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Foreword

The Government of Iraq and WHO are working together to effectively improve the public health situation in the country with special emphasis on the five key regional priorities:

- health security and prevention and control of communicable diseases;
- noncommunicable diseases, mental health, violence and injuries, and nutrition;
- promoting health through the life-course;
- health systems strengthening; and
- preparedness, surveillance and response.

The strategic directions to address these priorities are broadly in line with WHO's 12th General Programme of Work, the Programme Budget 2016–2017 endorsed in May 2015 by the 68th World Health Assembly and the five strategic areas of work endorsed by the WHO Regional Committee for the Eastern Mediterranean in 2012.

Reliable and timely health information is essential for policy development, proper health management, evidence-based decision-making, rational resource allocation and monitoring and evaluation of the public health situation. While the demand for health information is increasing in terms of quantity, quality and levels of disaggregation, the response to these needs has been hampered because of fragmentation and major gaps and weaknesses in national health information systems.

The strengthening of health information systems is a priority for WHO in the Region. Intensive work with Member States since 2012 has resulted in a clear framework for health information systems and 68 core indicators that focus on three main components: 1) monitoring health determinants and risks; 2) assessing health status, including morbidity and cause-specific mortality; and 3) assessing health system response. In order to successfully achieve this important goal, concerted and aligned action at national and international level are required to address the gaps and challenges in the health information systems of all countries. This will ensure the generation of more effective evidence to monitor improvement in the health situation, nationally, regionally and globally.

This comprehensive health profile is intended to serve as a tool to monitor progress in the health of the population. WHO's collaboration with its Member States will strengthen the national health information systems, and enable the generation of timely and reliable evidence to assess the health situation and trends, and the health system response. Most important, it will provide the information needed by health policy and decision-makers.

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Introduction

The population of Iraq has increased by 51.0% in the past 25 years, reaching 35.8 million in 2015. It is estimated that 31.0% of the population live in rural settings (2014), 14.1% is between the ages of 15 and 24 years (2015) and life expectancy at birth is 73.1 years (2014). The literacy rate (2012) is 82.2% for youth (aged 15 to 24 years), 79.0% for total adults and 72.2% for adult females.

The burden of disease (2012) attributable to communicable diseases is 19.1%, noncommunicable diseases 61.6% and injuries 19.2%. The share of out-of-pocket expenditure is 41.0% (2013) and the health workforce density (2014) is 8.0 physicians per 10 000 population and 24.0 nurses per 10 000 population.

The public health issues facing the country are presented in the following sections: communicable diseases, noncommunicable diseases, promoting health across the life course, health systems strengthening, and preparedness, surveillance and response. Each section focuses on the current situation, opportunities and challenges faced, and the way forward. In addition, several trends in population dynamics and in selected health indicators are analysed to provide policy-makers with evidence and forecasts for planning.

Communicable diseases

HIV

Tuberculosis

Malaria

Neglected tropical
diseases

Vaccine-preventable
diseases

Communicable diseases

- Diagnosis and treatment for HIV/AIDS is free of charge.
- A national tuberculosis strategy has been developed and is being implemented with a strong monitoring and evaluation component.
- Malaria case reporting is mandatory in the public and private sectors.
- The incidence of schistosomiasis is decreasing thanks to the national control programme, with no cases reported since 2011.
- *Haemophilus influenzae* type b and rotavirus vaccines were introduced in 2012.

HIV

The HIV prevalence is low. As of December 2014, less than 100 people living with HIV were reported, most of them in Baghdad. The first HIV cases were reported in 1986 among haemophilia patients who had received contaminated blood products. From 1986 to 2014, a slight increase occurred in officially reported HIV cases, half of which were nationals and half foreigners. The large majority were males, with more than half between 15 and 29 years of age. Of reported cases, 57% were infected by blood transfusion and blood products, though sexual transmission has become the main reported mode of transmission since 2003. There are no reported cases due to injecting drugs, sex work or men having sex with men. The crisis of internally displaced people poses an increased risk of HIV/AIDS and sexually transmitted disease transmission.

There is no national strategic plan on HIV and AIDS in place, but a draft plan has been developed and is awaiting final endorsement by the authorities. The current annual plan of the National AIDS Centre includes the following areas of focus: surveillance; prevention of transmission; medical treatment and social care; training of health service staff; health education; research; monitoring and evaluation of the programme; and coordination and partnerships. Diagnosis and treatment are free of charge. Measures to prevent mother-to-child transmission and ensure safe blood transfusion are part of the strategy.

The transmission of hepatitis type A and E is facilitated by poor infrastructure, poor quality of potable water, unsafe food and poor hygiene. A majority of health workers do not follow medical guidelines in dealing with blood and its derivatives, which has led to the spread of hepatitis B and C in communities. The country is a low endemicity country for hepatitis B and C. The usual mode of transmission is blood transfusions or repeated exposure to blood and its derivatives (post-transfusion non-A non-B hepatitis). The priorities of the Ministry of Health are to establish an efficient hepatitis surveillance system, build the capacity of

health personnel to manage patients, and provide medicines and diagnostic services at governorate level.

Tuberculosis

The tuberculosis-related mortality rate is estimated at 2.3 per 100 000 population (1). A total of 8883 detected tuberculosis cases were reported in 2013, of which 2738 were new sputum smear positive cases (1). The treatment success rate of new and relapsed cases registered in 2012 was 91.0% (1). Drug-resistant tuberculosis is estimated at 3.7% among new cases and 20.0% among previously treated cases (1).

Tuberculosis is a public health priority for the Ministry of Health. A national tuberculosis strategy has been developed and is being implemented with a strong monitoring and evaluation component. The available evidence suggests that the incidence is falling in males, while notifications are increasing in females. However, there is a significant gap between incidence and notifications indicating that cases are not being detected, or are being detected but not notified to the national tuberculosis programme. HIV associated with tuberculosis is not a major problem so far, but multidrug-resistant tuberculosis is. The national tuberculosis programme and Ministry of Health are working to improve case detection through application of more sensitive, molecular diagnostic tests and expansion of directly observed treatment, short-course strategy to the districts so far unreached. There are plans to treat 54 000 patients in 2015–2019.

A focus area is establishing ex-tuberculosis patient associations to assist in actively detecting presumed cases and in encouraging patients to complete treatment. Contact tracing needs to be expanded and the role of the private sector enhanced. A priority for the national tuberculosis programme is the management of tuberculosis in the vulnerable groups, namely internally displaced persons and Syrian refugees.

Malaria

Iraq is considered a low burden and low risk country for malaria. Total confirmed malaria cases decreased by 97.7% from 347 in 2003 to 8 in 2012, of which 100% were imported, 75.0% from Pakistan and 25.0% from India (2). In 2013, of confirmed cases, 100% were *Plasmodium vivax* (2).

