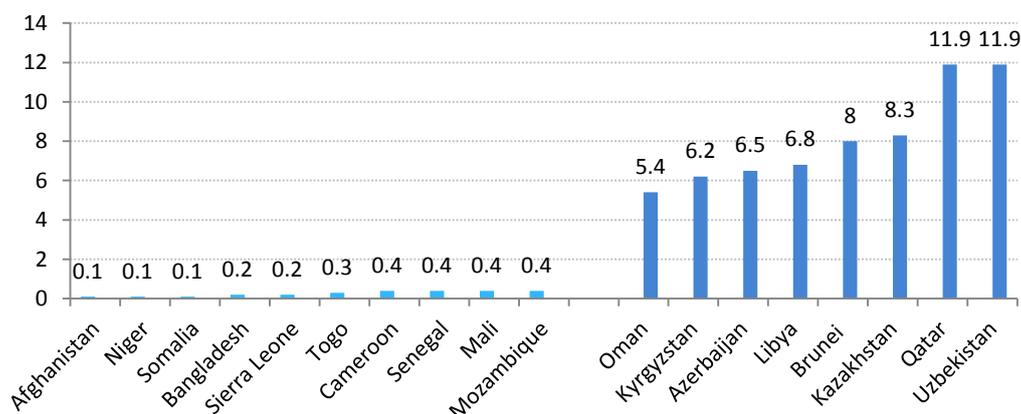
Figure 2.9: Health Workers per 10,000 people, 2007-2013



Source: SESRIC staff calculations based on WHO, Data Repository

Many OIC countries are still facing considerable challenges with respect to quantity, diversity and competency of the health workforce. Health workforce shortages are especially serious in countries located in the South Asia and Sub-Saharan Africa regions. Among the 52 OIC countries, for which the data are available, 27 countries are facing critical shortage of health workers with less than 23 physicians, nurses and midwives per 10,000 people. Density of health workers was even less than 10 per 10,000 in 19 countries with critical shortages, 15 of them from Sub-Saharan Africa and two from South Asia. As shown in Figure 2.10, the highest number of doctors, nurses and midwives per 10,000 population was recorded in Qatar (196) followed by Uzbekistan (144) and Kazakhstan (119). On the opposite side of the scale, there was only one health worker per 10,000 people in Guinea, Niger and Somalia.

Figure 2.10: OIC Countries with Highest and Lowest Density of Health Workers, 2007-2013

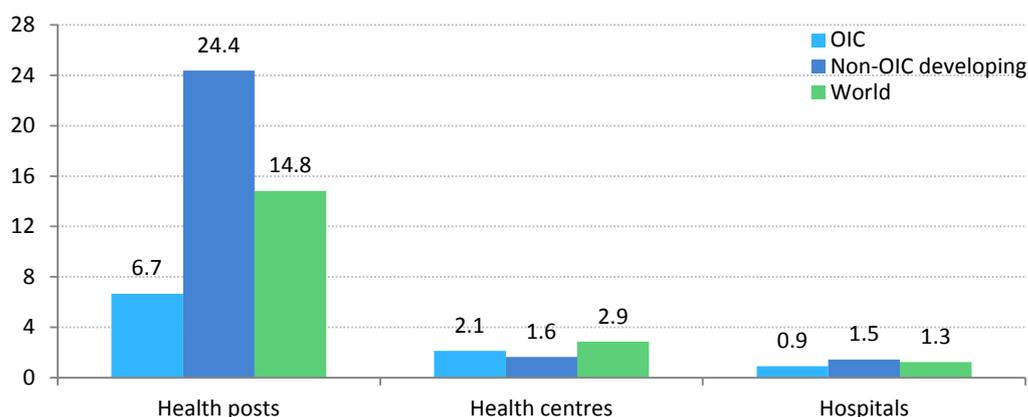


Source: WHO, Data Repository

2.4 Healthcare Facilities

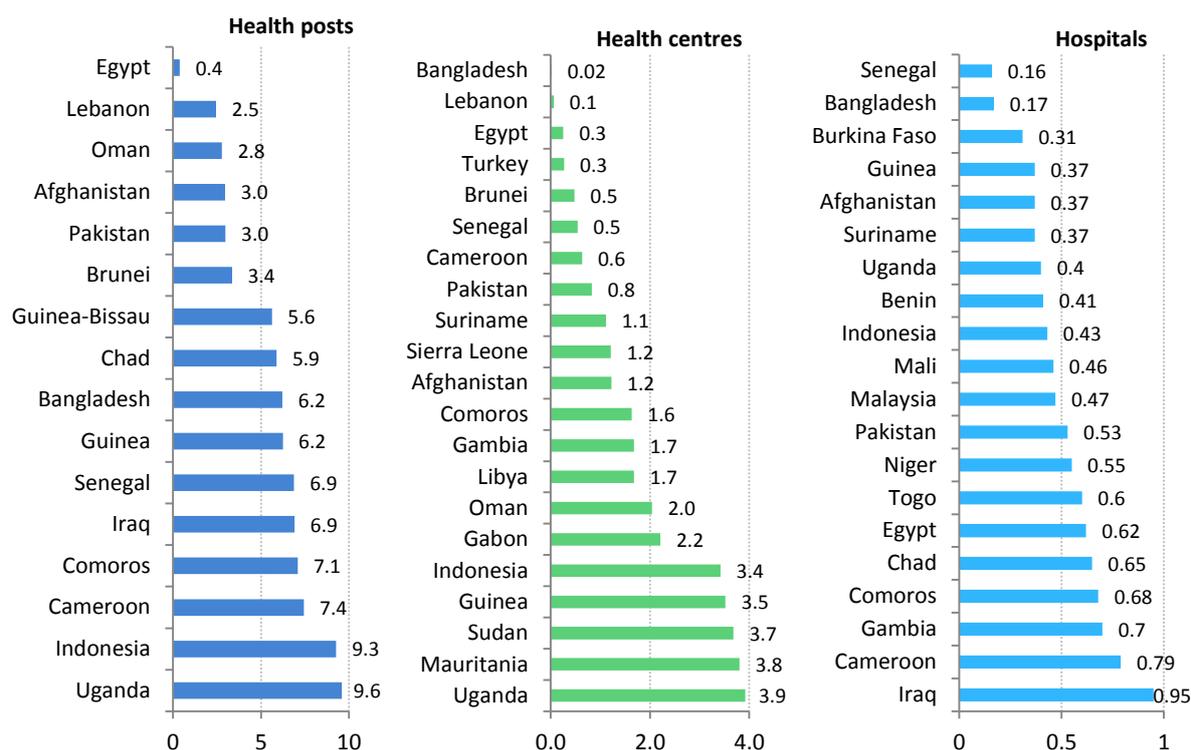
Health care facilities like hospitals and health posts are critical components of an efficient and effective health care system. In majority of the developing countries, health posts constitute the first level of contact between the health system and the communities. In 2013, as shown in Figure 2.11, the average number of health posts in 34 OIC countries, for which the data are available, was 6.7 per 100,000 population; a level which is quite lower than the world average of 14.8 and the average of the non-OIC developing countries (24.4). Similarly, the average number of health centers was reported at 2.1 per 100,000 people in OIC countries compared to 2.9 in the world. With an average of 0.9 hospitals per 100,000 people, OIC countries are also lagging behind the world and non-OIC developing countries averages in terms of availability of district, provincial and specialized hospitals.

Figure 2.11: Number of Health Facilities per 100,000 people, 2013



Source: SESRIC staff calculations based on WHO, Data Repository

At the individual country level, 17 OIC countries reported more than 10 health posts per 100,000 people. Suriname recorded the highest density of health posts (45.3 per 100,000 population) followed by Gabon (29.4) and Libya (29.3). On the opposite side of the scale, even less than five health posts were available for 100,000 people in six OIC countries, with the lowest figure reported in Egypt (0.4) and Lebanon (2.5). Similarly, 26 OIC countries have less than 10 health centers per 100,000 people, and 29 OIC countries have less than two hospitals per 100,000 people in 2013.

Figure 2.12: OIC Countries with Lowest Number of Health Facilities per 100,000 people, 2013


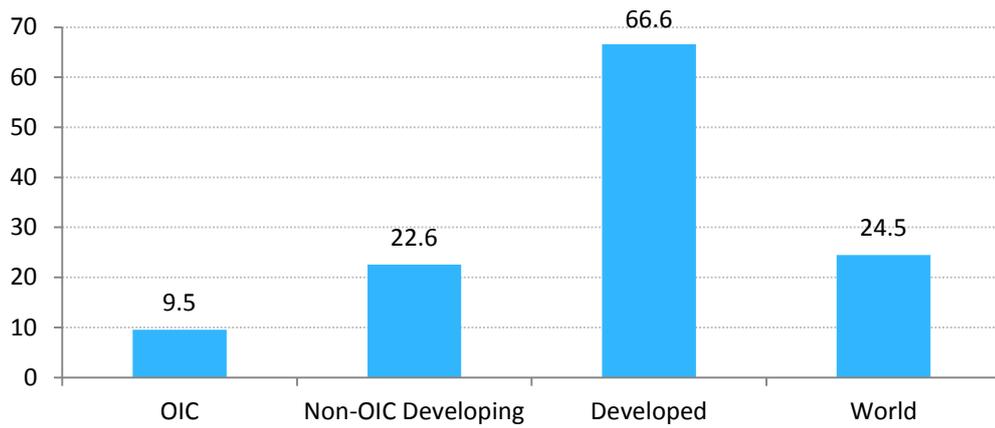
Source: WHO, Data Repository

2.5 Hospital Beds

Number of hospital beds is an important indicator of resources available for inpatient care and overall access to hospital services. As shown in Figure 2.13, globally there were 24.5 beds per 10,000 people in 2007-2013. Density of hospital beds remained quite higher in developed countries where 66.6 hospital beds were available per 10,000 people; whereas in the group of non-OIC developing countries there were just 22.6 hospital beds available for 10,000 people. The availability of hospital beds remained comparatively very low in OIC countries, as there were only 9.5 hospital beds for 10,000 people in 2007-2013 (Figure 2.13).

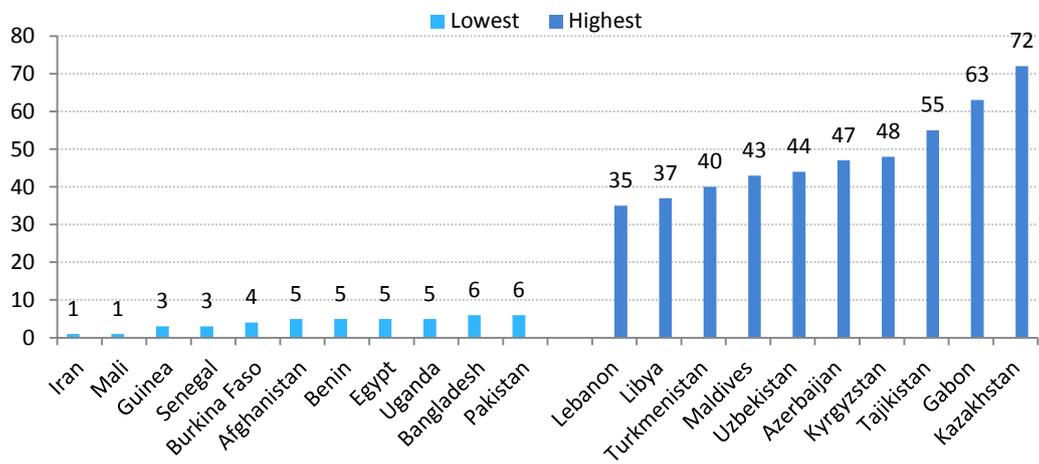
The number of hospital beds per 10,000 people varies considerably across the OIC countries. As shown in Figure 2.14, it is highest in Kazakhstan, Gabon and Tajikistan with over 50 beds per 10,000 people. Nevertheless, this ratio is even less than 10 beds per 10,000 people for 17 OIC countries. Among these countries, Mali and Iran reported the lowest density of hospital beds with only one bed available per 10,000 people in 2007-2013.

Figure 2.13: Hospital Beds per 10,000 people, 2007-2013



Source: SESRIC staff calculations based on WHO, Data Repository

Figure 2.14: OIC Countries with Lowest and Highest Density of Hospital Beds, 2013



Source: WHO, Data Repository

MATERNAL, NEW BORN AND CHILD HEALTH AND NUTRITION

3

Health is vital for the well-being of all human beings. According to the definition of World Health Organization (WHO), health does not only mean an absence of illness or disease but it is a multidimensional concept that encompasses the state of physical, mental and social well-being of a person. Right to health is vital for everyone, but it is especially important for mothers and children because they are vulnerable and more at risk to illness and health complications. Maternal, new born and child health (MNCH) basically refers to health of women and babies during pregnancy, childbirth and after childbirth. Provision of quality care during this period is very critical for the health and very survival of mother and infant.

3.1 Maternal Mortality

Maternal mortality remained significantly high in the developing world. According to the latest estimates of the WHO, nearly 0.3 million women died from preventable causes related to pregnancy and childbirth in 2013. Almost all of these deaths were reported in developing countries, especially in Sub-Saharan Africa and Asia. About 75 per cent of all maternal deaths in the world are caused by five major complications during and after the pregnancy (WHO, 2014a) Maternal Mortality Fact Sheet No.348). Among these complications, severe bleeding (mostly bleeding after childbirth) is the top cause of maternal deaths, accounting for 27 per cent of maternal deaths, followed by high blood pressure during pregnancy (14 per cent), infections usually after childbirth (11 per cent), complications from delivery (9 per cent) and unsafe abortion (8 per cent).

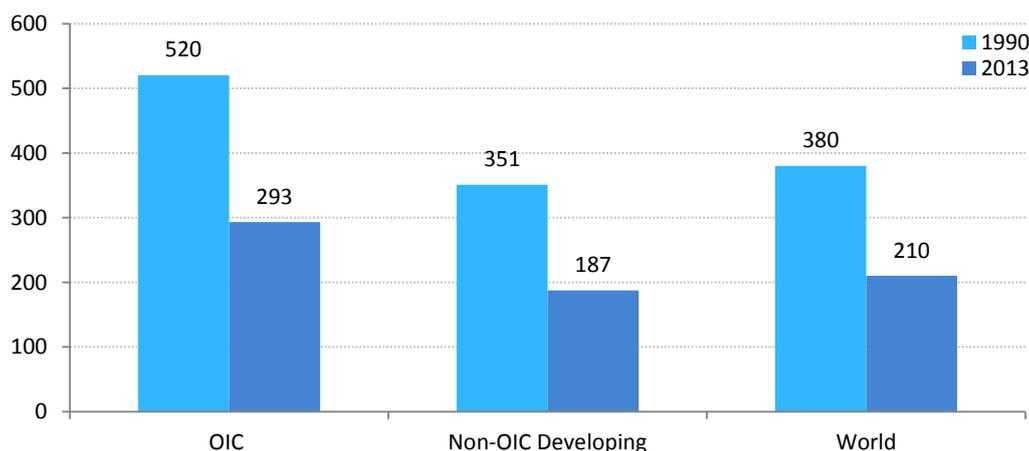
In OIC countries, about 0.13 million women die from preventable causes related to pregnancy and childbirth in 2013, corresponding to 44 per cent of the world total maternal deaths. Maternal mortality remained highly concentrated in a handful of OIC countries. In 2013, more than half (53.6 per cent) of the OIC's total maternal deaths were reported only in five countries, namely: Nigeria, Indonesia, Pakistan, Uganda and Chad. Among these high burden countries, Nigeria alone accounted for nearly two third (31.3 per cent) of OIC total maternal deaths in 2013. Among others, Indonesia accounted for 6.9 per cent followed by Pakistan (6.2 per cent), Uganda (4.6 per cent) and Chad (4.5 per cent).

Under the MDG 5, all countries are committed to reducing maternal mortality by three quarters between 1990 and 2015. Efforts made so far to achieve this target have actually paid off and maternal mortality rate (MMR) has declined from 380 deaths per 100,000 live births in 1990 to 210 deaths in 2013, corresponding to a decrease by 45 per cent (Figure 3.1). A similar trend can be observed for non-OIC developing countries with an overall decline of 47 per cent in MMR. In line with the global trends, OIC countries also witnessed some improvement in maternal health conditions and MMR declined from 520 deaths in 1990 to 293 deaths in 2013, corresponding to a decrease by 44 per cent. However, despite this improvement, MMR in OIC countries remained significantly higher than the averages of other groups.

At the individual country level, Sierra Leone recorded the highest MMR (1,100 maternal deaths per 100,000 live births), followed by Chad (980 deaths), and Somalia (850 deaths). Among these countries, Sierra Leone is ranked 1st with respect to highest MMR in the world, Chad is ranked 2nd,

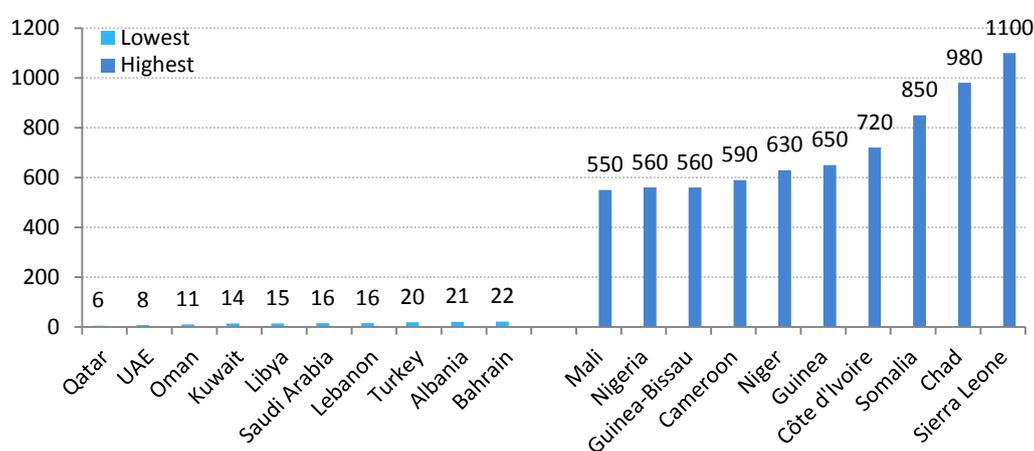
and Somalia is ranked 4th. In contrast, Qatar recorded the lowest MMR with only 6 maternal deaths per 100,000 live births followed by United Arab Emirates (8 deaths), and Oman (11 deaths). Between 1990 and 2013, 30 OIC countries registered more than 45 per cent decrease in MMR. Majority of these countries are from Middle East and North Africa (12 countries) and Sub-Saharan Africa region (8 countries). On the other hand, four OIC countries namely, Brunei Darussalam, Bahrain, Kuwait, Guyana and Suriname reported increase in MMR by 4 per cent, 5 per cent and 17 per cent, 19 per cent and 55 percent, respectively.

Figure 3.1: Maternal Mortality Rate (per 100,000 live births)



Source: SESRIC staff calculations based on WHO, Data Repository

Figure 3.2: OIC Countries with Lowest and Highest MMR, 2013



Source: WHO, Data Repository

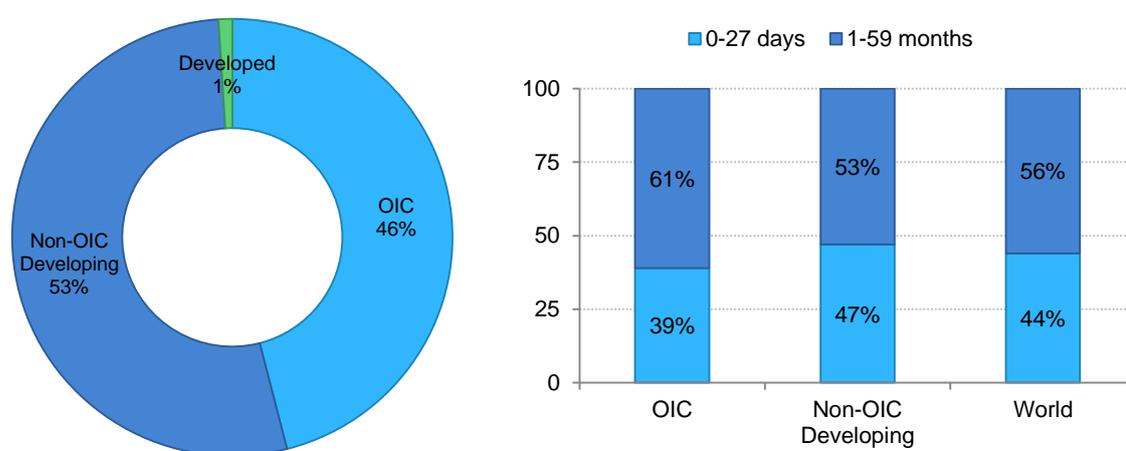
3.2 New-born and Child Mortality

The child mortality rate is the number of deaths of children under 5 per 1,000 live births. It is one of the most important indicators on the state of child health which basically reflects the overall coverage and effectiveness of health care services along with socio-economic development in a country. It is the benchmark indicator for the United Nations Millennium Development Goal 4, which sets a target to reduce child mortality rate by two-thirds, between 1990 and 2015, the under-5 mortality rate (UN, 2014). Globally, over 6 million children died before reaching their fifth birthday

in 2013. A child's risk of dying is highest in the neonatal period; the first 28 days of life. In 2013, 44 per cent of under-five deaths were reported during the neonatal period. The Majority of these deaths can easily be prevented by ensuring access to effective safe childbirth and neonatal care services (WHO, 2015).

Under-five mortality remained highly concentrated in developing countries which accounted for over 99 per cent of world total in 2013. This means that on average about 17000 children died every day in developing countries. Being a substantial part of the developing world, OIC countries accounted for 46 per cent of the world total under-five deaths in 2013. In other words, about 8000 under-five children died every day in OIC countries. Over 39 per cent of child deaths in OIC countries occurred during the first 28 days of life (Figure 3.3).

Figure 3.3: Distribution and Age Structure of Under-5 Deaths, 2013

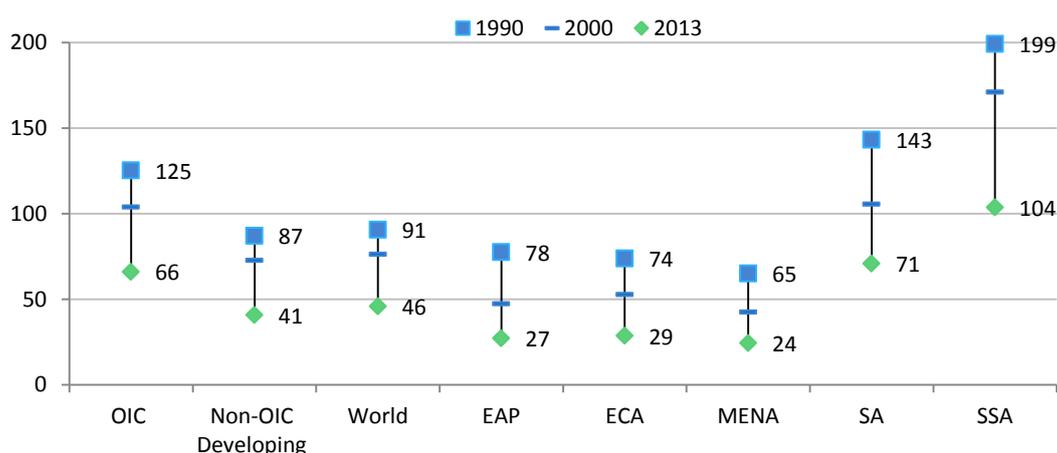


Source: SESRIC staff calculations based on WHO, Data Repository

Over the years, child mortality has shown a declining trend across the globe (Figure 3.4) where the average under-five child mortality rate (U5MR) has decreased since 1990 to 46 deaths per 1000 live births in 2013. Non-OIC developing countries also registered remarkable progress with 53 per cent decline in U5MR since 1990. In line with the global trends, child mortality situation has also been improved in the OIC countries. Starting from a higher U5MR of 125 deaths per 1000 live births in 1990, OIC countries managed to reduce U5MR by 47 per cent to 66 per 1000 live births by 2013. Nevertheless, despite this improvement, OIC group made the least progress in reducing child deaths since 1990. As of 2013, one in 15 children in OIC countries dies before their fifth birthday compared to one in 25 in other developing countries and one in 22 children in the world. On the other hand, one in 21 children in OIC countries dies before their first birthday compared to one in 32 in other developing countries and one in 30 children in the world.

Child mortality has declined across the OIC regional groups (Figure 3.4). During 1990-2013, EAP region registered the most remarkable progress with 65 per cent decrease in U5MR followed closely by MENA region (63 per cent) and ECA region (61 per cent). SA and SSA regions also managed to halve their under-five mortality rates during this period. Nevertheless, among the OIC regional groups, SSA and SA regions remained the most difficult place for a child to survive until age five. In 2013, U5MR in SSA region was 104 per 1000 live births, meaning that 1 in every 10 children failed to reach their fifth birthday whereas; U5MR in SA region was 71 per 1000 live births, meaning that 1 in every 14 children failed to reach their fifth birthday. In contrast, this ratio stands at 1 in every 41 children for MENA, 1 in 37 for EAP and 1 in 35 for ECA region.

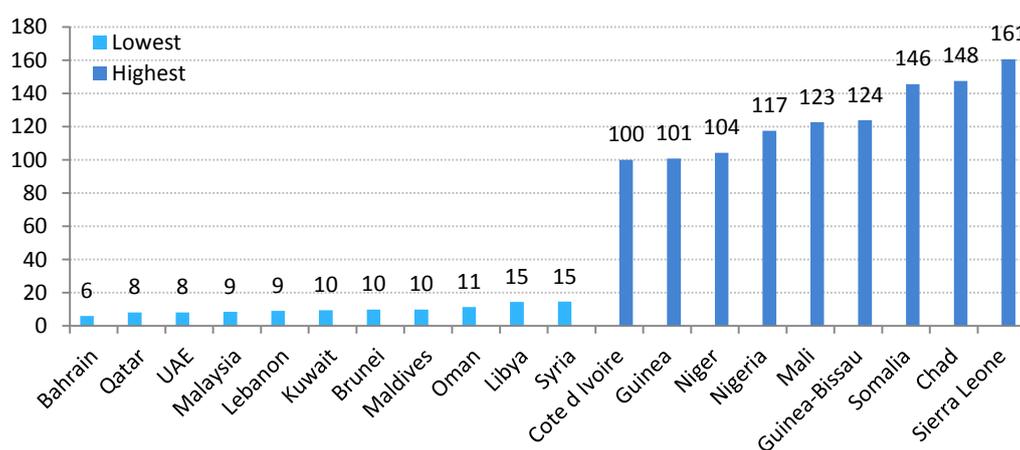
Figure 3.4: Under 5 Child Mortality Rate (per 1000 live births)



Source: SESRIC staff calculations based on WHO, Data Repository

At the national level, many OIC countries have made great strides against the child mortality over the last two decades. During 1990-2013, over 60 per cent reduction was recorded in 23 OIC countries and in 24 countries the reduction was ranged between 40 to 58 per cent. As of 2013, U5MR in OIC countries ranged from a low of six deaths per 1000 live births in Bahrain to a high of 161 in Sierra Leone (Figure 3.5). Eight OIC countries have registered U5MR lower than 10 deaths per 1000 live births. In contrast, eight OIC countries from SSA region registered U5MR higher than 100 deaths per 1000 live births. Seven of these eight countries are ranked among the top-10 countries with the highest U5MR in the world. In 2013, Sierra Leone was ranked 2nd with respect to U5MR in the world followed by Chad (ranked 3rd), Somalia (ranked 4th), Guinea Bissau (ranked 6th), and Mali (ranked 7th). In general, 28 OIC countries registered U5MR lower than the non-OIC developing countries average of 41 deaths per 1000 live births in 2013.

Figure 3.5: OIC Countries with the Lowest and Highest U5MR (per 1000 live births), 2013



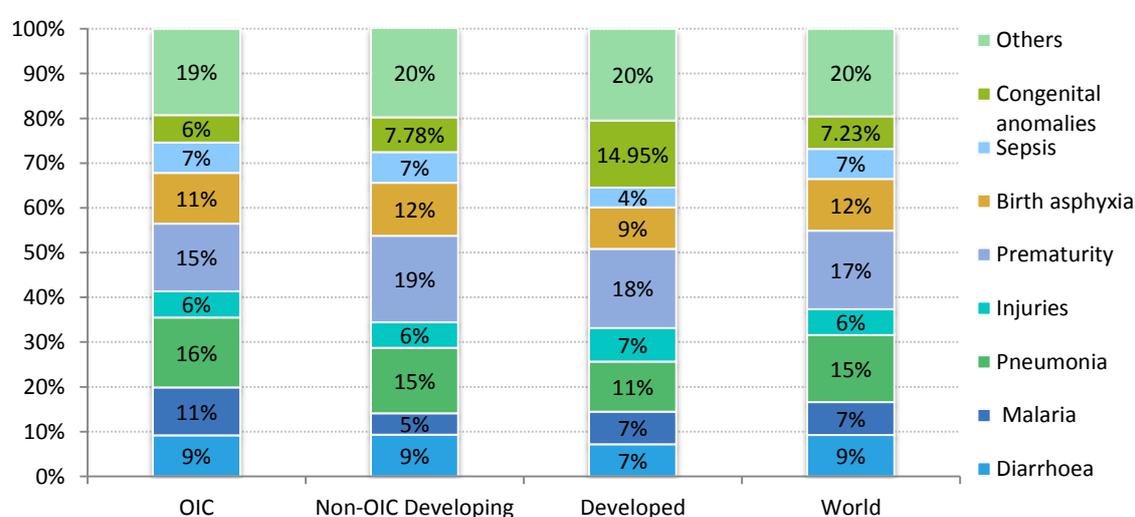
Source: WHO, Data Repository

3.3 Major Causes of Child Mortality

Globally, infectious diseases, pregnancy, and birth related complications caused over three quarters of total deaths in children under five in 2013. In fact, these causes are largely preventable and/or treatable by ensuring access to simple and affordable interventions like vaccination, antenatal health care and skilled attendance of birth. As shown in Figure 3.6, prematurity was the largest single cause

of death in children under five in 2013, and approximately 50 per cent of under-five deaths were due to infectious causes like pneumonia /sepsis (neonatal pneumonia) , diarrhoea, malaria and other communicable diseases. A similar situation is also observed in the case of non-OIC developing countries where leading causes of death among under-five children are preterm birth complications, pneumonia, birth asphyxia, diarrhoea and malaria. In contrast, causes of childhood deaths in developed countries are more skewed toward complications associated with pregnancy and delivery than the infectious diseases. The major causes of under-five mortality in OIC countries are similar to those in other developing countries. As shown in Figure, 3.6, 43 per cent of under-five deaths were caused by three infectious diseases: pneumonia/sepsis (23 per cent), malaria (11 per cent), and diarrhoea (9 per cent). Among the pregnancy and birth related complications, prematurity (15 per cent) remained the major cause of under five deaths followed by birth asphyxia (11 per cent) and congenital abnormalities (6 per cent).

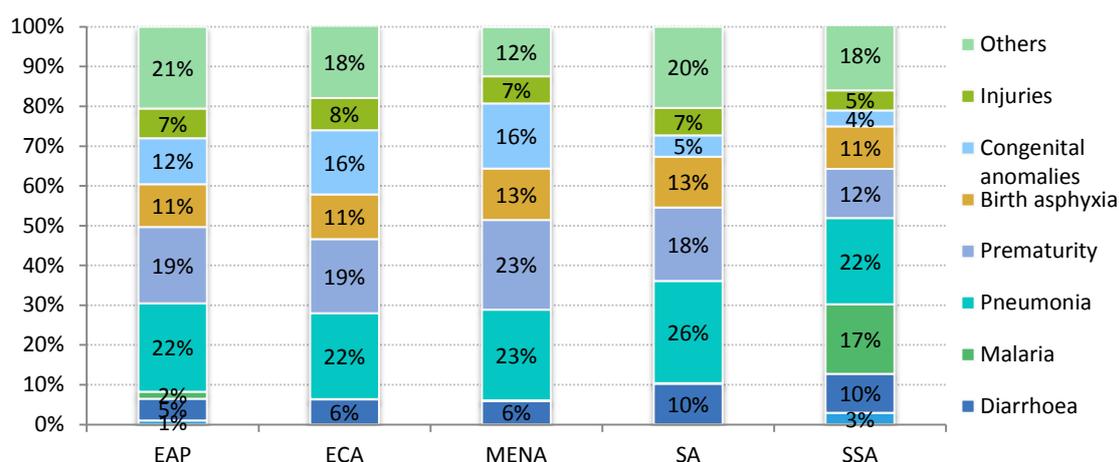
Figure 3.6: Major Causes of Child Mortality, 2013



Source: SESRIC staff calculations based on WHO, Data Repository

Among the OIC regional groups, the two regions of Sub-Saharan Africa and South Asia bear the largest burden of under five deaths in OIC countries. As of 2013, 83 per cent of total child deaths in OIC countries were recorded in these two regions (60 per cent in SSA and 23 per cent in SA). Though the major causes of under-five deaths remained quite similar in all OIC regions, the relative burden of these causes varies among regions depending, among others, on socio-economic conditions and coverage of health care services. As shown in Figure 3.7, infectious diseases like pneumonia, malaria, diarrhoea and AIDS accounted for half of total deaths in SSA followed by 37 per cent in SA, 30 per cent in EAP, 27 per cent in ECA and 26 per cent in MENA. Compared to other regions, deaths attributed to malaria remained quite high in SSA (17 per cent). On the other hand, complications related to pregnancy and delivery (prematurity, birth asphyxia and congenital anomalies) caused 52 per cent of deaths in MENA, 46 per cent in ECA, 41 per cent in EAP, 37 per cent in SA and 27 per cent in SSA region.

