

Health profile 2015

Egypt



World Health
Organization

Regional Office for the Eastern Mediterranean

WHO Library Cataloguing in Publication Data

World Health Organization. Regional Office for the Eastern Mediterranean
Egypt health profile 2015 / World Health Organization. Regional Office for the Eastern Mediterranean
P.
WHO-EM/HST/225/E

1. Health Status - Egypt 2. Delivery of Health Care - organization & administration 3. Communicable Disease Control 4. Chronic Disease 5. Health Promotion 6. Civil Defense - organization & administration 7. Public Health Surveillance I. Title II. Regional Office for the Eastern Mediterranean

(NLM Classification: WA 300)

© World Health Organization 2016

All rights reserved.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

Publications of the World Health Organization can be obtained from Knowledge Sharing and Production, World Health Organization, Regional Office for the Eastern Mediterranean, PO Box 7608, Nasr City, Cairo 11371, Egypt (tel: +202 2670 2535, fax: +202 2670 2492; email: emrgoksp@who.int). Requests for permission to reproduce, in part or in whole, or to translate publications of WHO Regional Office for the Eastern Mediterranean – whether for sale or for noncommercial distribution – should be addressed to WHO Regional Office for the Eastern Mediterranean, at the above address: email: emrgoegp@who.int.

Contents

Foreword5

Introduction7

Communicable diseases.....9

Noncommunicable diseases15

Promoting health across the life course21

Health systems.....27

Preparedness, surveillance and response33

Demographic profile39

Analysis of selected indicators40

References41

Foreword

The Government of Egypt 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 Sixty-eighth 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.

Egypt has made significant achievements in public health, including in the realization of the Millennium Development Goals. The Government has made a clear commitment to universal health coverage by making it a priority objective for health sector development. Article 18 in the new Constitution paves the way for universal health coverage and the White Paper outlines a strategic vision for its implementation. The Demographic Health Survey is an important source of this information, with the most recent survey conducted in 2014.

Dr Ala Alwan

WHO Regional Director for the
Eastern Mediterranean

H.E. Dr Ahmed Radi

Minister of Health and Population
Egypt

Introduction

The population of the country has increased by 33.5% in the past 25 years, reaching 84.7 million (in 2015). With an annual growth rate of 2.6%, the population is expected to double in the next 27 years. It is estimated that 57.0% of the population lives in rural settings (2012), 19.9% of the population is between the ages of 15 and 24 years (2015) and life expectancy at birth is 71 years (2012). The literacy rate for youth (15 to 24 years) is 98.3% (all adults 73.9%, adult females 65.8%) (2012).

The burden of disease (2012) attributable to communicable diseases is 10.7%, noncommunicable diseases 84.7% and injuries 4.6%. The share of out-of-pocket expenditure is 58.0% (2013) and the health workforce density is 2.8 physicians and 3.5 nurses and midwives per 10 000 population (2009).

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, trends in population dynamics and in selected health indicators are analysed to provide policy-makers with evidence and forecasts for planning.

Communicable diseases

HIV

Hepatitis

Tuberculosis

Malaria

Neglected tropical
diseases

Vaccine-preventable
diseases

Communicable diseases

- The country has strong vertical programmes for many priority communicable diseases, such as tuberculosis and the Expanded Programme on Immunization.
- The action plan for the prevention, care and treatment of viral hepatitis 2014–2018 is an example of a recent strategy where the health system response is strongly emphasized in both prevention and in care and treatment of patients.

HIV

HIV prevalence is low; with less than 0.1% prevalence of HIV among adults aged 15 to 49 years (1). The most affected population is people who inject drugs, with an HIV prevalence of 7.0%, although 65.0% of people who inject drugs use sterile injecting equipment (2). The estimated number of pregnant women living with HIV is less than 200 (3), while the estimated antiretroviral therapy coverage to prevent mother-to-child transmission is 10.0% (2). Routine testing is administered on 100.0% of blood collected (2) and estimated antiretroviral therapy coverage is 24% (4).

The main goal of the national AIDS programme is to maintain low prevalence through strengthening prevention, and providing treatment, care and support to people living with HIV. The programme coordinates the efforts of national and international stakeholders and is updating the national strategic plan, focusing on prevention, care, support and treatment, and critical enablers. Stigma remains a problem and some of those affected are out of reach of care, counselling and treatment.

The national AIDS programme is being restructured and a national database is being established through rebuilding and updating the surveillance and monitoring and evaluation system, concentrating on re-mapping of peripheral sites, re-evaluation of staff, updating national protocols and guidelines, and establishing standard operating procedures.

Hepatitis

The prevalence of hepatitis C virus among people aged 15–59 years has declined from 9.8% in 2008 (5) to 7.0% in 2014 (6). Among the population aged 1–59 years, hepatitis C virus prevalence is 4.4% (2014) (6) and hepatitis B prevalence is 1.0% (2014) (6).

The Ministry of Health and Population has developed an action plan for the prevention, care and treatment of viral hepatitis 2014–2018 in collaboration with WHO and the US Centers for Disease Control and Prevention (CDC). The plan is comprehensive and addresses both

prevention and treatment, focusing on surveillance, infection control and prevention, injection and blood safety, vaccination against hepatitis B, communication, research and care and treatment of patients. Liver diseases (cirrhosis and cancer) are the second most common cause of death after cardiac diseases. The most recent direct-acting antivirals have a high cure rate with minimal side-effects. However, accessibility is still an issue owing to high cost and low investment in health. In July 2014, the government announced that it had negotiated with the manufacturer a 99.0% reduction in the price of the hepatitis C drug sofosbuvir, from US\$ 84 000 to US\$ 900 for a 12-week course. In October 2014, the first patients started treatment of sofosbuvir.