The country has been free from endemic malaria cases for more than six years. Epidemiological surveillance is being strengthened to detect introduced malaria cases, and is on track to eliminate malaria. There is risk of re-introduction of malaria from visitors including those coming for religious tourism and employment, as well as mass population movement, either by refugees or internally displaced populations. Diagnosis and treatment of malaria is free of charge and malaria case reporting is mandatory in the public and private

sectors. The main challenges for prevention of malaria reintroduction are population movements, the difficulty or impossibility of proper supervision and monitoring due to security concerns, and the loss of expertise.

The main priorities for keeping the country malaria-free include: strengthening disease surveillance and vigilance; use of appropriate vector control interventions when needed; updating national antimalarial drug policy to include artesunate injection for treatment of severe malaria cases; provision of free diagnostics and antimalarial medicines, including rapid diagnostic tests for areas where malaria microscopy of assured quality is not available; monitoring and evaluation; and human resource development, particularly training or refresher courses for physicians and laboratory technicians on malaria treatment and diagnosis. There is also a need to procure medicines for the management of detected malaria cases.

Neglected tropical diseases

The country was certified free of dracunculiasis in 1998, but is still endemic for cutaneous and visceral leishmaniasis, and is under surveillance for blinding trachoma (3). In 2012, there were 2486 reported cases of cutaneous leishmaniasis and 1045 reported cases of visceral leishmaniasis, while 3 cases were reported of leprosy in 2013 (3).

Leishmaniasis (visceral and cutaneous), rabies and schistosomiasis are among the neglected tropical diseases found in the country. Population movements, overcrowding, lack of safe water and hygiene, and poor access to health services are common factors that can cause the spread of these diseases. Free diagnosis and treatment is available for all tropical diseases in public sector. Historically, leishmaniasis cases have been located in the greater Baghdad area, but the situation has now shifted to the poorer suburbs of Mosul, as well as to rural areas, mostly in the northern and western governorates. There is seasonal variation, and both internal migration and movements of refugees may result in epidemic visceral leishmaniasis. The incidence of schistosomiasis is decreasing due to the national control programme, with no cases reported since 2011. The last cases were detected in Balad Ruz, Diyala province. Furthermore and in the framework of the country's mechanisms to prevent communicable diseases, work plans are in place to prevent and control all neglected tropical diseases in order to monitor these diseases. As a response to spraying campaigns, no evidence of *Bulinus truncatus* has been reported since 2010; at present, the country is in the elimination phase, with the aim of WHO certification. A soil-transmitted helminth control programme is ongoing and there is availability of anthelmintic drugs.

There is a need to maintain the disease-free status for dracunculiasis and implement a plan for the care and control of leishmaniasis.

Vaccine-preventable diseases

Immunization coverage decreased among one year olds between 1990 and 2013 for BCG from 96.0% to 90.0%, DTP3 from 83.0% to 68.0%, measles from 75.0% to 63.0% and polio from 83.0% to 70.0% (4). Neonatal tetanus coverage has improved during the same period from 70.0% to 72.0% (4). In 2013, hepatitis B (HepB3) vaccine coverage among one year olds was 66.0% (4).

The country's immunization strategy is to administer routine vaccination, conduct national immunization days and maintain surveillance. *Haemophilus influenzae* type b and rotavirus vaccines were introduced in 2012. Other achievements have included validation of maternal and neonatal tetanus elimination by WHO and the United Nations Children's Fund, expansion of vaccine storage capacity and the development of a draft comprehensive multi-year plan for the Expanded Programme on Immunization (EPI). An EPI coverage survey will be conducted in 2015–2016. Due to the serious measles situation, the Ministry of Health is implementing a measles follow-up campaign, and two nationwide polio eradication campaigns will be undertaken in the remaining part of 2015 and two in the first half of 2016. In addition, the country is currently introducing injectable polio vaccine as part of the pentavalent vaccine and is switching from trivalent oral polio vaccine (tOPV) to bivalent oral polio vaccine (bOPV). Action has been taken to scale up national/subnational campaigns and mop-ups against poliomyelitis, measles, rubella and seasonal influenza. There have been more than 14 campaigns from 2014 to October 2015. Now, the country is using vitamin A in conjunction with the measles vaccine and oral cholera vaccine (Shanchol) to vaccinate vulnerable groups amongst displaced persons in camps and gatherings.

The main priorities are to improve coverage by all vaccines to at least 90% by 2015, stop the ongoing measles outbreaks and other vaccine-preventable diseases among internally displaced people, introduce pneumococcal conjugate vaccine and inactivated polio vaccine by November 2015, and replace trivalent oral polio vaccine with bivalent oral polio vaccine in April 2016. A comprehensive communications strategy for secure and insecure areas needs to be developed for vaccinating all children.

Noncommunicable diseases

Noncommunicable diseases

Mental health and substance abuse

Violence and injury

Disabilities and rehabilitation

Nutrition

Noncommunicable diseases

- Noncommunicable diseases management and care has been introduced as an integral part of primary health care services.
- The strategy for mental health is to support and promote preventive, diagnostic, management and rehabilitation services at primary, secondary and tertiary level integrated within community mental health services.
- Rehabilitation centres, prosthetics and orthotics workshops, rehabilitation hospitals and physiotherapy units in hospitals, and disability registration projects are in place.
- A nutrition strategy (2012–2022), adopted by the government, promotes nutrition education and research related to nutrition and food safety.

Noncommunicable diseases

The burden of noncommunicable diseases causes 61.6% of all deaths. Cardiovascular diseases account for 33.2%, cancers 10.3%, respiratory diseases 2.8% and diabetes mellitus 3.5% of all deaths (5). As a result, 24% of adults aged 30–70 years are expected to die from the four main noncommunicable diseases (6). Around 7.4% of adolescents (13–15 years of age, 7.4% boys, 6.8% girls) have ever smoked cigarettes, while 32.3% report being affected by passive smoking (7), and per capita consumption of alcohol is 0.5 litres of pure alcohol (8). Prevalence of insufficient physical activity in adolescents is 85.1% (11–17 years of age, 80.3% boys, 91.4% girls) and in adults over 18 years of age is 46.3% (49.6% males and 43.1% females) (9). Raised blood pressure, in adults above 18, affects 24.4% of the population (25.5% males, 23.3% females), while obesity affects 27.0% of the population (20.6% males, 33.4% females) (6). Only nine of 11 essential medicines for treatment of noncommunicable diseases are available in the public health sector.¹

A national strategy has been developed for prevention and control of noncommunicable diseases that involves relevant ministries and other partners, and noncommunicable diseases prevention and control plans are multidisciplinary with multilevel implementation. Noncommunicable diseases management and care has been introduced as an integral part of primary health care services in many areas including screening and early detection for hypertension, diabetes, selected cancers, obesity and preventable causes of blindness, and provision of primary care for the major noncommunicable diseases based on national guidelines and standards. Noncommunicable diseases control is also integrated into programmes such as school health, maternal, child and reproductive health, and nutrition.