Figure 3.7: Major Causes of Child Mortality in OIC Regions, 2013



Source: SESRIC staff calculations based on WHO, Data Repository

3.4 Maternal, New-born and Child Health Care Services

Health experts are of the view that the majority of maternal and child deaths are preventable and interventions like antenatal care, skilled attendance during birth, immunization, and early care seeking for pneumonia, diarrhoea and malaria are critical for the survival and well-being of mothers and children. This sub-section examines the performance of the OIC countries in terms of the coverage of some of these selected interventions.

3.4.1 Antenatal Care

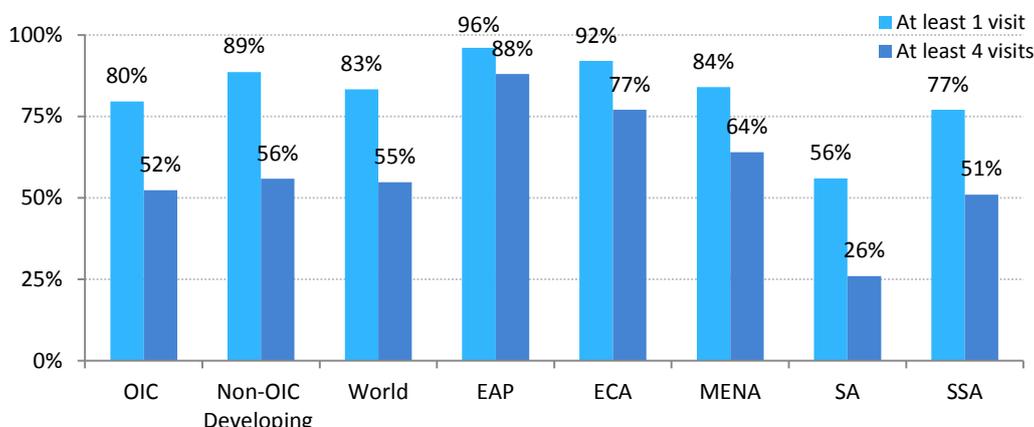
Antenatal care (ANC) and counselling is the entry point to the formal health care system and provides a solid base to monitor and improve the health of mother and baby by identifying and preventing/controlling antenatal complications at the earliest stage (WHO, 2010). Antenatal care (ANC) coverage measures the proportion of total pregnant woman aged 15-49 who visited a skilled health professional for reasons related to pregnancy. For the quality and effectiveness of ANC, number of visits and their timing is very important.

The provision of quality antenatal care remained a major concern in many OIC countries. During the period 2008-2012, around 80 per cent of total pregnant women in OIC countries benefited from antenatal services at least once during the pregnancy while 56 per cent benefited from the recommended four antenatal checks up (Figure 3.8). In both cases, OIC average remained below the averages of the non-OIC developing countries and the world. At the OIC regional level, both in terms of one and four antenatal visits, ANC coverage remained comparatively very low in SA and SSA regions. As shown in Figure 3.8, only 26 per cent and 51 per cent pregnant women had four antenatal checks up in SA and SSA regions, respectively whereas, this share was recorded at 56 per cent and 77 per cent in case of one antenatal visit in these two regions, respectively.

At the individual country level, more than 90 per cent of pregnant women visited a health clinic at least once in 27 OIC countries whereas; this ratio ranged from 66 per cent to 86 per cent in 13 other countries. Afghanistan, Bangladesh and Chad recorded the lowest ANC coverage rate where 60 per cent, 55 per cent and 53 per cent of women visited health facility once during pregnancy respectively (Figure 3.9). With respect to four visits, over two third of pregnant women paid four visits to health clinic in 15 OIC countries. Out of these 15 countries, Oman and Palestine remained at the top with ANC coverage rate of over 90 per cent. Among others, six OIC countries registered ANC coverage rate of 50 per cent to 65 per cent. In contrast, ANC coverage rate remained less than 50 per cent in 11

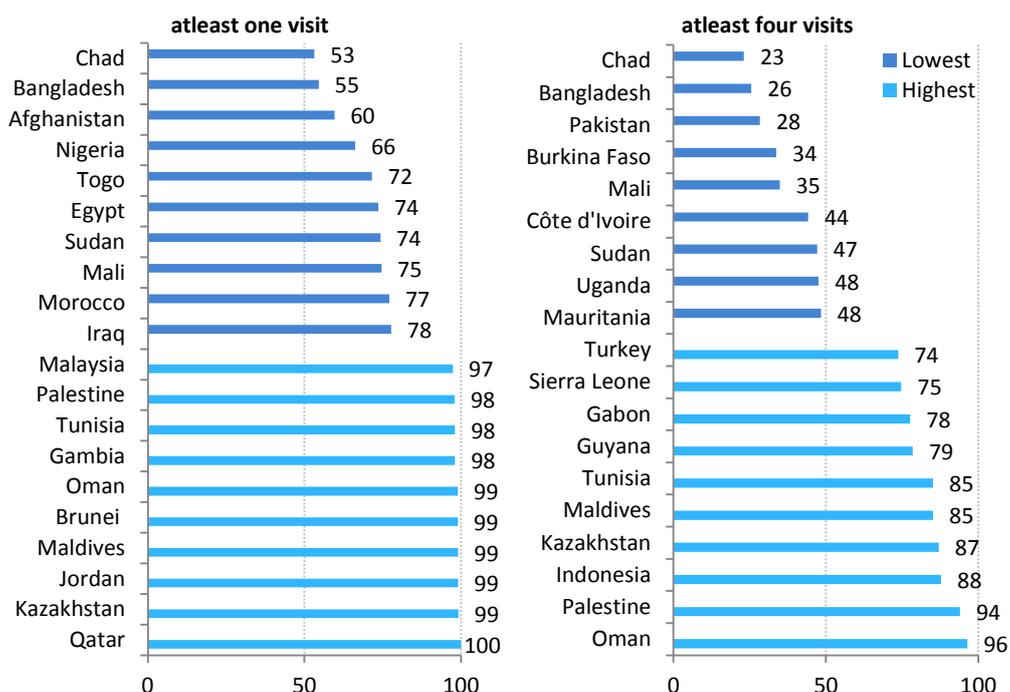
countries. The situation was particularly alarming in Afghanistan, where even less than 15 per cent of total pregnant women actually benefitted from WHO recommended four antenatal visits during 2008-2012 (Figure 3.9).

Figure 3.8: Antenatal Care Coverage, 2008-2012



Source: SESRIC staff calculations based on WHO, Data Repository

Figure 3.9: OIC Countries with Highest and Lowest Antenatal Care Coverage (per cent), 2008-2012



Source: WHO, Data Repository

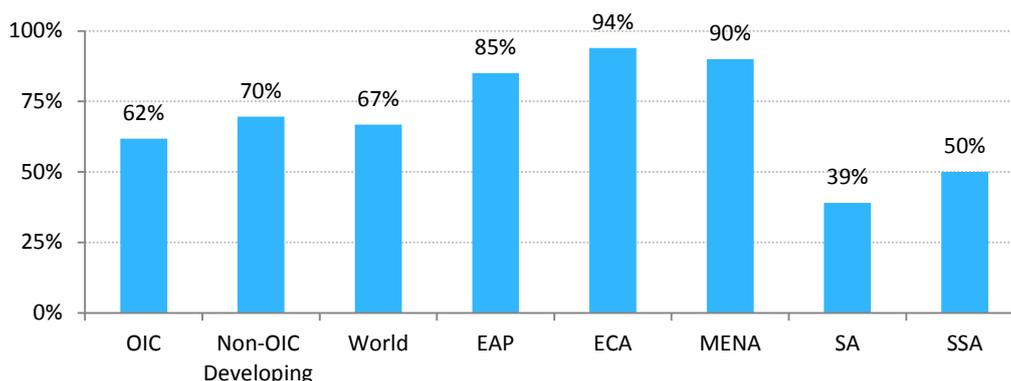
3.4.2 Births Attended by Skilled Health Personnel

Skilled health care and assistance at the time of delivery are critical for the health and very survival of both mother and baby. According to the latest estimates of the WHO, globally, about 2 million maternal and new born deaths every year are caused by lack of proper health care during labour and child birth. These deaths are largely preventable by ensuring assistance of skilled health personnel - a doctor, nurse or midwife - during the birth.

According to the latest estimates, globally one third of births are still taking place without skilled assistance and care (Figure 3.10). Majority of these unassisted deliveries are occurring in developing

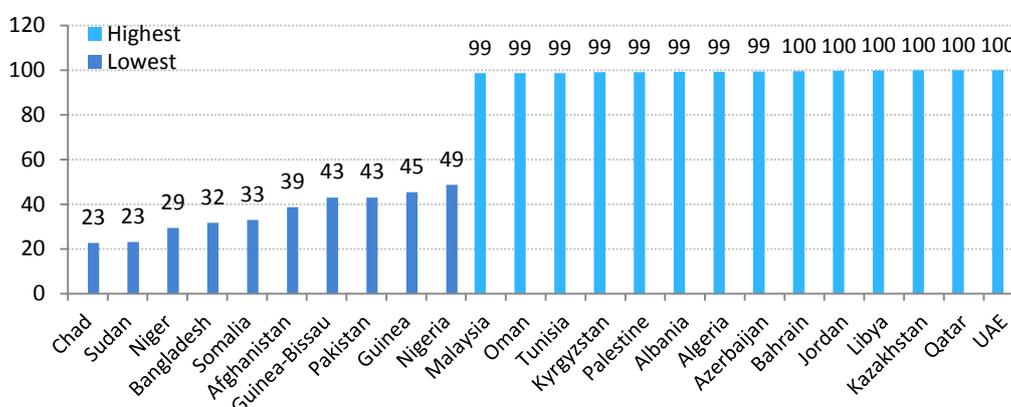
countries. In 2008-2012, a doctor, nurse or midwife assisted 62 per cent of deliveries in OIC countries. In contrast, this ratio was recorded at 70 per cent in non-OIC developing countries and 67 per cent in the world. As shown in Figure 3.10, coverage of skilled personnel attendance at the time of delivery has been significantly high in OIC regional groups with the exception of SA and SSA regions. ECA region registered the highest coverage of 94 per cent followed by MENA (90 per cent) and EAP (85 per cent). These three regions maintained coverage rates higher than the world and non-OIC developing countries averages. In contrast, the situation remained particularly alarming in SA region where 61 per cent of total births took place without any skilled health care and assistance at the time of delivery.

Figure 3.10: Births Attended by Skilled Health Personnel, 2008-2012



Source: SESRIC staff calculations based on WHO, Data Repository

Figure 3.11: Births Attended by Skilled Health Personnel in OIC Countries (per cent), 2008-2012



Source: WHO, Data Repository

Over the years, the majority of OIC countries witnessed improvement in number of births assisted by skilled health personnel. During 2008-2012, health personnel assisted more than 90 per cent of deliveries in 23 OIC countries. In 16 of these 23 countries, health personnel attended all births (Figure 3.11). In contrast, less than 50 per cent of total pregnant women received skilled health care during birth in 10 OIC countries. Chad and Sudan were at the bottom of the scale with only 23 per cent of total births attended by skilled health personnel during 2008-2012.

3.4.3 Immunization

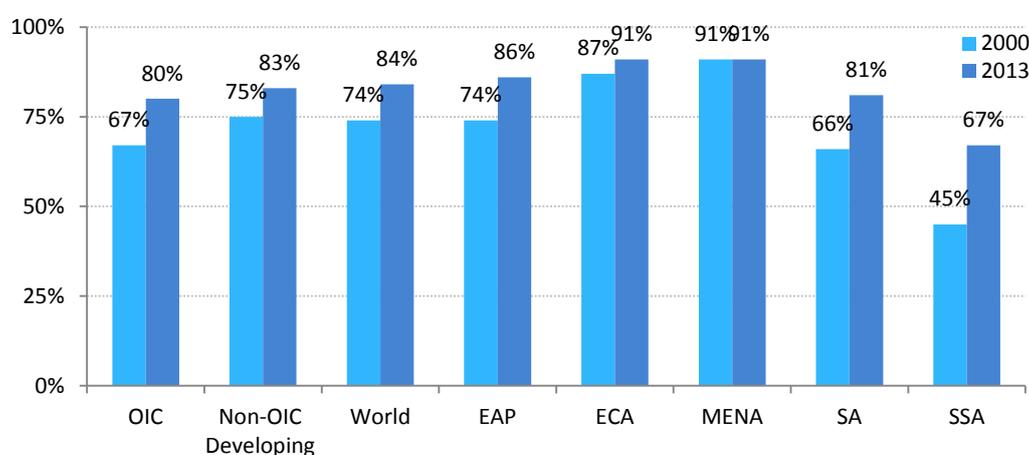
Keeping in view the age-specific health risks, childhood immunization is one of the most efficient and effective methods of preventing diseases like measles, meningitis, diphtheria, tetanus, pertussis (whooping cough), yellow fever, polio and hepatitis b. Over the years, serious efforts were exerted worldwide to develop and improve national immunization programmes and coverage by ensuring

excess to needed vaccines and training for health workers. These noble efforts towards increasing immunization coverage helped to prevent millions of child deaths across the world.

Coverage of DTP3, a combination of vaccines against three infectious diseases: diphtheria, tetanus and pertussis (whooping cough), is used as the benchmark indicator of routine immunization programme in a country/region by the United Nations Children's Fund (UNICEF) and WHO (WHO, 2015a). Globally, DTP3 immunization coverage during the first year of life has increased from 74 per cent in 2000 to 84 per cent in 2013, corresponding to an increase of 10 percentage points (Figure 3.12). A similar trend prevailed in non-OIC developing countries with immunization coverage climbing up from 75 per cent in 2000 to 83 per cent in 2013. OIC countries also witnessed improvement in DTP3 vaccination among one year olds as their coverage rate increased from 67 per cent in 2000 to 80 per cent in 2013. Though OIC coverage remained slightly below the world and non-OIC developing countries averages, they are catching up rapidly with a 13 percentage point increase during 2000-2013 compared to 8 percentage point increase in non-OIC developing countries and 10 percentage points in the world.

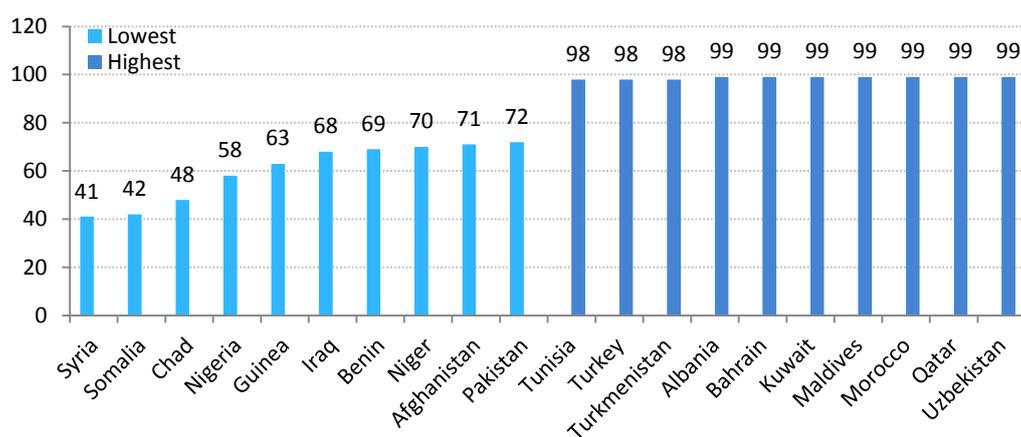
During the period under consideration, all OIC regions witnessed improvement in DTP3 immunization among one year olds (Figure 3.12). Coverage rates remained highest in ECA and MENA regions with 90 per cent children immunized against the diphtheria, tetanus and pertussis. In contrast, despite an increase of 22 percentage points during 2000-2013, SSA region registered the lowest immunization coverage as about one third of children were missed out in this region. Meanwhile, the share of children receiving DTP3 vaccine during the first year of life has increased from 66 per cent to 81 per cent in SA and 67 per cent to 80 per cent in EAP.

Figure 3.12: DTP3 Immunization Coverage (per cent), 2013



Source: SESRIC staff calculations based on WHO, Data Repository

DTP3 immunization coverage remained quite high in majority of OIC countries. In 2013, 30 OIC countries recorded coverage rate of 90 per cent or more. Among these 30 countries, seven OIC countries registered immunization coverage of 99 per cent (Figure 3.13). Among others, 12 countries were within the 80-89 per cent range and coverage rate remained between 70 to 79 per cent for seven other OIC countries. In contrast, about one third of one year old children were not immunized against DTP in seven OIC countries. Among these countries, as shown in Figure 3.13, lowest coverage rate was recorded in Syria (41 per cent) followed by Somalia (42 per cent) and Chad (48 per cent).

Figure 3.13: OIC Countries with Highest and Lowest DTP3 Immunization Coverage (per cent), 2013

Source: WHO, Data Repository

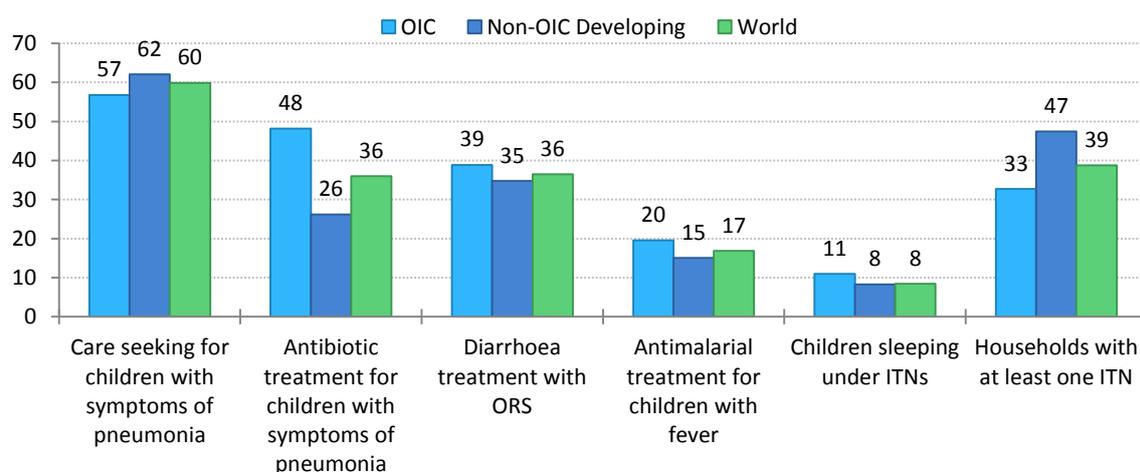
3.5 Prevention and Control of Infectious Diseases

Globally, over 38 per cent of the total under-five deaths are caused by only three infectious diseases: pneumonia, diarrhoea, and malaria. The combined burden of these three diseases stands at 36 per cent of the total under-five deaths in non-OIC developing countries and over 43 per cent in OIC countries. The majority of these deaths are preventable by using cost-effective, affordable and easy to implement measures (Figure 3.14).

Reduction of childhood mortality caused by acute respiratory infections remained an elusive goal mainly due to incomplete immunization schemes, malnutrition, late care seeking and inadequate treatment. The latest estimates show that 60 per cent of children with symptoms of pneumonia in the world were taken to a health provider for check-up and only 36 per cent received antibiotic treatment in 2009-2013. A similar situation prevails both in OIC and non-OIC developing countries. Nevertheless, antibiotic treatment for pneumonia was significantly high in OIC countries with a coverage rate of 48.2 per cent (Figure 3.14).

Diarrhoea is another major killer of children, accounting for 9 per cent of world's total deaths of children under-5. Although childhood diarrhoea can be treated with a simple solution made from oral rehydration salts (ORS), just over one third of children (36.5 per cent) with diarrhoea worldwide were treated with ORS in 2009-2013. The coverage rate was recorded at 39 per cent in OIC and 35 per cent in other developing countries (Figure 3.14).

Globally, over 7 per cent of total deaths in children are attributed to malaria. Most of these deaths occurred in OIC countries which accounted for 62 per cent of the global burden in 2009-2013. Sleeping under insecticide-treated nets (ITNs) is the most effective way to prevent the malarial infection and reduce malaria related deaths. Nevertheless, worldwide, only 8.4 per cent of children were sleeping under ITNs in 2009-2013. Though coverage rate remained comparatively better in OIC countries, still only 11 per cent of total children were sleeping under ITNs (Figure 3.14). In general, around half of the total households (47.4 per cent) had at least one ITN in non-OIC developing countries compared to the OIC average of only 32.7 per cent.

Figure 3.14: Coverage of Measures for Infectious Diseases (per cent), 2009-2013

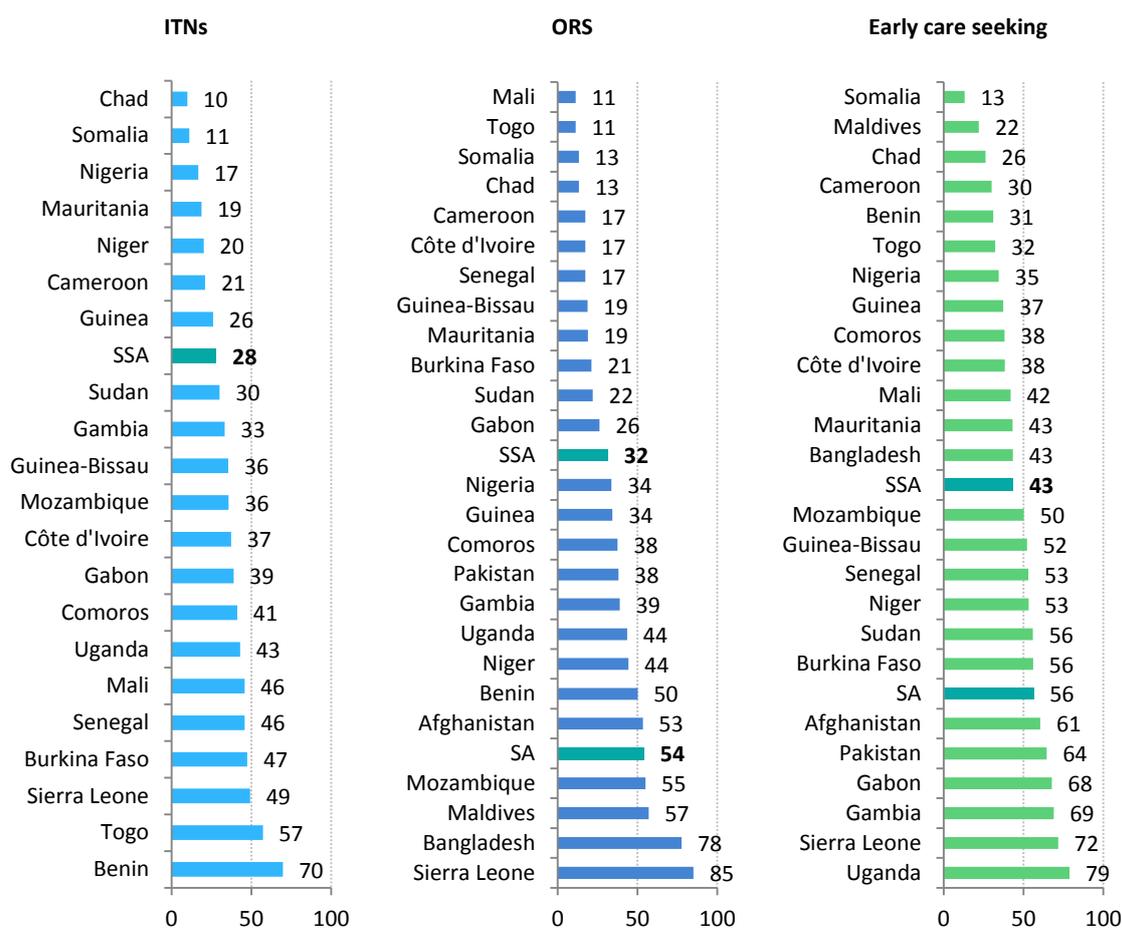
Source: SESRIC staff calculations based on WHO, Data Repository

Deaths of children caused by pneumonia, diarrhoea and malaria remained highly concentrated in two OIC regions namely: Sub-Saharan Africa and South Asia. As of 2013, SSA region accounted for 99 per cent of under-five deaths caused by malaria in OIC countries. Despite this heavy toll, recent estimates show that only 28 per cent of children in this region sleep under ITNs and only a half of the total households (51 per cent) had at least one ITN. For many countries in SSA region, ITNs coverage remained even lower than the regional average (Figure 3.15). Over all, the lowest coverage was recorded in Chad where only 9.8 per cent children were sleeping under ITNs followed by Somalia (11 per cent), and Nigeria (16.6 per cent).

In 2009-2013, 90 per cent of diarrhoea-related child deaths in OIC countries were reported in SSA (64 per cent) and SA (26 per cent) regions. Nevertheless, even in these high burden regions, ORS treatment remained low with just over half (54 per cent) of children with diarrhoea treated with ORS in SA and only 31 per cent in SSA region. Usually, OIC countries with highest burden of diarrhoea related deaths recorded the lowest coverage of ORS treatment. As shown in Figure 3.15, less than 30 per cent of children with diarrhoea were treated with ORS in 12 countries, all from SSA region. Mali recorded the lowest coverage of ORS (11.2 per cent) followed by Togo (11.3 per cent), Somalia (13.2 per cent) and Chad (13.3 per cent).

In case of pneumonia, 85 per cent of OIC's child deaths were reported in SSA (60 per cent) and SA (25 per cent) regions. Once children develop symptoms of pneumonia, early care seeking and prompt treatment can save their lives. Yet in 2009-2013, only 43 per cent children with symptoms of pneumonia in SSA and 56 per cent in SA were seen by a health provider. At the individual country level, as shown in Figure 3.15, more than two thirds of children with pneumonia were taken to a health provider in four OIC countries namely: Uganda (79 per cent), Sierra Leone (72 per cent), Gambia (69 per cent) and Gabon (68 per cent). On the opposite side of the scale, care seeking for pneumonia remained lowest in Somalia (13 per cent) followed by Maldives (22 per cent) and Chad (26 per cent).

Figure 3.15: Coverage of Measures for Infectious Diseases in selected OIC Countries (per cent), 2009-2013



Source: SESRIC staff calculations based on WHO, Data Repository

3.6 Nutrition

Proper child nutrition is one of the most powerful tools to raise a healthy and productive generation. It helps not only in improving children's chances of survival during the early years of life but also contribute towards their physical and cognitive development. On the other hand, malnutrition not only increases the risk of child death from common illness such as diarrhoea, pneumonia, and malaria but can also lead to stunted growth, which is irreversible and associated with impaired cognitive ability and reduced school and work performance. According to the UNICEF (2013a), nutritional status of children is assessed through measurement of their weight and height. The most commonly used indicators of nutritional status are stunting, underweight, wasting, and overweight.

3.6.1 Incidence of Malnutrition

The latest estimates of the WHO show that about 180 million children worldwide, mostly from developing countries, have stunted growth in 2009-2013. The number of the stunted children, both severe and moderate, accounted for 29 per cent of the world total population under five. OIC countries bear one third of global burden of stunted children in 2009-2013. As shown in Figure 3.16, about 33 per cent of under-five children in OIC countries were stunted in 2009-2013 compared to 29 per cent in other developing countries and in the world. Among the OIC regions, highest prevalence of stunting was recorded in SA (45 per cent), followed by SSA (36 per cent) and EAP (35 per cent). In terms of number of stunted children, these three regions accounted for 83 per cent of OIC's total stunted children in 2009-2013. Distribution of stunted children remained highly uneven across the

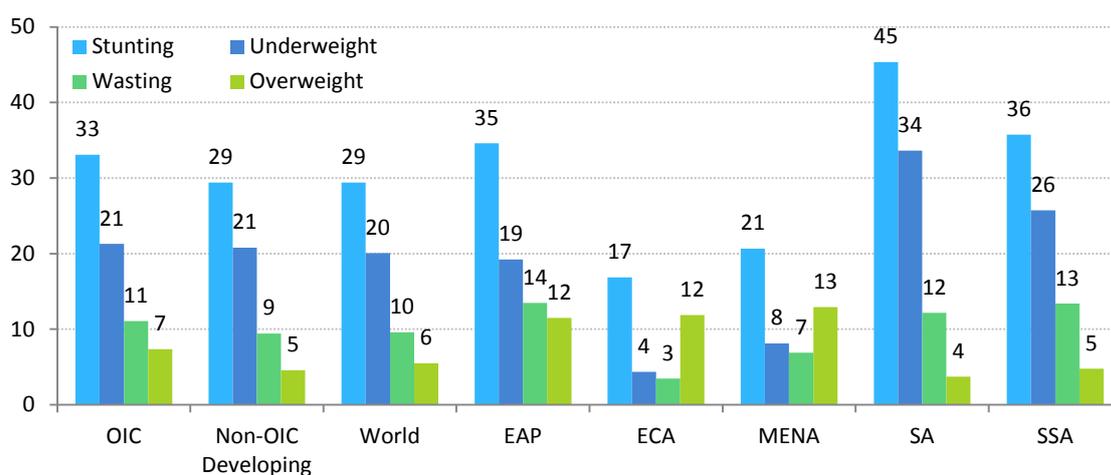
OIC countries and more than half of OIC's stunted children were living in four countries namely: Nigeria (17 per cent of OIC total), Pakistan (15 per cent), Indonesia (13 per cent) and Bangladesh (9 per cent).

In 2009-2013, 20.1 per cent or 120 million children under five years of age in the world were underweight. Among the developing countries, non-OIC developing group accounted for the highest share of underweight children (65 per cent) followed by OIC countries (35 per cent). As shown in Figure 3.16, the proportion of children under five years old who were underweight was recorded at 21.3 per cent in OIC countries followed closely by the other developing countries (20.8 per cent). Among the OIC regions, as shown in Figure 4.3, underweight prevalence remained the highest in SA (34 per cent), followed by SSA (26 per cent) and EAP (19 per cent). In terms of absolute numbers of underweight children, SSA and SA were home to about 80 per cent of total underweight children in OIC countries. About two third of underweight children in OIC countries were living only in five countries namely: Nigeria (22 per cent of OIC total), Pakistan (16 per cent), Bangladesh (13 per cent), Indonesia (11 per cent) and Sudan (4 per cent).

Wasting is a major health problem. Globally, more than 50 million children under 5 years of age were moderately or severely wasted in 2009-2013, accounting for about 10 per cent of children in the world. Currently, about 38 per cent of wasted children in the world are living in OIC countries while this ratio stands at 62 per cent for other developing countries. Nevertheless, as shown in Figure 3.16, wasting prevalence remained more or less the same in OIC and other developing countries with a rate of 11.1 per cent and 9.4 per cent respectively. Among the OIC regions, wasting is more prevalent in EAP, where one in every seven children (14 per cent) is moderately or severely wasted (Figure 3.16). A similar situation exists in SSA and SA regions. The burden of wasting is highest in SSA and SA regions, which accounted for 70 per cent of total wasted children in OIC countries (with 47 per cent living in SSA and 23 per cent in SA). It is worth noting that more than half of OIC total wasted children were living only in three countries namely: Nigeria (25 per cent of OIC total), Indonesia (15 per cent) and Bangladesh (11 per cent).

Childhood overweight and obesity is on rise across the globe especially in the developing world. There are serious health consequences for childhood overweight and obesity including cardiovascular disease, diabetes, and many cancers. Globally, in 2009-2013 the number of overweight children under the age of five was estimated to be over 42 million. Though overweight was once associated mainly with high-income countries, 72 per cent of world total overweight children were living in low-and middle-income countries. As of 2009-2013, OIC countries accounted for 32 per cent of world total overweight children while other developing countries were home for 40 per cent. However, as shown in Figure 3.16, the prevalence of overweight among children remained higher in OIC countries (7.4 per cent) than the other developing countries (4.6 per cent). Overweight prevalence remained highest in MENA, ECA and EAP regions (Figure 3.16). These three regions accounted for 81 per cent of the OIC burden of overweight children (with 35 per cent living in MENA, 25 per cent in SSA and 21 per cent in EAP). At the country level, the highest proportion of the OIC's total overweight children (21 per cent) lives in Indonesia followed by Egypt (14 per cent) and Nigeria (11 per cent).

Figure 3.16: Nutritional Status of Under5 Children (per cent), 2013



Source: SESRIC staff calculations based on WHO, Data Repository

3.6.2 Feeding Practices

Proper feeding especially during the first two years of life is critical for a child's survival, growth and development. Regarding best child feeding practices, international health agencies like UNICEF and WHO recommend that infants should be breastfed within one hour of birth, breastfed exclusively for the first six months of life and continue to be breastfed up to 2 years of age and beyond. Starting at 6 months, breastfeeding should be combined with safe, age-appropriate feeding of solid, semi-solid and soft foods. According to the recent findings of UNICEF (2013) implementation of these interventions could reduce the global deaths of children under-5 years of age by 20 per cent.