As a pilot country for the new Global Injection Safety Campaign, Egypt will be provided with the tools to reduce blood-borne infections through injections, which is particularly relevant given the high hepatitis C prevalence in the country. Although the government introduced auto-disable syringes for vaccinations in 2008, it is anticipated that new auto-disable devices for therapeutic purposes will be introduced over the coming years. A revised version of the National Blood Transfusion Standards (3rd edition) was introduced in 2015.

Tuberculosis

The tuberculosis-related mortality rate is estimated at 0.7 per 100 000 population (7). A total of 8183 detected tuberculosis cases were reported in 2013, of which 4906 were new sputum smear-positive cases (7). The treatment success rate for new and relapsed cases registered in 2012 was 88.0% (7). Drug-resistant tuberculosis is estimated at 3.4% among new cases and 15.0% among previously treated cases (7).

The 2015 Millennium Development Goal targets related to prevalence and mortality were achieved. With the current trend in reduction in incidence, the new target set in the WHO Global Tuberculosis Programme's post-2015 global strategy of reducing the incidence to 10 per 100 000 by 2035 (end of tuberculosis epidemic target) will be achieved.

An annual decline of 4.2% will be needed in order to reach the elimination target of 1 case per million population by 2050; as such the national tuberculosis programme will update the national strategic plan for 2015–2020.

Malaria

The country is considered to be a low burden and low risk country for malaria. Total confirmed malaria cases increased from 45 in 2003 to 206 in 2012, of which 100.0% were imported, 46.6% from Sudan and 11.7% from South Sudan (8). In 2013, among the confirmed cases, 87.4% were *Plasmodium falciparum* and 12.6% were *P. vivax* (8).

The government is striving to eliminate malaria. However, the country faces problems with the quality of surveillance and doubts exist about the existence of sufficient diagnostic capacities due to insufficient or not adequately trained laboratory technicians for performance of quality malaria microscopy. An increase in population movement (legal and illegal) has increased the vulnerability of malaria receptive areas, particularly in the south of the country.

Strengthening of disease surveillance and vigilance for detection, reporting and investigating all malaria cases, strengthening malaria microscopy, and providing rapid diagnostic tests for health facilities and access to quality malaria microscopy for any reason would require resource capacity that is not currently available. The main priorities for prevention of malaria reintroduction are training, refresher training of physicians on malaria case management, including updating the curriculum of medical schools, and raising public awareness, particularly among travellers to malaria-endemic countries.

Neglected tropical diseases

The country was certified free of dracunculiasis in 1998, but Sinai is still endemic for cutaneous leishmaniasis (9). In 2012, 1260 cases of cutaneous leishmaniasis were reported. There were 644 reported cases of leprosy in 2012 (9). The number of people treated in 2013 for soil-transmitted helminthiasis was 106 396, while 308 163 schistosomiasis cases were treated by mass drug administration and selective population chemotherapy, and 100 000 trachoma cases were also treated in 2012 (9). The country is on the verge of elimination of lymphatic filariasis: 510 605 cases of lymphatic filariasis were treated with prophylactic chemotherapy by mass drug administration in five governorates in 2013 (9) and no positive cases were detected by transmission assessment surveys 1 and 2 in 2014.

The country is affected by a number of vector-borne diseases of public health concern. More than 30 species of mosquito have been reported, including *Anopheles*, *Culex*, *Ochlerotatus* (*Aedes*), *Culiseta* and *Uranotaenia*. Once highly endemic and affecting large numbers, the endemicity of schistosomiasis is now low throughout the country. The Ministry of Health and Population and the national schistosomiasis control programme are implementing a strategy based on repeated, regular treatment with antihelminthics of school-age children, the highest risk group. Treatment is provided through the primary school health system and other health or education programmes. In February 2014, following the progress made in reducing the burden of schistosomiasis, the Ministry, with the support of WHO, developed an eight-year plan of action on elimination. New strategies for combating schistosomiasis based on sensitive surveillance tools, need to be adopted to prevent resurgence and recrudescence. School-based deworming campaigns need to be continued in uncovered areas, particularly in the south of the country.

Vaccine-preventable diseases

Immunization coverage among 1-year-olds improved between 1990 and 2013 for BCG from 89.0% to 98.0%, DTP3 from 87.0% to 97.0%, measles from 86.0% to 96.0% and poliomyelitis from 87.0% to 97.0% (10). Neonatal tetanus coverage increased during the same period from 74.0% to 86.0% (10). In 2013, hepatitis B (HepB3) vaccine coverage among 1-year-olds was 97.0% (10).

The Expanded Programme on Immunization (EPI) has previously achieved several successes in controlling vaccine-preventable diseases through continuously monitoring the incidence of this group of diseases. The last wild polio case was reported in 2006 and WHO has certified the country as polio-free. The country has successfully eliminated maternal and neonatal tetanus, as certified by WHO in 2007. However, 2014 saw a 3.0% drop in routine coverage and 6.0% of districts with coverage below 80.0%. The country faced a measles outbreak beginning in 2013, which resulted in an estimated 3000 cases of measles reported between 1 January 2014 and 5 May 2015. A national measles and rubella campaign was conducted in 2015 to control the outbreak, with very high vaccine coverage. Immunization activities include routine immunization, supplementary vaccination and containment vaccination activities following detection of a cluster or outbreak due to any target diseases. The EPI has introduced *Haemophilus influenzae* type b vaccine as a component of pentavalent vaccine, aiming at reducing morbidity and mortality from bacterial meningitis and bacterial pneumonia.

The EPI introduced a birth dose of hepatitis B vaccine in three governorates in October 2014 and this will be expanded in phases to reach all governorates. In addition, one dose of inactivated polio vaccine will be introduced to all children at 4 months of age and plans are under way to switch from trivalent oral polio vaccine to bivalent vaccine.