¹ Regional Office for the Eastern Mediterranean, unpublished data, 2013.

Secondary and tertiary care services are provided through more than 200 general and teaching hospitals countrywide, in addition to specialized centres and clinics including diabetes and endocrine centres and clinics, cardiovascular surgical clinics at major hospitals, ophthalmology centres, radiotherapy centres, breast cancer specialized centres and clinics, and a number of centres and clinics in the specialties of gastrointestinal and hepatic diseases, renal transplantation, dialysis, neurosurgery, toxicology, clinical haematology, hereditary blood disorders and allergy. Basic technologies and essential medicines generally available in the public and private health sectors for most major noncommunicable diseases, with public clinics acting as a source of essential drugs for chronic diseases and a system in place for registration and support to patients with noncommunicable diseases with monthly medications upon presentation of cards. Advanced treatment of cancers remain a challenge, as does the increasing burden posed by mass displacement of populations due to the prevailing political instability and conflict. The country enacted a smoking control law (no. 19) in 2012. Indicators were established for a series of measures to prevent and control noncommunicable diseases. These indicators are monitored in effective collaboration with other ministries and relevant stakeholders. A STEPwise approach to surveillance (STEPS) survey of risk factors was conducted in November 2015.

Mental health and substance abuse

Neuropsychiatric disorders are estimated to contribute 6.1% of the burden of disease (10) and the suicide rate is 1.7 per 100 000 population per year (11). Estimated prevalence for substance use disorders among adult (15 years and over) males is 0.7% and females 0.2% (12).

The national strategy for mental health is to support and promote preventive, diagnostic, management and rehabilitation services at primary, secondary and tertiary level integrated within community mental health services. There is a higher committee of narcotics with an ambitious plan of reforming the centres for management of people who use drugs. The committee is launching a substance-abuse survey to evaluate the extent of the problem as a first step towards developing a comprehensive action plan in line with the new legislation.

Priorities in the national mental health council's national strategy for mental health and action plan for the next five years include: integrating mental health into primary health care services; moving from an institution-based model of mental health care to an integrated community-based care model; developing specialty services for children, adults and forensic patients; establishing a psychological services programme for trauma victims; developing substance abuse treatment programmes; defining a health system framework for rebuilding mental health infrastructure, human resources, community education and research; protecting human rights and quality control of services; improving the registration and recording system; and updating mental health legislation to be integrated into primary health care.

Violence and injury

The percentage of deaths caused by injuries in 2012 was 19.2%; of this, unintentional injuries accounted for 59.7% (of which 51.5% were due to road traffic injuries and 3.6% as a result of fire, heat and hot substances), while intentional injuries accounted for 40.3% (77.1% due to collective violence and legal intervention and 20.0% interpersonal violence) (5). In 2010, the estimated road traffic fatality rate was 31.5 per 100 000 population (13). For post-injury trauma care, there is no universal emergency access telephone number and 11%–49% of the seriously injured are transferred by ambulance (13).

There is a vital registration system and injury surveillance system, but gaps exist between information that is reported and what is estimated. Laws covering key risk factors exist but need to be strengthened. There is specialized national emergency care training for both doctors and nurses. Challenges include the unstable security situation, the lack of a specific and clear injury prevention and control programme structure in the Ministry of Health, and the high turnover of designated focal persons.

There is a need to scale up and strengthen the injury surveillance and vital registration systems. An in-depth assessment of the existing trauma care system is needed in order to identify and address gaps to improving services. The health sector response to victims of violence also needs to be strengthened through clear protocols and an action plan that are socially and culturally acceptable.

Disabilities and rehabilitation

The disability prevalence is 2.8%, and is higher among males (3.4%) compared to females (2.3%) (14). Age-specific disability prevalence is highest in the above 65 age group (11.3%) and lowest among those aged 0–9 years (1.3%) (14). Types of disability include: physical and locomotor (44.9%), blindness (7.3%), mental (14.6%), deafness (3.1%) and muteness/speech (8.0%) (14). Multiple disabilities constitute 6.0% of all disabilities (14).

The UN Convention on the Rights of Persons with Disabilities was ratified in 2013 and the overarching disability legislation is the Law on the Welfare of Persons with Disabilities and Special Needs (2013). The need for rehabilitation services has increased over the past two decades due to continuous armed conflict, ongoing violence and the breakdown of community support systems. The disability and rehabilitation programme of the Ministry of Health aims to provide quality rehabilitation services. Its objectives are to: strengthen and reconstruct existing rehabilitation centres; build national capacity and adopt evidence-based national guidelines; and develop the national registration system for persons with disabilities. Rehabilitation centres, prosthetics and orthotics workshops, rehabilitation hospitals and physiotherapy units in hospitals, and disability registration projects are all in place. Challenges include an inadequate number of rehabilitation medicine specialists

despite the existence of a two-year postgraduate diploma in the country. Recently, efforts have been made to introduce primary ear and hearing care at primary health care centres.

Future priorities include the construction or rehabilitation of hospitals and centres, and the introduction of rehabilitation services in all general hospitals. Existing plans for health-related disability and rehabilitation action within the broader multisectoral context could be further strengthened through the adoption of the WHO global disability action plan 2014–2021. An integrated national action plan on universal access to ear care needs to be developed and the national coordinator for the prevention of hearing impairment and deafness is working towards this with the Ministry of Health.

Nutrition

The estimated prevalence of various conditions due to malnutrition in children under 5 years of age is summarized in the following indicators: 8.5% underweight, 7.4% wasting, 3.6% severe wasting, 22.6% stunting and 11.8% overweight (15). Initiation of breastfeeding within one hour after birth is 42.8%, while 19.6% of children under 6 months are exclusively breastfed; low birth weight is 13.4% (16).