The latest estimates on feeding practices among infants and young children reveal that in spite of its crucial importance for child nutrition a significant number of infants and children are not breastfed. Globally, only 44.9 per cent infants were breastfed within one hour of birth and 37.4 per cent were exclusively breastfed for 0-5 months (Figure 3.17). In line with the global trends, coverage of infant and child feeding practices remained more or less similar both in OIC and non-OIC developing countries. In the OIC countries, only 42.9 per cent of infants were put to the breast within first hour of birth, and 34.9 per cent were exclusively breastfed during the first six months of life. The coverage of breastfeeding until age 2 remained comparatively better in OIC countries with 46.7 per cent of the total children breastfed until age 2. The estimates for appropriate feeding of children with adequate and safe complementary food reveal that about two third of infants in OIC countries were introduced to solid, semi-solid or soft foods at 6 to 8 months. Coverage for introduction of complementary food for infants remained more or less the similar both in the world and non-OIC developing countries. In general, OIC countries average for the early initiation of breast and exclusive breastfeeding for six months remained visibly lower than the world and non- OIC developing countries averages (Figure 3.17).

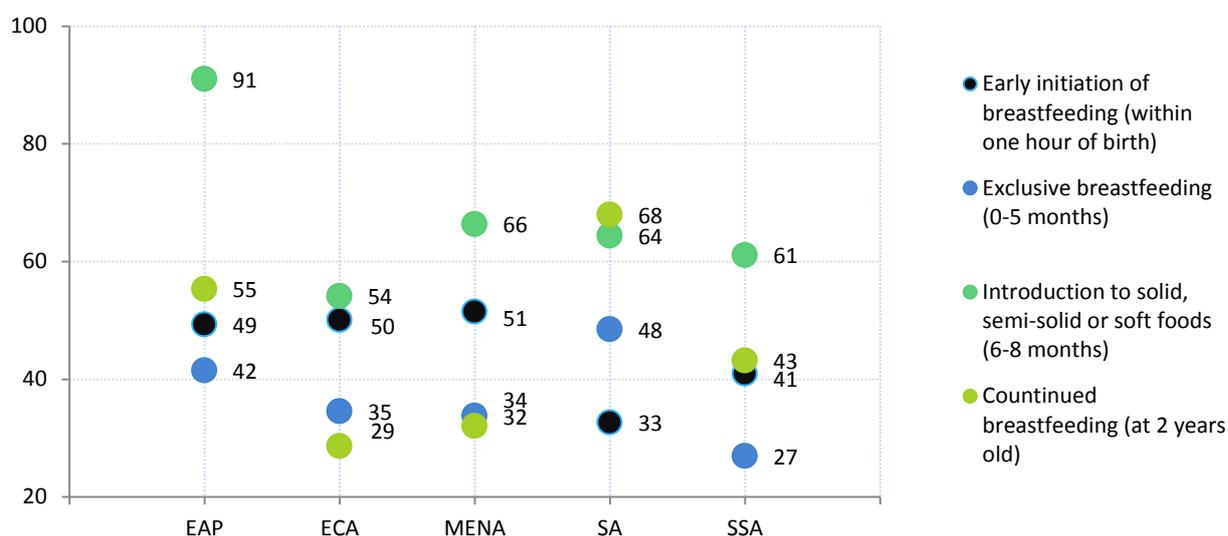
Coverage of recommended breastfeeding practices varies substantially among the OIC regions (Figure 3.18). The share of infants which are breastfed within one hour of birth ranges from 33 per cent in SA to 51 per cent in MENA region. On the other hand, in terms of continued breastfeeding at 2 years of age, coverage ranges from 29 per cent in ECA to 68 per cent in SA region. In general, data from three indicators relating to breastfeeding reveals that children in SSA, MENA and ECA region remained particularly vulnerable to malnutrition. Regarding the introduction of complementary food, EAP region registered the highest coverage rate of 91 per cent whereas, about two thirds of infants were introduced to solid, semi-solid or soft foods at 6 to 8 months in MENA, SA and SSA regions (Figure 3.18).

Figure 3.17: Coverage of Child Feeding Practices (per cent), 2009-2013



Source: SESRIC staff calculations based on UNICEF Database

Figure 3.18: Coverage of Child Feeding Practices (per cent) in OIC Regions, 2009-2013



Source: SESRIC staff calculations based on UNICEF Database

3.7 Micronutrient Deficiencies

Micronutrient deficiencies like deficiencies of vitamin A, iron, iodine, zinc and folic acid are very common among women and children in low income developing countries, including some OIC countries. While efforts to improve the nutritional status of children through breastfeeding and complementary feeding are crucial, interventions like supplementation are regarded as a fast-track approach to improve the intake of vital micronutrients among women and children. This sub-section presents a brief overview of efforts exerted by OIC countries to improve the micronutrient deficiencies among children.

3.7.1 Vitamin A Supplement

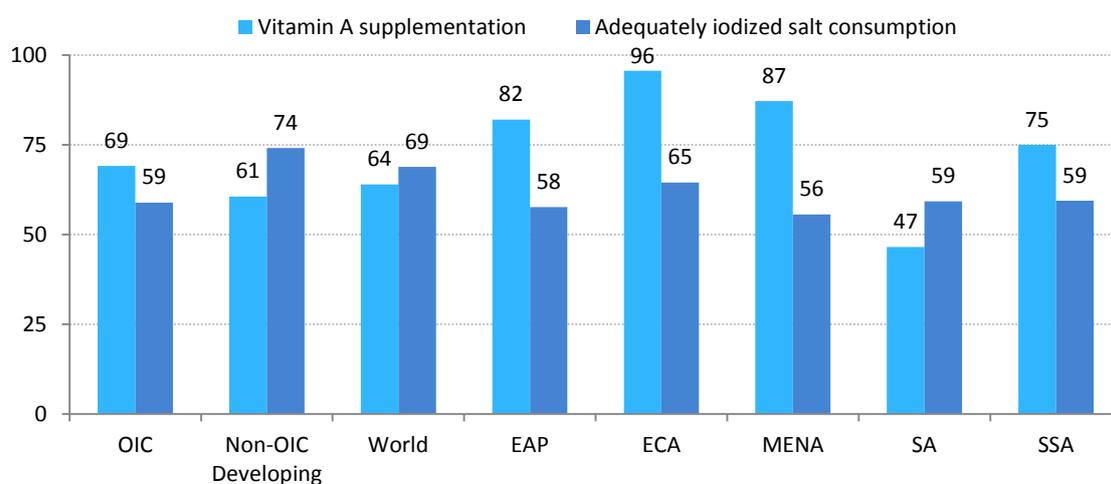
According to the WHO (2015c), vitamin A deficiency is a public health problem especially in Africa and South-East Asia. It is not only the leading cause of preventable blindness in children but it also increases the risk of disease and death from severe infections. Globally, about two-third of children aged 6 to 59 months received two doses of vitamin A in 2009-2013 (Figure 3.19). Coverage for vitamin A supplementation remained highest in OIC countries where 69 per cent of children

received two doses of vitamin A. Non-OIC developing countries registered comparatively low coverage of 61 per cent. Vitamin A supplementation coverage varies greatly across the OIC regions. In 2009-2013, ECA registered the highest coverage rate of 96 per cent followed by MENA (87 per cent) and EAP (82 per cent). In contrast, children remained most vulnerable to vitamin A deficiency and hence blindness in SA, with more than half of children aged 6 to 59 months did not receive two doses of vitamin A (Figure 3.19).

3.7.2 Iodized Salt Consumption

Consumption of adequately iodized salt is another major intervention to prevent and improve the iodine deficiency and its consequences. Iodine is critical for fetal development. If mothers do not have adequate iodine intake, babies may develop a form of mental retardation called cretinism (WHO (2015c)). As a result, it does not only affect children's performance at school but also affects their productivity and the ability to find a job in adulthood. Globally, nearly 50 million people suffer from some degree of iodine deficiency-related brain damage. According to the latest estimates, globally, 69 per cent of households have adequately iodized salt (15 parts per million or more), but coverage varies considerably among the developing countries (Figure 3.19). Non-OIC developing countries registered the highest coverage, with 74 per cent of households consuming adequately iodized salt. In contrast, only 59 per cent of households were consuming adequately iodized salt in OIC countries. Consumption of adequately iodized salt remained more or less the similar across the OIC regions except ECA, where 65 per cent of households were consuming adequately iodized salt in 2009-2013.

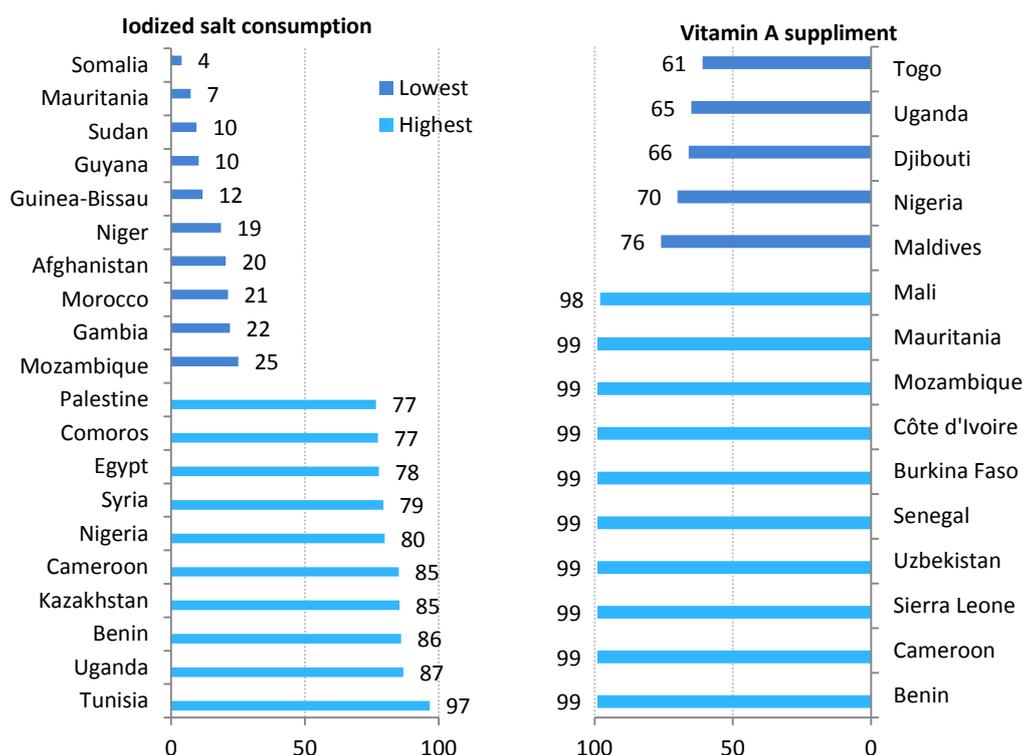
Figure 3.19: Coverage of Micronutrient Supplementation (per cent), 2009-2013



Source: SESRIC staff calculations based on UNICEF Database

At the individual country level, 20 out of 27 OIC countries, for which the data are available, had reached the universal target of 80 per cent coverage for vitamin A supplementation. Among these 20 countries, coverage remained over 90 per cent in 17 OIC countries, 12 of them from SSA region (Figure 3.20). For the adequately iodized salt consumption, among the 43 OIC countries for which the data are available, only Tunisia managed to reach the global target of 90 per cent coverage. Among others, consumption of iodized salt ranged from 50 to 88 per cent in 23 OIC countries. For 14 of these countries coverage remained over 70 per cent. On the bottom side, less than 30 per cent of households were consuming adequately iodized salt in 11 OIC countries. Among these countries, coverage remained even less than 15 per cent in Somalia, Mauritania, Sudan, Guyana and Guinea-Bissau.

Figure 3.20: OIC Countries with Highest and Lowest Coverage of Supplements (per cent), 2009-2013



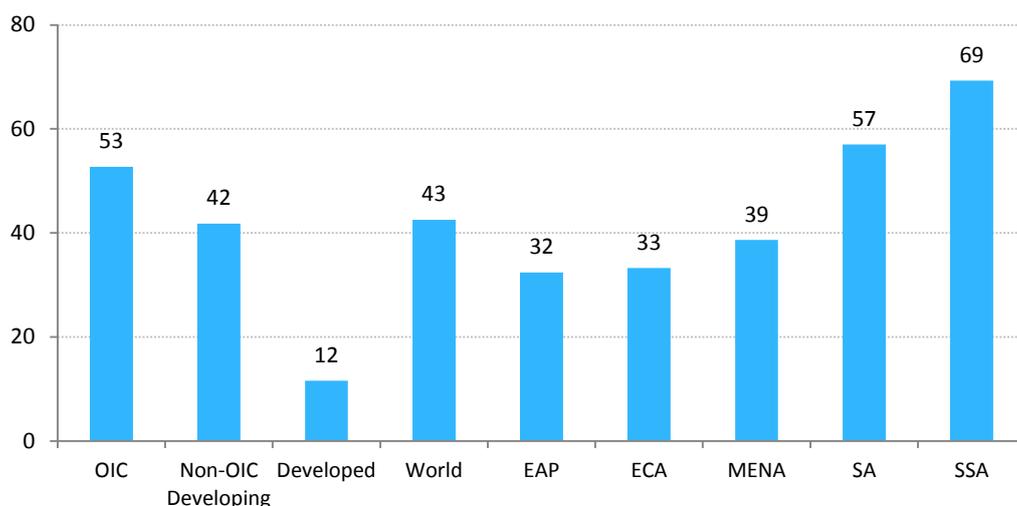
Source: UNICEF Database

3.7.3 Iron Deficiency Anaemia

Iron deficiency is one of the most common and wide spread nutritional disorders in the world. However, it is mostly prevalent among children and women in low income developing countries, though it is the only nutrient deficiency which is also significantly prevalent in developed countries as well. Iron deficiency is indicated as the most common cause of anaemia in women and children. During pregnancy, iron deficiency can be harmful to both mother and child, resulting in birth complications, increased risk of maternal mortality (contributing to about 20 per cent of deaths), and impaired physical and mental development of child (UNICEF, 2004).

According to the latest estimates, over 43 per cent of children under-5 were anaemic in 2011. While prevalence of anaemia was just 12 per cent for developed countries, the numbers were staggering in non-OIC developing and OIC countries with 42 per cent and 53 per cent of children suffering from anaemia respectively (Figure 3.21). Among the OIC region, anaemia in children remained a major health challenge in South Asia and Sub-Saharan Africa. These two regions accounted for over 70 per cent of total anaemic children in OIC countries. As shown in Figure 3.21, about 69 per cent of children were suffering from anaemia in SSA and 57 per cent in SA region. In contrast, less than 40 per cent of children were anaemic in other regions.

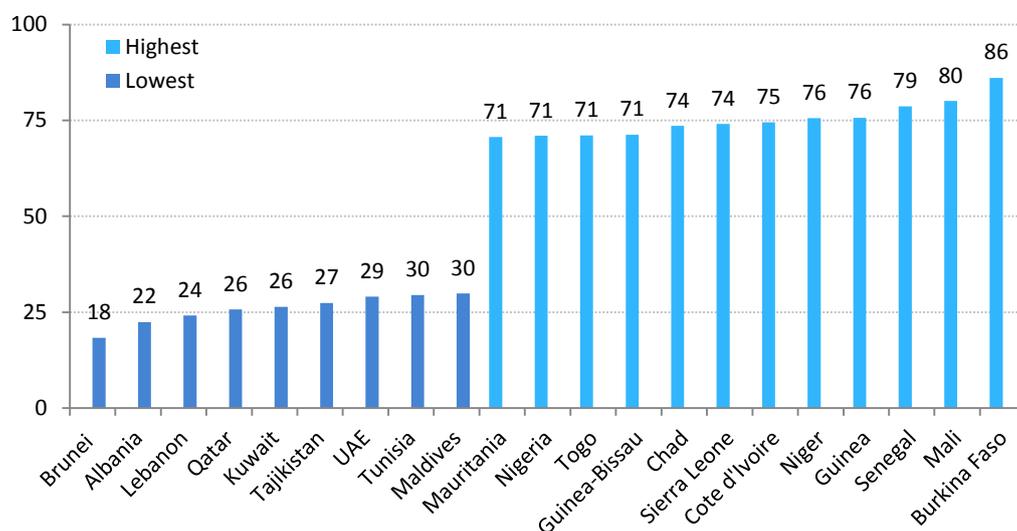
Figure 3.21: Prevalence of Iron Deficiency Anemia (per cent), 2009-2013



Source: SESRIC staff calculations based on World Bank, WDI

Looking at the individual countries, as shown in Figure 3.22, Brunei recorded the lowest prevalence of anaemia among children (18.3 per cent) followed by Albania (22.4 per cent) and Lebanon (24.2 per cent). On the opposite side of the scale, prevalence remained highest in Burkina Faso (86 per cent) followed by Mali (80.1 per cent) and Senegal (78.7 per cent). In general, more than half of the children were anaemic in 24 OIC countries, 21 of them from SSA region.

Figure 3.22: OIC Countries with Highest and Lowest Prevalence of Anemia (per cent), 2009-2013



Source: World Bank, WDI

DISEASE PREVENTION AND CONTROL

4

Prevention and control of diseases and pandemics is one of the most significant areas to be addressed in the domain of health. Cooperation in this area is a common interest of international community and all OIC countries. In this context, developing countries, including the OIC member countries have been taking various actions against diseases and pandemics through both their national health programs/strategies and their partnerships at the international level. As a substantial part of the developing countries, the group of OIC countries reflects high levels of heterogeneity and divergence in terms of socio-economic development. The existence of heterogeneity in terms of development profiles of OIC countries also seen in their performance in disease prevention and control.

The OIC countries have been striving over the years to develop multifaceted prevention, care and treatment strategies and programs and emergency preparedness plans. However, it seems that much more efforts are still needed in many of them to strengthen health infrastructures, capacity building of health professionals and improving access to essential medicine, including vaccines, especially in those OIC countries which lack the necessary resources to do so. This underlines the pressing need for closer collaboration at the regional and global levels with the involvement of relevant international institutions and initiatives in the area of health, such as the WHO and the Global Fund.

A look at the general trends in the cause-specific morbidity and mortality (i.e. prevalence of deaths due to communicable and non-communicable diseases, as well as injuries) is quite revealing. In OIC countries 55.3 per cent of all deaths are caused by non-communicable diseases (NCDs) in 2012. Each year increasing number of people dies from NCDs in the OIC countries stemming from the positive trends seen in the risk factors (e.g. harmful use of alcohol and obesity). In OIC countries, communicable diseases (CDs) were responsible for 33.7 per cent of all deaths in 2012, which was far exceeding the average of non-OIC developing countries as well as the world average. These basic figures imply that both in terms of prevention and control of CDs and NCDs, OIC countries need to design and implement more effective strategies.

4.1 Life Expectancy at Birth

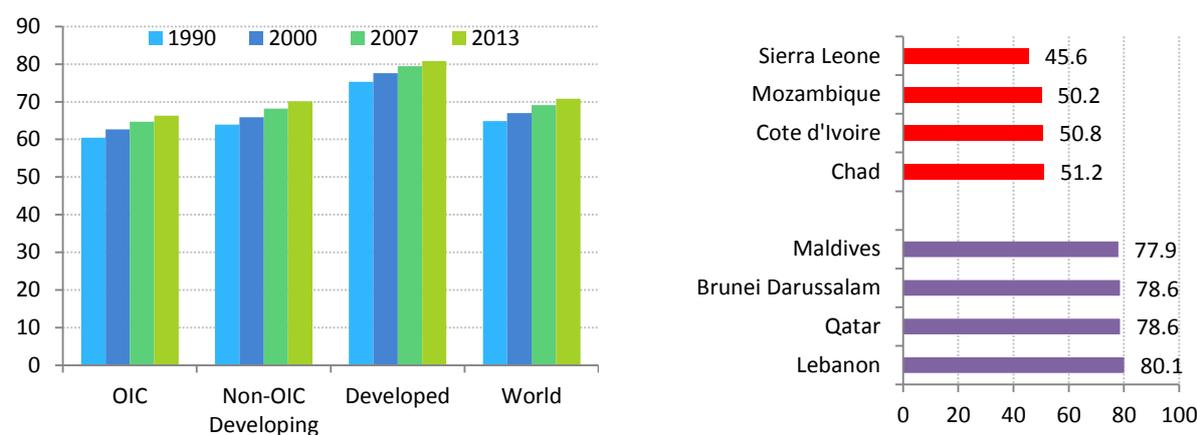
Life expectancy at birth (LEB) is an important indicator on overall health situation of the people in a country and the quality of health care services they are receiving. It is defined as the average number of years that a new born is expected to live if health and living conditions at the time of birth remained at the same levels. In general, life expectancy at birth in a country is determined by a variety of socio-economic factors like state of poverty and undernourishment, access to clean water and sanitation, availability of primary health care services and immunization coverage.

Figure 4.1 (left) displays the life expectancy rates between 1990 and 2013 across the globe. On average, OIC countries, as a group, witnessed an improvement in life expectancy at birth between 1990 and 2013 where LEB rose from 60.5 years in 1990 to 66.3 years in 2013. In the same period,

LEB increased from 63.9 to 70.1 in non-OIC developing countries. Over this period, worldwide average LEB climbed from 64.9 to 70.8. The average LEB in developed countries reached 80.8, which is the highest LEB among all groups. Concisely, despite major improvement in LEB, OIC countries, on average, still lag behind the average of non-OIC developing countries and the world average as well as the average of developed countries.

Within the OIC group, the lowest LEB was mostly seen in countries located in Sub-Saharan African region (56.4 years), Latin America and Caribbean (68.6 years) and South Asia (69.0 years). At the individual OIC country level, as of 2013, the highest LEB was observed in Lebanon (80.1 years). On the other side of spectrum, a person in Sierra Leone has only 45.6 years of life expectancy at birth (Figure 4.1, right).

Figure 4.1: Life Expectancy at Birth and OIC Countries with Highest and Lowest Life Expectancy at Birth



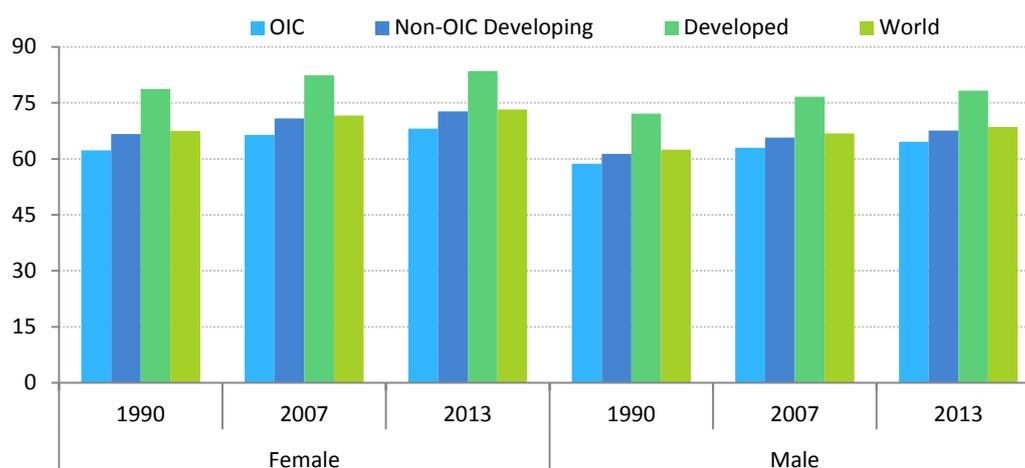
Source: SESRIC staff calculations based on World Bank, World Development Indicators

As in other country groups, another concern for OIC countries on LEB is the existence of disparity between male and female population. As of 2013, female LEB was 68.1, which is 3.53 years higher than male LEB at birth in OIC countries. In non-OIC developing countries female LEB also exceeded male LEB by 5.12 years. The worldwide LEB for female population was 4.67 years higher compared with male population in 2013 (Figure 4.2).

Due to more efficient and effective health care systems and better living standards, many developing countries, including OIC countries, have succeeded to increase their LEB. However, developed countries continued to improve their living standards as well and therefore the gap seen in LEB between developing and developed countries did not narrowed down.

Although LEB for both male and female population in OIC countries increased over time, the averages of the OIC group are still far below the average LEB seen in developed countries. It is also evident that in OIC countries, LEB did not increase equally for both male and female population. All these figures imply both the existence of problems related with disease prevention and control as well as equal access to health services for male and female population in OIC countries.

Figure 4.2 : Life Expectancy at Birth (Years)



Source: SESRIC staff calculations based on World Bank, World Development Indicators

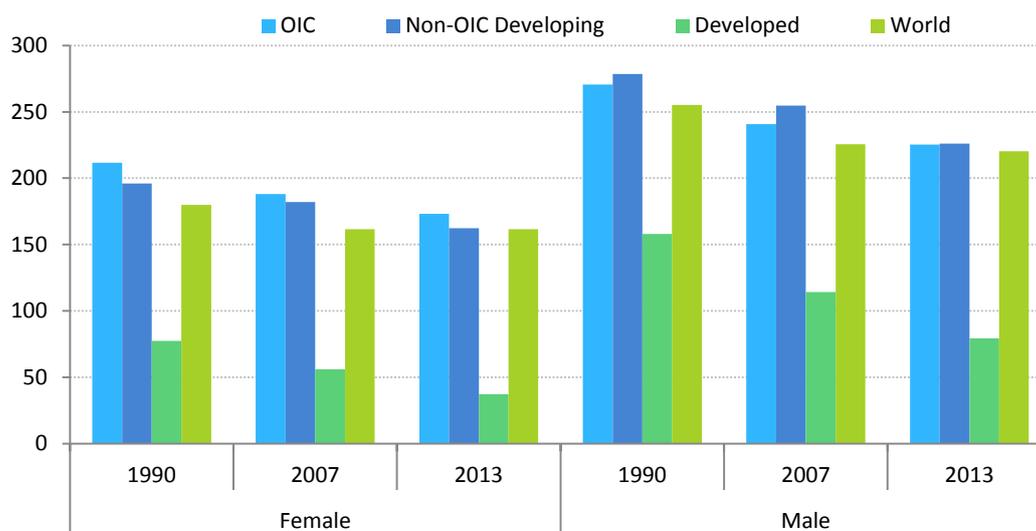
4.2 Adult Mortality Rate

Adult mortality rate (AMR) is defined as the probability of dying between the ages of 15 and 60 years per 1000 population. It is considered as one of the most common measures to assess the health situation in a country. Looking at the AMR for male and female population between 1990 and 2013 for country groups is helpful to understand the level of health progress made by these country groups.

As shown in Figure 4.3, the worldwide average AMR for male population declined from 255.2 deaths per 1000 people in 1990 to 220.3 in 2013. For female population, the world average AMR went down from 180 to 161.5 in the same period. In the OIC countries, it is also seen that AMR figures are on the decline. Between 1990 and 2013, AMR for males decreased from 270.7 to 225.5 where AMR for females went down from 211.7 to 173.2 deaths per 1000 population. The gender gap in terms of AMR reduced from 59 to 52.5 that is a negligible change for the OIC group. Therefore, it is difficult to claim that there was a significant improvement in reducing gender disparity in terms of AMR between 1990 and 2013 in the OIC countries. At the individual country level, Lebanon recorded the lowest AMR (44.9) for female population whereas Mozambique records the highest AMR (475.5) in 2013. For male population, the highest AMR was recorded in Mozambique (489.3) and the lowest AMR was observed in Qatar (63.8) (Figure 4.4). Overall, among the OIC regions, the highest AMR was recorded in the OIC countries located in Sub-Saharan Africa both for male (323 deaths per 1000 population on average) and female population (288 deaths per 1000 population on average) as of 2013.

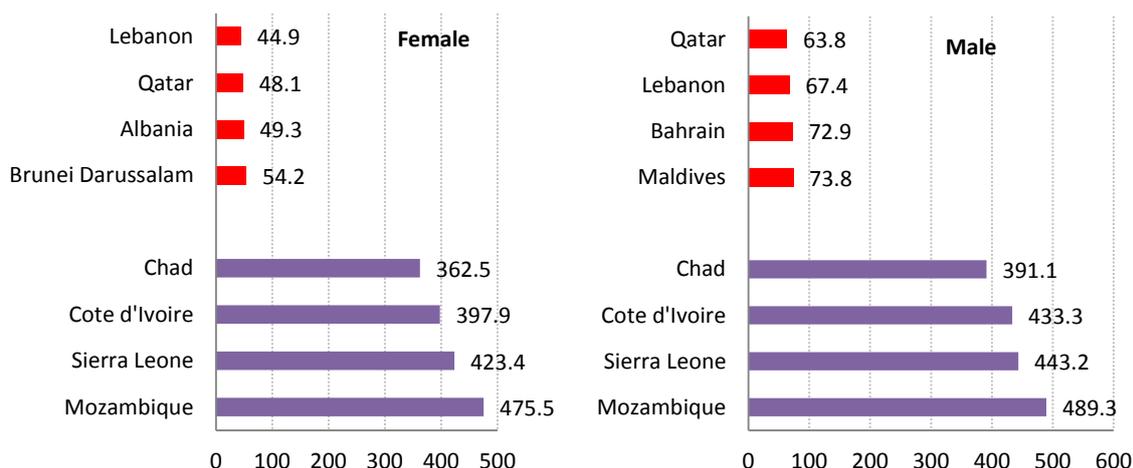
Overall, the adult mortality situation has been improved remarkably in OIC countries and their AMR exhibited a downward trend during the period 1990-2013; thanks to the extensive efforts of national and international institutions to fight against communicable and non-communicable diseases. However, the improvement was not sufficient to catch up the world averages. Therefore, OIC countries need to invest more into health services to further reduce overall AMR and to eradicate the gender disparity in AMR to create more equal societies. For the success of these efforts, it is important to cooperate with international community and benefit from other OIC countries' experiences.

Figure 4.3: Adult Mortality Rate (per 1,000 people)



Source: SESRIC staff calculations based on World Bank, World Development Indicators

Figure 4.4 : OIC Countries with Highest and Lowest Adult Mortality Rate, 2013



Source: SESRIC staff calculations based on World Bank, World Development Indicators

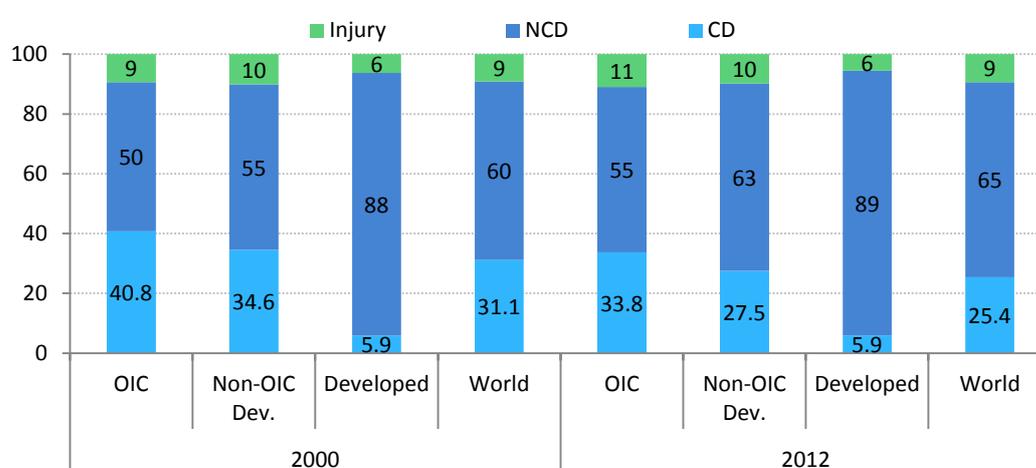
4.3 Causes of Death

According to the WHO, causes of death can be grouped under three major categories: non-communicable diseases (NCDs), communicable diseases (CDs) and injury. Development levels of countries not only affect mortality rates, life expectancy and life quality of their inhabitants but also determine their major causes of death. As countries become more developed over time, they can invest more in fighting against easily preventable CDs and therefore their inhabitants do not usually die from such diseases. However, more developed countries tend to suffer more from NCDs that threaten their people such as diabetes, obesity and physical inactivity.

Figure 4.5 displays the causes of death across country groups in 2000 and 2012. According to the latest estimates, NCDs are the major cause of death worldwide. By 2012, 65.2 per cent of all deaths in the world can be attributed to NCDs. In the OIC group, NCDs caused 49.8 per cent of all deaths in 2000 and 55.3 per cent in 2012. The share of CDs decreased from 40.7 per cent in 2000 to 33.7 per cent in 2012; thanks to the efforts of OIC countries to cope with communicable diseases in cooperation with relevant international institutions. The share of deaths caused by injury slightly

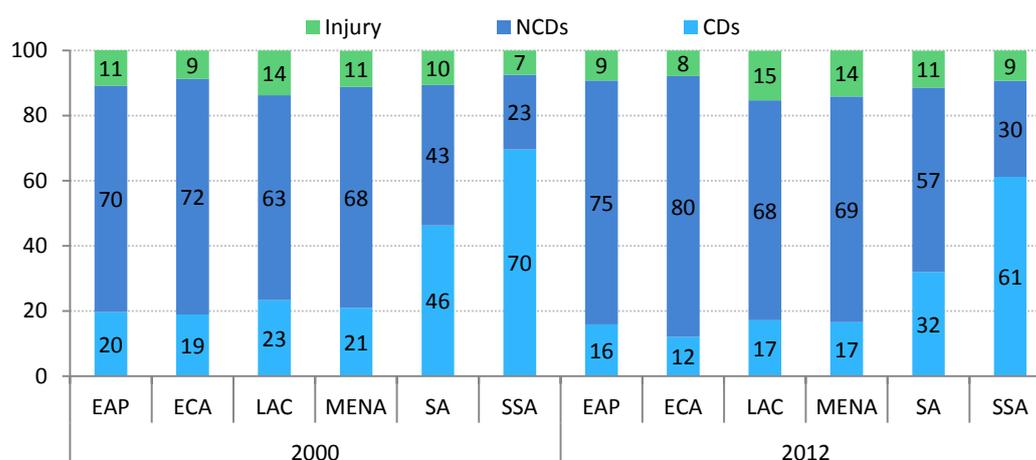
increased from 9.4 per cent in 2000 to 10.9 per cent in 2012 in OIC countries. Overall, it becomes evident that NCDs increasingly pose a challenge for the health of people living in OIC countries. While implementing policies to fight against communicable diseases, therefore, policy-makers need to pay a special attention to the rise in the prevalence of deaths caused by NCDs (Figure 4.5). In developed countries, in 2012, 88.6 per cent of all deaths were caused by NCDs compared to 62.8 per cent in non-OIC developing countries. On the other hand, in 2012, only 5.9 per cent of all deaths were caused by CDs and the major reason behind 5.5 per cent of all deaths were injuries in developed countries. However, in non-OIC developing countries CDs led many lives to come to an end that 27.5 per cent of all deaths stemmed from CDs in 2012. Compared with the average of the OIC countries (33.7 per cent), CDs were less impactful in non-OIC developing countries in terms of causing deaths. In both non-OIC developing countries and OIC countries, injuries were responsible for 10 to 11 per cent of all deaths in 2012.