Noncommunicable diseases

Noncommunicable
diseases

Mental health and
substance abuse

Violence and injury

Disabilities and
rehabilitation

Nutrition

Noncommunicable diseases

- A noncommunicable diseases unit has been established within the Ministry of Health and Population.
- A national cancer committee has been established with a remit to develop and implement a national plan for cancer control.
- A multisectoral task force for noncommunicable diseases, which includes representatives from all concerned ministries and organizations, has been established.
- A national multisectoral noncommunicable diseases plan is being developed.
- Noncommunicable diseases indicators have been integrated within the national health information system.
- The Ministry of Health and Population is implementing an m-Health programme in collaboration with the Ministry of Communication, WHO and the International Telecommunication Union.

Noncommunicable diseases

The burden of noncommunicable diseases is causing 84.7% of all deaths: cardiovascular diseases account for 46.2%, cancers 13.8%, respiratory diseases 4.2% and diabetes mellitus 1.4% of all deaths (11). As a result, a quarter (25.0%) of adults aged 30 and 70 years are expected to die from one of the four main noncommunicable diseases (12). Around 18.0% of adolescents (13–15 years of age, 29.1% boys, 7.0% girls) have ever smoked cigarettes, while 47.6% live in homes where others smoke in their presence (13), and per adult capita consumption of alcohol is 0.4 litres of pure alcohol (14). The prevalence of insufficient physical activity in adolescents is 87.3% (11–17 years of age, 80.6% boys, 92.9% girls) and the age-standardized prevalence is 31.0% (23.4% males and 38.6% females)(15). Raised blood pressure, in adults above 18 years of age, affects almost a quarter (24.6%) of the population (24.5% males and 24.7% females), while obesity affects a third (33.1%, 21.4% males and 44.5% females) (12). Ten of the 11 essential medicines for treatment of noncommunicable diseases are available in the public health sector.¹

A number of key efforts have been made towards the control of noncommunicable diseases. A noncommunicable diseases unit has been established within the Ministry of Health and Population. A national cancer committee has been established with a remit to develop and implement a national plan for cancer control and national guidelines for the diagnosis and

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

management of cancer patients. The national diabetes committee has been re-established and has developed national guidelines for the diagnosis and management of diabetes and has implemented a national training programme for all physicians (at primary, secondary and tertiary health care levels) in four governorates. The Ministry of Health and Population, in collaboration with the Ministry of Communication and the Ministry of Higher Education and Scientific Research, is implementing the global BeHe@lthy, Be Mobile mHealth initiative in collaboration with WHO and the International Telecommunication Union, and has adapted a national mDiabetes programme. The Ministry of Health and Population, in collaboration with the Ministry of Youth and Sports, is also implementing a programme on health promotion focusing on prevention of noncommunicable diseases through public campaigns using model youth parliaments in all governorates. The campaign has been piloted in Cairo, Giza and Fayoum governorates. Noncommunicable diseases indicators have been integrated within the national health information system and elements of noncommunicable diseases surveillance are in place. However, the surveillance system is still fragmented and several gaps exist with regard to the availability and quality of data related to morbidity, mortality and national system response. A national noncommunicable diseases situation analysis was conducted in 2014 that included a review of the existing health system capacity to address noncommunicable diseases with a focus on primary health care.

Tobacco control is a major challenge in the country, with around a quarter of adults currently using tobacco products and an estimated half of the population exposed to second-hand smoke in their own homes. There is also an increasing trend of young female uptake of tobacco, and an overall rise in waterpipe (shisha) use. Tobacco is a driving force in the rising epidemic of chronic diseases in the country, such as lung disease, lung cancer, ischaemic heart disease and stroke. Pictorial health images have been placed on tobacco products since 2008 and increases in tobacco taxation have been imposed. A tobacco cessation hot line has been established and its number is written on cigarette packs. A tobacco ban on advertising has been implemented but indirect advertising is widespread through depictions of tobacco use in film and television drama. Moves have been made to provide smoke-free public environments but enforcement remains weak. Tobacco taxation has increased over the past 2 years and the current tobacco taxation level now exceeds 70.0% of retail price, which is on par with the WHO Framework Convention on Tobacco Control (FCTC). However, this has been implemented through a tiered system that does not lead to strong reduction rates of consumption.

The government is building on recent initiatives that aim to strengthen the capacity of its primary health care public health network to address the prevention and control of noncommunicable diseases. This requires review of the existing technical guidelines, based on WHO recommendations, as well as the need for training, capacity-building and adoption of quality indicators for monitoring and evaluation of noncommunicable diseases

in primary health care. The implementation of effective tobacco control interventions and legislation is required in line with best practice and evidence-based policies, as outlined in the WHO FCTC. The health promotion initiative, in collaboration with the Ministry of Youth and Sports, focusing on prevention of noncommunicable diseases will be expanded to Alexandria and Qena governorates.

Mental health and substance abuse

Neuropsychiatric disorders are estimated to contribute to 15.1% of the burden of disease (16) and the suicide rate is estimated at 1.7 per 100 000 per year (17). The annual prevalence of cannabis use is estimated to be 6.2%, opiates 0.4%, cocaine 0.1%, and amphetamines 0.5% while the estimated prevalence for substance use disorders among adult (15 years and over) males is 1.3% and females 0.5% (18). Depression, anxiety and drug use disorders rank among the top 25 causes of burden of disease.

One of the main challenges facing the country in this field is the shortage of trained staff in mental disorders and in the disabilities programme, particularly in the areas of disorders caused by use of illicit drugs and mental disorders in children. Mental health legislation was enacted in 2009 and a national mental health plan is being developed. However, no instrument exists to promote the transition from institutionalized mental health-based services to community-based services. Most mental health services are provided at institutional level in mental health hospitals where almost all mental health staff/ providers are concentrated.