Nutrition programmes are carried out by the Ministry of Health and the Nutrition Research Institute. The implementation of the national nutrition strategy 2012–2022 aims to promote nutrition education and research on nutrition and food safety. The strategic approach to addressing nutrition-related challenges includes: prevention and control of anaemia through fero-folic supplementation for pregnant women and lactating mothers; wheat flour fortification and nutrition education; prevention of vitamin A deficiency through vitamin A supplementation for children under 5 and lactating mothers, coupled with nutrition education; iodine deficiency disorders prevention through salt iodization with legislation to ensure all salts in the market are iodized together with nutrition education; management of malnutrition and its complications through nutrition education; a public distribution system of a number of food items; management of severely malnourished children at nutrition rehabilitation centres; a diet, physical activity and health programme to control overweight and obesity; and diet therapy for inpatients and outpatients with conditions such as diabetes and hypertension. In order to reduce fat intake, action has been taken by the Ministry of Trade to remove palm oil and ghee or shortening from the food subsidy system. Other steps include the establishment of a task force and action plan to initiate salt intake reduction using bread as the first entry point.

Promoting health across the life course

Reproductive,
maternal, newborn,
child and adolescent
health

Ageing and health

Gender, equity
and human rights
mainstreaming

Social determinants
of health

Health and the
environment

Promoting health across the life course

- Maternal and child health services are available as a comprehensive package of services at different levels.
- A national action plan has been incorporated into the noncommunicable diseases prevention and control strategy to improve health support for the elderly.
- The recently developed 10 year health policy enshrines a human rights-based approach to health and gender equality.
- The government has endorsed the WHO regional strategy on health and environment and framework for action 2014–2019.

Reproductive, maternal, newborn, child and adolescent health

The maternal mortality ratio is 25 per 100 000 live births in 2014 and the under-5 mortality rate is 27 deaths per 1000 live births in 2014⁽¹⁷⁾.² The leading direct causes of maternal mortality are haemorrhage, thromboembolism, pre-eclampsia/eclampsia, maternal sepsis and obstructed labour. The leading causes of under-5 mortality are acute respiratory infection (16.0%), prematurity (20.0%), intrapartum-related complications (15.0%) and congenital anomalies (13.0%) (20). The proportion of women receiving antenatal care coverage (at least one visit) is 77.7% and (at least four visits) 49.6% (16). Unmet need for family planning is 8.0% and contraceptive prevalence rate is 53.0% (19).

A comprehensive package of maternal and child health services are available at different levels of the health system. An increasing number of primary health care centres provide family planning, antenatal care and postnatal care services. The provision of quality care for mother and newborn infants around time of delivery, including the first 24 hours, is available in both central and district hospitals, while labour rooms exist at the primary health care level providing care to non-complicated deliveries in remote and peripheral areas. Higher level care for both women and children under 5 years is provided by general and maternal and child hospitals. There are 203 hospitals for maternity and child care, including 16 specialized paediatric hospitals, 13 specialized maternity hospitals, and 19 specialized maternal and child hospitals. Tertiary centres with intensive care units for maternity care are also available in governorates. Essential drugs for maternal and child health services,

² UN estimates for the maternal mortality ratio declined between 1990 and 2015 from 107 to 50 maternal deaths per 100 000 live births (18) and the under-5 mortality rate decreased from 54 to 32 deaths per 1000 live births (19).

and basic equipment and technologies are available at the primary health care level and at hospitals, and the essential drugs list is being updated according to international standards. A four-year plan of action for scaling up family planning services and their access to the population has been developed and a three-year maternal and child health acceleration plan, which will contribute to a reduction of maternal and child morbidity and mortality in priority governorates, has also been developed in alignment with priorities defined in the recently revised reproductive health and maternal and child health strategy. Young people represent a fifth of the population, providing an opportunity to invest in the health and other social priorities of adolescents. However, the security situation has a negative impact on the optimum functioning of programmes and services.

The country needs to strengthen emergency obstetric and neonatal health care services in remote and underserved areas, expand family planning services and improve the role of midwives in provision of maternal care services.

Ageing and health

Life expectancy at birth is 73.1 years (17). In 2010, the ageing population, above 60 years, represented 4.8% of the population (21).

Several strategic initiatives have been endorsed by the government to improve financial, social and health support for the elderly. A national action plan has been incorporated into the noncommunicable diseases prevention and control strategy, endorsed in 2013. The Ministry of Health leads a multisectoral committee tasked to address the health and other social needs of the elderly. There are 18 elderly clinics in major hospitals (one per governorate) and 17 elderly-friendly primary health care clinics providing elderly care services. Medical care units in elderly residential homes have been strengthened and staffed with paramedics to provide medical and other care. Clinical care for the elderly is provided by specialists in internal medicine, but the number of geriatric medicine specialists is insufficient to meet the needs of the target population; specific measures have been taken by the government to encourage physicians to take up the geriatric subspecialty.

The capacity-building of primary health care workers and further integration of geriatric health services into the primary health care system are important steps towards addressing existing challenges and widening the coverage of older persons with essential age-specific and elderly-friendly preventive, curative and rehabilitative health services.

Gender, equity and human rights mainstreaming

The country falls among the medium human development countries ranking 120 among 152 countries in terms of gender inequality (22). Female adult (above 15 years of age) literacy is 72.2% (23), while participation in the labour force is low at 14.7% (24).

The Constitution emphasizes the right to health and the government's obligation to establish health centres and meet the needs of the disabled. The recently developed 10-year health policy enshrines a human rights-based approach to health and gender equality, focusing on universal health coverage that guarantees basic care provision irrespective of financial status with a monitoring framework that includes indicators disaggregated by age and sex. Challenges include the negative impact of long years of conflict and unrest on the health system and its capacity for full implementation of policies and strategies or effective management of available resources for provision of accessible, acceptable, affordable and quality health care. Poor health care delivery, coupled with forced migration, has also had a negative impact on the right to health. Disparities exist between urban and rural areas, with poverty almost twice as prevalent in the latter.

There is a need to develop and implement policies to promote a human rights- and health equity-based approach with a special focus on gender and to establish appropriate coordination mechanisms at the interface of health and other structures to minimize vulnerabilities and ensure equitable access to health care. Improving data collection, monitoring by age, sex, location and socioeconomic status, tracking refugees and internally displaced persons, and ensuring health care provision in rural and hard-to-reach areas are also needed.

Social determinants of health

The *Human development report 2014* ranked the country at 120 out of 187 countries across the world on the human development index (22). The population at poverty level was 18.9% in 2012 (24). The urban population has remained almost constant from 1990 to 2012, decreasing from 69.7% to 69.2%, while the access of the rural population to improved water sources increased from 39.1% to 68.5% (24). In 2010, the age group 0–24 years was 61.1% of the total population (21). Adult literacy rates in 2010 were 65.0% (25), while overall unemployment was 15.1%, and for youth (15–24) it was 32.1% in 2012 (24).