Figure 4.5: Causes of Death (per cent of Total Deaths)



Source: SESRIC staff calculations based on World Bank, World Development Indicators

At the OIC regional group level, Sub-Saharan Africa (SSA) suffers the most from CDs and maternal, prenatal and nutrition conditions where 61 per cent of all deaths were caused by these diseases in 2012. Compared with 2000, SSA countries managed to reduce this rate from 69.6 per cent to 61 per cent, which is a positive development. South Asia region has the second highest average among OIC sub-regions in terms of deaths caused by CDs where 32 per cent people die from these diseases as of 2012 (Figure 4.6). At the individual country level, 72.1 per cent of all deaths in Chad were caused by CDs. This makes Chad the number one country in the OIC group in terms of having the highest percentage of deaths caused by CDs. On the other hand, Europe and Central Asia (ECA) region pays the highest bill in terms of deaths caused by NCDs where, on average, 80.1 per cent of all deaths were caused by these diseases (Figure 4.6). ECA is followed by East Asia Pacific (EAP) region where 74.8 per cent of all people die from NCDs. About 89.5 per cent of all deaths in Albania were caused by NCDs, which is the highest share among OIC countries. Injuries cost lives of people the most in the LAC and MENA regions where 15.2 per cent and 14.1 per cent of all deaths were caused by injuries in 2012, respectively (Figure 4.6).

Figure 4.6: Causes of Death in OIC Regions (per cent of Total Deaths)

Source: SESRIC staff calculations based on World Bank, World Development Indicators

4.4 Communicable Diseases

Infectious diseases are caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi; the diseases can be spread, directly or indirectly, from one person to another. These type of diseases usually called as communicable and most of the time these diseases are preventable. This section looks at the prevalence of CDs in OIC countries.

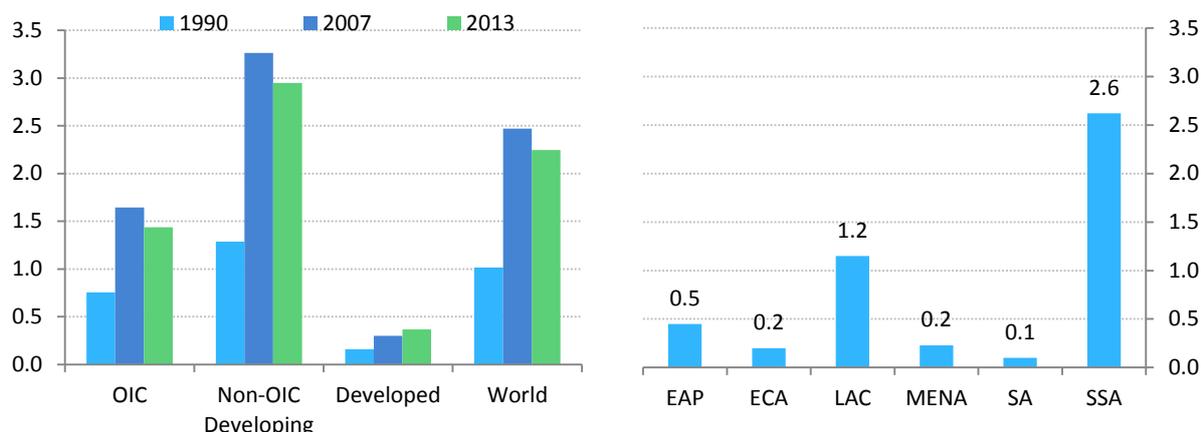
4.4.1 HIV/AIDS

The Human Immunodeficiency Virus (HIV) targets the immune system and weakens people's surveillance and defence systems against infections and some types of cancer. As the virus destroys and impairs the function of immune cells, infected individuals gradually become immunodeficient. The most advanced stage of HIV infection is Acquired Immunodeficiency Syndrome (AIDS), which can take from 2 to 15 years to develop depending on the individual. AIDS is defined by the development of certain cancers, infections, or other severe clinical manifestations.

Since the beginning of the epidemic, almost 78 million people have been infected with the HIV virus and about 39 million people have died of HIV. Sub-Saharan Africa remained most severely affected region, with nearly 1 in every 20 adults living with HIV and accounting for nearly 71 per cent of the people living with HIV worldwide. HIV can be transmitted via the exchange of a variety of body fluids from infected individuals, such as blood, breast milk, semen and vaginal secretions. In order to diagnose, an HIV test is required that reveals infection status by detecting the presence or absence of antibodies to HIV in the blood.

According to Figure 4.7 (left), the prevalence of HIV across country groups between 1990 and 2007 increased. Between 2007 and 2013, a worldwide decrease was observed in the prevalence of HIV cases thanks to the international and national campaigns. By 2013, the worldwide average prevalence rate was measured as 2.25 per cent. In developed countries, this rate was only calculated as 0.37 per cent in the same year. The highest rate was observed in non-OIC developing countries with an average rate of 2.94 per cent. OIC countries, on average, suffer less from HIV compared with non-OIC developing countries and the world average. Only 1.44 per cent of all population in the OIC group were diagnosed with HIV in 2013. The number of deaths caused by AIDS went down from 14210 in 2007 to 13836 in 2003 (Figure 4.8, left).

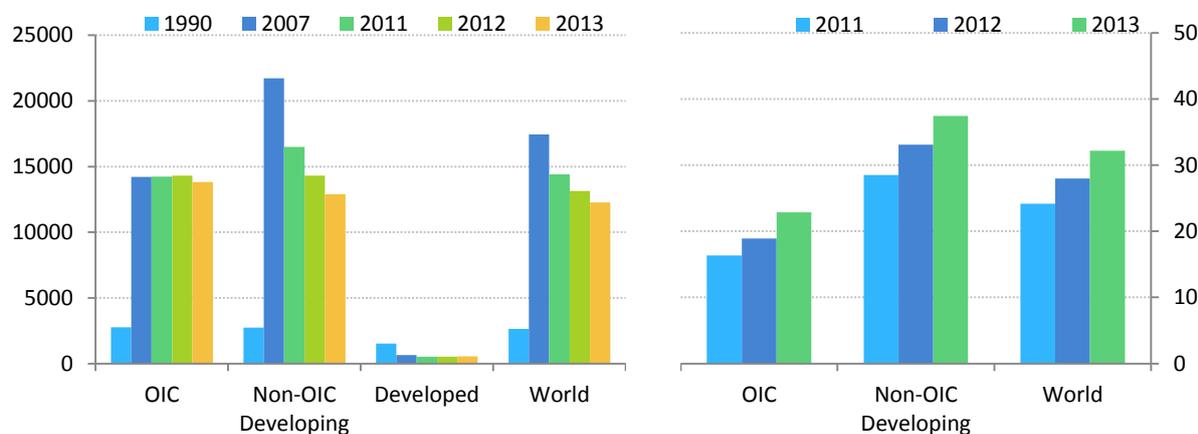
Figure 4.7: Prevalence of HIV (per cent of population ages 15-49) in the World (left) and OIC Regions (right)



Source: SESRIC staff calculations based on World Bank, Health Nutrition and Population Statistics

Across OIC regions, SSA suffers the most from HIV where the average prevalence rate was measured at 2.6 per cent in 2013; a rate which exceeded the world average of 2.25 per cent. Among the OIC sub-regions, the lowest HIV cases were recorded in SA where only 0.1 per cent of all population were diagnosed with HIV (Figure 4.7, right). The antiretroviral therapy coverage is being one of the most effective ways of AIDS prevention and treatment therapy. According to the WHO, antiretroviral drugs allow people with HIV to live for many years before developing symptoms of AIDS. The antiretroviral therapy coverage rate in the OIC group, on average, was on the rise that increased from 16.3 per cent in 2011 to 22.8 per cent in 2013. However, this average still lagged behind the world average of 32.2 per cent by 2013 (Figure 4.8, right).

Figure 4.8: AIDS related Deaths (left) and Antiretroviral Therapy Coverage (right)



Source: SESRIC staff calculations based on World Bank, Health Nutrition and Population Statistics

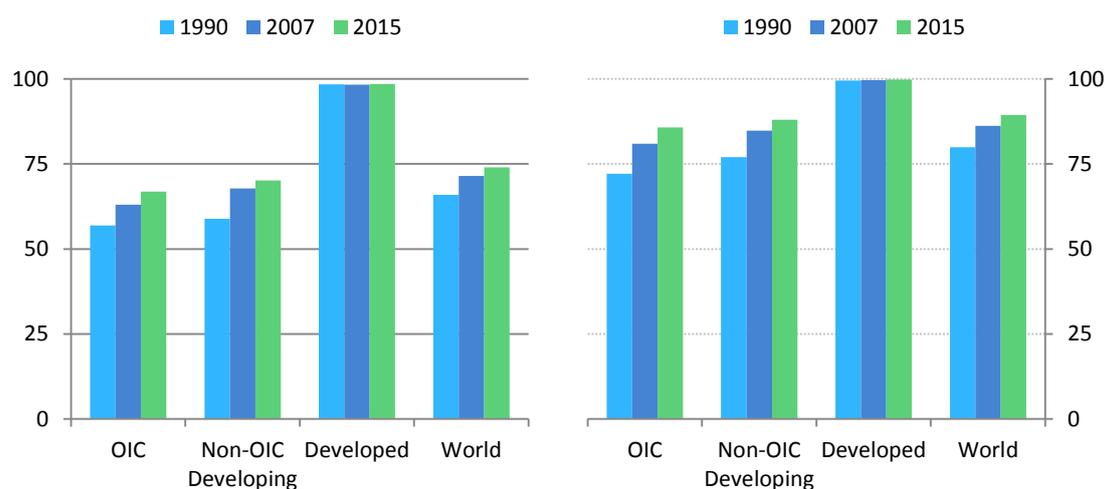
4.4.2 Diarrhoea

Diarrhoea is defined as the passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual). It is the second leading cause of death in children under five years old worldwide. Each year diarrhoea kills around 760 000 children under five. Globally, there are nearly 1.7 billion cases of diarrheal disease every year. Diarrhoea is also a leading cause of malnutrition in children under five years old.

A significant proportion of diarrhoea can be prevented through safe drinking-water and adequate sanitation and hygiene. OIC countries, on average increased their sanitation facilities and water

sources compared with 1990s. As of 2015, on average, 66.9 per cent of population in OIC countries have access to improved sanitation facilities and 85.8 per cent of population have access to improved water sources (Figure 4.9). In both indicators, the OIC group, on average, lagged behind the averages of other country groups. These figures indicate that access to sanitation and water sources are still a key problem in a number of OIC countries, particularly in Sub-Saharan Africa and South Asia regions. These two factors are the main causes for diarrhoea cases seen and are responsible for many deaths. Therefore, OIC countries need to invest more into infrastructure to reduce number of deaths caused by diarrhoea that is a preventable communicable disease.

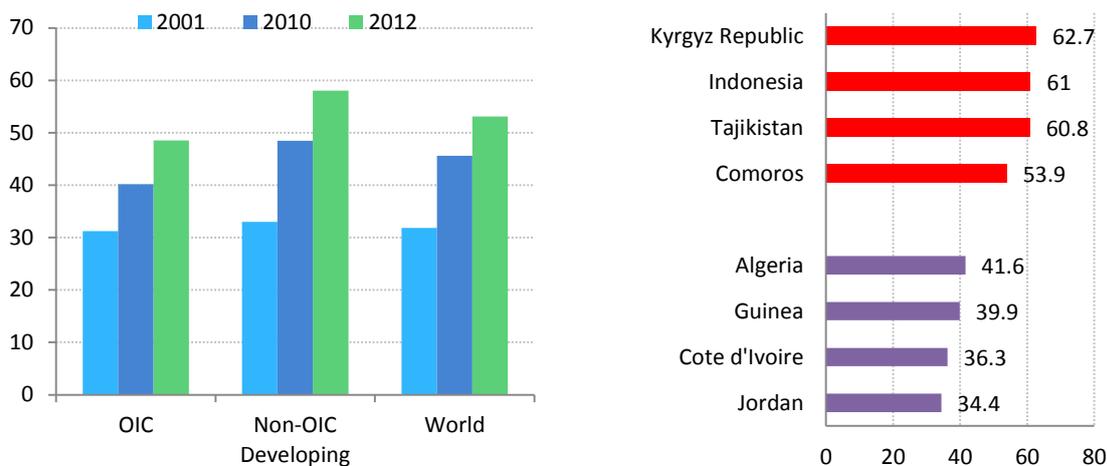
Figure 4.9 : Access to Improved Sanitation Facilities (left) and Water Sources (right), per cent of population



Source: SESRIC staff calculations based on World Bank, Development Indicators and WHO/UNICEF Joint Monitoring Programme

In diarrhoea treatment oral rehydration and continued feeding are very effective. According to Figure 4.10, OIC countries' average performance has been on the rise in the coverage of this treatment method. As of 2012, 48.6 per cent of children under 5 were receiving oral rehydration and continued feeding in the OIC group where the world average was 53.1 per cent. Kyrgyzstan was the best performer country in this category among OIC countries where 62.7 per cent of all children could access oral rehydration and continued feeding. On the other side, in Jordan only 34.4 per cent of all children could get this treatment as of 2012.

Figure 4.10: Diarrhea Treatment (per cent of children under 5 receiving oral rehydration and continued feeding) (left) and Best and Worst Performing OIC Countries in 2012 (right)

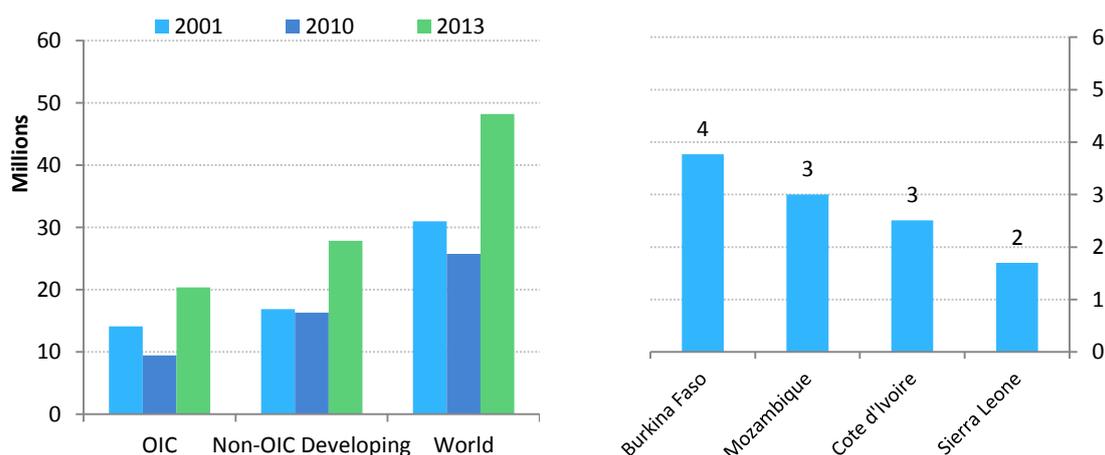


Source: SESRIC staff calculations based on World Bank, Health Nutrition and Population Statistics

4.4.3 Malaria

Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected mosquitoes. In 2013, malaria caused an estimated 584 000 deaths mostly among African children. Malaria is a preventable and curable disease. Increased malaria prevention and control measures are dramatically reducing the malaria burden in many places. The total malaria cases reported in the OIC group climbed from about 14.1 million in 2001 to 20.4 million in 2013 (Figure 4.11, left). The worldwide reported malaria cases reached more than 48 million as of 2013. Burkina Faso was the leading country in terms of reported malaria cases among OIC member countries with an average of 3.7 million cases in 2013 (Figure 4.11, right).

Figure 4.11: Malaria Cases Reported in the World (left) and OIC Countries with Highest Malaria Cases Reported in 2013 (right)

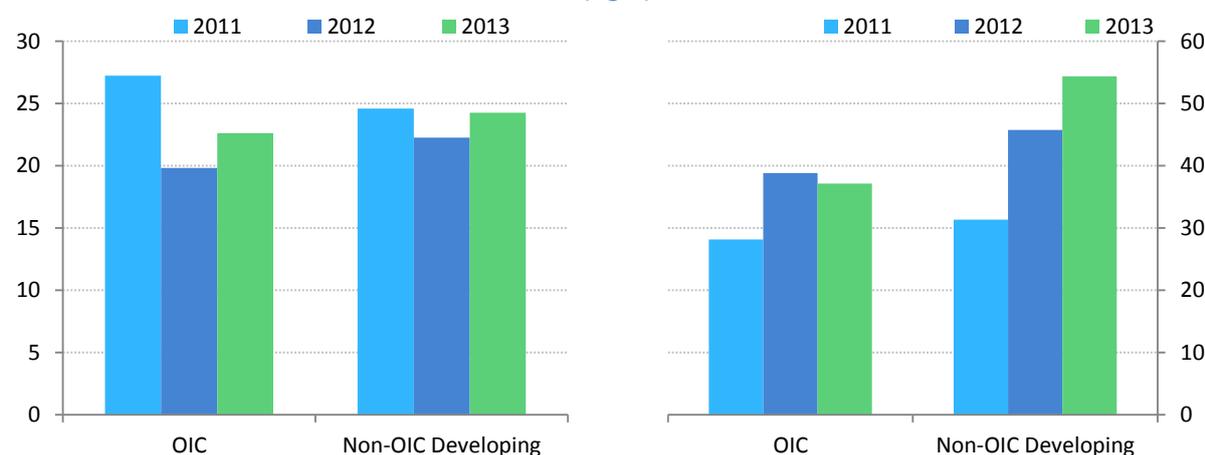


Source: SESRIC staff calculations based on World Bank and WHO

The focus areas involved in combating malaria include public health information, science and research, prevention and control, case management, and regulating diagnostic tests and vaccines. In particular, antimalarial drugs and the use of insecticide-treated bed nets are very effective to combat with malaria among children. In the OIC group, 22.6 per cent of children with fever receiving antimalarial drugs where the average of non-OIC developing countries was 24.3 per cent in 2013

(Figure 4.12, left). In the OIC group, 37.1 per cent of children could sleep under insecticide-treated bed nets where the average of non-OIC developing countries was 54.4 per cent in 2013 (Figure 4.12, right). These figures imply that OIC countries need to show further efforts to fight with malaria. Both MDGs and SDGs refer to malaria and set targets for countries to fight with malaria across the globe. The OIC-SHPA 2014-2023 also presents a roadmap for OIC countries for the combat against malaria under the Thematic Area 2.

Figure 4.12: Under 5 Children with Fever Receiving Antimalarial Drugs (per cent, left) and Use of ITNs (right)



Source: SESRIC staff calculations based on World Bank and WHO

4.4.4 Pneumonia

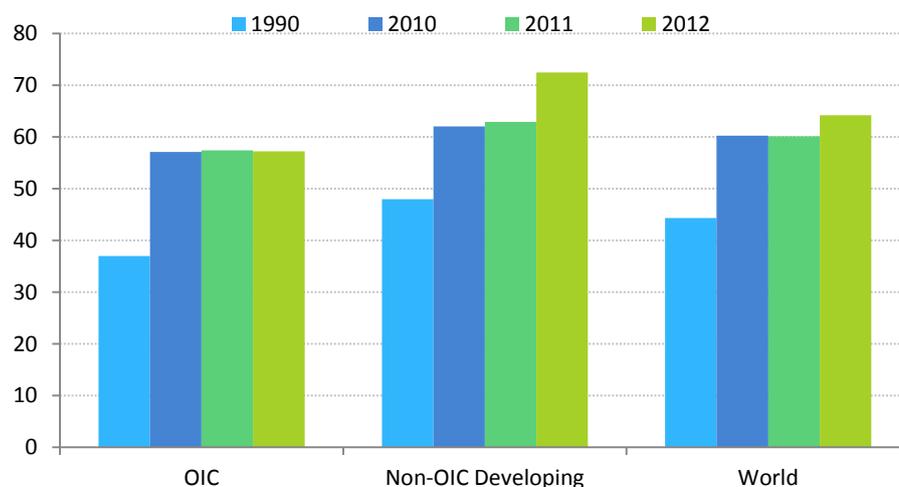
Pneumonia is a form of acute respiratory infection that affects the lungs. The lungs are made up of small sacs called alveoli, which fill with air when a healthy person breathes. When an individual has pneumonia, the alveoli are filled with pus and fluid, which makes breathing painful and limits oxygen intake.

Pneumonia is the single largest infectious cause of death in children worldwide and killed an estimated 935 000 children under the age of five in 2013, accounting for 15 per cent of all deaths of children under 5 years old. Pneumonia affects children and families everywhere, but is most prevalent in South Asia and sub-Saharan Africa.

Pneumonia can be prevented by immunization, adequate nutrition and by addressing environmental factors. Children can be protected from pneumonia; it can be prevented with simple interventions, and treated with low-cost, low-tech medication and care.

Acute Respiratory Infection (ARI) treatment is used to combat with pneumonia. It helps to improve breathing quality and over time eradicates pneumonia. According to Figure 4.13, compared with 1990s, there is a significant improvement in Acute Respiratory Infection (ARI) treatment rate in the OIC group where the average went up from 37 per cent in 1990 to 57.2 per cent in 2012. A similar positive trend observed in non-OIC developing countries where their average ARI treatment rate reached 72.4 per cent by 2012. To this end, OIC countries need to intensify their efforts to increase ARI treatment coverage rate especially OIC countries located in Sub-Saharan Africa who suffer a lot from pneumonia and related breathing problems.

Figure 4.13: Acute Respiratory Infection (ARI) Treatment (per cent of children under 5 taken to a health provider)



Source: SESRIC staff calculations based on World Bank, World Development Indicators

4.4.5 Tuberculosis

Tuberculosis (TB) is an infectious bacterial disease caused by mycobacterium tuberculosis, which most commonly affects the lungs. It is transmitted from person to person via droplets from the throat and lungs of people with the active respiratory disease. The symptoms of active TB of the lung are coughing, sometimes with sputum or blood, chest pains, weakness, weight loss, fever and night sweats.

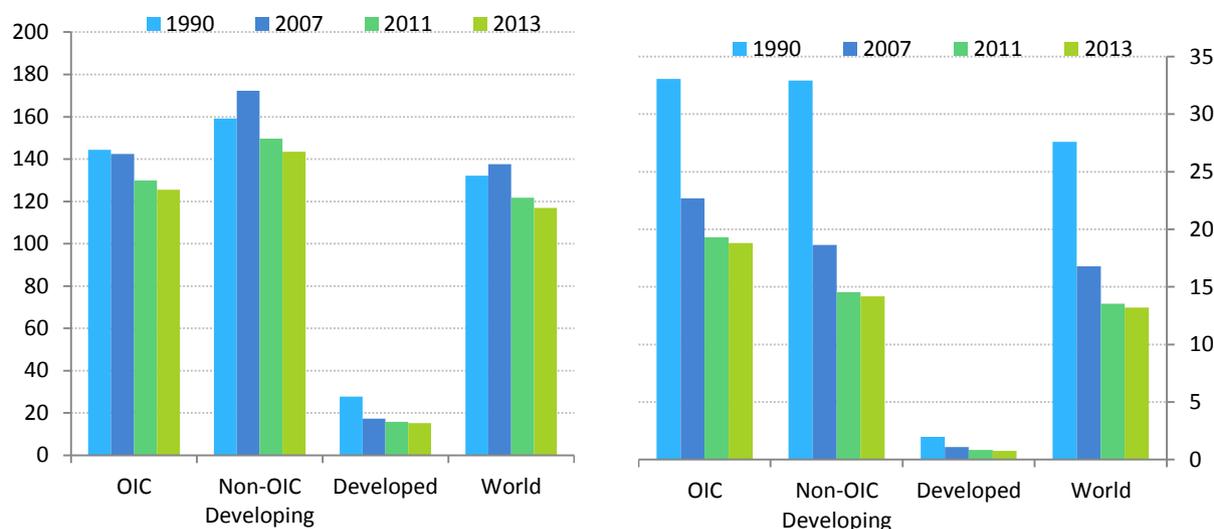
Tuberculosis (TB) is second only to HIV/AIDS as the greatest killer worldwide due to a single infectious agent. In 2013, 9 million people fell ill with TB and 1.5 million died from the disease. Over 95 per cent of TB deaths occur in low- and middle-income countries. In 2013, an estimated 550 000 children became ill with TB.

Tuberculosis is treatable with a six-month course of antibiotics. It is one of the specific communicable diseases mentioned in MDGs (MDG 6). The estimated number of people falling ill with TB each year is declining, although very slowly. The TB death rate dropped by 45 per cent between 1990 and 2013. An estimated 37 million lives were saved through TB diagnosis and treatment between 2000 and 2013.

The worldwide incidence of tuberculosis and deaths from tuberculosis were declining as shown in Figure 4.14. OIC countries also follow a similar negative trend where the incidence of tuberculosis went down from 144.3 (per 100,000 people) in 1990 to 125.5 in 2013 (Figure 4.14, left). Death rate (stemming from tuberculosis) also decreased from 33 in 1990 to 18.8 in 2013 for the OIC group where the world average was 13.2 as of 2013. In non-OIC developing countries, on average, about 14.2 (per 100,000 people) inhabitants died from TB in 2013 (Figure 4.14, right). This implies that the OIC group still suffers more from TB compared with the world average and the average of non-OIC developing countries. Apart from prevention efforts, the high success rate in tuberculosis treatment was one of the reasons behind the reduction in death tolls stemming from TB. As of 2012, the average success rate was measured as 79.5 per cent in the OIC group and as 80 per cent for the non-OIC developing countries group (Figure 4.15). In this regard, the OIC group does not seem to have a problem about the success rate of treatment of TB but about the coverage rate. Therefore, OIC

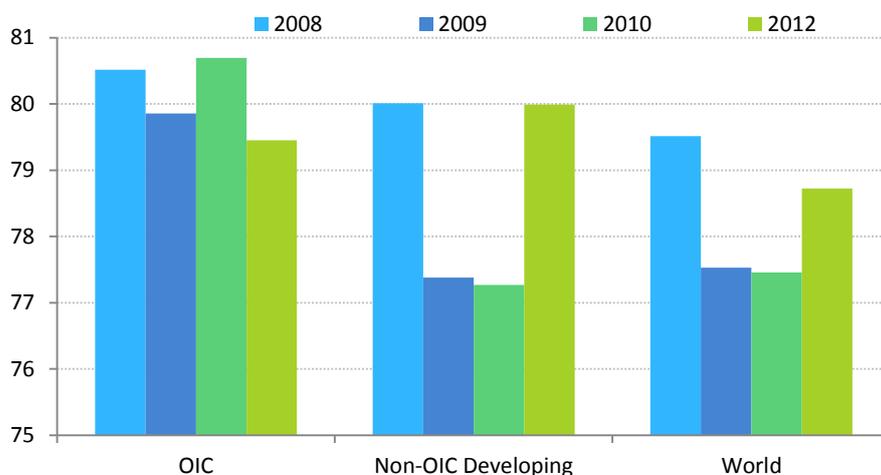
member countries need to intensify their efforts in combating with TB by increasing the coverage rate of the TB treatment.

Figure 4.14: Incidence of Tuberculosis (per 100,000 people) (left) and Tuberculosis Death Rate (per 100,000 people) (right)



Source: SESRIC staff calculations based on World Bank and WHO

Figure 4.15: Tuberculosis Treatment Success Rate (per cent of new cases)



Source: SESRIC staff calculations based on World Bank and WHO

4.4.6 Polio

Polio is a highly infectious disease caused by a virus. It invades the nervous system, and can cause total paralysis in a matter of hours. The virus is transmitted by person-to-person spread mainly through the faecal-oral route or, less frequently, by a common vehicle (e.g. contaminated water or food) and multiplies in the intestine. Initial symptoms are fever, fatigue, headache, vomiting, and stiffness in the neck and pain in the limbs. One in 200 infections leads to irreversible paralysis (usually in the legs). Polio mainly affects children under 5 years of age. There is no cure for polio, it can only be prevented. Two vaccines promise the possibility of eradication. Polio cases have decreased by over 99 per cent since 1988, from an estimated 350 000 cases then, to 416 reported cases in 2013. The reduction is the result of the global effort to eradicate the disease.

In 2015, only two countries (Afghanistan and Pakistan) remain polio-endemic, down from more than 125 countries in 1988. In other words, all across the world two OIC countries are still struggling with polio, despite having national and international efforts. With increasing intra-OIC cooperation and along with national and international institutions, polio will be eradicated totally from these two OIC countries in near future.

4.5 Non-Communicable Diseases

Chronic NCDs are the number one cause of death and disability in the world. The term NCDs refers to a group of conditions that are not mainly caused by an acute infection, result in long-term health consequences and often create a need for long-term treatment and care. These conditions include cancers, cardiovascular disease, diabetes and chronic lung illnesses among the major ones. Many NCDs can be prevented by reducing common risk factors such as tobacco use, alcohol use, physical inactivity and eating unhealthy diets.

According to the WHO, NCDs kill 38 million people each year and almost 28 million of these deaths occur in low- and middle-income countries. Cardiovascular diseases account for the most of deaths caused by NCDs, or 17.5 million people annually, followed by cancers (8.2 million), respiratory diseases (4 million), and diabetes (1.5 million). These four groups of diseases account for 82 per cent of all deaths caused by NCDs.

NCDs have significant socio-economic consequences. Millions of dollars are being allocated for the treatment of cardiovascular disease, cancer, diabetes and chronic respiratory disease, which undermine the sustainability of national health care budgets. According to the WHO estimates, almost 100 million people are pushed into poverty every year because they have to pay from their pockets for health services. This indicates that there is a strong correlation between NCDs and poverty. In developing countries many poor people fall into a dangerous vicious cycle where poverty and NCDs continually reinforce each other. The capacity of poor families to fight with NCDs goes down as they are more pushed into poverty and are left with less money for basic needs. In this context, policies to combat NCDs need to include three components: treatment of diseases, reduction of risk factors that lead to NCDs (i.e. prevention), and addressing socio-economic impacts of NCDs on people. The United Nations and other international organisations pay a special attention to NCDs that affect millions of people all across the world. Sustainable development Goals (SDGs) specified a target to reduce by one third premature mortality from non-communicable diseases through prevention and treatment by 2030.

4.5.1 Cardiovascular diseases

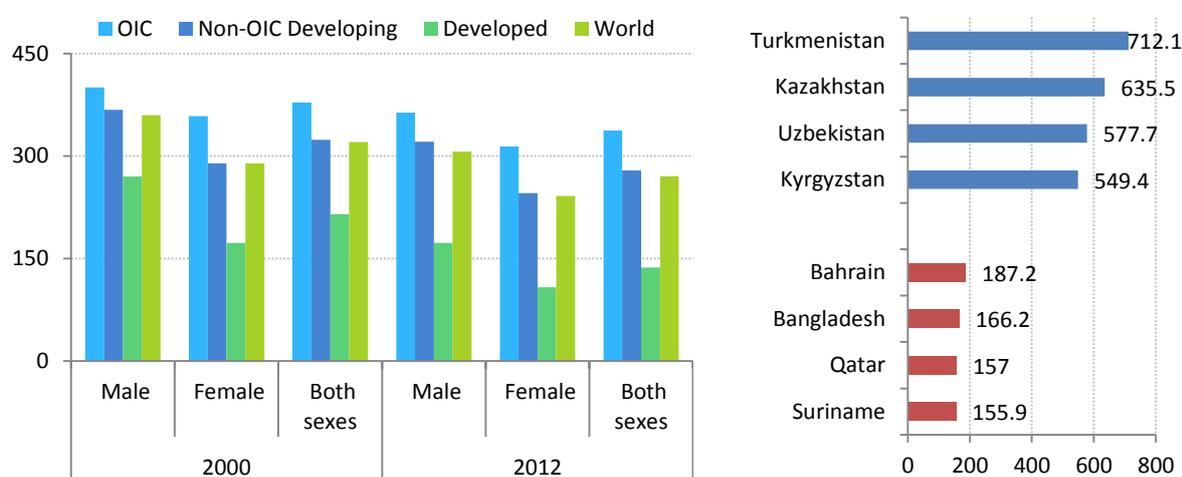
Cardiovascular diseases are caused by disorders of the heart and blood vessels, and include coronary heart disease (heart attacks), cerebrovascular disease (stroke), raised blood pressure (hypertension), peripheral artery disease, rheumatic heart disease, congenital heart disease and heart failure. The major causes of cardiovascular diseases are tobacco use, physical inactivity, an unhealthy diet and use of alcohol. The genetic and environmental factors have some effects on cardiovascular diseases as well.