To enhance the capacity of the country to respond to the large burden of mental, neurological and substance use disorders, the Ministry of Health and Population has started, with the support of WHO, to build local capacity through providing training of trainers courses on Mental Health Gap Action Programme implementation. An international leadership course on mental health has also been established. In addition, the process of integrating mental health into primary health care has begun with the finalization of the updating of the primary health care curriculum, progress towards achieving consensus on the psychiatric drugs to be added to the essential primary health care drug list and completion of the first two training courses on mental health in primary health care.

Violence and injury

The percentage of deaths caused by injuries in 2012 was 4.6%. Of this, unintentional injuries accounted for 84.9% (53.9% due to road traffic injuries and 9.9% as a result of drowning) and intentional injuries accounted for 15.1% (35.0% self-harm and 62.3% interpersonal

violence) (19). In 2010, the estimated road traffic fatality rate was 13.2 per 100 000 population (19). For post-injury trauma care, there is a universal emergency access telephone number and 11.0%–49.0% of seriously injured people are transferred by ambulance (19).

Specialized national emergency care training exists for both doctors and nurses. Hospital-based injury surveillance and vital registration systems are established using the International Classification of Diseases (ICD 10). However, the substantial difference between 2010 data and the estimated number of road traffic deaths indicates the need for further strengthening and standardization of the injury information system. Legislation on most key road safety risk factors is in place but needs further strengthening. The Higher Road Safety Council has been established and has developed a national multisectoral plan for the National Decade of Action for Road Safety 2011–2020. However, adequate funding is required, drawing on the high-level political commitment. In-depth assessment of the trauma care system would help identify and address gaps to improve services.

After recognizing the increased trend of violence among the community, as indicated in increased suicide mortality rates recorded in the WHO Global Status Report on Violence Prevention 2014, the Ministry of Health and Population, in collaboration with all concerned government sectors and WHO, has started to develop a framework for violence prevention based on a situation analysis of the magnitude and determinants of the problem in the country.

Disabilities and rehabilitation

Of the different types of disabilities/difficulties, those related to total/partial paralysis account for 14.8%, infantile paralysis 13.1%, blindness 9.3%, mental deficiencies 22.4%, deafness 3.5%, muteness 2.6% and deafness and muteness 6.6% (20).

The UN Convention on the Rights of Persons with Disabilities was signed in 2007 and ratified in 2008. The national coordination body is the National Council for Disability Affairs, as of 2012, which is chaired by the Prime Minister. The Constitution includes articles on disability. The overarching disability legislation is the Law on the Rehabilitation of the Disabled (issued in 1975 and amended in 1982) which needs to be revised. Challenges include the fragmentation of efforts within government and in the nongovernmental sector (despite the establishment of a national council), a lack of the required national financial resources and inadequate data systems. There is also a need to improve the referral system, infrastructure at secondary level for eye care, the number of skilled allied health personnel, budgetary allocations, integration of primary eye care and efficiency of data collection on eye health indicators. A national or subnational plan for ear and hearing care does not yet exist. A protocol for capacity-building and development of human resources has been

developed between the Ministry of Health and Population, the Institute for Hearing and Speech and universities.

A national disability strategy has been developed and is being reviewed by the National Council for Disabilities. Integration of primary eye care and inclusion of a diabetic retinopathy screening programme within the national diabetes control strategy and of trachoma control within neglected tropical diseases control is taking place.

Nutrition

The estimated prevalence of various conditions due to malnutrition in children under 5 years of age is summarized in the following indicators: 6.0% underweight, 8.0% wasting, 21.0% stunting (21). Initiation of breastfeeding within one hour after birth is 27.1% while 13.3% of children under 6 months of age are exclusively breastfed. Low birth weight is 15.5% (21).

In line with the global action plan for the prevention and control of noncommunicable diseases (2013–2020) and its nine targets, two studies are being conducted to assess the amount of salt in Egyptian *baladi* bread and to determine the fatty acid profile and fat content and composition, including saturated, unsaturated and trans fatty acids, of common food supply items. The Ministry of Health and Population, in collaboration with the National Nutrition Institute, the Ministry of Supply and Internal Trade, and the World Food Programme, initiated a flour fortification programme targeting the high prevalence of iron deficiency anaemia and neural tube defects among infants less than 5 years, and pregnant and lactating mothers. Wheat flour, a common staple in the national diet, was used as the vehicle for fortification with a micronutrient premix including iron and folic acid. However, the programme has stopped due to financial constraints and challenges. A national iodine assessment has been conducted as well as a national study to assess the amount of salt found in bread through laboratory sampling.

In order to achieve the national development goals and establish a sustained annual growth rate, special attention must be given to addressing nutrition in the early stages of an individual's life (in the first 1000 days). In addition, the flour fortification programme should be continued in order to enhance nutrition and health by improving micronutrient status. In line with the global action plan for the prevention and control of noncommunicable diseases, the country will aim to reduce salt, sugar and trans fat intake. In addition, there is a focus on developing a nutritional facts labelling national programme.

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

- The government has prioritized reproductive, maternal, newborn and child health interventions as an element of its strategy for providing publicly funded health services through the primary health care network, including immunization and family planning services.
- The safe motherhood programmes have been able to reduce avoidable deaths by reducing delays in access to treatment and ensuring those in need receive emergency care.
- There is a national strategy on the elderly 2009–2015 and the Ministry of Health and Population provides health services through public geriatric care centres, an assessment of which indicated that the majority have a suitable environment, a mechanism for referral, availability of different medications and a database.
- The government endorsed the WHO regional environmental health strategy and framework of action 2014–2019, and a national multi-stakeholder committee is developing a strategic environmental health framework for action in 2015–2016.