The government is a signatory to regional and global treaties addressing the social determinants of health. Many interventions have been undertaken by Ministry of Health and other ministries, and a large amount of resources earmarked by the government to support the implementation of the poverty reduction strategy. However, implementation has been fragmented and there is no specific programme structure within the Ministry of Health. Moreover, the unstable security situation has had a negative impact on sustainable action for full implementation of interventions.

More robust action is needed at the federal and governorate level. The prioritization of social determinants of health is needed for the government to allocate adequate resources and put in place clear structures to manage and monitor the implementation of interventions.

Health and the environment

It is estimated that 87 200 people a year die as a result of environmental factors and the percentage of disability-adjusted life years attributable to the environment is estimated 22.0% (26). Access to improved sanitation facilities is 85.0%, while access to improved drinking-water is 85.0% (19), resulting in an estimated 1300 deaths in 2012 due to inadequate provision (27). It is estimated that 0.8% of the population uses solid fuels (biomass for cooking, heating and other usages) (28), resulting in 600 deaths per year as a result of indoor pollution (29).

The government has identified the environment as a priority within the national development plan. The data shows a decline in access to drinking water sources between 1990 and 2006. The enormous capacity gap results in solid waste accumulating on the streets or being dumped into depressions and empty lots. Inability to appropriately dispose of solid waste poses grave public health and environmental risks, including contamination of water tables. The current capacity of the sector is estimated at about 25% of total needs. Air pollution is not properly monitored and reported, although remotely-sensed data show high levels of particulate matter in the air. The government has been working on strengthening national capacity to use norms and standards in developing policies and plans for preventing and managing the health impact of environmental and occupational risks, and for environmental health preparedness and response to emergencies related to climate, water, sanitation, chemicals, air pollution and radiation, as well as on developing water safety plans to improve water quality.

The government has endorsed the WHO regional strategy on health and the environment and its framework for action 2014–2019. The next step is to initiate a national multistakeholder process to update the national strategy on health and the environment in 2015–2016.

Health systems

National health
policies, strategies
and plans

Integrated people-
centred health
services

Access to medicines
and health
technologies

Health systems,
information and
evidence

Health systems

- The new government has developed a national development plan entailing specific health interventions that require a review of national health policy.
- The strong network of primary health care services that allows the majority of the population to access basic health services has helped mitigate the risk of communicable disease outbreaks, despite difficult conditions.
- Access to health products is still a top priority for the Ministry of Health.
- A three years civil registration and vital statistics road map (2013–2015) has been developed to address the gaps in the system identified by a rapid and comprehensive assessment.

National health policies, strategies and plans

The country has a national health policy strategy and plan for 2010–2014. Total expenditure on health per capita at the international exchange is US\$ 270.0, (17) in 2014. General government expenditure on health as percentage of total expenditure on health is 59.0%; total expenditure on health as a percentage of the gross domestic product is 4.2% (17). In addition, the share of household out-of-pocket spending was 41.0% in 2014 (17). Total expenditure on health from external sources in 2014 is 0.4% (17).

A new national health policy was endorsed by the health and environment committee of Parliament in January 2014. However, the new government has developed a national development plan entailing specific health interventions that required a review of the national health policy. A designated committee was formed and a consensus building workshop conducted in Istanbul in March 2015, supported by WHO, to provide guidance and technical support. The revised national health policy was then finalized and endorsed by the Minister of Health. The current health sector strategic plan outlines national priorities that include the health workforce, national medicines and technology, scaling up the family practice programme, improving quality and safety, and reinforcing the health information system. The Ministry of Health is moving towards adopting a programme-based budget, which requires a three-year strategic plan, and plans to review and develop a robust mechanism for the licensing, regulation, accreditation and quality assurance of health care providers. National accreditation standards for primary health care centres were prepared in June 2010 with technical support from International Medical Corps. However, the accreditation system is still at the pilot stage. Health financing has witnessed continual changes over the last 50 years, shifting from the model of the welfare state to the introduction of user charges and the establishment of self-sustaining hospitals, with recent large increases in out-of-pocket payment. Per capita health spending has increased

more than four-fold over the last 10 years. External support to the health sector has always been minimal, except during the period of embargo when public financial resources were strained. Contributive mechanisms in the form of social and private health insurance are being considered by some policy-makers and representatives of private sector professional associations. National health accounts were published in 2015, using 2012 data, and completed through a collaborative effort between the Ministry of Health and WHO.

The Ministry of Health plans to review the roles and responsibilities for health care provision at all levels to facilitate the move towards a decentralized health care delivery system and the re-launch of a national health policy for 2014–2023 that provides a vision and roadmap for reforming the health sector over the next decade. Another priority is improving leadership and management capacity at central Ministry level and in the health directorates through a wide range of specialized training programmes both in-country and overseas. Other areas of focus include promoting continuous annual increases in the budget allocated to the health sector from central government, strengthening the health economics unit within the Ministry of Health and implementing a new round of national health accounts using a new approach.

Integrated people-centred health services

The number of hospital beds per 10 000 population was 13.8 in 2014 (17). The health workforce density in the Ministry of Health (2014) is estimated at 8.4 per 10 000 population for physicians, 17.6 for nurses, 2.2 for dentists and 2.4 for pharmacists (17),

The health care delivery system has historically been based on a hospital-oriented and capital-intensive model. The Ministry of Health has a network of health care facilities comprising primary health care centres, public hospitals and specialized health care centres. Health care facilities in both the public and private sectors are not equitably distributed across governorates and between rural and urban populations. Primary health care facilities are responsible for providing services to a defined population. The catchment area of each primary health care facility differs ranging from 10 000 to 45 000 people and depends on density of population, geographical location of the health facility and number of available staff. Multiple conflicts have destroyed a large number of the health facilities affecting access of the population to health services. However, the strong network of primary health care services which allow the majority of the population to have easy access to basic health services has assisted in mitigating the risk of communicable disease outbreaks despite these difficult conditions. Continued national political support and commitment through the public sector modernization programme provides opportunities and options for reform of the health sector. The presence of active international donors and nongovernment organizations is a great resource for supporting the health sector. There is a steady progress in the numbers of skilled health workforce as a result of the increased capacity of medical

and health sciences educational institutions and the growing health care budget of recent governments.

Among the challenges for the health workforce are the lack of coherent human resources management structures and capacity within the Ministry of Health and governorates to strategically plan, mobilize resources, identify priorities and devise innovative and cost-effective solutions for the health workforce. The internal and external “brain drain” of professional expertise and the need to improve the quality of health professionals’ education, especially nursing and allied health workers, are other challenges. In early 2012, the Ministry of Health started to establish family practice as an overarching strategy for service provision. A basic health services package has been approved and is currently being implemented and expanded to cover more districts countrywide. The changing burden of disease, with the rising epidemic of noncommunicable diseases, and current technological advancements demand a renewed approach to health services, and accordingly medical education and health systems strategies that bring about a robust and integrated model of health care that blends prevention, early diagnosis and effective treatment and rehabilitation of cases for longer periods of time. Therefore, a new mix of skills and competencies is needed that requires policy-makers to act now to transform the current model of medical education and strengthen health research for the future.