Cardiovascular diseases (CVDs) are the number one cause of death globally. In other words, more people die annually from CVDs than from any other cause. According to the WHO, an estimated 17.5 million people died from CVDs in 2012, representing 31 per cent of all global deaths. Of these deaths, an estimated 7.4 million were due to coronary heart disease and 6.7 million were due to stroke. According to Figure 4.16, mortality rate by CVDs went down between 2000 and 2012 worldwide. In OIC countries while the mortality rate was 378 in 2000, the rate decreased to 337 (for both sexes) in 2012. Non-OIC developing countries also followed a negative trend where the average mortality rate

dropped from 367 to 278 (for both sexes) in the same period. Among all country groups, the OIC group had the highest mortality rate (both sexes) as of 2012. Figure 4.16 also indicates that male population suffer more from CVDs compared with female population in all country groups. Therefore, policies that address cardiovascular diseases should not neglect this fact. By 2012, mortality rate among men caused by CVDs measured at 363 whereas this rate was only 314 for women in the OIC group. In developed countries this rate was 108 for women and 173 for men, showing the existence of wide gap between country groups in terms of treatment and prevalence.

Among the OIC regions, ECA had the highest average mortality rate in 2012 that was calculated as 533 (both sexes). Among OIC countries, the lowest mortality rate by cardiovascular diseases was seen in Suriname (156) and Qatar (157) in 2012 whereby Turkmenistan lost, on average, 712 people (per 100, 000 population) in the same year due to cardiovascular diseases, which was the highest average mortality rate seen in the OIC group (Figure 4.16, right).

Figure 4.16: Age-standardized Mortality Rate by Cardiovascular Diseases (per 100 000 population) and OIC Countries with Highest and Lowest Mortality Rate in 2012 (right)



Source: SESRIC staff calculations based on WHO Data Repository

Most cardiovascular diseases can be prevented by addressing behavioural risk factors such as tobacco use, unhealthy diet, obesity, physical inactivity, and harmful use of alcohol. In this regard, OIC countries need to intensify their efforts to fight with risk factors (e.g. obesity, physical inactivity etc.) that lead to cardiovascular diseases as well as to improve and scale-up specific treatment methods used on cardiovascular diseases.

4.5.2 Cancer

According to the WHO, cancer is a generic term for a large group of diseases that can affect any part of the body. Other terms used are malignant tumours and neoplasms. One defining feature of cancer is the rapid creation of abnormal cells that grow beyond their usual boundaries, and which can then invade adjoining parts of the body and spread to other organs, the latter process is referred to as metastasizing. Metastases are the major cause of death from cancer.

Cancers are among the leading causes of morbidity and mortality worldwide, with approximately 14 million new cases diagnosed and 8.2 million cancer related deaths reported in 2012. The most common causes of cancer death are cancers of lung (1.59 million deaths), liver (745, 000 deaths) and stomach (723,000 deaths). Estimates show that the number of new cases is expected to rise by about 70 per cent over the next two decades. Among men, the 5 most common sites of cancer diagnosed in

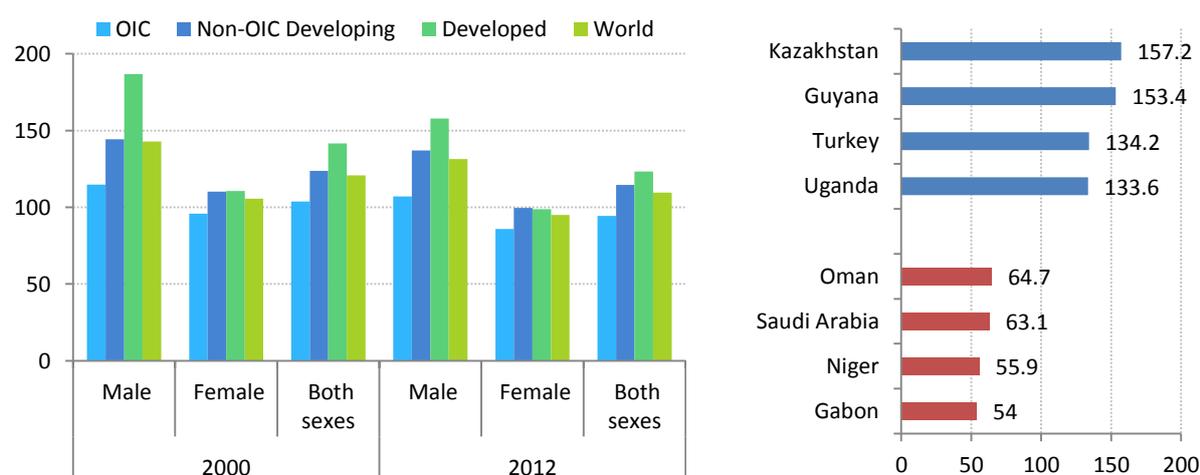
2012 were lung, prostate, colorectum, stomach, and liver cancer. Among women the five most common sites diagnosed were breast, colorectum, lung, cervix, and stomach cancer.

According to Figure 4.17, the worldwide mortality rate by cancer (malignant neoplasms) slightly decreased between 2000 and 2012. In OIC countries, it went down from 104 to 94 deaths for both sexes (per 100 000 population) during this period. In non-OIC developing countries, the average mortality rate went down from 123 to 114 for both sexes. The world average was recorded at 109 in 2012. These figures reveal that OIC countries, on average, were performing better compared to non-OIC developing countries and the world in 2012. Developed countries, as a group, were the number one victim of cancer with a death rate of 123 per 100 000 population in 2012.

Among the OIC regions, SSA and ECA had the highest average mortality caused by cancer in 2012. Among OIC countries, the lowest mortality rate by cancer was seen in Gabon (54) and Niger (56) in 2012 whereby Kazakhstan lost on average 156 people (per 100 000 population) in the same year due to cancer that was the highest recorded average mortality rate caused by cancer within the OIC group (Figure 4.17, right). Figure 4.17 further displays that male population suffers more from cancer compared to female population in all country groups, as was seen in case of cardiovascular diseases. OIC countries are not an exception of this fact. By 2012, the mortality rate among men caused by cancer was measured at 107, whereas this rate was calculated at 86 for women in the OIC group.

Every cancer type requires a specific treatment regimen which encompasses one or more modalities such as surgery, and/or radiotherapy, and/or chemotherapy. In this regard, early detection and correct diagnosis are essential for adequate and effective treatment. Around one third of cancer deaths are due to five leading behavioural and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use. Tobacco use is the most important risk factor for cancer causing around 20 per cent of global cancer deaths and around 70 per cent of global lung cancer deaths. Therefore, fighting with these risk factors carries a critical importance for all countries in order to reduce deaths caused by cancer.

Figure 4.17: Age-standardized Mortality Rate by Cancer (per 100,000 people) and OIC Countries with Highest and Lowest Mortality Rate in 2012 (right)



Source: SESRIC staff calculations based on WHO, Data Repository

4.5.3 Chronic Respiratory (Lung) Diseases

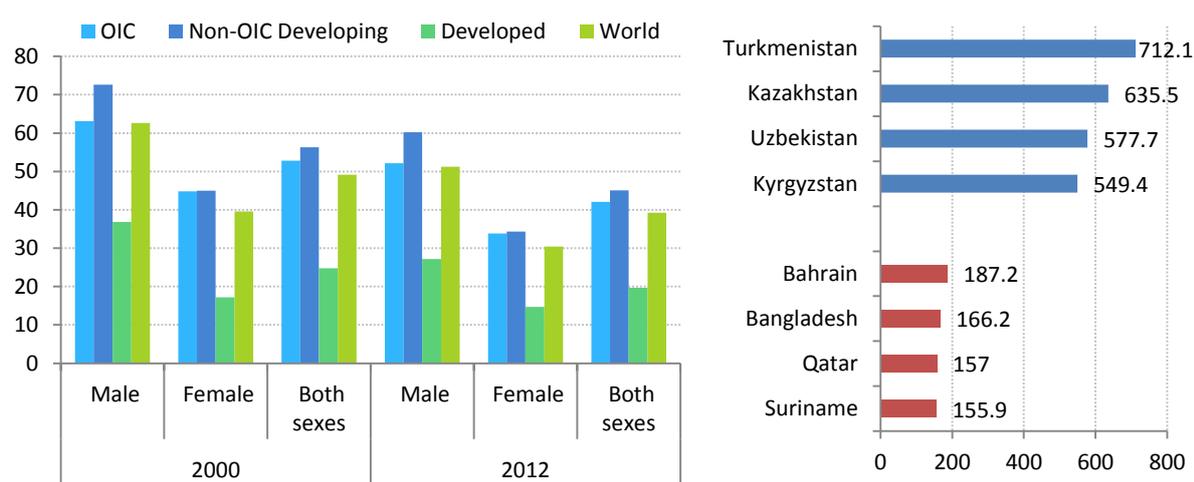
Chronic respiratory diseases are diseases of the airways and other structures of the lung. Some of the most common diseases include asthma, chronic obstructive pulmonary disease (COPD) and respiratory allergies. Hundreds of millions of people suffer every day from chronic respiratory diseases. According to the latest WHO estimates, about 235 million people suffered from asthma in 2013. More than 3 million people died of COPD in 2012, which is equal to 6 per cent of all deaths globally that year.

According to Figure 4.18, worldwide mortality rate by respiratory diseases went down between 2000 and 2012. The world average dropped from 49 deaths to 39 (per 100, 000 population) in this period. In OIC countries, the average mortality rate decreased from 53 to 42 deaths (both sexes) and in non-OIC developing countries the average mortality rate went up from 56 to 45 in this period (both sexes). Developed countries, on average, suffered the least from respiratory diseases among country groups analysed in both 2000 and 2012.

Among the OIC regions, MENA had the highest average mortality rate caused by respiratory diseases in 2012, which was calculated as 80. It was followed by SA that on average 46 people (per 100 000 population) passed away due to respiratory diseases in 2012. Among OIC countries, the lowest mortality rate by cardiovascular diseases was seen in Suriname (10) and Qatar (12) in 2012 whereby Bangladesh lost on average 107 people (per 100 000 population) in the same year due to respiratory diseases that was the highest observed average mortality rate caused by respiratory diseases within the OIC group (Figure 4.18, right).

According to Figure 4.18, in OIC countries male population suffer more from respiratory diseases compared with female population mainly stemming from widespread use of tobacco among men. By 2012, the mortality rate among men caused by respiratory diseases measured as 52 whereas this rate was calculated as 33 for women in the OIC group.

Figure 4.18: Age-standardized Mortality by Respiratory Diseases (per 100 000 population) and OIC Countries with Highest and Lowest Mortality Rate in 2012 (right)



Source: SESRIC staff calculations based on WHO, Data Repository

According to the WHO, main risk factors for respiratory diseases consist of tobacco smoking, indoor air pollution, outdoor pollution, allergens, and occupational risks and vulnerability. While investing into treatment of respiratory diseases, OIC countries should not neglect to implement policies to reduce abovementioned risk factors that cause millions of death each year. In this regard, "Tobacco

Free OIC” initiative of the Statistical Economic and Social Research and Training Centre for Islamic Countries (SESRIC) can play an important role to reduce mortalities caused by respiratory diseases across OIC countries.

4.5.4 Diabetes

Diabetes is a chronic NCD that occurs when the pancreas does not produce enough insulin, or when the body cannot effectively use the insulin, it produces. Hyperglycaemia, or raised blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of the body's systems, especially the nerves and blood vessels. The causes of diabetes are complex. However, the global increase in the prevalence of diabetes can be attributed to rapid increases in overweight, including obesity and physical inactivity.

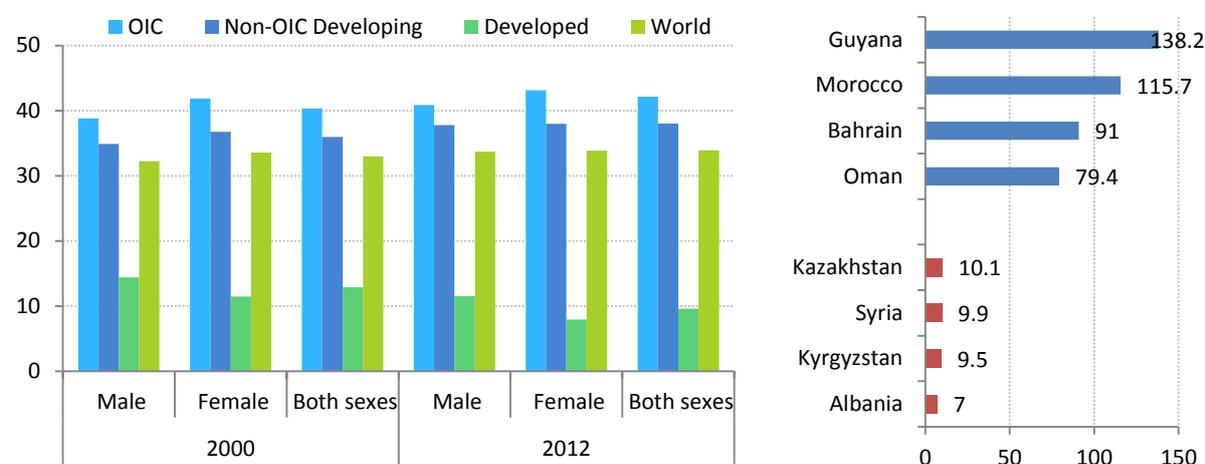
According to Figure 4.19, the worldwide mortality rate caused by diabetes stayed stable around 33 deaths (per 100, 000 population) between 2000 and 2012. However, during this period OIC countries witnessed a small increase from 40 to 42 (both sexes) and in non-OIC developing countries the average mortality rate went up from 36 to 38 in this period (both sexes). Developed countries, on average, suffered the least from diabetes among country groups analysed in both 2000 and 2012.

Among the OIC regions, SSA had the highest average mortality rate by diabetes in 2012 that was calculated as 89. It was followed by SA that on average 46 people (per 100 000 population) passed away due to diabetes in 2012. Among OIC countries, the lowest mortality rate caused by diabetes was seen in Albania (7) and Kyrgyzstan (10) in 2012 whereby Guyana, on average, lost 138 people (per 100 000 population) in the same year due to diabetes that was the highest average mortality rate caused by diabetes within the OIC group (Figure 4.19, right).

According to Figure 4.19, in OIC countries female population suffer more from diabetes compared with male population. By 2012, mortality rate among men caused by diabetes measured as 41, whereas this rate was calculated as 43 for women.

Overall, OIC countries should stop the positive trend seen in mortalities caused by diabetes. This requires organisation of public awareness campaigns on diabetes and promotion of healthy life styles at social circles. In terms of treatment methods, which are usually costly, policy-makers in the OIC group need to allocate more sources to combat against diabetes.

Figure 4.19: Age-standardized Mortality Rate by Diabetes (per 100 000 population) and OIC Countries with Highest and Lowest Mortality Rate in 2012 (right)



Source: SESRIC staff calculations based on WHO, Data Repository

4.6 Risk Factors

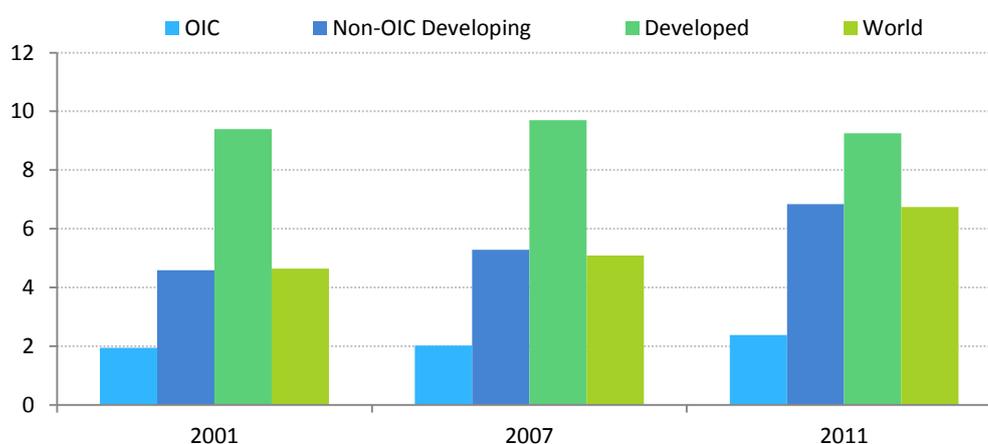
Risk factors can be described as the factors that lead to NCDs all across the world spanning from harmful use of alcohol to physical inactivity. This section overviews the stance of OIC countries in the selected major risk factors compared with other groups and draws some policy-recommendations for the way forward.

4.6.1 Use of Alcohol

Use of alcohol is a causal factor in more than 200 diseases including infectious diseases such as tuberculosis as well as the course of HIV/AIDS and injury conditions. It is therefore a risk factor for several diseases that impacts millions of people all across the world. Globally, 3.3 million deaths every year result from harmful use of alcohol; this represents 5.9 per cent of all deaths, according to the WHO estimates. In particular, in the age group 20-39 years approximately 25 per cent of the total deaths are alcohol-attributable.

Beyond health consequences, use of alcohol brings significant social and economic losses to individuals and society. In this context, governments all across the world need to fight with the harmful use of alcohol. Figure 4.20 shows that the world average in recorded alcohol per capita consumption increased from 4.65 litres in 2001 to 6.74 litres in 2011. The OIC group, on average, also witnessed an increase from 1.95 litres to 2.38 litres in the same period whereas developed countries recorded a decrease from 9.4 litres to 9.2 litres.

Figure 4.20: Recorded Alcohol Per Capita (15+) Consumption (liters of pure alcohol)



Source: SESRIC staff calculations based on WHO, Data Repository

These figures imply that OIC countries are at a greater risk compared with 2001 in terms of harmful use of alcohol. Therefore, OIC countries need to develop and implement effective strategies to cope with the positive trend seen in the use of alcohol. Some of the worldwide used strategies in this regard include:

- regulating the marketing of alcoholic beverages (in particular to younger people);
- regulating and restricting availability of alcohol;
- enacting appropriate drink-driving policies;
- reducing demand through taxation and pricing mechanisms;
- raising awareness of public health problems caused by harmful use of alcohol and ensuring support for effective alcohol policies;
- providing accessible and affordable treatment for people with alcohol-use disorders; and

- implementing screening and brief interventions programmes for hazardous and harmful drinking in health services.

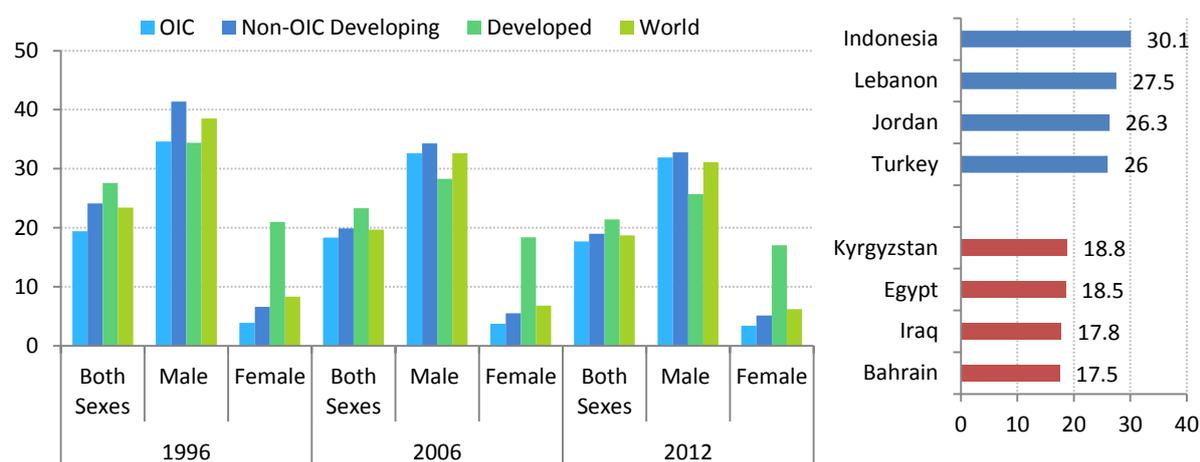
In addition to abovementioned global strategies, OIC countries with the help of Islamic scholars can convey the unique message of Islam to the society that Islam prohibits the use of alcohol. If the message is delivered widely and effectively to the society, this strategy can help many Muslims all across OIC countries to stop alcohol intake.

4.6.2 Tobacco Use

The WHO declares that tobacco kills up to half of its users. There are more than 4000 chemicals in tobacco smoke, of which at least 250 are known to be harmful and more than 50 are known to cause cancer. It is estimated that tobacco kills around 6 million people each year. More than 5 million of those deaths are the result of direct tobacco use while more than 600 000 are the result of non-smokers being exposed to second-hand smoke. Developing countries in general suffer the most from tobacco use. Nearly 80 per cent of the world's 1 billion smokers live in low- and middle-income countries. Tobacco users who die prematurely deprive their families of income, raise the cost of health care and hinder economic development.

As Figure 4.21 displays, because of global efforts to reduce tobacco use, the prevalence of smoking went down from 23.4 per cent in 1996 to 18.7 per cent in 2012 worldwide. In OIC countries, the average prevalence of smoking also decreased from 19.4 per cent to 17.7 per cent in the same period (for both sexes). As in other country groups, male population is more exposed to smoking in the OIC countries with an average of 31.9 per cent in 2012. In the OIC group, on average, only 3.4 per cent of all women were smoking in 2012. At the individual OIC country level, as shown in Figure 4.21 right, Indonesia had the highest smoking prevalence (30.1 per cent) followed by Lebanon (27.5 per cent) and Jordan (26.3 per cent) in 2012 (for both sexes).

Figure 4.21: Prevalence of Smoking (per cent of Population, Aged 15+) and OIC Countries with Highest and Lowest Prevalence in 2012 (right)



Source: SESRIC staff calculations based on Institute for Health Metrics and Evaluation (IHME), 2014

Some effective ways to cope with tobacco use are including raising tax on tobacco products, banning advertisements for tobacco products, restricting areas to smoke in general. The WHO Framework Convention on Tobacco Control entered into force in February 2005. Since then, it has become one of the most widely embraced treaties in the history of the United Nations with 180 states, covering 90 per cent of the world's population. In 2008, the WHO introduced a practical, cost-effective way to scale up implementation of provisions of the WHO Framework Convention on the ground called MPOWER. The six MPOWER measures include:

- Monitor tobacco use and prevention policies;
- Protect people from tobacco use;
- Offer help to quit tobacco use;
- Warn about the dangers of tobacco;
- Enforce bans on tobacco advertising, promotion and sponsorship; and
- Raise taxes on tobacco.

The response of the OIC to tobacco use was also very effective and comprehensive. The process started in 2007 with an initiative developed by the Statistical Economic and Social Research and Training Centre for Islamic Countries (SESRIC) in response to the spread of tobacco epidemic in the OIC countries that is called “Tobacco Free OIC“. It aims to foster an OIC-wide coordinated approach to curb and control the spread of tobacco epidemic in OIC countries. This initiative focuses on training and capacity building programs to facilitate the development and implementation of sustainable national tobacco control strategies in OIC countries. In accordance with the decisions and resolutions of the First Islamic Conference of Health Ministers (2007), major objectives of the Tobacco Free OIC initiative can be listed as follows:

- to increase public awareness about controlling tobacco use by providing evidence-based knowledge and information, and by this way, to prevent children from starting tobacco use;
- to establish OIC networks and partnerships to exchange experiences and best practices of tobacco control strategies, initiatives, projects and programs; and
- to build the capacity of relevant organizations or institutions for better policy coordination in order to achieve the goal of Tobacco Free OIC.

The OIC Strategic Health Programme of Action 2014-2023 (OIC-SHPA) also lists actions need to be taken related with fight against tobacco use under several thematic areas. To this end, both at the global and the OIC level, there are initiatives and mechanisms to cope with tobacco use. In cooperation with international organisations, OIC countries can effectively reduce tobacco use and can save

4.6.3 Insufficient Physical Activity

The WHO defines physical activity as any bodily movement produced by skeletal muscles that require energy expenditure – including activities undertaken while working, playing, carrying out household chores, travelling, and engaging in recreational pursuits. Both, moderate and vigorous intensity physical activity brings health benefits. Insufficient physical activity is one of the 10 leading risk factors for death worldwide. Globally, 3.2 million deaths each year are attributable to insufficient physical activity, according to the WHO estimates.

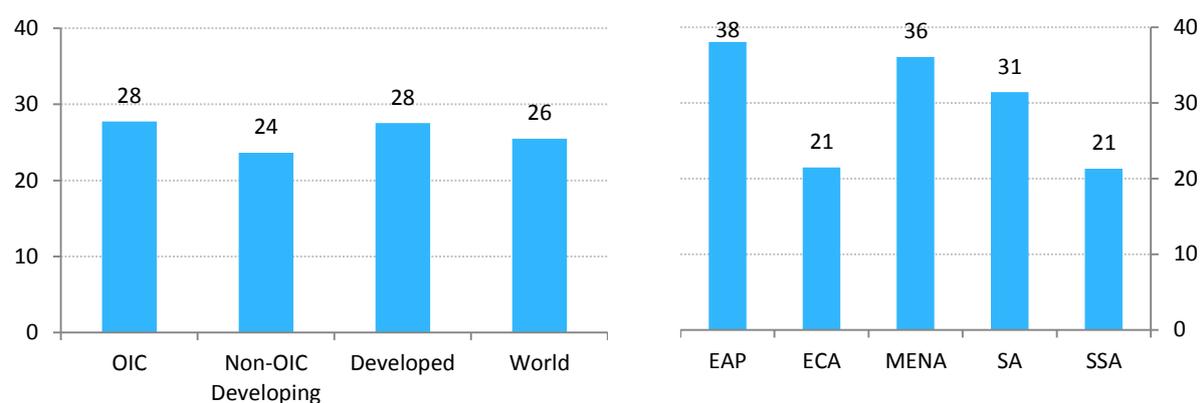
Insufficient physical activity is a key risk factor for non-communicable diseases (NCDs) such as cardiovascular diseases, cancer and diabetes. Physical activity has significant health benefits and contributes to prevent NCDs. More than 80 per cent of the world's adolescent population is insufficiently physically active. Socio-economic and socio-cultural factors affect lifestyles of people. With increased urbanisation, some additional factors started to influence physical activity. The common reasons behind physical inactivity in urban areas are: violence, high-density traffic, low air quality, pollution, and lack of parks, sidewalks and sports/recreation facilities.

Figure 4.22 shows the prevalence of insufficient physical activity among adults across country groups. According to this, among OIC countries with data available, on average, the prevalence of insufficient physical activity was the highest (27.8 per cent) among all country groups in 2010. The world average was measured as 25.5 per cent in the same year (Figure 4.22, left). Across the OIC regions, the highest prevalence of insufficient physical activity was seen in EAP with an average rate

of 38 per cent. SSA had the lowest prevalence of insufficient physical activity (21.3 per cent) in 2010 (Figure 4.22, right).

The member states of the WHO have agreed to reduce insufficient physical activity by 10 per cent by 2025. In order to encourage physical activity, governments need to ensure that: walking, cycling and other forms of active transportation are accessible and safe for all; labour and workplace policies encourage physical activity; schools have safe spaces and facilities for students to spend their free time actively; physical education supports children to develop behaviour patterns that will keep them physically active throughout their lives; and sports and recreation facilities provide opportunities for everyone to do sports. In this regard, policy makers in OIC countries need to make necessary arrangements to promote more physically active life-style in order to have more healthy generations and to reduce the pressure on social security systems.

Figure 4.22: Prevalence of Insufficient Physical Activity among 18+ Population (per cent), 2010



Source: SESRIC staff calculations based on WHO Data Repository

4.6.4 Obesity

Obesity is defined as abnormal or excessive fat accumulation that may impair health. The WHO defines obesity as body mass index (BMI) greater than or equal to 30.¹ Obesity leads to adverse metabolic effects on blood pressure, cholesterol, triglycerides and insulin resistance. Risks of coronary heart disease, ischemic stroke and type 2 diabetes mellitus increase steadily with increasing BMI. A higher BMI also raises the risk of cancer of the breast, colon, prostate, endometrium, kidney and gall bladder. Mortality rates go up with increasing degrees of overweight, as measured by body mass index.

The worldwide obesity has more than doubled since 1980. In 2014, more than 1.9 billion adults, 18 years and older, were overweight that their BMI exceeds 25. Of these over 600 million were obese. Globally, 13 per cent of adults aged 18 years and over were obese in 2014.

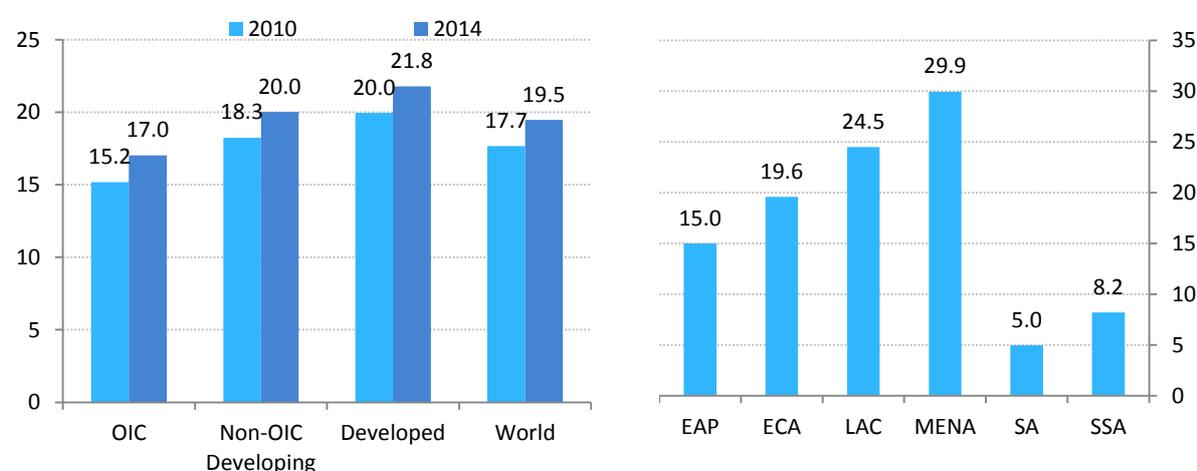
The prevalence of raised body mass index increases with the income level of countries. According to the WHO estimates, for obesity the overall prevalence is over four times higher in high income countries compared to low income countries. According to Figure 4.23 (left), in the OIC group the prevalence of obesity increased from 15.2 per cent in 2010 to 17 per cent in 2014. In developed countries, the average prevalence rate reached 21.8 per cent in 2014. Among all country groups, the average of OIC countries was the lowest in 2014 in terms of prevalence of obesity. Among the OIC regions, MENA is exposed to obesity the most with an average prevalence rate of 29.9 per cent. SA has the lowest obesity prevalence rate among all OIC regions with an average prevalence rate of 5

¹ Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m²).

per cent. At the individual country level, prevalence of obesity ranged from 2.9 per cent in Afghanistan to 42.3 per cent in Qatar (Figure 4.24).

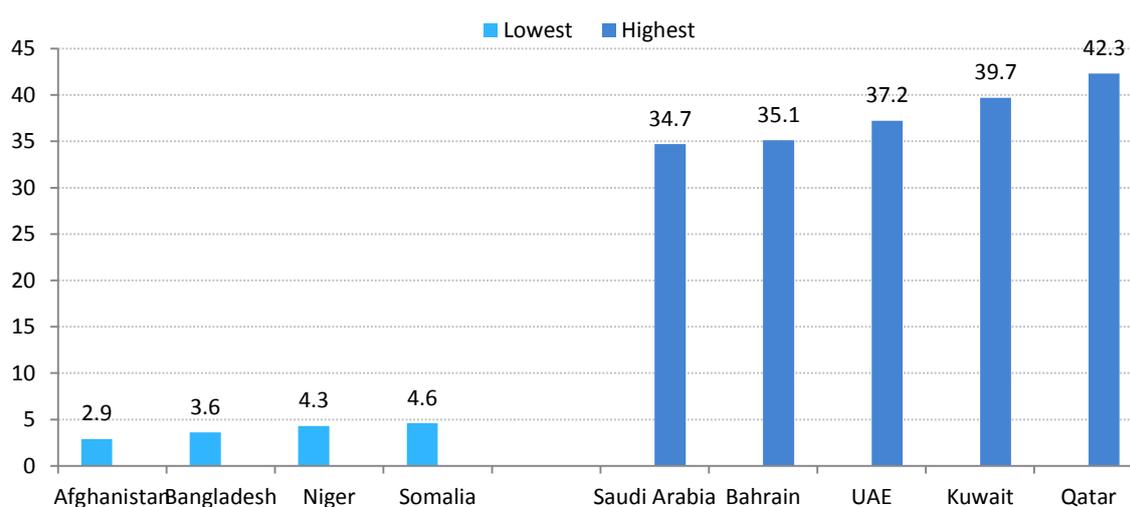
Obesity is preventable. At the individual level, people can limit energy intake from total fats and sugars; increase consumption of fruit and vegetables, as well as legumes, whole grains and nuts; engage in regular physical activity (60 minutes a day for children and 150 minutes per week for adults). The food industry can play a significant role in promoting healthy diets by reducing the fat, sugar and salt content of processed foods; ensuring that healthy and nutritious choices are available and affordable to all consumers; practicing responsible marketing especially those aimed at children and teenagers; and ensuring the availability of healthy food choices and supporting regular physical activity practice in the workplace. In that picture, policy-makers in OIC countries are responsible for designing policies to promote healthy diets, to encourage increased physical activity and regulate food industry for the benefit of their people.