Reproductive, maternal, newborn, child and adolescent health

The maternal mortality ratio has steadily declined since the 1990s and the under-5 mortality rate is 27 deaths per 1000 live births (21).² The leading causes of maternal mortality are haemorrhage, infection, high blood pressure, unsafe abortion and obstructed labour. The leading causes of under-5 mortality are acute respiratory infection (10.0%), prematurity (29.0%), intrapartum-related complications (13.0%) and congenital anomalies (21.0%) (24). The proportion of women receiving antenatal care coverage (at least one visit) is 90.3% and (at least four visits) 82.8% (21). The unmet need for family planning is 12.6% and the contraceptive prevalence rate is 58.5%, while the total fertility rate is 3.5 births per woman and the adolescent fertility rate (15–19) is 56.0 births per 1000 (21).

The government has prioritized reproductive, maternal, newborn and child health interventions as an element of its strategy for providing publicly funded health services through the primary health care network, including immunization and family planning services. The safe motherhood programmes have been able to reduce avoidable deaths by reducing delays in access to treatment and ensuring those in need receive emergency

² United Nations estimates for maternal mortality ratio show a decline from 106 in 1990 to 33 per 100 000 live births in 2015 (22) and for the under-5 mortality rate from 86 to 24 deaths per 1000 live births (23).

care. The use of family planning rose rapidly between 1980 and 2000 and has remained stable since 2000. Use of pills and injectables has become more common in recent years, while use of intrauterine devices has declined slightly since 2008. It is possible that the types of family planning methods used are changing from long-term solutions (intrauterine devices) to more temporary ones (contraception pills). The total fertility rate rose between 2008 and 2014 from 3.0 births to 3.5 births per woman (21). The integrated management of childhood illness programme is being implemented in all 27 governorates. The results of evaluation activities have shown the positive effect of integrated management of childhood illness on improving the performance of health providers and health facilities. The national acceleration plan supported reduction of neonatal, child and maternal morbidity and mortality. More than half of births are delivered by caesarean section, compared to almost a third in 2008 (21). In addition, rural centres are experiencing rising trends in caesarean section deliveries as well, reaching 48.1% (2014) compared to 22.0% (2008) (21).

The Government has focused attention on adolescent health and in 2014 a number of interventions were implemented. Youth-friendly services and centres have been piloted in three governorates (Assuit, Cairo and Sohag), 12 urban primary health care units established based on a sustainable strategy, service providers retrained on the new curriculum and a robust monitoring system to ensure quality of services put in place. An action plan on adolescent health was developed by the Ministry of Health and Population with the support of WHO, United Nations Population Fund and academia.

The country still requires further focus on: strengthening the health system; improving awareness-raising activities on life-saving practices; scaling up research activities to address underutilization of reproductive, maternal, neonatal, child and adolescent health care services; and expanding support to underserved geographical areas. A study will be carried out in selected sites by the Ministry of Health and Population, United Nations Population Fund and WHO to identify the causes and possible consequences of caesarean section deliveries. Youth-friendly services will be increased in a number of governorates.

Ageing and health

Life expectancy at birth rose by 6 years between 1990 and 2012 (from 65 years to 71 years) (24). In 2010, the ageing population, above 60 years, represented 8.5% of the total population (25).

The provision of services for the elderly started 30 years ago in different institutions. The Constitution stipulates the government's obligation to provide health insurance for the elderly. Universities provided a pioneer experience in geriatric education (Ain Shams University) and in elderly care services (Cairo and Helwan universities). The Ministry of Health and Population provides health services through geriatric centres. The number of social welfare institutions for the elderly increased from 121 in 2011, to 168 across the country. There is a national strategy on the elderly 2009–2015. An assessment of the 10 Ministry of Health and

Population geriatric health care centres and departments indicated that the majority have a suitable environment, a mechanism for referral, availability of different medications and a database. The underprivileged are offered free treatment, treatment at the expense of the state or health insurance. However, there is still a lack of integrated institutional work, few qualified staff and inadequate data on elderly mortality and morbidity, which affects service quality.

There is a need to develop a comprehensive development plan for the geriatric centres, to provide training programmes, to recruit qualified human resources and to adjust the infrastructure to ensure quality service provision.

Gender, equity and human rights mainstreaming

The country falls among the medium human development countries, ranking 130th among 152 countries in terms of gender inequality (26). Female adult (above 15 years of age) literacy was 65.8% in 2012 (27) and participation in the labour force is relatively low at 23.6% (28).

There is growing political commitment to the realization of the right to health, with acknowledgement of global commitments, as reflected in the 2014 Constitution. These pose great opportunities for advancing national efforts. However, the health system faces several challenges in provision of accessible, acceptable, affordable and quality services. Overpopulation is prevalent in urban areas, characterized by overcrowding, poor infrastructure, lack of safe water supplies, hygiene and sanitation facilities, scarce health care and social services which are either insufficient, of poor quality or unaffordable. The elderly, the disabled and those in lower wealth quintiles and the inhabitants of slum areas and rural areas, especially in the south, are among the vulnerable groups experiencing health inequities and deprivation of the right to health. The country, particularly in recent years, is a transit and recipient country for migrant workers and Syrian refugees, who do not have smooth access to basic health services unless registered with the office of the United Nations High Commissioner for Refugees. Health inequities are further exacerbated by conflicting and outdated health legislation and regulations which fail to meet actual population needs and to support rights-based health policy implementation.

There is a need for capacity-building of stakeholders in order to promote institutionalization of gender, equity- and rights-based approaches in health and related domains, review of legislation in light of the Constitution, and rights-based policies with consolidated actions.

Social determinants of health

The *Human development report 2014* ranked the country 110 out of 187 countries across the world on the human development index (26). The population at poverty level was 25.2% in 2011 (28). The urban population decreased between 1990 and 2012, from 43.5% to 43.0%

while access of the rural population to improved water sources increased from 90.2% to 98.8% (28). In 2010, the age group 0–24 years accounted for 51.2% of the total population (25). Adult literacy rates in 2012 were 70.4% (29), while overall unemployment is 11.9% for youth (15–24 years) (28).