Improving the quality and safety of health care services in hospitals and primary health care centres through clinical governance and/or accreditation programmes is a key priority for the country. Another priority is to develop a national strategic plan for the health workforce including strengthening nursing education, scaling up the family practice programme, improving the quality and safety of care and developing a system for health professionals’ regulation to protect the public from unsafe medical practice. Multisectoral collaboration is needed through the involvement of the Ministries of Defence, Higher Education and Interior, and others, along with the continued commitment of United Nations agencies, including WHO, in providing technical and financial support to the Ministry of Health. In addition, the government will focus on: establishing a supreme committee for strengthening medical education and research, with representation of both ministries; developing a strategic plan for modernizing medical education and research; and building capacity in university management and leadership. Furthermore, the government will focus on reviewing the institutional arrangements for higher education quality assurance, establishing a national general medical council-equivalent institution and pursuing a comprehensive reform agenda to transform medical education and research.

Access to medicines and health technologies

Access to health products is a top priority for the Ministry of Health in response to population needs and the lack of regular access to essential medicines. All components of the national medicine policy are regularly reviewed by the pharmacy department and

Kimadia, the state company for medicines and medical appliances. However, the existing national medicines policy document is still in a draft form with no implementation plan. The functions of the national regulatory authority are in place with the exception of clinical trials control. There is a list of essential medicines for primary health care in place and a multisectoral committee on rational use of drugs that focuses on combating antibiotic resistance. Challenges for access to health technologies include: the absence of a national policy on health technologies; weaknesses in the procedures for resource allocation; limited local production capacity; limited capacity to assess the clinical safety, appropriateness, efficacy and efficiency of new technologies; and the lack of an independent entity to regulate medical products, particularly in the private sector.

Reviewing the administrative and functional structure of Kimadia, strengthening national regulatory authorities to ensure the quality, safety and efficacy of all health technologies including medicines, vaccines, devices and diagnostics, and adopting a national medicines and health technology policy are key priorities for the country.

Health systems, information and evidence

The Ministry of Health has recently embarked on several initiatives to strengthen the health information and evidence system. In 2012, a civil registration and vital statistics road map (2013–2015) was developed to address the gaps in the system outlined by a rapid and comprehensive assessment. Similarly, a comprehensive review of all the statistical forms used at different levels of the health system has been conducted to update forms, identify duplication and remove those no longer needed. A three-year maternal death surveillance and response plan for the country has been developed outlining priority interventions to address the shortcomings in the maternal death surveillance and response system thereby reducing morbidities and mortalities related to maternal health. Maternal death surveillance and response plan tools have been updated, in particular death certificates and registers, and a report produced and disseminated to stakeholders. A comprehensive internal evaluation plan has also been developed. Once the internal evaluation is completed, a comprehensive plan for external evaluation will be devised. A maternal death surveillance and response plan committee has been established and is tasked to provide guidance and to monitor programme performance. In addition, reinforcing health information systems, including civil registration, risk factor and morbidity monitoring, and health systems performance are also priorities.

Preparedness, surveillance and response

Alert and response
capacities

Epidemic and
pandemic-prone
diseases

Emergency risk and
crisis management

Food safety

Poliomyelitis
eradication

Outbreak and crisis
response

Preparedness, surveillance and response

- Protocols and procedures to follow in a major crisis have been developed and an operations room is open to coordinate the emergency response.
- Despite decades of conflict, the public health surveillance system has proven to be resilient in detecting and responding to the threats of outbreaks.
- An emergency medicine training centre has been established.
- A national Codex Alimentarius committee has been formed.

Alert and response capacities

Long and protracted crises, armed conflict, insecurity and population displacement, as well as communicable disease and other outbreaks, have focused attention on emergency response. However, this high burden of acute crises has delayed implementation of International Health Regulations (IHR) 2005, resulting in the government requesting a second extension to June 2016 to meet its obligations. The new public health law addresses IHR and the role of focal points in coordinating the response to emergencies. The government has established an inter-ministerial committee to oversee the implementation of IHR and the Ministry of Health has nominated a focal point whose role is to ensure that other ministries are well informed of the progress made.

Laboratory capacities continue to be strengthened and capacity-building of staff at points of entry (airports, ports and land border check points) who may be handling hazardous materials is being undertaken. New blood transfusion centres have been built in Basrah, Ninewah, Najaf and Erbil. The government has participated in regional training courses on risk assessment and on handling risks caused by chemical hazards. Protocols and procedures to follow in the case of a major crisis have been developed and an operations room is open to coordinate emergency response. An additional risk, in the wake of ongoing conflict in the neighbouring Syrian Arab Republic, is that of chemical weapons. The government has ensured training of key staff to deal with hazardous materials, chemicals, and zoonotic and food safety-related incidents. The Ministry of Health has mechanisms in place for rapid alert and response to an event of major public health concern. This includes the activation of an emergency operations room and focal points for surveillance and communication. However, despite the progress made, challenges and gaps remain in human resources and the expertise to deal with radiological and nuclear events, and with some pandemic-prone diseases.

The priorities for the government are to implement all IHR obligations, adopt a new public health law and develop an implementation action plan to enforce the legislative provisions and procedures contained in the law.

Epidemic and pandemic-prone diseases

Despite decades of conflict, the country's public health surveillance system has proven to be resilient in detecting and responding to the threats of outbreaks of avian influenza A (H5N1), cholera, seasonal influenza, anthrax and other emerging zoonotic infections such as Crimean–Congo haemorrhagic fever and rabies. The surveillance system for monitoring and predicting threats from epidemic- and pandemic-prone diseases has undergone a major reform and an electronic system for the early warning of disease outbreaks has been successfully established in some of the camps and informal settlements that host a large number of displaced Syrian refugees. The protracted conflicts in the country, with large populations being internally displaced, make the detection and prevention of endemic and epidemic-prone diseases extremely challenging. The government participates in regional initiatives on pandemic-prone diseases and in particular on Middle East respiratory syndrome (MERS).

In view of the situation in the country, the country's progress in establishing early warning surveillance system for disease outbreaks needs to be sustained and where possible expanded to cover the entire country and a fully functional and enhanced laboratory diagnostic service needs to be established.