Figure 4.23: Prevalence of Obesity (among 18+ Population, per cent), 2014



Source: SESRIC staff calculations based on WHO, Data Repository

Figure 4.24: OIC Countries with Lowest and Highest Prevalence of Obesity among Adults, 18+ Years (per cent of Population)



Source: WHO, Data Repository

MEDICINES, VACCINES AND MEDICAL TECHNOLOGIES

5

As global attention turns to the post-2015 development agenda that will replace the Millennium Development Goals, the role of medicines, vaccines and medical technologies in supporting the development of healthy societies becomes more important. More precisely, the pharmaceutical industry constitutes one of the essential elements of an effective and well-functioning healthcare system. Pharmaceutical products, such as medicines and vaccines, are fundamental and require appropriate financing. Medical devices are also important to provide health care and to improve the health of individuals and populations. One of the WHO's strategic objectives is to ensure improved access, quality and use of medical devices.

In the view of the above, this section describes the current situation of medicines, vaccines as well as medical technology in OIC countries.

5.1 Pharmaceutical Industry

Today pharmaceuticals have become an indispensable part of health care system around the globe. Historically pharmaceuticals have played a vital role in the human development by improving the quality of life and reducing the time spent in the hospitals. Thanks to innovative pharmaceutical industry that almost all epidemics and chronic diseases are curable today. Due to its direct link with the welfare and wellbeing of human beings, pharmaceutical industry is of strategic importance for the development of a healthy and productive nation. Pharmaceutical industry is considered to be one of the largest and rapidly growing global industries. It is a major source of employment generation and foreign exchange earnings for many countries around the globe.

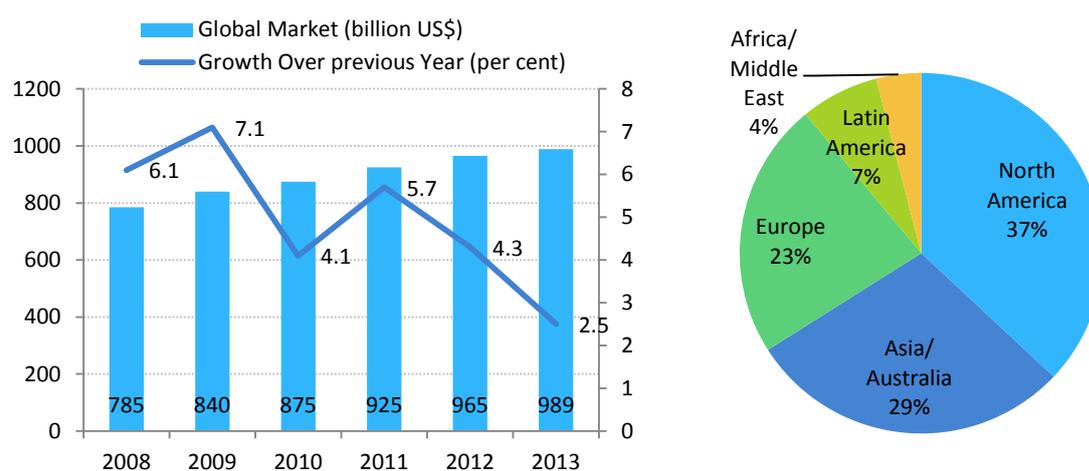
However, despite all these extraordinary achievements, it's a harsh reality that annually more than 2.3 million people die across the world (WHO, 2011), mostly in low income developing countries, due to unavailability and inaccessibility of necessary medicines. Many developing countries, including some OIC countries, has insufficient or no manufacturing capacities in the pharmaceutical industry. Local industry covers a tiny fraction of domestic pharmaceutical demand and they rely heavily on imports and medicinal aid. In addition, the share of medicines in "out-of-pocket" health payments (i.e. paid by the patient) is ranging between 40 to 60 per cent in these countries. Consequently, medicines are neither available nor accessible to a large fraction of population and hundreds and thousands of people die of preventable and treatable diseases. This section attempts to investigate the availability of medicines in OIC countries by focusing on the production, consumption and trade patterns of pharmaceuticals in these countries in the period 2010-2014.

5.1.1 Global Production and Consumption

The global pharmaceutical industry has shown rapid growth over the years and emerged as one of the fastest growing industries in the world. However, world pharmaceutical production and consumption is dispersed unevenly around the world. Developed countries are both leading producers and consumers of pharmaceuticals. According to IMS Health (an international consulting and data services company), in 2013, world pharmaceutical market was valued at US\$ 989 billion with a growth rate of 2.5 per cent over the previous year at the constant exchange rate. The volume

of pharmaceutical industry has surged from US\$ 785 billion in 2008 to US\$ 989 billion in 2013, corresponding to an increase of 25.9 per cent. During this period, the industry's growth rate has witnessed a declining trend from 6.1 per cent in 2008 to 2.5 per cent in 2013. This decline is mainly associated with the slowdown in economic activity, especially in the developed countries which consume a large chunk of global pharmaceutical products. In 2008, economic slowdown in developed countries culminated into one of the worst global financial and economic crisis since the Great Depression. The negative effects of this meltdown of historic magnitude were felt across the globe and all sectors were hard hit. The pharmaceutical industry has witnessed one of the lowest year-on-year growth rates of 2.5 per cent in 2013 (Figure 5.1).

Figure 5.1: Global Pharmaceutical Market and Regional Distribution



Source: SESRIC staff calculations based on IMS, Global Outlook for Medicines 2014

Total global spending on pharmaceutical products is estimated to reach US\$ 1.3 trillion in 2018, an increase of \$290-320 billion from 2013, driven by population growth, an aging population, and improved access in pharmerging markets (IMS, 2014). On the other hand, global spending growth will stabilize between 4-7 per cent through 2018 (IMS, 2014). Global pharmaceutical market, both in terms of production and consumption, is highly concentrated in the developed regions. In 2013, North America (37 per cent), Asia/Australia (29 per cent) and Europe (23 per cent) accounted for nearly 89 per cent of global market. While Latin America and Africa & Middle East, mostly developing regions, accounted for only 11 per cent of global pharmaceutical consumption in 2013.

5.1.2 Production and Consumption in OIC Countries

Like many other developing countries, the OIC member countries are facing many socio-economic challenges including the establishment of an efficient and effective health care system. In these countries, health sector is still suffering from many problems ranging from poor infrastructure to insufficient number of medical staff. However the shortage of and inaccessibility to necessary medicines are among the most challenging problems. Due to the unavailability of the relevant data on most of the OIC countries, comprehensive analysis on production capacity of pharmaceutical industry at the OIC level is not possible. However, an overview of pharmaceutical industry in the OIC countries, for which the data are available, in terms of their geographical regions is given in the following section.

Middle East and North Africa (MENA)

Economic development is changing the health profile in the MENA region, with the increasing prevalence of communicable diseases. In this context, international companies recognize the value

and potential of the MENA region. For example, Sanofi is the largest pharmaceutical company in Morocco, whilst GlaxoSmithKline is the leader in Saudi Arabia. Moreover, some local producers such as Hikma from Jordan and SPIMACO from Saudi Arabia aim to become regional leaders. Pharmaceutical sales in the MENA region are expected to amount to US\$ 35.8 billion at retail prices in 2016, including pharmacy and hospital sales. Turkey, Egypt and Saudi Arabia are the main players in the MENA region.

Egypt will be the second leading pharmaceutical market in the MENA region in 2016. The Egyptian pharmaceutical market increased by nearly five times between 1995 and 2010. However, per capita consumption is still low. In spite of recent production problems, production is expected to rise as the healthcare system continues its transition towards modernization. Egypt is becoming a very attractive market for multinational pharmaceutical companies among pharmerging markets.

Jordan has a relatively strong level of domestic production. However, the majority is exported which results in a market dependent on imports. Most imported pharmaceuticals are retail medicaments from countries located in Western Europe, such as Switzerland and Germany. On the other hand, exports are primarily semi-finished and retail medicaments destined for other countries in the MENA region. The largest pharmaceutical company in Jordan is Hikma Pharmaceuticals, with a market share of over 10 per cent. The company has a number of manufacturing facilities in Jordan, as well as R&D facilities. In 2010, Hikma acquired an injectable business from a US company that significantly enhanced the scope of the company's injectable business worldwide. Hikma also acquired an Algerian company as well as a Tunisian company in 2010, strengthening its presence in the MENA region.

Although the Moroccan pharmaceutical market is small in global terms, per capita spending on pharmaceutical products is comparatively high for an African country. Over 50 per cent of the pharmaceutical companies are owned by foreign interests, accounting for more than half of industry turnover. Multinationals with a strong presence in the Moroccan pharmaceutical market include Sanofi, GlaxoSmithKline and Pfizer. Hikma has also increased its market penetration, following the acquisition of 63.9 per cent of Promopharm.

The Saudi pharmaceutical market is the richest in the Gulf region. The private pharmacy sector tends to favour branded pharmaceuticals but it is marked by tight price controls. The leading companies operating in the sector are GlaxoSmithKline and SPIMACO. The public sector, more generic-led, is dependent on oil revenues and is characterized by cost-containment and late payments for tenders. There is little domestic production in Saudi Arabia, therefore the vast majority of the market is provided by imports. There are only a few major domestic manufacturers in the country. Locally made pharmaceuticals supply only around 15 per cent of the market, and the rest of the output is mainly exported to other GCC. Moreover, the pharmaceutical industry has grown from US\$ 410 million to US\$ 670 million between 2008 and 2012.

Asia

In the Central Asian region, Turkey emerged as a promising pharmaceutical market. Today, Turkey is the largest pharmaceuticals producer in the group of OIC countries and is ranked 16th among the world's 35 leading producers. There are 134 pharmaceutical companies operating in Turkey and domestic industry meets 90 per cent of local demand. In 2013, Pharmaceutical sales of Turkey amounted to US\$ 14.3 billion compared to US\$ 12.2 billion in 2008. Turkish pharmaceutical industry and market has great growth potential and is placed in a group of countries called "Pharmerging Markets" which represents fastest growing pharmaceutical markets in the world. The pharmerging markets are 21 countries identified by IMS Health as having more than \$1 billion in

pharmaceutical spending growth from 2012 to 2016 and a per capital GDP of less than \$25,000. Among these pharmerging markets, Turkey, Saudi Arabia, Algeria, Indonesia, Egypt, Pakistan, Nigeria are OIC countries.

In the Asia Pacific, Malaysia is one of the fastest growing pharmaceutical markets valued around US\$ 1.6 billion in 2012. According to Malaysian Drug Control Authority, in 2012 there were 235 registered pharmaceutical companies in the country and local manufacturer produced about 25-30 per cent of domestic demand. Provided the rich natural resources (flora and fauna), Malaysia is envisaged as an important bio generic (herbal medicines and vitamins) market in the region. Indonesia is another growing pharmaceutical market in the region estimated at US\$ 4.5 billion in 2012. According to Drug and Food Control Agency (BPOM), Indonesia has a strong pharmaceutical manufacturing industry based on 108 companies. In 2012, local companies accounted for 75 per cent of sales of medicines in the country.

Sub-Saharan Africa (SSA)

The region of SSA accounts for 25 per cent of global burden of disease and represents less than 1 per cent of global health expenditures. Currently, patients are financing 50 per cent of SSA's total health expenditures. According to the World Health Survey 2003, the average share of medicines in out-of-pocket health payments in SSA (14 countries) is 37 per cent, while at country level, this share varies from 11 per cent in Chad to 62.2 per cent in Burkina Faso. In 2012, pharmaceutical market in SSA was valued at US\$ 23 billion with a share of 2.3 per cent of US\$ 965 billion global market. In SSA, 37 out of 44 countries have some pharmaceutical production and local manufacturer account for 25-30 per cent of SSA local demand. However, pharmaceutical production is highly concentrated among a few countries. South Africa's pharmaceutical market is one of the most attractive markets in Africa. Some of the main reasons for its rapid growth are the availability of cost-effective and skilled labor, high quality infrastructure, and the introduction of the South African Health Products Regulatory Authority (SAHPRA). Nigeria was the second leading producer with a share of 6 per cent (i.e. US \$ 1.4 billion). Among other OIC countries, Morocco produced US \$ 1.2 billion and Tunisia produced US\$ 0.8 billion worth of medicines in 2012.

5.1.3 Availability of Essential and Generic Medicines

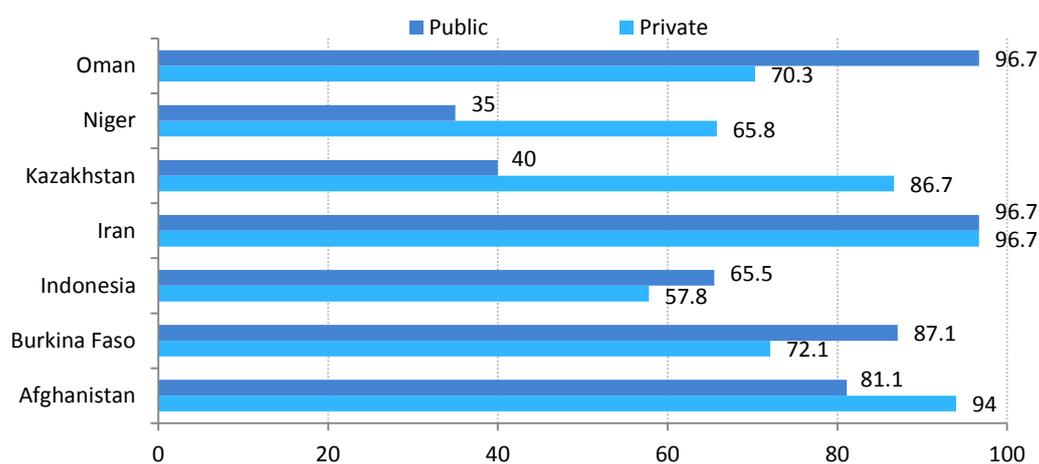
Target 8.E of the Millennium Development Goals acknowledges the need to improve the availability of affordable medicines in developing countries. Several countries have made progress towards increasing access to essential medicines. However, access to essential medicines in developing countries is not adequate. In countries for which the data is available, essential medicines are available in only 57 per cent of public and 65 per cent of private health facilities in 2012. Prices of medicines are about 3.3 to 5.7 times the international reference prices (UN, 2013).

In OIC countries, for which the relevant data are available, the median availability of selected generic medicines for public sector health ranged between 35 per cent and 96.7 per cent (with an overall average of 71.9 per cent) (Figure 5.2). Similarly, for the private health sector, OIC countries represented a heterogeneous structure, with the median availability ranging from 57.8 per cent to 96.7 per cent (with an overall average of 77.6 per cent). Iran has the highest median availability rate of selected generic medicines with 96.7 per cent in the public and private sector. However, availability was low in a number of OIC countries. For example, Niger has the lowest availability rate with 35 per cent in the public sector and Indonesia has the lowest availability rate with 57.8 per cent in the private sector.

Medicines are crucial ingredient for the safe and effective prevention and treatment of illness and diseases. It is, therefore, essential to have an easy and a timely access to them. Medicines must be

accessible in acceptable quantities however, as mentioned above; this is not the case in most OIC countries (SESRIC, 2014). The availability of essential medicines in the public sector is limited due to insufficient resources and inefficient distribution and procurement. Therefore, private sector becomes the main provider of the medicine for the patient. However, they charge more. During the period 2003-2009, and due to higher manufacturers' prices, high mark-ups, taxes and tariffs, the median consumer price ratio of selected generic medicines in private sector was three times more than the price ratio in public sector in the OIC countries (SESRIC, 2014).

Figure 5.2: Median Availability of Generic Medicines (per cent), 2007-2013



Source: WHO, Data Repository

Pharmacovigilance is defined as the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other drug-related problem. In OIC countries, pharmacovigilance is weak in detecting, investigating and reporting adverse events following medication and immunization. Efficient systems for quality assurance and surveillance do not exist in many countries and sale of counterfeit medicines is a major problem. Over 90 per cent of medical products are imported (SESRIC, 2014).

5.1.4 Pharmaceutical Trade

This section analyzes the OIC countries pharmaceutical exports and imports as well as intra-OIC pharmaceutical trade by using the UN Comtrade Database at the 3-digit level of "medicinal and pharmaceutical products, other than medicament of 542" (SITC group 541).

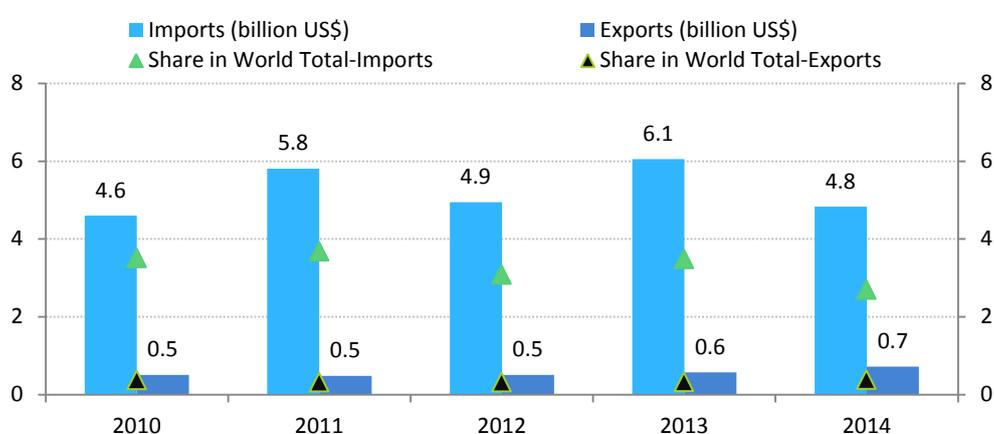
Global pharmaceutical trade has shown an upward trend during the period 2010-2014. Global pharmaceutical exports were valued at US\$ 718 million while pharmaceutical imports were valued at US\$ 4.8 billion in 2014. However, like the production, pharmaceutical trade also remained highly concentrated in developed countries that accounted for about 61 per cent of world exports and absorbed nearly 57 per cent of pharmaceutical imports in 2014. As a group, developed countries are net exporters of pharmaceutical products while developing countries are net importers.

Being a substantial part of the developing countries, the majority of the OIC countries are net importer of pharmaceuticals and their share in global pharmaceutical trade remained very low. As shown in Figure 5.3, OIC pharmaceutical exports witnessed an increasing trend during the period 2010-2014, reaching US\$ 0.7 billion in 2014 compared to US\$ 0.5 billion in 2010, corresponding to an increase of 40 per cent. During the same period, OIC countries as a group accounted, on average, for about 1 per cent of developing countries and about 0.3 per cent of world total pharmaceutical exports. In general, OIC Pharmaceutical exports remained highly concentrated in Middle East &

North Africa (MENA) and Sub-Saharan Africa (SSA), which accounted for 38 per cent and 33 per cent of OIC total exports, respectively in 2014.

Provided the weak production capacity and limited technological know-how, the majority of OIC countries are unable to locally produce sufficient amount of pharmaceuticals needed to meet their domestic needs. As a result, OIC pharmaceutical imports have witnessed an upward trend and increased from US\$ 4.5 billion in 2010 to US\$ 6 billion in 2013 before declining to US\$ 4.8 billion in 2014. Compared to the pharmaceutical exports, OIC share in developing countries and world total pharmaceutical imports remained much higher. On average, OIC countries accounted for 9 per cent of total developing countries and 2 per cent of world total pharmaceutical imports during 2010-2014. OIC Pharmaceutical imports also remained highly concentrated in MENA and SSA, which accounted for 36 per cent and 32 per cent of OIC total imports, respectively in 2014.

Figure 5.3: OIC Pharmaceutical Trade



Source: SESRIC staff calculations based on COMTRADE Online Database

Pharmaceutical exports of OIC countries are highly concentrated in few of them where only 10 OIC countries accounted for more than 67 per cent of the total OIC pharmaceutical exports in 2014 (Table 1). Brunei remained the top OIC pharmaceutical exporter with exports of US\$ 243 million, which constituted 23 per cent of OIC total pharmaceutical exports in 2014. Among the top ten OIC exporters, first five countries namely Brunei, Turkey, Malaysia, Egypt and Jordan accounted for 65 per cent of OIC total pharmaceutical exports in 2014.

Table 5.1: OIC Top-10 Pharmaceutical Exporters and Importers, 2014

Rank	Country	Exports (mln US\$)	Share in OIC Total (per cent)	Rank	Country	Imports (mln US\$)	Share in OIC Total (per cent)
1	Brunei	243	23 per cent	1	Turkey	1770	36 per cent
2	Turkey	221	21 per cent	2	Algeria	557	11 per cent
3	Malaysia	149	14 per cent	3	Pakistan	544	11 per cent
4	Egypt	57	5 per cent	4	Egypt	463	9 per cent
5	Jordan	16	2 per cent	5	Malaysia	419	9 per cent
6	Pakistan	14	1 per cent	6	Kazakhstan	324	7 per cent
7	Kazakhstan	7	1 per cent	7	Kuwait	210	4 per cent
8	Senegal	3	0 per cent	8	Jordan	114	2 per cent
9	Oman	2	0 per cent	9	Oman	95	2 per cent
10	Cameroon	1	0 per cent	10	Qatar	85	2 per cent

Source: SESRIC staff calculations based on COMTRADE Online Database

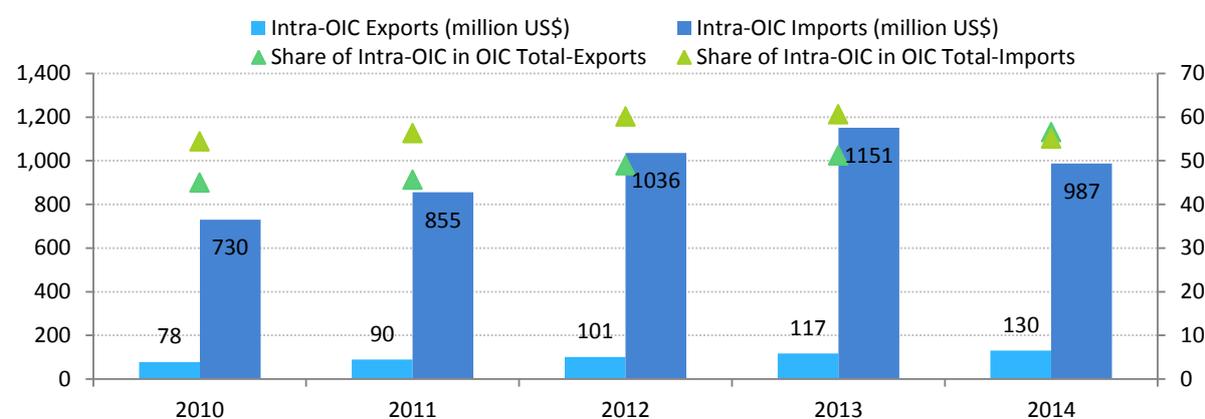
A similar trend can be observed in case of imports as well. In 2014, top 10 importers accounted for more than 93 per cent of total OIC pharmaceutical imports (Table 5.1). Turkey remained the top pharmaceutical importer with imports of US\$ 1770 million, which constituted 36 per cent of OIC total pharmaceutical imports in 2014. Among the top 10 importers, top five importers namely Turkey, Algeria, Pakistan, Egypt and Malaysia accounted for more than 76 per cent of total OIC pharmaceutical imports in 2014.

Intra-OIC Pharmaceutical Trade

At the intra-OIC level, the intra-OIC pharmaceutical trade volume increased from US\$ 808 million in 2010 to US\$ 1117 million in 2014. As shown in Figure 5.4, intra-OIC pharmaceutical exports have shown an upward trend during the period 2010-2014 and increased from US\$ 78 million to US\$ 130 million. On average, intra-OIC exports accounted for half of the OIC total pharmaceutical exports in this period. Yet, intra-OIC pharmaceutical exports remained highly concentrated in few OIC countries. More than half of intra-OIC pharmaceutical exports have been originated from four countries, namely Turkey, Malaysia, Jordan and Egypt in 2014.

During the same period, intra-OIC pharmaceutical imports have also shown upward trend with a share of more than half of the OIC total pharmaceutical imports. This indicates that many OIC countries rely heavily on non-OIC countries to fulfill their domestic pharmaceutical demand (Figure 5.4). More than half of intra-OIC pharmaceutical imports have been imported by only three member countries, namely Saudi Arabia, Malaysia and Turkey in 2014.

Figure 5.4: Intra-OIC Pharmaceutical Trade



Source: SESRIC staff calculations based on COMTRADE Online Database

5.2 Vaccines

The global vaccine industry has been dominated by a few multinational companies. However, companies in China, India and other emerging economies have recently become major vaccine manufacturers and have started selling vaccines on the international markets. For many years, the vaccine sector was characterized by government price controls, a mature product group based on a limited set of technologies. These characteristics constrained the level of investment and the resulting pace of technological innovation. But in recent years, as new vaccines have been introduced to replace older technologies and address new disease areas, the pricing environment has also improved.

5.2.1 Production

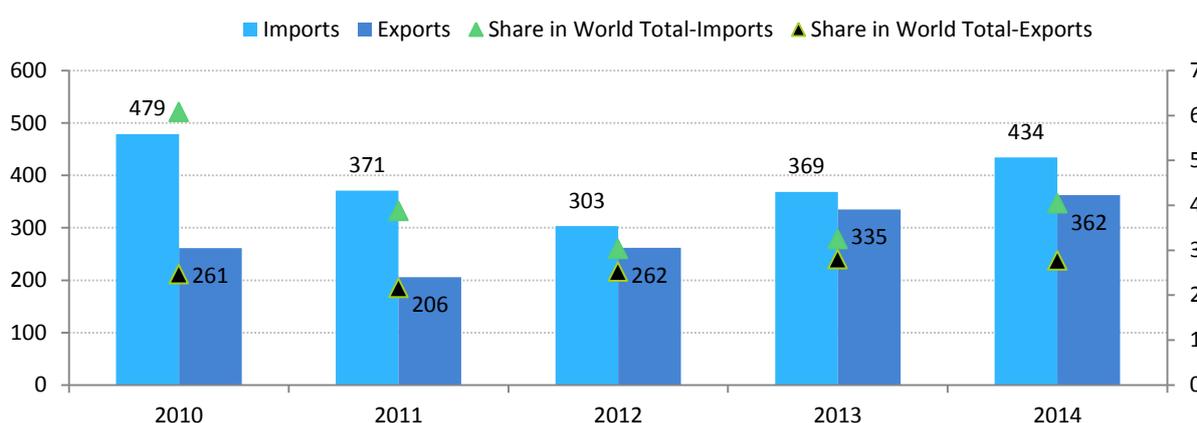
Global vaccine market has increased from 5 billion US\$ in 2000 to 24 billion US\$ in 2013 and projected to rise to 100 billion US\$ by 2018. It is a rapidly growing market with an annual growth rate of 10-15 per cent. Currently, vaccine market accounts for 2-3 per cent of global pharmaceutical market (WHO, 2013). Globally, vaccine sales are highly concentrated in developed countries which accounts for over 80 per cent of total sales in terms of value. Vaccine manufacturing is considered as a very complex business mainly due to poor returns on investment and high risk in R&D. It is partly due to these factors that despite an increase in vaccine demand, the number of vaccine producing countries has declined from 63 in 1990 to 44 in 2010. Today, emerging developing countries are the major vaccine producers. As of 2013, over 70 per cent of global vaccine demand is met by only three countries namely: China, India and Indonesia (WHO, 2013).

Vaccines production capacity remained very low across OIC countries. According to the latest estimates, only two OIC countries namely: Indonesia and Iran have good manufacturing capacities whereas other vaccine producers like Senegal, Uzbekistan, Bangladesh, Tunisia and Egypt are characterized by low production capacities. Indonesia remained the star performer with 10 per cent share of the global vaccine production and is the third largest vaccine producer after China and India.

5.2.2 Trade

As vaccine production is very limited in OIC countries, they rely heavily on vaccine imports. The UN Comtrade Database at the 4-digit level of "glycosides; glands or other organs and their extracts; antisera, vaccines and similar products" (SITC group 5416) has been used in order to analyze OIC vaccine trade. Between 2010 and 2014, OIC exports of vaccines have shown an upward trend from US\$ 261 million in 2010 to US\$ 362 million in 2014 with a share in world total varying between 2 per cent and 3 per cent. On the other hand, OIC imports of vaccines decreased from US\$ 479 million in 2010 to US\$ 434 million in 2014 (Figure 5.5).

Figure 5.5: OIC Vaccine Trade



Source: SESRIC staff calculations based on COMTRADE Online Database

OIC countries display a heterogeneous structure in terms of vaccine procurement. Low income countries, through Global Alliance for Vaccines and Immunizations (GAVI), and high income countries such as Gulf countries have been successful in the uptake of new vaccines. On the contrary, middle income countries have been experiencing financial and operational difficulties with the introduction of new vaccines. Among other factors, lack of sufficient funds and the prevailing high prices of the new vaccines constitute two main obstacles. In addition to delivering vaccinations,

national immunization programs are concerned with the quality and safety of immunization through the adoption of safe injection technologies (auto disabled syringes, storage boxes, and incinerators) and proper cold chain and vaccine stock maintenance.

OIC countries are classified in two groups according to the source of the vaccines that are used in their Expanded Programme on Immunization (EPI). First group consists of 31 OIC countries sourcing their vaccines through UNICEF and Global Alliance for Vaccines and Immunizations (GAVI) such as Afghanistan, Bangladesh, Benin, Burkina Faso, Cameroon, Chad, and Comoros. Second group refers to the OIC countries procuring the vaccines directly from manufacturers such as Bahrain, Kuwait, Iran, Iraq, Jordan, Libya, Oman, Palestine and Qatar.

5.3 Medical Technologies

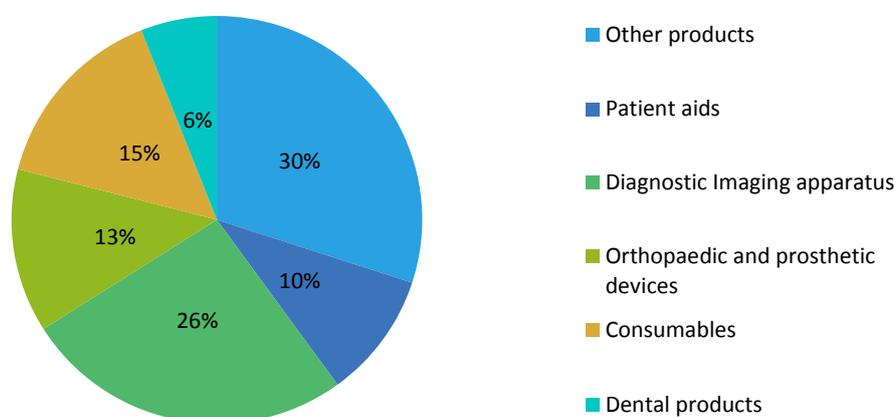
Health technologies, especially those dealing with medical devices, are crucial for the services offered in prevention, diagnosis, and treatment of illness, disease, and disability. Several definitions exist for the term health technologies. According to the Global Initiative on Health Technologies, health technologies refer to the application of organized knowledge and skills in the form of devices, procedures, and systems developed to solve a health problem and improve quality of lives.

This section attempts to present the status of development of health technology programme dedicated to medical devices in global market and OIC countries by using the baseline country survey on medical devices conducted by WHO between 2010 and 2013.

5.3.1 Medical Device Market

Medical devices refer to an article, instrument, apparatus or machine that is used in the prevention, diagnosis or treatment of illness or disease, or for detecting, measuring, restoring, correcting or modifying the structure or function of the body for some health purpose. There are approximately 10,000 types of generic medical device groups available through global markets. As shown in Figure 5.6, diagnostic imaging equipment accounts for the largest proportion (26 per cent) of the global market, other electromedical equipment such as monitors, defibrillators, sterilizers comprise around 30 per cent followed by consumables (15 per cent) and orthopaedic as well as prosthetic devices (13 per cent). In 2014, the global medical devices market was estimated to be worth US\$ 361 billion. With 3 per cent average growth, the global medical devices market will reach \$427 billion in 2018. The "Rest of World" market (all areas outside of the U.S., Europe, and Asia) represents a fifth of the world device market.

Figure 5.6: Global Medical Devices Market, by sector, 2010



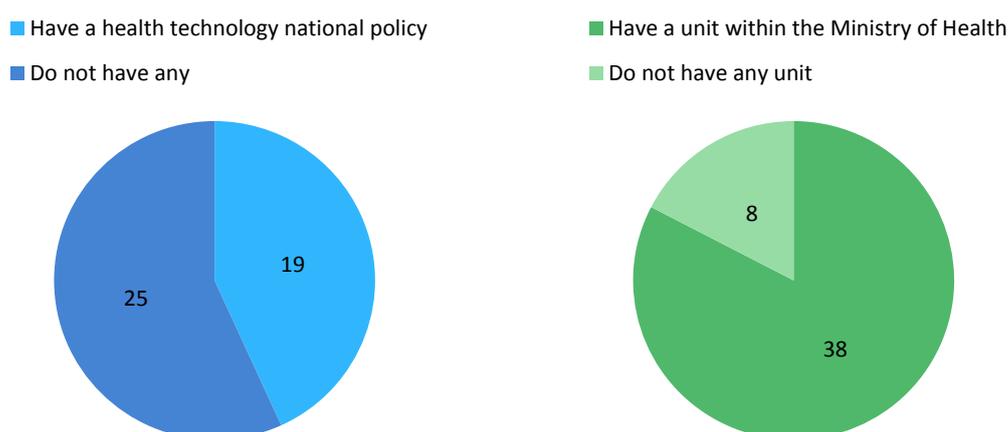
Source: WHO, Global Atlas of Medical Devices, 2013

5.3.2 Health Technology Policies

Having a national health technology (medical device) policy can help in guaranteeing the best use of resources according to the needs of the population. In 2013, 19 out of 44 OIC countries (43 per cent) have a health technology national policy. On the other hand, 25 out of 44 OIC countries (57 per cent) do not have such a policy. This ratio is considered to be high comparable to the developed countries average of 44.8 per cent and the world average of 52 per cent. Benin, Jordan, Morocco, Oman, Qatar and Saudi Arabia have a national technology policy but it is not part of the national health program/plan or policy.