The lack of clarity with regard to the expected role of health in addressing the social determinants of health, other than advocacy, is a challenge. Opportunities exist with the growing political drive to fulfill the commitment to health and other social rights in the 2014 Constitution, as well as the societal expectations and demand for social justice. WHO tools, strategies and indicators are available to support operationalization of social determinants of health in health planning and programmes. Drawing on these opportunities, there is a need to prioritize social determinants in health planning and in the plans of other relevant sectors, through the application of a health lens with adequate multisectoral coordination.

Health and the environment

Access to improved sanitation facilities is 90.1%, while access to improved drinking-water is 97.7% (21). It is estimated that 0.01% of the population uses solid fuels (biomass for cooking, heating and other usages) (30).

The country has a reasonable level of infrastructure for delivery of environmental health services, with differences between rural and urban areas, but still faces resource-related constraints. Environmental risk factors contribute to communicable and noncommunicable diseases. Air pollution, chemical pollution and other (modern) risk factors are increasingly responsible for the rising burden of noncommunicable diseases. Evidence shows high levels of particulate matter above national standards, with a subsequent burden on the population's health. The country has begun using coal in manufacturing and energy generating plants, contributing to the burden of air pollution. Measures to reduce lead pollution have been implemented since 1994, such as lead-free gasoline and lead-free ink for printing. The infrastructure for dealing with chemical safety is limited. Existing control measures are fragmented and do not provide complete coverage of the country. There is often a lack of coordination, even within ministries and authorities. The government has been working to strengthen national capacity in environmental preparedness and response to emergencies, environmental health risk assessment, water and sanitation, occupational health hazards and safety in the work place, and in development of plans to improve water quality. Five water safety plans have been developed since 2014.

The government endorsed the WHO regional environmental health strategy and framework of action 2014–2019 and a national multi-stakeholder committee is developing a strategic environmental health framework for action 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 2014 Constitution paved the way for universal health coverage with a stated target of 3.0% (double the previous 1.5%) of gross domestic product for government health expenditure and the aim of establishing a comprehensive health insurance mechanism as a way to increase access to quality health services for all citizens.
- The White Paper, developed by the Ministry of Health and Population, provides guiding principles and strategic directions for the health system and a health pillar was included in the national sustainable development strategy to 2030.
- The geographical reach of primary health care services is robust with a primary health care facility within a less than 5 km radius for 95.0% of the population. The immunization programme, other preventive and public health services and disease surveillance are strong in terms of availability and accessibility.
- Strengthening health service delivery has also been placed high on the agenda through a revitalization of the family health model by producing evidence (including an assessment) and through different training activities.
- An assessment of the health information system was finalized in mid-2015.

National health policies, strategies and plans

National health planning for the long- and medium-term has been recently revitalized though the White Paper together with the health pillar in the national sustainable development strategy to 2030, which together set the long-term vision for health sector development and a framework for health sector performance measurement. A 2015–2018 plan that outlines medium-term priorities and objectives has been produced in order to operationalize the long-term vision.

Total expenditure on health per capita at international exchange rate increased between 2005 and 2013 from US\$ 66.6 to US\$ 151.3, of which general government expenditure on health increased during the same period from US\$ 26.1 to US\$ 61.5 (31). General government expenditure on health as a percentage of total expenditure on health also increased during the same period from 39.3% to 40.7%. However, total expenditure on health as a percentage of the gross domestic product remained constant for the same period at 5.1% (31). In addition, the health financing system is characterized by a high share of out-of-pocket spending, at 58.0% in 2013 (31).

The government has clearly set universal health coverage as a priority objective for health sector development and health system strengthening. Article 18 of the 2014 Constitution paved way for universal health coverage with a stated target government health expenditure of 3% of gross domestic product and the aim of establishing a comprehensive health insurance mechanism as a way to increase access to quality health services for all citizens. The White Paper, launched by the government in 2014, highlights universal health coverage as the key objective for health sector development and underlines the main challenges for the country for moving towards this. It summarizes national priorities and concludes with a commitment to reforms that are compatible with universal health coverage and that aim at increasing public funding for health, equity in access to quality health services and efficiency in the use health sector resources. The Minister of Health and Population endorsed the White Paper before the Supreme Council of Health as the ministry framework for health sector policy and strategy.

In 2014 and 2015, the Ministry of Health and Population has been leading the process for development of a national health plan for the fiscal years 2015–2018 which will translate the long-term vision and guiding principles of the health pillar in the national sustainable development strategy for 2030 into medium-term health sector reforms and actions. A draft law for establishing a social health insurance mechanism is being discussed which will provide the legislative basis for expanding health service coverage and financial risk protection to the whole population. The sustainable development strategy agenda is also supported by activities providing evidence and international experience to guide policy discussions, strategy design and implementation.

Integrated people-centred health services

The health workforce density (2005 to 2009) increased for physicians from 24.3 to 28.3 per 10 000 population, nurses and midwives from 33.5 to 35.2 per 10 000 population, dentists from 3.4 to 4.2 per 10 000 population, and pharmaceutical personnel from 12.5 to 16.7 per 10 000 population) (32). Health service delivery data indicate health posts decreased from 2010 to 2013 from 0.39 to 0.38 per 100 000 population (33). Density per 100 000 population in 2013 for hospitals was 0.62 and for specialized hospitals was 0.12 (showing no change since 2010) (33). The number of hospital beds (2010) per 10 000 population is 17 (34). The number of mental hospitals in 2011 averaged 0.04 and the number of psychiatrists working in the mental health sector is estimated to be 0.54 per 100 000 population (34).