Emergency risk and crisis management

Iraq is susceptible to both natural and man-made disasters that cause a significant loss of life, livelihoods and infrastructure, reversing development gains. The annual loss attributable to natural disasters (based on data from 1994–2013), is on average 1.7 deaths, or 0.01 per 100 000 inhabitants, while losses in purchasing power parity are US\$ 38.8 million and losses to gross domestic product amount to 0.01% (30).

In the last two years, the country has been experiencing violence and unrest in many parts of the country. In 2014, the situation worsened with the crisis in Anbar governorate that started in January 2014 and escalated in June with the attack of Mosul by armed opposition groups and the spread of violence in other governorates, including Ninewah, Salah El-Din, Kirkuk and Diyala. This has led to over 3.2 million people being displaced as of August 2015 (31). In addition to these man-made disasters, two flooding episodes were experienced, one of which was a man-made flood provoked by armed groups. These complex emergencies have led to increased mortality and morbidity among internally displaced persons in both host communities and camps. While the impact of the conflict on health facilities continues

to be reassessed, it is estimated that at least 40% of facilities have suffered infrastructural damage or lack an adequately trained health workforce in sufficient numbers. An emergency medicine training centre has been constructed and training programmes developed. These include courses on emergency management, preparedness and mass casualty management. The Ministry of Health in Baghdad and the Ministry of Health in the Kurdistan Regional Government have embarked on programmes to increase skills in conducting risk assessments and developing plans for emergency preparedness and response, including developing capacities for contingency planning. The Ministry of Health has continued to invest in strengthening emergency medical services and new ambulance dispatch centres.

The priority for the country remains finding durable solutions to the root causes of the ongoing conflict that is resulting in massive population displacement, as well as strengthening the Ministry of Health's capacity to respond to health needs and to coordinate assistance from health partners.

Food safety

Food safety and foodborne-disease surveillance is coordinated by the Ministry of Health acting as the Secretariat to the Inter-ministerial Committee on Food and Nutrition, which also includes the Ministry of Agriculture and Ministry of Planning. There is a nutrition research institute that, together with the central public health laboratory, has some capacity to monitor foodborne diseases, including food poisoning. The system is integrated into the national disease surveillance system under the communicable diseases control department. A national strategy for food safety has been developed and the option to develop an independent food safety authority is being explored. The national Codex Alimentarius committee has been formed and the government regularly participates in Codex-supported international technical meetings on food safety.

A priority is the development of a plan of action to implement the national food safety strategy. This should include strengthening the capacity of food safety public health laboratories and putting in place conditions for the application of hazard analysis critical control points (HACCP) principles in the food industry sector.

Poliomyelitis eradication

The Ministry of Health has developed a robust communicable diseases control department and all notifiable diseases are reported on and trends analysed. This helped to keep the country polio-free for 14 years, but the proximity of the Syrian Arab Republic, combined with the most recent crisis, have rendered the system fragile and polio has re-emerged. However, the health system is once again being strengthened in order to respond to the challenges. Following the confirmation of polio cases in the Syrian Arab Republic, the

country has been part of the regional polio response plan along with other countries of the Region that are affected by the Syrian conflict.

However, despite efforts to vaccinate all target groups, the country reported its first case of poliomyelitis in February 2014 and a second case in April 2014; nucleotide sequencing of the polio virus related them to virus identified in the Syrian Arab Republic (32). Although no new case has been detected since April 2014 and Iraq has now been removed from the list of countries infected by wild poliovirus, the country remains vulnerable and the Ministry of Health and other partners have tried to ensure that all target groups are reached. While access to security-compromised zones is challenging, all necessary steps have been taken to increase oral polio vaccine coverage. Similarly, acute flaccid paralysis surveillance has been strengthened and will continue to be supported, including by enhancing the capacity of the national polio laboratory in Baghdad. The main challenges remain insecurity and the inaccessibility of large numbers of children in conflict affected areas. The deterioration in the routine immunization system and the health system in general are also challenges.

The government needs to improve routine immunization coverage and implement high quality immunization campaigns to boost the population's immunization status. Establishing an environmental surveillance system to supplement acute flaccid paralysis surveillance will also be considered.

Outbreak and crisis response

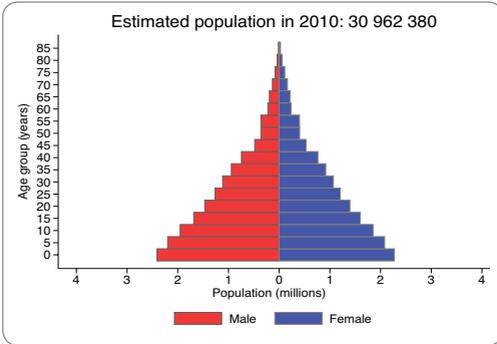
The country has been facing a humanitarian crisis, with 3.2 million internally displaced persons, as a result of the ongoing violence since 2014 (31). In addition, as a consequence of the crisis in the Syrian Arab Republic, there are over 250 000 Syrians seeking refuge in the country. Of these refugees and displaced people, roughly 64% are women and children (33). Some 5.2 million Iraqis require interventions to ensure access to health care (34).

Following the successive crises that the country has faced, the humanitarian actors have launched successive regional response plans and a central emergency response fund appeal, totalling US\$ 12.1 million, for their operations. Although, there has been a limited response to the regional response plans in terms of financial contributions, various actors in health have shown the capacity to respond to urgent needs. Another review was done in September 2014 after the conflict expanded to further governorates and a US\$ 500 million contribution from Saudi Arabia, of which about US\$ 50 million was for health, was exhausted by June 2015 leaving insufficient resources to respond to the growing needs of over 1.8 million internally displaced persons and refugees. An adequate response to the crisis continues to be challenged by insecurity and the political instability in the country, and the limited access to many areas where populations in urgent need are living. In late 2014, the government began scaling up its preparedness for Ebola virus disease by assessing their level of preparedness using the WHO assessment checklist and identifying critical gaps for improvement.

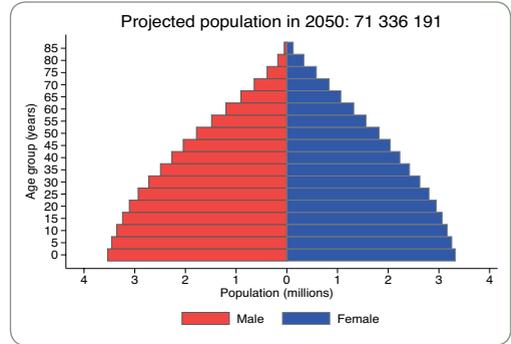
Moving forward will include continuing to invest in strengthening the health system so that the disease surveillance system is sensitive enough to detect changes in disease trends and robust enough to timely respond to and manage outbreaks. The Ministry is pursuing ways of implementing the recommendations from the Ebola assessment mission to increase the resilience to respond to disease outbreak.