Units in the Ministry of Health can perform health technology assessment, planning, acquisition, utilization or other type of medical devices management related tasks. In 2013, 38 out of 46 OIC countries (82 per cent) have such a unit within the Ministry of Health. This situation indicates that although many OIC countries had units responsible for the management of medical devices, they do not have national medical device policy, which implies that these units in the Ministry of Health are not efficient (SESRIC, 2014). In other words, national health planners in many OIC countries should recognize concepts such as health technology assessment and management. Moreover, 8 out of 46 OIC countries such as Bangladesh, Burkina Faso, Chad and Comoros do not have any unit (Figure 5.7).

Figure 5.7: National Health Technology Policy and Unit in the Ministry of Health in OIC Countries, 2013

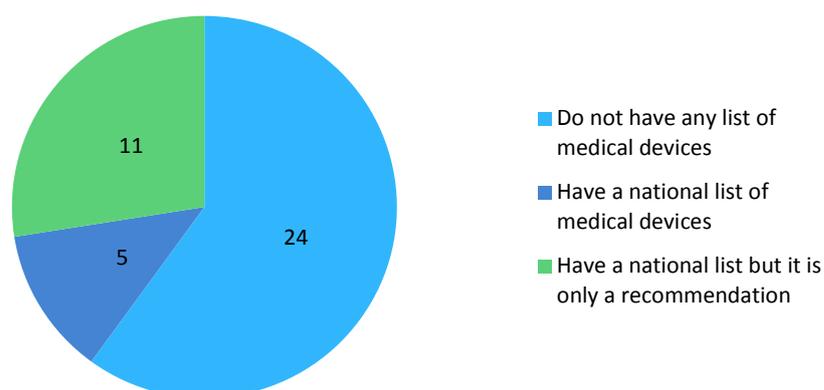


Source: WHO, Data Repository

Lists of Approved Medical Devices

Availability of national list of approved medical devices for procurement or reimbursement is one of the indicators listed in WHO Strategic objective 11 which calls for improved access to safe and effective health care products and technologies. In 2013, 24 out of 41 OIC countries, for which the data are available, did not have any national list of approved medical devices of procurement or reimbursement. Jordan, Mali, Tajikistan, Turkey and Uganda have a national list of approved medical devices for procurement or reimbursement. On the other hand, in 2013, 11 out of 41 OIC countries have a national list but it is only a recommendation (Figure 5.8).

Figure 5.8: Lists of Medical Devices in OIC Countries, 2013

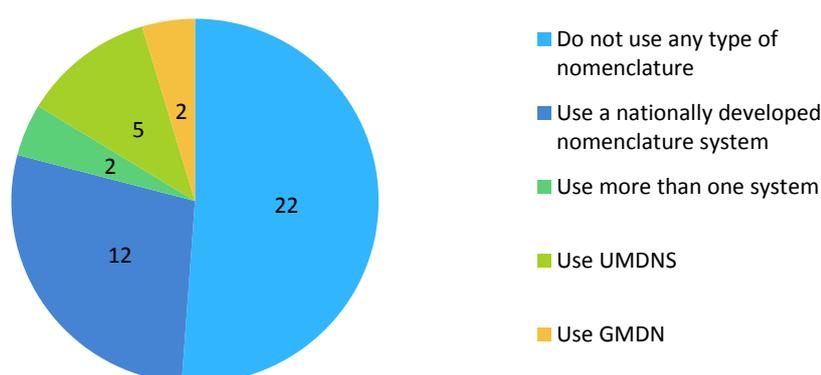


Source: WHO, Data Repository

Official Nomenclature for Medical Devices

Type of nomenclature system for medical devices within the country refers to many nomenclature systems on medical devices that facilitate better classification, regulation and management. The survey data conducted by WHO provides information on the use of these systems and helps determine the need for a nomenclature. In 2013, 22 out of 43 OIC countries do not use any type of nomenclature. However, 12 out of 43 OIC countries such as Albania, Egypt, Kazakhstan, Turkey, Tunisia and Uganda use a nationally developed nomenclature system. Gambia and Indonesia have based their nomenclature system on more than one system. Jordan, Kyrgyzstan, Morocco, Qatar and Sudan use a nomenclature system based on the Universal Medical Device Nomenclature System (UMDNS). Moreover, Tajikistan and Malaysia use a nomenclature system based on the Global Medical Device Nomenclature (GMDN). On the other hand, only 6 out of 43 OIC countries, namely Albania, Libya, Saudi Arabia, Senegal, Sudan and Tajikistan use nomenclature as regulatory, procurement or inventory purposes.

Figure 5.9: Nomenclature for Medical Devices in OIC Countries, 2013



Source: WHO, Data Repository

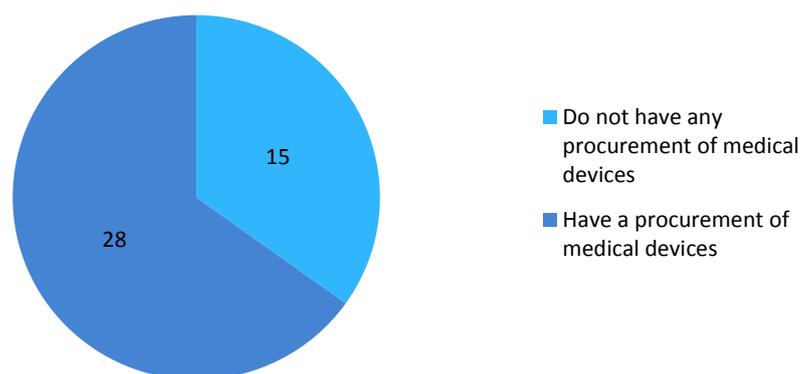
Procurement of Medical Devices

Procurement of medical devices carried out at the national level is the way in which countries procure medical devices either national level or not. It allows countries to develop specific data on procurement. Over-supply of the procured products leads to escalation of delivery costs and

inequitable access among the population (WHO/EMRO, 2012). 15, out of 43 OIC countries with data, do not have procurement of medical devices carried out at the national level (Figure 5.10).

Moreover, national guidance is indispensable for resource distribution in a domestic context. National guidelines, policies or recommendations on the procurement of medical devices are important for optimal allocation of medical device resources and the process of medical device procurement. 22, out of 43 OIC countries with data, do not have any guidelines for the procurement of medical devices.

Figure 5.10: Procurement of Medical Devices in OIC Countries, 2013

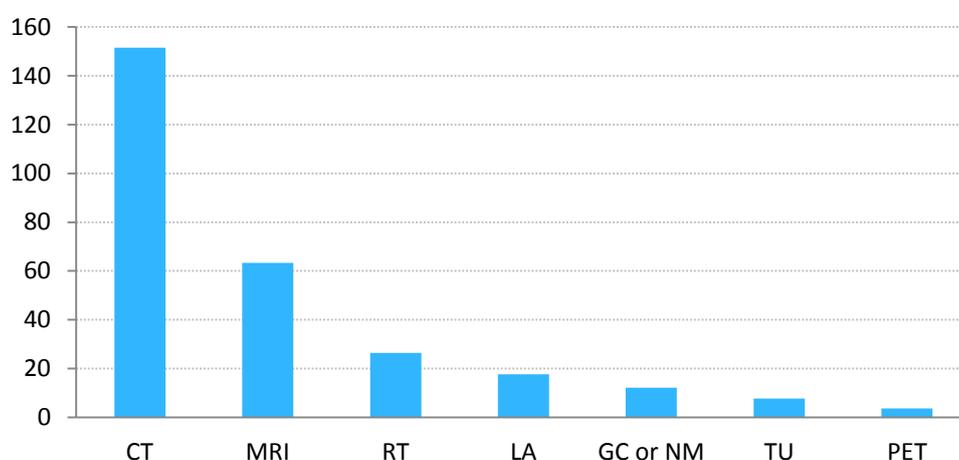


Source: WHO, Data Repository

Availability of Medical Devices

In general high technology specialized equipment is less available in OIC countries. In 2013, Computed Tomography (CT) scan units from the public and private sectors represent the highest density of medical devices among OIC countries with 151 CT per million people (Figure 5.11). The density of CT scan units are followed by Magnetic Resonance Imaging (MRI), Radiotherapy units (RT), Linear Accelerator (LA), Gamma Camera or Nuclear Medicine (GC or NM), Telecobalt Unit (TU), Positron Emission Tomography (PET) with the interval between 3 and 63 units per million people in OIC countries (Figure 5.11).

Figure 5.11: Density of Medical Devices in OIC Countries, 2013, (per million people)



Source: WHO, Data Repository

EMERGENCY RISK MANAGEMENT FOR HEALTH

6

OIC countries face a broad range of emergencies resulting from various hazards and conflicts at differing scale, complexity and consequences. These emergencies can have extensive political, economic, social and public health impacts, with potential long-term consequences. Whether they are due to natural disasters, conflicts, disease outbreaks or any other hazards, crises can weaken health systems, damage health infrastructure and annihilate decades of health gains. Effectively preventing, preparing and responding to such emergencies are, therefore, among the most critical challenges facing the OIC countries as well as the international community.

According to the World Bank, over 1.5 billion people live in countries affected by violent conflict (World Bank, 2011). These populations suffer from the consequences of societal disruption and increases in mortality and morbidity due to infectious diseases, acute malnutrition, trauma and complications from chronic diseases. Of the 10 countries with the highest ratios of maternal mortality, 9 have recently experienced conflict (UNICEF, 2011). In OIC countries, more than 468 million people were affected from 2,254 natural disasters (mainly due to floods, epidemics, earthquakes and storms) recorded during 1990-2014 and almost 677,000 people killed due to these disasters. Much of the impacts could be avoided if adequate actions were taken to reduce vulnerabilities of the communities. Similarly, 53 OIC countries experienced conflicts in one way or another during the past decades with more than 3 million deaths and millions of displaced people (SESRIC, 2014a).

It is evident that natural disasters and conflicts often significantly affect people's health. Each disaster and its context are different, yet many share similar health sector vulnerabilities. By integrating common disaster management methods and policies into the health system, resilience of health system and people can be strengthened. The traditional focus of the health sector has been on the response to emergencies. It remains challenge to widen the perspectives on emergency and disaster risk management for health (EDRMH) from response and recovery to prevention and mitigation, while further improving the local and national capacities for timely and effective response and recovery.

Some OIC countries has made progress in managing disaster risks and associated health response, but the capacities of countries remain extremely variable. Weak health and disaster risk management (DRM) systems, continuing insecurity due to conflict and lack of access to resources and technology are among the major factors affecting the capacities. According to WHO (2008), only less than 50 per cent of the countries had a specified budget for emergency preparedness and response.

Against this background, this section focuses on the emergency health response needs and capacities in OIC countries. It first highlights the importance of strengthening health system capacity for emergency management, and then tries to assess the existing capacities in OIC countries. Given the limited information on health response capacities, a comprehensive assessment could not be provided. This section ends with some brief information on the current health situation in conflict-affected OIC countries.

6.1 Need for Strengthening Health System Capacity for Emergency Management

The greatest vulnerability of any country in an emergency is the health and well-being of its people and communities. Disasters and conflicts can put the continuity and sustainability of health sector services at risk, and destroy many years of health sector development. Nobody would wish to see the health services destructed or significantly retarded when they are needed the most. Emergency and disaster risk management for health (EDRMH) requires systematic assessment of risks to public health posed by hazards; prevention and mitigation of those risks; preparation for emergencies with comprehensive, multisectoral plans with appropriate legislation and supportive policy, and capacity building; quick and effective response in the event of a disaster; planning for post-disaster recovery to “build back better” (WHO, 2015b). If an effective EDRMH would be in place, many of the deaths, injuries, diseases, disabilities, psychosocial problems and other health impacts could be avoided or reduced significantly. However, every new threat reveals the persisting challenges in managing health risks in times of emergencies and disasters. Many countries could reduce vulnerability and protect health facilities by strengthening resilience of health systems at community level.

Two recent major disasters, floods in Pakistan and drought in Somalia, demonstrate the need for strengthened health systems. During July to August 2010, floods hit Pakistan and affected 20 million people. Health facilities were destroyed in disaster affected regions and created enormous challenges in public health services. Nevertheless, previous investment in disaster risk management in southern Punjab region allowed for effective evacuations and saved many lives. The famine in the Horn of Africa in 2011 similarly affected around 10 million people in the region. Movement of large population across the region fuelled the public health challenges that are faced in these areas due to poorly developed health systems and lack of disaster preparedness capacities. Water, sanitation, shelter, acute malnutrition, surveillance for outbreaks, vaccination for preventable diseases, inter-agency coordination and trained staff to address all these challenges were immediate priorities but narrowly supplied (Bayntun et al. 2012). All these reflect the different dimensions of an emergency health system that need to be in place.

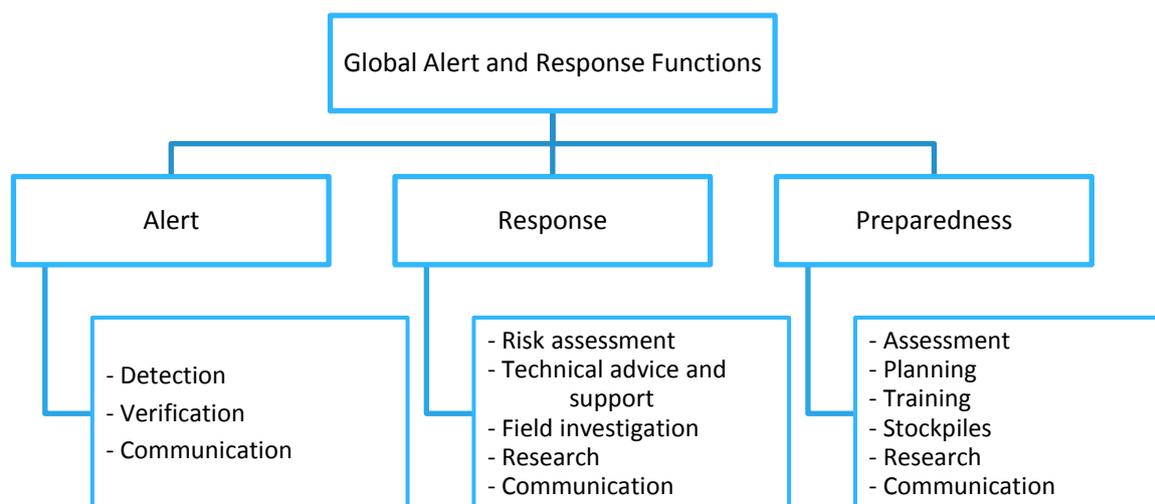
Healthcare systems provide essential capacities for emergency risk management for health. In countries affected by crises, limited basic health services and infrastructure massively intensifies the challenges of disaster response. Countries with well-developed health systems are often much more resilient and better prepared for disasters. Primary health care builds community resilience and provides the foundation for responding to emergencies. Community-based actions are also critical in protecting health in emergencies, because they prevent risks at the source by using the local knowledge of local risks and avoiding exposure to local hazards. Therefore, a well-prepared and organized community can reduce the risks and impacts of emergencies and save many lives (WHO, 2013a).

In order to develop adaptable and resilient healthcare systems, flexibility and stability of services are critical. The systems should be ready to cope with large number of patients and deliver different functions at a time. There must be plans for the continuity of health services with priority services identified and response coordination mechanism well-designed. Moreover, multisectoral action plan should be prepared to protect affected people in wider determinants of health such as water, sanitation, nutrition and security. To ensure the continuity of health services, essential infrastructure such as communications, logistics, energy and water supplies also need to be protected through multisectoral coordination.

A major concern after crises is disease outbreak. In general, poverty, urbanization and population displacement have led to concentration of human populations in conditions that favour major

outbreaks. The challenge is to strengthen global efforts to detect and contain epidemic disease threats. In order to prevent such outbreaks, according to the WHO, a comprehensive alert and response system should be developed with various components including such as surveillance, response and assessment after the event (Figure 6.1). The proposed network relies on an effective technical partnership of national and international institutions and networks. In this framework, it is expected that outbreaks of potential international importance are detected, verified and responded to efficiently and effectively by the international community, and the level of preparedness of individual states is increased.

Figure 6.1: Framework of Global Alert and Response Network



Source: WHO, A framework for global outbreak alert and response. WHO/CDS/CSR/2000.2.

6.1.1 Coordination of Emergency Health Services

While dealing with emergency situations, effective coordination of emergency health services requires special attention, particularly when there are different national and international humanitarian agencies to offer aid and services. In this connection, the Global Health Cluster (GHC) can be instrumental especially when national capacities are overwhelmed. The cluster approach is a way of organizing coordination and cooperation among humanitarian actors to facilitate joint strategic planning. The GHC aims to build consensus on humanitarian health priorities and related best practices, and strengthen system-wide capacities to ensure an effective and predictable response (WHO, 2009).

At country level, the GHC establishes a clear system of leadership and accountability for international response in each sector and provides a framework for effective partnerships among international and national humanitarian actors in each sector. It strengthens, rather than replaces, existing sector coordination mechanisms. The aim is to ensure that international responses are appropriately aligned with national structures and to facilitate strong linkages among international organizations, national authorities, national civil society and other stakeholders. The cluster is expected to enable participating organizations to work together and with local health authorities, harmonize efforts, effectively integrate cross-cutting issues, and use available resources efficiently within the framework of agreed objectives, priorities and strategies. WHO (2009) highlights key principles of humanitarian health action and how coordination and joint efforts among health sector actors working in partnership can increase the effectiveness and efficiency of health interventions. It would be beneficial for OIC countries that face major coordination problems in times of crises to adapt cluster approach for effective management of the crisis situation.

The lack of data on available health resources often creates a major gap in decision making during emergencies. Nickerson et al. (2015) suggest that the assessment of the availability and functionality of health services and facilities is technically feasible in emergencies, even under difficult circumstances. In this regard, Health Resources Availability Mapping System (HeRAMS) of WHO helps to promote and support good practice in mapping health resources and services availability in emergencies so as to strengthen informed based decision making by the Health Cluster. It aims to ensure that assessment and monitoring of health resources and services availability can be conducted systematically and quickly despite limited time, resources and accessibility. Table 6.1 presents the global health cluster suggested set of core indicators and benchmarks in four categories. These indicators are identified as essential to observe in case of emergencies to manage health emergencies.

Table 6.1: Global Health Cluster Suggested set of Core Indicators and Benchmarks by Category

Category	Name of Indicator	Benchmarks
Health resources availability	Average population per functioning health facility (HF), by type of HF and by administrative unit	SPHERE std.: 10,000 for 1 Health Unit, 50,000 for 1 Health Centre, 250 000 for 1 Rural/ District Hospital
	Number of HF with Basic Emergency Obstetric Care/ 500,000 population, by administrative unit	≥ 4 BEOC/500,000
	Number of HF with Comprehensive Emergency Obstetric Care/500,000 population, by administrative unit	≥ 1 CEOC/500,000
	Percentage of HF without stock out of a selected essential drug in 4 groups of drugs, by administrative unit	100 per cent
	Number of hospital beds per 10,000 population (inpatients & maternity), by administrative unit	>10
	Percentage of HF with clinical management of rape survivors + emergency contraception + PEP available	100 per cent
	Number of health workers (medical doctor + nurse + midwife) per 10,000 population, by administrative unit (per cent m/f)	>22
	Number of CHWs per 10,000 population, by administrative unit	≥ 10
Health services coverage	Number of outpatient consultations per person, per year, by administrative unit	$> = 1$ new visit/person per year
	Number of consultations per clinician, per day, by administrative unit	Less than 50/day per clinician
	Coverage of measles vaccination (6 months–15 years)	> 95 per cent in camps or urban areas > 90 per cent in rural areas
	Coverage of DTC3 in < 1 year old, by administrative unit	> 95 per cent
	Percentage of births assisted by a skilled attendant	> 90 per cent
	Percentage of deliveries by Caesarean section, by administrative unit	≥ 5 per cent and ≤ 15 per cent
Risks factors	Number of cases or incidence rates for selected diseases relevant to the local context (cholera, measles, acute meningitis, others)	Measure trends
	Number of cases or incidence of sexual violence	Measure trends
	CFR for most common diseases	Measure trends
	Proportional mortality	Measure trends
	Number of admissions to SFT and TFC	Measure trends
	Proportion/number of U5 GAM and SAM cases detected at OPD/IPD	Measure trends
	Proportion of people with <15 L of water/day	Measure trends
Health outcomes	CMR	≥ 2 x base rate OR $>1/10,000$ per day
	U5MR	≥ 2 x base rate OR $>2/10,000$ per day
	Prevalence of Global Acute Malnutrition (GAM)	< 10 per cent, measure trends
	Prevalence of Severe Acute Malnutrition (SAM)	Measure trends
	Percentage of the population in worst quintile of functioning, including those with severe or extreme difficulties in functioning	Thresholds have to be defined according to the local context and the nature of the crisis. Measure trends

Source: WHO,
http://www.who.int/hac/network/global_health_cluster/iasc_global_health_cluster_core_indicators_9apr10.pdf,
 accessed on 04/08/2015.

6.1.2 Integrating foreign medical teams in the overall emergency response

Integrating foreign medical teams in the overall emergency response may require a coordination mechanism. Such teams at different levels of capacities, standards and equipment from different organizations may arrive in the aftermath of a sudden crisis to provide emergency health services. The arrival of these teams is not always based on needs assessment on the ground and they may provide services without integrating into the existing emergency health coordination mechanisms.

In order to benefit from external medical assistance effectively, there is a classification system and minimum standards of service delivery, along with guidelines for registration and monitoring, to be used by national health and emergency management authorities (WHO, 2015b). In 2014, an online global registration system has been developed by WHO with input from medical providers and countries that had recently hosted foreign medical teams. By registering their capacity and qualifications, these teams commit to minimum standards for training, skill, equipment and quality, and they agree to be part of a coordination mechanism. This system enables governments to screen teams and provides them with a virtual platform to negotiate what they need and where, and to connect this surge capacity with the national system (WHO, 2015b).

6.1.3 Safe hospitals

Health systems are composed of public, private and nongovernmental facilities which work together to serve the community; these include hospitals, primary health care centres, laboratories, pharmacies and blood banks. Hospitals and primary health care centres are often affected by conflicts and natural disasters. This deteriorates the ability of affected communities to access health services when they need them most. The destruction of hospitals in disasters is also a costly challenge to recovery. In the Philippines in 2013, for example, 432 health facilities, including 38 hospitals, were damaged or destroyed by Typhoon Haiyan (WHO, 2015b).

In 2014, WHO issued the Comprehensive Safe Hospitals Framework to provide governments and health authorities with a more systematic approach to strengthening the safety and preparedness of health facilities for all types of hazards. Safe hospitals programmes ensure health facilities are safely built to withstand hazards and remain operational in emergencies. The objectives of this framework are (WHO, 2015b):

- to enable hospitals to continue to function and provide appropriate and sustained levels of health-care during and following emergencies and disasters;
- to protect health workers, patients and families;
- to protect the physical integrity of hospital buildings, equipment and critical hospital systems; and
- to make hospitals safe and resilient to future risks, including climate change.

In this connection, the Hospital Safety Index (HSI) has been developed by the Pan American Health Organization (PAHO) and a group of Caribbean and Latin American experts as a tool to gauge the overall level of safety of a hospital or health facility in emergency situations. In 2014, WHO revised the HSI, which was subsequently used in the Solomon Islands and Nepal (WHO, 2015b). The HSI helps health facilities to assess their safety and avoid becoming a casualty of disasters by providing a snapshot of the probability that a health facility will continue to function in emergency situations, based on structural, non-structural and functional factors, including the environment and the health services network to which it belongs (PAHO, 2015). Determining the Hospital Safety Index is a new

way of managing risk in the health sector and OIC countries should join the efforts of measuring safety of health facilities and strengthening them accordingly.

6.2 Assessment of Health System Capacities for Emergency Management

Health system comprises all the resources, organizations and institutions that are devoted to producing interdependent actions aimed principally at improving, maintaining or restoring health (WHO, 2012a). The emergency health system framework, developed by WHO as the conceptual basis used for describing and analysing health systems during emergencies, is composed of six building blocks, 1) leadership and governance, 2) health workforce, 3) medical products, vaccines and technology, 4), health information 5) health financing, and 6) service delivery.

The WHO Regional Office for Europe has adopted health system strengthening as the approach to support emergency preparedness and enhancement of crisis management capacities, and developed a practical, action oriented Toolkit based on these six functions. The Toolkit consists of a “User manual” and the “Assessment form” and is structured using the WHO health systems framework – subcategorized into 16 key components and 51 essential attributes – to facilitate a structured and reproducible assessment of the preparedness of health systems, based on defined indicators. The six sections of the assessment form are broken down into the “key elements” essential for a health crisis preparedness programme (Table 6.2).

Table 6.2: Key Components of Emergency Health System Framework

System building blocks	Key elements
I. Leadership	<ol style="list-style-type: none"> 1. Legal framework for national multisectoral emergency management 2. Legal framework for health-sector emergency management 3. National multisectoral institutional framework for emergency management 4. Health-sector institutional framework for emergency management 5. Health-sector emergency management programme components
II. Health workforce	<ol style="list-style-type: none"> 6. Human resources for health-sector emergency management
III. Medical products, vaccines and technology	<ol style="list-style-type: none"> 7. Medical supplies and equipment for emergency response operations
IV. Health information	<ol style="list-style-type: none"> 8. Information management systems for risk reduction and emergency preparedness programmes 9. Information management systems for emergency response and recovery 10. Risk communication
V. Health financing	<ol style="list-style-type: none"> 11. National and subnational financing strategies for health emergency management
VI. Service delivery	<ol style="list-style-type: none"> 12. Response capacity and capability 13. Emergency medical services system and mass-casualty management 14. Management of hospitals in mass-casualty incidents 15. Continuity of essential health programmes and services 16. Logistics and operational support functions in emergencies

Source: WHO (2012a)

The final version of the toolkit was developed and published early 2012 on the basis of pilot assessments carried out in several countries including Azerbaijan, Kazakhstan and Turkey. So far, the toolkit has been applied in 18 countries in the European Region and planned to be applied in other countries through joint WHO expert assessment teams integrating national experts and/or through a self-assessment approach. In this connection, WHO recently published reports on three OIC countries, namely Turkey, Tajikistan and Kyrgyzstan, assessing the emergency health system capacities. These reports used a standardized assessment method with an all-hazard, multi-sector approach, adopting the WHO health systems' framework as the conceptual basis for describing and analysing the status of health systems preparedness for crises and identifying key recommendations.

According to the reports, Turkey has a high level of political commitment to crisis preparedness and substantial capacity to respond to national and international disasters. The emergency response system is built on a strong legal framework; it is adequately staffed and well equipped. Hospital capacity is extensive in terms of number of beds, availability of trained staff, and accessibility to equipment, contingency supplies and modern medical technology. The Emergency Medical Services (EMS) system is well resourced with staff, ambulances, contingency, and dispatch centres, etc. Every hospital is required to have a dedicated focal point for emergency preparedness, as well as an emergency response plan. A strategy for risk communication and public information during emergency situations exists. From numerous international and national emergency response operations, Turkey has obviously gathered valuable experience in delivering medical aid in disaster situations and due to its advanced disaster and emergency management system, the country could play a useful role in training and research related to emergency preparedness and disaster risk reduction at global level (WHO, 2011a). Its expertise could be shared and used for joint capacity-building activities in OIC countries as well as other countries.

On the other hand, Tajikistan has strong commitment to crisis preparedness, which is reflected in the ongoing reform of its management and coordination structure towards institutionalizing and expanding it and further developing the national emergency-response plan. Health sector and hospital emergency-response plans are available to a certain degree but lack clear operational instructions. Hospital capacity would seem to be adequate for routine emergencies in terms of number of beds and availability of trained staff, albeit poorly distributed, with a focus on urban settings. The EMS system is found to be understaffed and underequipped, and resources are unevenly distributed in the country (WHO, 2014b).

In Kyrgyzstan, while procedures and equipment for crisis preparedness and response are well established, the same could not be said for the Ministry of Health of Kyrgyzstan, which is in dire need of funding to modernize and improve overall health-system functions in order to be prepared for crises. The Ministry of Health faces significant challenges as many of the procedures and systems established for health-crisis preparedness and response have become eroded and/or outdated since the collapse of the Soviet Union. According to the report, the leaning towards autonomous, vertical command and control mechanisms, coupled with secrecy at many levels of government over crisis preparedness and response, needs to change and become more inclusive and transparent (WHO, 2012b).

Since assessments on emergency health services are available for only few OIC countries, it would be beneficial for other OIC countries to conduct an evaluation study on their existing capacities and needs, possibly in cooperation with WHO or other professional organizations. Overall it can be argued that all disciplines of the health sector should be taken into consideration and involved in crisis preparedness activities in enhancing the emergency. The implementation of any national

integrated emergency preparedness programme requires sufficient and well-equipped staff to develop standardized health-sector emergency preparedness plans and to formulate policies on education, training, accreditation and research.

In addition to few individual country assessment reports, there is a global assessment study conducted by WHO in this area. According to the global assessment of national health sector emergency preparedness and response, most countries (85 per cent) have a national emergency

BOX 6.1: Post-conflict survey of health facilities and services in Mali

Following political unrest and armed conflict in Mali in 2012, the WHO country office used the Health Resources Availability Mapping System (HeRAMS) in 2013 to investigate the status of health facilities and services in all of the country's 60 health districts. The conflict had resulted in widespread population displacement, with 300,000 IDPs and 174,000 registered refugees. Access to health care was affected by the destruction and looting of health facilities, equipment and supplies, the departure of public and NGO health care providers, and the suspension of priority health programmes.

A total of 1,581 hospitals, reference health centres, community health centres, and private and faith based health facilities were assessed. Community public health facilities made up 71.9 per cent of the facilities surveyed. The results showed that almost one in five health facilities were at least partially damaged, with big regional disparities (from 5.4 per cent of health facilities in the capital to much greater damage in the northern regions of Kidal, Gao and Tombouctou). In the hardest-hit Kidal region, nearly half of all health facilities surveyed were completely destroyed and 71 per cent had ceased to function. Basic laboratory and blood bank services and emergency obstetric care were reduced to almost nothing in the northern areas.

The survey revealed the extent of the damage to the health system in Mali and enabled the Health Cluster to identify priorities for the country's recovery: the construction and rehabilitation of health infrastructure; the establishment of mobile health care teams; the deployment of skilled health care staff with equipment, supplies and essential medicines; the training of community health workers; and the establishment of health sub-clusters in three northern regions.

Source: WHO (2015a)

preparedness and response policy. However, only around 65 per cent of countries have a policy on health sector emergency preparedness and response programmes at the national and provincial levels, and policy on health sector emergency preparedness and response plans. Moreover, around 50 per cent of countries have no specific budget allocated for the health emergency preparedness and response planning. Around 35 per cent of countries do not include training and capacity building component in their emergency preparedness and response programmes. More than three-quarters of countries benefit from international or bilateral cooperation programmes in the area of emergency preparedness and response (WHO, 2008).

Ministries of health should have some form of institutional arrangement to ensure the development and maintenance of health emergency preparedness and response programmes. An effective emergency response system should include a professional health institution, well-trained health technical personnel, smooth and accurate disease surveillance and report system, modern laboratory, electronic information system that can facilitate quick communication with other departments, adequate stockpiles (medicine and vaccines, for example) and effective methods to prevent the spread of disease (isolation, for example), all of which are essential to emergency control (APEC, 2012). Most of the respondents to WHO survey reported the presence of some institutional arrangements, but a surprising number of countries demonstrated the relative absence of dedicated response personnel. Therefore, more effort must be applied to developing and employing emergency preparedness and response specialists in ministries of health to work on national and provincial programmes.

6.3 Current Health Sector Situation in Conflict Affected Countries

There are a number of conflict areas around the globe with severe health consequences. Table 6.3 shows the list of countries that are graded 3 and 2 by WHO as well as those that are of concern. 15 out of 26 countries with health concerns are members of OIC. It includes countries with health concerns due to conflicts as well as disease outbreak and some other reasons. This subsection provides some information on current health sector situation in selected conflict affected OIC countries. These include five countries and one region comprising nine countries, namely Afghanistan, Iraq, Palestine, Sahel Region, Syria and Yemen. The main source of information is the WHO report on its 2015 humanitarian response plans (WHO, 2015c).