The country has an extensive health care infrastructure, with 95.0% of the population within a distance of 5 km of a health facility. The primary health care network comprises different types of health service units including family health units and centres, maternal and child care units, health offices and primary care units of the health insurance organization, including school health clinics. In 2014, around two thirds of the primary

health care network was implementing family practice. Private health service provision is weakly regulated. According to a household survey in 2010, around 50.0% of outpatient care is sought at private health facilities, around 30.0% at pharmacies and 20.0% only at public health facilities, with around two thirds of birth deliveries in private facilities. There is uneven distribution in the health workforce, with rural and remote areas suffering particularly from understaffing. The quality and safety of health care are issues that need further improvement at all levels of the health system, within both the private and public sectors.

Access to medicines and health technologies

The essential medicines list includes around 500 medicines, and is currently being updated, although reliable information about the availability of these medicines does not exist. National health accounts data 2011–2012 show 28.0% of total spending was on medical goods. Over half of out-of-pocket expenditure goes to medicines, underlining the challenges in affordability of and access to medicines. The country has a robust local pharmaceutical industry that covers most pharmaceutical products. The pharmaceutical sector includes a national regulatory authority for vaccines and biologicals which is WHO-qualified. A further regulatory authority for drugs is currently working to attain WHO qualification. There is also a central administration for pharmaceuticals with activities in pharmacovigilance, rational drug use and good governance in medicines, as well as licensing, supply chain management and other functions. Health technology is robust but needs adequate regulation, assessment and management. A social health insurance law is to be enacted by the newly-elected parliament as priority legislation and the drafting of an implementation plan for social health insurance reform is underway.

Focus needs to be placed on: engaging higher political commitment to ensuring access to medicines; improving the potential of civil society and private sector involvement in health care delivery; and expanding local capacity in producing vaccines and biologicals.

Health systems, information and evidence

The national health information system relies on a fairly well developed information technology and communication network through which data are collected using international standards at all levels of the system. However, the quality of the data collected is deemed low and there is little use of data in policy-making at all levels of the system. Civil registration and vital statistics are strong components of the health information system, with over 90.0% of births registered, and 100% of causes of death recorded. However, cause-of-death reporting faces some challenges in relation to quality with ill-defined causes of death accounting for half of causes recorded on certificates. The national health information system also suffers from the same systemic fragmentation as the health system in general.

This creates some notable gaps, for example in reporting from the private sector and, more generally, in comprehensiveness of the available data.

Developing the national health information system and monitoring framework is a priority for the government. This will become particularly crucial as the renewed focus on robust national health policies and plans will need to be supported by a strong health information system that can provide policy-relevant data and information for monitoring and evaluating progress. The government is positioning universal health coverage high in its political agenda as its strategic vision for 2030. Social health insurance has been adopted as the vehicle for reaching universal health coverage. This will require the reform of the entire health sector, with the information system and monitoring framework at the centre of this endeavour. Steps are underway to institutionalize the health information system by establishing a multisectoral health information steering committee for sound health information governance, establishing a “data warehouse” for the sector, strengthening civil registration and vital statistics (particularly improving cause of death reporting), developing a national research strategy, and through other strategies to enhance information and evidence.

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

- All levels of the health system have the core capacities for preparedness, detection, surveillance, investigation and response to public health events.

Alert and response capacities

The government requested a second extension in order to meet its obligations for implementation of the International Health Regulations (IHR) 2005 by June 2016, owing to the high turnover of personnel in the Ministry of Health and Population and the other ministries involved in IHR implementation. The government has submitted a new plan of implementation.

While self-reported IHR monitoring scores range from 75 to a full 100, as in other countries, the 2014 Ebola assessment reflected a different reality. Nevertheless, there has been significant progress in development of the core capacities required for IHR implementation. The meeting of requirements under surveillance, preparedness, response, risk communication, human resources, points of entry, and IHR-related zoonosis, radiology and nuclear hazards show significant progress. Similarly progress has also been made in strengthening capacities in the areas of laboratory and diagnostics, coordination, communication, and IHR-related food safety and chemical hazards.

The Ministry of Health and Population has conducted several meetings with other ministries and government sectors. The strong national coordination mechanism related to emergency preparedness and response also affords a great opportunity to strengthen all-hazards and multisectoral emergency preparedness and response. The government has developed a strong capacity for the management of radiation emergencies and may offer support under South–South mechanisms for cross-border collaboration as well as regional strengthening in this area.

The current geopolitical context and the existence of multiple protracted crises in neighbouring countries warrant stronger focus on emergency preparedness and response.

Epidemic and pandemic-prone diseases

While the country has a fairly good public health surveillance network across all governorates, the system does not include all health facilities in the public sector. This represents a considerable gap in coverage for reporting and notification of any event of

potential public health hazard. All health facilities in the public sector are involved in notification of targeted diseases, including acid-fast bacilli, fever and rash surveillance, as well as in the reporting and management of any emerging diseases or unusual public health event, such as preparedness for Ebola virus disease, Middle East respiratory syndrome coronavirus and avian influenza. The recent outbreak in 2015 of dengue fever in an Upper Egyptian governorate is an example of an emerging infectious disease outbreak that has been controlled. The transmission of avian influenza A(H5N1) is currently endemic in poultry all over the country. There has been a surge of human cases since November 2014 (165 cases, with a case fatality rate of 29.3% reported to 30 April 2015). Cases have been reported from 21 out of 29 governorates in the country. Of these, females comprised 60% and reported a higher death rate (30.0%) compared to males (27.0%), while children under 5 years (29.0%) and those aged 30 to 45 years (30.0%) were most at risk of acquiring the infection. However, children under 5 had the lowest case fatality rate (6.0%).

The established national programmes for influenza and acute respiratory infections (since 1999) have strengthened their capacity to manage surveillance for influenza-like illnesses and respiratory diseases. As such, the country has been able to monitor and provide early detection for influenza-like illness and respiratory diseases and for the emergence of any novel influenza or respiratory viruses with either epidemic or pandemic potential. A surveillance system for antimicrobial resistance has been recently introduced in public hospitals, although there is no available information to indicate whether or not it is an emerging health problem.