Demographic profile

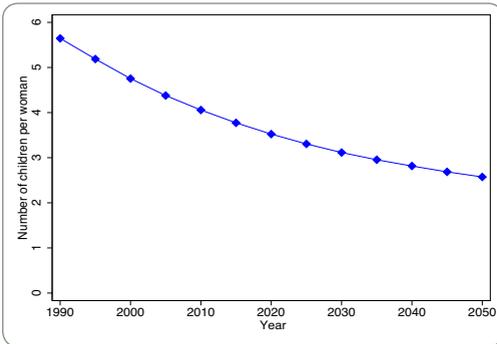
Population pyramid 2010



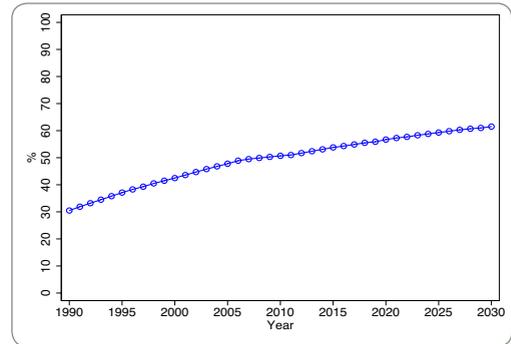
Population pyramid 2050



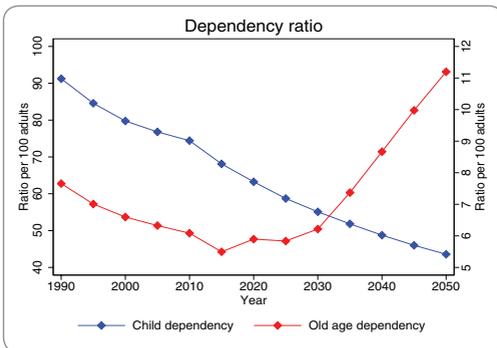
Total fertility rate



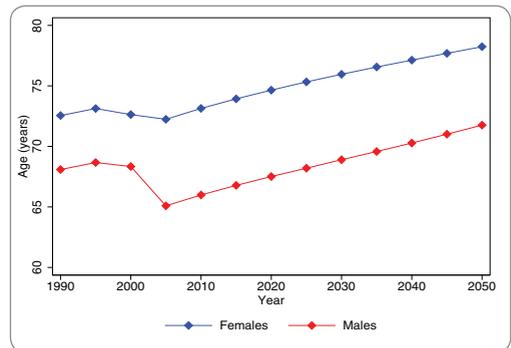
Need for family planning satisfied



Dependency ratio



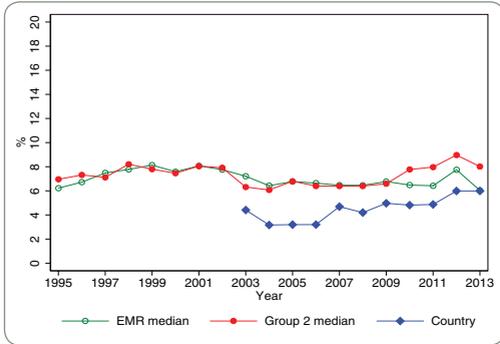
Life expectancy at birth



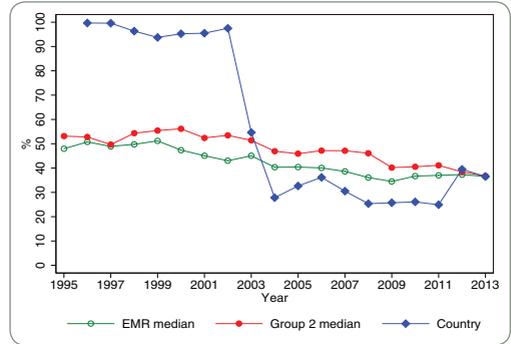
Sources for all graphs: (21)

Analysis of selected indicators

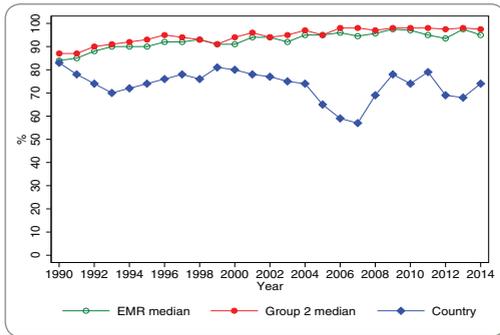
General government expenditure on health as % of general government expenditure (35)



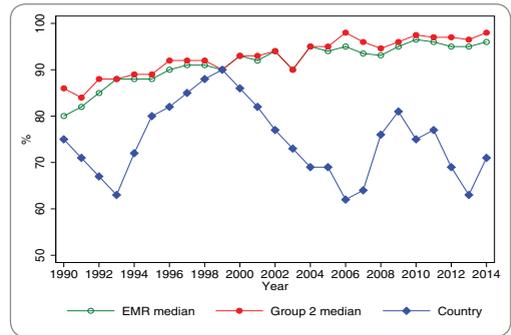
Out-of-pocket expenditure as % of total health expenditure (35)



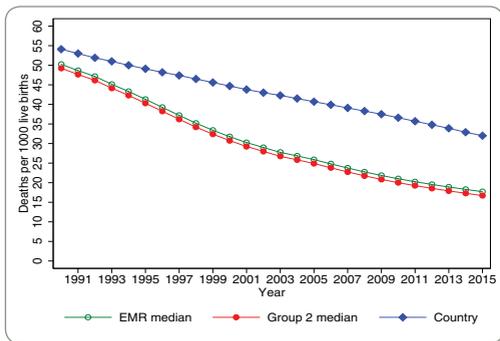
DPT3/pentavalent coverage among children under 1 year of age (%) (4)



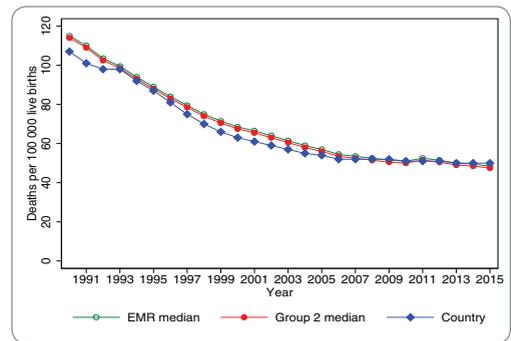
Measles immunization coverage (%) (4)



Under-5 mortality (per 1000 live births) (19)



Maternal mortality ratio (per 100 000 live births) (18)



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