Table 6.3: List of countries with health concerns, crises and emergencies		
	Priority countries including Grade 3 and Grade 2 countries	Countries of concern
OIC Countries (15)	<ul style="list-style-type: none"> ▪ Guinea ▪ Iraq ▪ Mozambique ▪ Niger ▪ Nigeria 	<ul style="list-style-type: none"> ▪ Afghanistan ▪ Chad ▪ Lebanon ▪ Libya ▪ Pakistan ▪ Sudan
Non-OIC Countries (11)	<ul style="list-style-type: none"> ▪ Central African R. ▪ D. R. Congo ▪ Liberia ▪ Malawi ▪ Nepal 	<ul style="list-style-type: none"> ▪ Philippines ▪ South Sudan ▪ Ukraine ▪ Vanuatu ▪ Burundi ▪ Tanzania
<p><i>Source:</i> http://www.who.int/hac/crises/en/, accessed on 04/08/2015. Note: Grade 2 and 3 respectively indicate an event with moderate or substantial public health consequences that requires moderate or substantial local and/or international response.</p>		

Afghanistan: Afghanistan faces significant constraints in health services as a result of conflict, chronic under development, poverty, deprivation and protracted crises that span several decades and affect all 34 provinces. The Ministry of Public Health estimates that the Basic Health Service Package covers around 65 per cent of the population. The majority of those without coverage live in insecure or hard-to-reach areas. The 2012 National Risk and Vulnerability Assessment estimated that 85 per cent of the population lives within two hours of a health facility. There is a shortage of trained surgeons, anaesthetists and trauma capacity in conflict-affected areas. There are on average only three health workers per 10,000 Afghans, substantially below the minimum standard of 22 health workers per 10,000. Furthermore, conflict-related constraints to health care delivery have contributed to low immunization coverage and increased morbidity and mortality risk, especially for children and pregnant women. No national resources are allocated for provision of basic health care during emergencies, despite the country suffering from numerous natural disasters and widespread conflict. Hence, reliance on the international community remains essential, especially given existing vulnerabilities including inadequate infrastructure, weak institutional and human resource capacity, weak economic governance, deteriorating security and high population growth.

Iraq: Essential public services, including health services, water and sanitation have sharply deteriorated in conflict-affected areas and are overstretched by the rapid influx of internally displaced people (IDPs). More than half of these IDPs are children, who are particularly vulnerable to deteriorating health. Poor living conditions, sanitation conditions and water quality are contributing

to increased health problems and a high risk of outbreaks among IDPs. Attacks on public hospitals have occurred in Anbar, Ninewa, Diyala, Salah al-Din and Kirkuk governorates, damaging facilities already weakened by decades of underinvestment. An estimated 45 per cent of health professionals from these areas are now displaced. In Ninewa, more than half of health facilities are no longer functioning. The conflict has also severely disrupted the national system for procurement and distribution of medical supplies, preventing essential items from reaching clinics and hospitals. Approximately 5.2 million people are in need of emergency health interventions as a result. However humanitarian access to at least 2.2 million Iraqis in need is severely compromised in areas under the control of armed opposition groups. Conflict is volatile and the liberation of areas may create both opportunities and demands for the provision of healthcare services.

Palestine: Access to essential health services and the referral of patients for specialized health care remains especially limited in Gaza, and in many areas of the West Bank, particularly for males aged 18-40. Security issues and the destruction of vital health infrastructure remain the main contributors to the reduced availability of health services. The military action by the Israeli Armed Forces in Gaza in July 2014 severely damaged health services in the Gaza strip. Seven health facilities were destroyed (including the only specialized rehabilitation hospital), 67 facilities were damaged, 23 health workers were killed and 83 were injured. Stocks of essential medicines were depleted and health staffs were overwhelmed. In the West Bank, insufficient access to primary health care persists as a result of insecurity, restrictions on the freedom of movement of patients, health staff and medical students, a shortage of medicines and other medical supplies and shortage of health care workers. Access to primary health care is particularly difficult for women, the elderly and people with disabilities in certain areas of the West Bank due to restrictions on movement and limited public transportation. Essential primary health care services, including reproductive and child health, laboratory tests and health education are offered by mobile clinic services by different health service providers.

Sahel Region: Nine OIC countries in the Sahel region, namely Burkina Faso, Cameroon, Chad, Mauritania, Mali, Niger, Nigeria, Senegal and Gambia, face a heavy burden of epidemic risk compounded by conflict, insecurity and natural threats such as flooding. Some 1.2 million children under five die each year in the Sahel, with 570,000 of these deaths associated with malnutrition and related diseases. Violent conflict in and around the Sahel region has led to a surge in population displacement. The region began 2015 with some 2.8 million people displaced, around a million more than in early 2014. Recurrent epidemics of diseases such as cholera, malaria, meningitis, measles and yellow fever affect thousands of households across the Sahel. The spread of epidemics and high case fatality rates are driven by a lack of safe water, poor access to prevention and treatment services and low quality of care. Conflict and poor governance exacerbate difficulties in the functioning of an already fragile health system. Inadequate access to reproductive health and emergency care, partially due to a lack of healthcare workers, is also responsible for some of the highest maternal mortality rates in the world. By November 2014, at least 40,820 cases of cholera had been registered in Niger, Nigeria, Cameroon and Chad, with a case fatality rate of 2.4 per cent. Access to improved sanitation facilities and safe water is very limited in most countries. Niger, for example, has only 11 per cent coverage for improved sanitation facilities.

Syria: Syria has been affected by conflict since more than four years, resulting in a deterioration of the health situation. Since the inception of the crisis, primary, secondary, and tertiary healthcare services in Syria have deteriorated due to damaged health facilities, power outages, shortages of medical supplies and a lack of qualified healthcare professionals. 55 per cent of public hospitals are reported to be partially functioning or completely out of service, while 63 per cent of public basic emergency obstetric care centres are not functioning. The limited availability of health services in

some parts of the country requires patients to travel up to 160 km to reach the nearest hospital, while referral services are frequently non-functional. The private sector, which provided medical services to more than 50 per cent of the population prior to the crisis, has been severely affected by the displacement or departure of the majority of private health service professionals.

Yemen: Political instability and conflict has led to the near collapse of basic services, making increasing numbers of vulnerable people reliant on external assistance for their basic needs. In 2015, an estimated 15.9 million people—61 per cent of the population— will require some kind of humanitarian assistance, mainly in the food, water and health sectors. An estimated 8.4 million Yemenis lack adequate access to health care. This figure is largely unchanged from 2014; however, geographic concentrations have shifted following the evolution of localized conflict. The number of people in need has fallen dramatically in certain governorates, while new concentrations of need have emerged in areas more recently affected by conflict. Political instability and expanding conflict has increased the need for mass casualty management services and there is a continuing need for health services for new and previously displaced people. In areas where security has improved, health facilities require rehabilitation and support.

INFORMATION, RESEARCH, EDUCATION AND ADVOCACY

7

There is a strong link between level of information, education and advocacy and health outcomes in a country. It has been established through research that most of the diseases can be prevented by imparting accurate and relevant information and education to patients and health care providers. Right diagnosis and an effective curing can save millions of people both in OIC countries and in other parts of the world. According to the WHO, majority of non-communicable and communicable diseases could be prevented just by educating and informing people about their life style (e.g. healthy diet, physical activity/exercise). Against this backdrop, this section discusses information, research, education and advocacy under two sub-sections. The first sub-section elaborates on the importance of health education and how the quality of health education can be improved. The second sub-section focuses on the importance of public awareness to have healthy societies and the ways to raise public awareness on health issues.

7.1 Quality of Health Education

The health systems exist to serve the needs of patients, ensuring that they are fully informed, retain control, participate in care delivery whenever possible, and receive care that is respectful of their values and preferences (Greiner and Knebel, 2003). Moreover, the health systems facilitate the application of scientific knowledge to practice by providing clinicians with the tools and support necessary to deliver evidence-based care consistently and safely. Having an effective health system requires sufficient amount of well-trained health professionals. However, figures on the number of health education institutions and professionals, and the quality of education delivered in these institutions reveal the existence of some major problems both in developed and developing countries including OIC member countries.

According to Lancet (2010), worldwide, 2420 medical schools, 467 schools or departments of public health, and an indeterminate number of postsecondary nursing educational institutions train about 1 million new doctors, nurses, midwives, and public health professionals every year. Severe institutional shortages are exacerbated by maldistribution both between and within countries. Four countries (China, India, Brazil, and USA) each have more than 150 medical schools, whereas 36 countries have no medical schools at all. 26 countries in Sub-Saharan Africa, of which majority of them are OIC countries, have one or no medical schools.

The total global expenditure for health professional education is about US\$100 billion per year. This amount corresponds to less than 2 per cent of all health expenditures worldwide, which is a small figure for a labour-intensive industry. Lancet (2010) estimated that the average cost per graduate in the world is about \$113 000 for medical students and \$46 000 for nurses. The World Health Report (2006) 'Working Together for Health' made estimation on the shortage of doctors worldwide. According to the report, an estimated 57 countries globally have a critical shortage equivalent to a deficit of 2.4 million doctors, nurses and midwives which by implication suggests millions of people worldwide who do not receive the essential health care and services that are desperately needed.

Given the picture presented above, it becomes evident that in many countries the number of health education institutions does not align well with either country population size or national burden of disease. The OIC countries are not exceptions of this fact.

In addition to the existence of shortage of health professionals, many countries worldwide face another challenge about the quality of the health education. Health professionals are not adequately prepared in either academic or continuing education venues. In many parts of the world, clinical education simply has not kept pace with or been responsive enough to shifting patient demographics and desires, changing health system expectations, evolving practice requirements and staffing arrangements, new information, a focus on improving quality, or new technologies (Institute of Medicine, 2002). Inadequate and low quality health education brought significant costs both for patients and societies. In this context, some of the common problems stemming from low quality health education can be listed as follows: misdiagnosis, excessive prescribing of antibiotics to children and adult population; incorrect dosages of drugs being administered to patients; and not employing effective prevention strategies with patients (Chassin, et al., 1998). According to the estimates of the Institute of Medicine, (preventable) errors made by health professionals costs to the lives of tens of thousands people and hundreds of thousands people suffer or stay sick in the US. Many of these errors can be eradicated through training and improving the quality of health education.

Globally, adverse drug reactions and irrational use of medicines are among the leading causes of death in many countries. It is estimated that half of all medicines are inappropriately prescribed, dispensed or sold, and that half of all patients fail to take their medicine properly. This problem is particularly serious in developing countries, including many OIC countries, where less than 40 per cent of patients in the public sector and 30 per cent in the private sector are treated according to clinical guidelines (WHO, 2010). The information needs of patients can be met by the pharmacist through participatory education to groups of patients about drug safety, and appropriate use; whereas health workers can be provided with professional training to update their information about diagnose and medication practices.

Greiner and Knebel (2003) listed some major reasons why health professionals cannot adequately deliver high quality health services:

a) Changing patient characteristics: Patients are becoming more diverse, are aging, and are increasingly afflicted by one or more chronic illnesses, while at the same time being more likely to seek out health information (Calabretta, 2002). This changing landscape requires that clinicians be skilled in responding to varying patient expectations and values; provide ongoing patient management; and deliver and coordinate care across teams, settings, and time frames.

b) Lack of team skills: In practice, health professionals are asked to work in interdisciplinary teams, often to support those with chronic conditions, yet they are not educated together or trained on team-based skills.

c) Gap between theory and practice: Many clinicians are confronted with a rapidly expanding data about their patients which health care decisions should ideally be made. However, curriculums of medical schools are no capable of linking “how to search”, “how evaluate evidence” and “how apply it to practice” (Shell, 2001).

d) Lack of quality assessment: Health professionals usually work under time pressure and stress. They have few opportunities to avail themselves of coursework and other educational interventions that would aid them in analysing the root causes of their errors and other quality problems.

e) Limited use of informatics: While clinicians are trained to use an array of cutting-edge technologies related to care delivery, they often are not provided a basic foundation in informatics (Hovenga, 2000). Training in this area would, for example, enable clinicians to easily access the latest literature on a baffling illness faced by one of their patients or to use computerized order entry systems that automatically flag pharmaceutical contraindications and errors.

Like their developing counterparts, many OIC countries are suffering from the poor level of health information and education. The situation is particularly critical in low income OIC countries of Asia and Sub-Saharan Africa region. Health care providers in many OIC countries continued to lack basic, practical information and expertise to enable them to deliver safe and effective health care. This lack of knowledge about the basics on how to diagnose and manage common diseases leads to ineffective and dangerous health care practices. These practices usually result into the failure of even the most modern medicines and causing many avoidable deaths. Irrespective of the level of economic development and progress, according to the findings of some investigative studies (Neil & Frederick, 2009), there is a considerable knowledge and awareness gap both among health care providers and patients in many OIC countries.

The challenges in the area of medical and nursing education are more or less common to all OIC 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 general practitioners to family physicians through customized programmes; and the inability to establish family medicine as an attractive career path for fresh graduates.

The key challenges to ensuring access to quality nursing education in OIC countries pertain to 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.

International community and organisations recognise the existence of wide-spread problems on the quality and scope of health education and training. In order to address the problem globally, the WHO (2013) prepared a guideline namely “Transforming and Scaling up Health Professionals’ Education and Training”. The WHO defines the term “Transforming and Scaling up Health Professionals’ Education and Training” as the sustainable expansion and reform of health professionals’ education and training to increase the *quantity, quality and relevance* of health professionals, and in so doing strengthen the country *health systems* and improve population *health outcomes*. The guideline sets out a vision of such a transformation of education for the health professions, and offer recommendations on how best to achieve the goal of producing graduates responsive to the health needs of the populations they serve. In particular, the guideline document aims to: provide sound policy and technical guidance in the area of pre-service education, particularly to countries experiencing shortages of doctors, nurses, midwives and other health professionals; and guide countries on how to integrate continuing professional development (CPD) as part of medical, nursing, midwifery and other health professionals’ education scale-up in order to ensure excellence of care, responsive health service delivery and sustainable health systems (WHO, 2013c). The WHO (2013) identified five domains to set and provide guidance to OIC countries for the

health reform process: education and training institutions; accreditation and regulation; financing and sustainability; monitoring and evaluating; and governance and planning.

Overall, it becomes evident that many OIC countries still need to undergo a major reform process to have better health education and training systems. For the success of the reforms in this field, cooperation with international community and organisations are very critical. Following up some international guidelines (e.g. the WHO Guidelines and the OIC Strategic Health Programme of Action) can help OIC countries to save money and time during the reform process. Enhancing intra-OIC cooperation through identifying and transferring best practices in health education and training can also make a significant contribution to improve the quality of health services and education in OIC countries. For a successful reform process, it is of importance to understand the local conditions in OIC countries and take into account views of civil society organisations. Otherwise, many regional/local conditions and restrictions that lead to failure in the quality and scope of health education and services will remain unchanged in many OIC countries.

7.2 Public Awareness

There is a strong link between level of information, education and advocacy and health outcomes in a country. It has been established through research that most of the diseases can be prevented by imparting accurate and relevant information and education to patients and health care providers. According to the WHO, majority of heart diseases, strokes, Type 2 diabetes and cancer cases could be prevented just by educating and informing people about healthy diet, physical activity/exercise and not using tobacco. Over one million lives per year could be saved by promoting breast feeding until at least two years and a bulk of under-five deaths could be avoided by educating parents about importance of nutrition and efficient use of their food money which they sometimes spend on sweets for their children to give them as treat.

Social, cultural and religious norms and traditions play an important role in shaping the attitude of a society towards collective welfare and prosperity both at macro and micro level. Like their developing counterparts, many OIC countries are suffering from the poor level of health information and awareness. The situation is particularly critical in low income countries where many myths and taboos prevail which lead to the low usage of health care services that are critical for the healthy survival of people. Over the years, immunization campaigns in some OIC countries have not been effective mainly due to the controversies related with the safety and religious permissibility of the vaccines. Authorities in countries like Nigeria and Pakistan have often reported the opposition of religious and political groups to carry out national polio vaccination campaigns. To overcome this problem, the OIC GS secured a religious injunction from the Islamic Fiqh Academy which issued a fatwa to encourage the Muslims to participate and support the national polio vaccination campaigns. Quoting extensively from the Qur'an, the fatwa lays out the duty to protect children when disease is preventable. Thus, the fatwa addresses the critical need to raise awareness in Muslim communities about the benefits of polio immunization campaigns. However, there is a strong need for similar fatwas to support all kinds of immunization campaigns in OIC countries (SESRIC, 2014).

OIC countries with highest incidence of maternal and child mortality are also characterized by high fertility rates and low prevalence of contraception use. The family planning related measures have been less effective in these countries. Based on the research conducted by various national and international health agencies, lack of knowledge, access problems and side-effect fears were the major limiting factors for the use of family planning measures in these countries. Not only a majority of population generally lacks the basic knowledge about these measures but also many have misleading information. For example, many people believe that use of contraceptives is not permissible in Islam, whereas others believe that it is unhealthy and can affect the fertility and hence those who are using contraceptives will not be able to bear children later on (SESRIC, 2014).

CONCLUDING REMARKS AND POLICY RECOMMENDATIONS

8

The 57 OIC member countries cover a large geographical area, spread out on four continents, extending from Albania (Europe) in the North to Mozambique (Africa) in the South, and from Guyana (Latin America) in the West to Indonesia (Asia) in the East. The OIC countries constitute a substantial part of the developing countries, and, being at different levels of economic development, they do not make up a homogenous economic group. The mixed nature of the group of the OIC countries reflects high levels of heterogeneity and divergence in the economic structure and performance of these countries. The degree of heterogeneity in the macroeconomic and developmental profiles of OIC countries also reflects in their performance in the health sector.

The health care coverage situation remained significantly poor in many OIC countries mainly due to the lack of adequate and sustainable financial resources, insufficient trained health workforce and poor health infrastructure. Currently, OIC countries allocate only 4.4 per cent of their GDPs for health whereas health expenditures account only 7.9 per cent of their total government expenditures. Out-of-pocket health spending remained the most widely used method for health financing, accounting for 38 per cent of total health spending and 82 per cent of private health expenditures. At the individual country level, out-of-pocket health expenditures account for more than 50 percent of total health expenditure in 17 OIC countries. On the other hand, average density of health workers in OIC countries is just above the critical threshold of 23 health personnel (doctors, nurses and midwives) per 10,000 people, generally considered necessary to deliver essential health services, and even less than 10 hospital beds are available for 10,000 people in OIC countries.

Over the years, many OIC countries have made significant progress in terms of fulfilling women and children's right to health, with more resources than ever being invested in the primary health care services. Although, on average, maternal mortality rate has declined by 44 per cent between 1990 and 2013, reaching the target of Millennium Development Goal 5 (MDG 5) of three-quarters reduction by 2015 seems to be difficult in many OIC countries. A similar situation prevails for the under-five mortality rates, as the so far reduction of 47 per cent is not enough to achieve the MDG4 target of two third reductions in child mortality by the end of 2015. Nutrition and food security is another major area of concern for the OIC countries. As a result, not only the risk of child death from common illness such as diarrhea, pneumonia, and malaria remained quite elevated in OIC countries but also many children are suffering from physical and cognitive impairments caused by the malnutrition and deficiencies of vital micronutrients like vitamin A, iodine and iron.

An analysis on the state of disease prevention and control shows that, on average, OIC countries improved their stance and many of them achieved to reduce mortalities caused by CDs and NCDs. However, the average of OIC countries in many diseases and risk factors still stay higher than the average of developed countries as well as the world average. This implies the existence of problems related with disease prevention and control as well as problems associated with the equal access to health services between male and female population in OIC countries. In other words, OIC countries, on average, still have a long-way to go and reach the level of developed countries in prevention and control of many diseases. Both communicable and non-communicable diseases are responsible for around 89 per cent of all deaths in OIC countries.

OIC countries, as a group, remained net importer of pharmaceuticals and with few exceptions, the majority of them have very low pharmaceutical production base. Considering the relatively high cost of health care, due to unavailability of medicines, many OIC countries have to make some serious efforts to boost the pharmaceutical industry in their economies. Medical devices are also one of the

most important health intervention tools available for the prevention, diagnosis and treatment of diseases, and for patient rehabilitation. However, availability and procurement of these devices is an ongoing challenge in many OIC countries.

Emergencies and disasters can put the continuity and sustainability of health sector services at risk, and destroy many years of health sector development. They may create severe health problems directly as a result of the hazard or through the disrupting health system, facilities and services, and limiting access to health care. Conflict-affected countries experience severe consequences in health services and outcomes. Although some OIC countries has made progress in managing disaster risks and associated health response, the capacities of many countries remain extremely variable. There are large discrepancies across countries in terms of emergency health management capacity. In order to make a comprehensive analysis on the existing capacities of OIC countries, there is a need for assessment studies for each country.

Changes seen in the characteristics of patients and developments observed in technology increased concerns on the quality of health education and training of health professionals all across the world. The quality of health education at medical schools and nursery schools has not been matched fully with the demands of patients and their necessities. Moreover, these educational schools, even in developed countries, could not equip prospective health professionals with the use of the state-of-the-art technologies and interpretation of data obtained from patients appropriately. OIC countries are not an exception of these facts. Furthermore, there is a strong link between level of public awareness and health outcomes in a country. It has been established through research that most of the diseases can be prevented by imparting accurate and relevant information and education to patients and health care providers. According to the WHO, majority of heart diseases, strokes, Type 2 diabetes and cancer cases could be prevented just by educating and informing people about healthy diet, physical activity/exercise and not using tobacco. Over one million lives per year could be saved by promoting breast feeding until at least two years and a bulk of under-five deaths could be avoided by educating parents about importance of nutrition and efficient use of their food money which they sometimes spend on sweets for their children to give them as treat.

Against this backdrop, following policy recommendations have been suggested to enhance the implementation of interventions at both national and intra-OIC and international cooperation level to improve the state of health in OIC countries.

Health System Strengthening

Health system strengthening requires a wide range of actions both at national and regional level. Majority of the OIC countries rely heavily on out-of-pocket expenditure to finance health services whereas the share of social security and private health insurance in total health expenditures remained comparatively very low. This has been one of the major obstacles to provide health services to the low income poor groups of the society. This state of affairs necessitates fundamental reforms in health financing system to enable wider access to health services. The reforms require continued increasing investment and public spending on health, reducing out-of-pocket spending and increasing pre-payment and risk-pooling, which may include tax-based financing, compulsory social insurance and other types of health insurance. There is sufficient fiscal space to increase the budgetary allocations for health sector and to establish an accountability mechanism to ensure transparent and efficient use of these funds. There is a need to take necessary policy measures to facilitate Intra-OIC investment in health sector and enhance collaboration with international agencies like WHO, UNICEF and World Bank to benefit from their expertise and financial contribution to build health infrastructure. Learning from the best practices, OIC countries should start prepayment and risk pooling based health financing schemes like Seguro Popular in Mexico, New Rural Cooperative Medical Scheme in China and Social Health Insurance Scheme in Mali to overcome financial barriers to health care access especially in rural areas.

Demographic and epidemiological changes, introduction of new technologies and initiation of new treatment methods all contribute to the growing need to deal with the status, performance and problems of health workers. In this respect, a comprehensive assessment should be made related to the number of people to be trained, diversity of workforce to be prepared in proportion to demographic and socio-cultural characteristics of population and capability of health workers to be developed when performing tasks assigned to each health worker. Insufficient health workforce in the OIC countries indicates low level of healthcare capacity and services, a threat which necessitates encouraging development of more adequate human resources in the fields of medicine and healthcare. In order to overcome the shortage of well-trained efficient health workforce, OIC countries need to focus on establishment of a health service commission for training, recruitment and management of health workforce at both national and Intra-OIC level and enhancement of cooperation both at national and Intra-OIC level to increase investment in health education and training institutions. There is also a need for increasing scholarship programs to attract more students in health professions and mutual recognition of medical diplomas, certificates and degrees. Financial and non-financial incentives should be devised to improve the supply of health workers in rural and remote areas. Enhanced level of cooperation with NGOs and international bodies could also pave the way for training and deployment of health workers at the community level (like community midwives in Indonesia and Leady Health Visitor (LHV) program in Pakistan) to provide especially MNH services in rural areas.

Maternal, New-born and Child Health and Nutrition

State of maternal, new-born and child health and nutrition remained significantly poor in many OIC countries. The challenge now facing the high-burden OIC countries is how to achieve universal coverage of effective interventions including antenatal and postnatal care, safer deliveries, care for new-borns and infants, breastfeeding, micronutrient supplementation and routine immunization against preventable diseases while optimizing investments and enhancing accountability to improve the health and nutritional status of women and children.

In this respect, priority actions should include training of antenatal care providers; improving supplies and logistics for health facilities; strengthening the referral linkages between communities and hospitals providing emergency maternal and child care; investing for more and better trained and equipped health workers to reach the majority of children who today do not have access to basic health care; developing home-based maternal and new-born care programmes based on successful models of community health workers; educating families and communities in how best to bring up their children healthily and deal with sickness when it occurs; and making better use of data to monitor and improve child health care coverage and quality.

To improve the immunization coverage among children, priority actions for the governments and other stockholders should include formulation of innovative strategies to achieve high and equitable immunization coverage; development and use of new vaccines and technologies; synchronization of Vaccination Week within the OIC countries; fighting taboos against vaccination through the involvement of political and religious community leaders; and operationalizing the OIC Pooled Vaccine Procurement mechanism to secure timely supply and access to quality vaccines, particularly to new and underutilized ones, at competitive prices.

Governments should take necessary measures to improve the nutritional status of children by targeting the incidence of underweight, stunting, wasting and overweight among children. Provided the fact that health of mother is critical for the child, countries should develop and improve public health programs and services to provide education and resources to women of child bearing age to promote healthy nutrition prior to conception and during pregnancy, and provide assessments to at-

risk pregnant women to help ensure that they receive appropriate medical attention. In addition, efforts should also be made to prevent women from becoming smokers and encouraging those who do smoke to quit. Academic and clinical research on major causes of malnutrition-related disorders is another area of paramount importance which needs due consideration of policy makers. In order to address the obesity, population-wide weight-control campaigns to raise awareness among medical staff, policy-makers and the public at large to reduce obesity have been very effective. In addition, keeping a check on the marketing of unhealthy foods and sugary drinks to children, and controlling the use of misleading health and nutrition claims is also very important. In some countries, governments have also increased taxation on high-calorie, low-nutrition foods to reduce the consumption of such products.

Promotion of exclusive breastfeeding for 6 months and continued breastfeeding up to two years of age and beyond is critical for the nutritional status of babies. As recommended by the Global Strategy for Infant and Young Child Feeding (WHO, 2003), all mothers should have access to skilled support to initiate and sustain exclusive breastfeeding for 6 months and ensure the timely introduction of adequate and safe complementary foods with continued breastfeeding up to two years or beyond. To address the grievances of working mothers, governments should enact legislation protecting the breastfeeding rights of working women and establishing means for its enforcement in accordance with international labour standards. Furthermore, fortification of foods; micronutrient supplementation; and treatment of severe malnutrition are also important policy areas especially for the high burden countries. In this regard, OIC countries can benefit from the technical and financial support of international institutions and development partners through initiatives like Scaling Up Nutrition Movement (SUN) which helps countries in developing and implementing national infant and young child feeding policies; collaborating with partners to implement programmes with shared nutrition goals; and mobilising resources to effectively scale up nutrition with a core focus on empowering women. Currently, 55 countries are part of this movement including 26 OIC countries.

Disease Prevention and Control

Policy-makers need to formulate effective strategies in order to promote and raise public awareness on healthy life styles. In order for OIC countries to achieve this, both in terms of prevention and control of CDs and NCDs, they need to develop and implement effective strategies in line with the international guidelines and in cooperation with the relevant international organisations. In this context, the OIC SHPA 2014-2023 provides a window of opportunity to enhance cooperation among OIC countries in disease prevention and control. The existing WHO Guidelines also propose strategies in combating with several communicable and non-communicable diseases that can be applicable to many OIC countries.

Building up mechanisms and platforms to share country experiences and transfer best-practices will help many OIC countries to develop and adopt effective prevention and disease methods with a zero cost. In this context, the Reverse Linkage Programme of the Islamic Development Bank constitutes an important benchmark programme that needs to be explored and utilised by OIC countries.

The existence of heterogeneity in terms of development profiles of OIC countries also reflects in their performance in disease prevention and control. In other words, the necessities and priorities of OIC countries can vary significantly in the domain of disease prevention and control depending on their climate, quality of infrastructure, available public funds etc. Therefore, international guidelines and intra-OIC cooperation have their limits to help OIC countries in disease prevention and control. In this regard, the lion share of the responsibility in disease prevention and control still remains with national policy-makers, experts and civil society in OIC countries. Therefore, training of policy-

makers, experts and civil society is an integral part of developing and implementing a successful disease prevention and control strategy in order to equip them with the recent scientific knowledge, information and state-of-the-art technologies to combat with diseases. In this context, OIC countries can extensively benefit from training and capacity building programmes of the Statistical Economic and Social Research and Training Centre for Islamic Countries (SESRIC) in the domain of health, which aim to foster intra-OIC cooperation especially through matching the needs and capacities of the member countries and facilitating the transfer of knowledge and best practices among them.

Medicines, Vaccines and Medical Technologies

Pharmaceutical production requires skilled human resources like scientists, pharmacists, biologists and lab technicians. Therefore, OIC countries should encourage and empower their education system to impart quality knowledge in academic disciplines like Chemistry, Biology, Medicines and other natural sciences. On the other hand, OIC countries should also give due attention to convert the brain drain of high-skilled people into brain gain by facilitating the national Diaspora to return to their countries. Furthermore, pharmaceutical industry relies heavily on research and development (R&D) activities. Proper R&D facilities should be built and researchers and technicians should be provided with necessary financial resources to develop an innovative pharmaceutical industry in the OIC economies. At the intra-OIC level, OIC countries should collaborate with each other by sharing expertise for the development of pharmaceutical industry. At the same time, students mainly from least developed member countries can be enrolled in pharmaceutical related academic disciplines in other OIC countries with substantial pharmaceutical base like Turkey, Egypt, Jordan and Malaysia to equip them with the necessary knowledge and expertise in this field. At the international level, OIC countries should collaborate with the international agencies like WHO and World Bank to benefit from their expertise and financial contribution to build their domestic pharmaceutical industry. OIC countries should work towards regional harmonization and simplification of regulatory requirements so as to increase access to good quality, safe and effective medicines.

Moreover, access to treatment is heavily dependent on the availability of affordable medicines. A regular supply of essential medicines in OIC countries is required to avoid medicine shortages that can cause avoidable suffering and death. Pharmaceutical companies in OIC countries could be encouraged to produce more affordable essential medicines locally. More precisely, support to the local manufacturers of medical products i.e. policies that reduce the cost of manufacture such as grants, subsidies, land, tax and duty exemptions for imported inputs for local production should be facilitated. OIC countries should support the development of technical specifications for medical devices in order to provide information for decision-makers about the minimum requirements needed for a device to be procured. They also need to develop national guidelines and policies in accordance with international norms and standards on the procurement and distribution of vaccines, medicines and medical devices in order to ensure the safety, efficacy, and quality across the distribution channels.

Emergency Risk Management for Health

While a comprehensive assessment on the emergency health response capacities in OIC countries could not be made due to data constraints, several policy recommendations can be made to strengthen national capacities in this important area. It is evident that several OIC countries face serious obstacles in strengthening their health system capacities due to ongoing conflicts or lack of adequate resources. OIC countries need to establish health emergency preparedness and response policies or enhance existing policies and programmes. It should be also noted that countries like Turkey have already demonstrated solid progress in improving their preparedness and response capacities. In this framework, OIC countries need to develop nationally consistent, coordinated and

effective emergency preparedness and response programmes; make institutional arrangements to ensure the development and maintenance of health emergency preparedness and response programmes under ministries of health with dedicated units and focal points; ensure enough resources for the establishment and functioning of national programmes; develop national, multi-disciplinary health emergency preparedness and response plans to guide the actions of all players in the health sector; align the health emergency preparedness and response plans with the equivalent national multi-sectoral plans; conduct comprehensive hazard analyses and vulnerability assessments with emergency profiles and also with communication, logistics and early warning mechanisms; identify capacity building needs of staffs and develop appropriate training programmes to address these needs; and strengthen regional and international cooperation with intergovernmental organizations, nongovernmental organizations and other relevant stakeholders to support national emergency preparedness and response activities.

Information, Research, Education and Advocacy

The challenges related with the quality of health education and public awareness point out the necessity of reforms to upgrade the quality of health education in OIC countries. In this context, many OIC countries need to undergo a major reform process to have better health education and training systems. For the success of such reforms, cooperation with international community and organisations are crucial. The existing international guidelines (e.g. the WHO Guidelines and the OIC Strategic Health Programme of Action) can help OIC countries to save money and time during the reform process. Enhancing intra-OIC cooperation through identifying and transferring best practices in health education and training can also make a significant contribution to improve the quality of health services and education in OIC countries. The existence of heterogeneity and varying local conditions both across and within OIC countries require more evidence from the field and views from civil society organisations. Otherwise, reform attempts to improve the quality and scope of health education and services will become unsuccessful due to the negligence of many regional/local conditions and restrictions in many OIC countries.

Involvement and commitment of all stakeholders is also very crucial to initiate and implement effective community health information, education and advocacy programmes. To do so, OIC countries are recommended to organize conventions of local health care providers, community leaders and local people to make community health information and promotion interventions more culturally relevant and responsive; create public-private partnership and involve civil society, NGOs and international organizations to address the issues related with financing and outreach of national disease prevention and health promotion programmes; launch country wide school health program to promote awareness among youth especially about risk behaviours like inadequate physical activity, poor nutrition, hygiene and tobacco use etc.; and enhance intra-OIC level cooperation to harmonise health information, education, and advocacy practices with the international standards by implementing the guidelines provided by international health agencies.

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