The full potential of the national electronic disease surveillance system, an online reporting system for diseases and public health events, needs to be fully explored and possibilities for rolling out a syndromic surveillance system across all the governorates should be considered. This would enhance the efficiency and effectiveness of surveillance functions and promote the wider use of disease intelligence data for early detection and monitoring of any health threats from epidemic and pandemic-prone diseases. While there is a systematic and efficient feedback mechanism at all levels of the surveillance system, this needs to be further enhanced.

Emergency risk and crisis management

Response activities during outbreaks are as required. However, coordination and information sharing between different stakeholders should be strengthened to comply with IHR core capacities. Preparedness and response plans are coordinated and implemented on the base of the all-hazards approach at the national level, mediated through a crisis management centre in the Ministry of Health and Population's cabinet, which encourages an effective and consistent response to any disaster or emergency, regardless of cause. There is a need to

upgrade the all-hazards approach plan at the level of the Ministry in collaboration with the crisis management centre. Functional command, communication and control mechanisms are in place to coordinate and manage outbreaks and other public health events. There is a dedicated and trained rapid response team working at both governorate and district level that is available at all times and can promptly respond to investigate and manage outbreaks and events. The rapid response team needs ongoing capacity-building and support. There is also a need to train health personnel to become experts in outbreak response at the national and regional level.

Food safety

The control process for food safety has many aspects and is distributed among regulatory authorities with various jurisdictions to cover all its stages. Public health physicians and food inspectors working in the Ministry of Health and Population, and distributed over 27 governorates, control around five million licensed and unlicensed facilities, including food markets, street vendors and food handlers. There are about 1750 food inspectors (3000 food facilities for each inspector). There is strong cooperation, coordination and exchange of information within the number of committees that exist in each related ministry, such as the Supreme Committee for Food Safety, and in each committee all stakeholders are represented. There have been several attempts to reform and streamline the food safety system over many years that have resulted in revision of all legislation regarding food safety.

Currently, the government is discussing the formulation of the development of a national food safety agency to achieve an integrated control system of high performance.

Poliomyelitis eradication

The country has succeeded in interrupting wild poliovirus circulation; the last confirmed polio case was reported on 3 May 2004 in the south of the country. However, the country has experienced repeated wild poliovirus importations detected through environmental surveillance. In 2013, an emergency multicountry response including Egypt was conducted to contain the Middle East outbreak. A field investigation and active search for paralytic cases were conducted. The frequency of environmental sampling was increased to twice per month and acute flaccid paralysis surveillance was enhanced. The routine immunization system is efficient. The coverage for all oral polio vaccine doses in the system is >95.0%. Acute flaccid paralysis surveillance indicators indicate that surveillance activities in the country are satisfactory. The non-polio acute flaccid paralysis rate was 3.2, 3.0 and 2.9 per 100 000 children under the age of 15 years in 2012, 2013 and 2014, respectively (cut-off point is 2 per 100 000 children under the age of 15 years) (35). Stool adequacy rate was 91.6%, 92.5% and 93.4% in 2012, 2013 and 2014 respectively (cut-off point is 80.0%) (35).

One limited subnational immunization day was conducted in February 2013 in Al-Haggana and Al-Salam districts followed by a subnational immunization day in Greater Cairo (where 3.4 million children were targeted) in March and April 2013. Non-Egyptian children (up to 15 years of age) from endemic countries and living in Cairo were vaccinated in February, March and April 2013. Reported coverage in all supplementary immunization activities was not less than 98.0%. National immunization days were implemented in November and December 2013 targeting 14 million children under the age of 5 years in each round with coverage >99.0%. In 2014 a subnational immunization day was implemented in March in North Sinai targeting 68 000 children under the age of 5 years with coverage >95.0%, and finally two national immunization days were conducted in April and October 2014 targeting 14 million children per campaign with >98.0% coverage. Another national immunization day was held in April 2015 targeting 15 million children under the age of 15, with around 103% coverage and subnational immunization days were held in the Red Sea governorate in August 2015 targeting 68 000 children under the age of 15 with a coverage rate of 101%.

Due to the risk of importation the country may conduct two subnational supplementary immunization days in 2015 and update its polio importation preparedness and response plan.

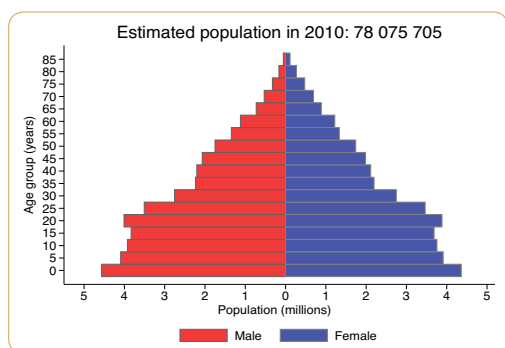
Outbreak and crisis response

As a result of the situation in the Syrian Arab Republic, Syrian refugees have been arriving in the country in large numbers. As of late 2014, the country was host to 140 000 Syrian refugees (36). A basic needs assessment survey was conducted with displaced Syrians in Egypt to understand their health status, study the burden of disease, highlight the gaps in health service provision and address needs through an evidence-based approach.

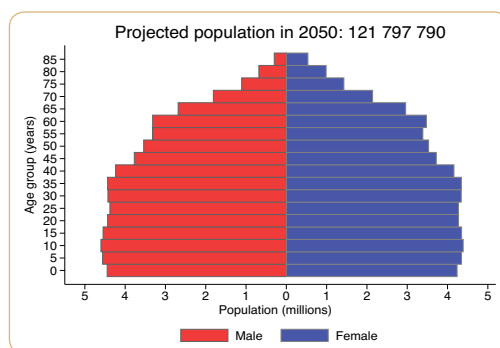
Supported by partners, including WHO and the Office of the United Nations High Commissioner for Refugees, the government has been responding by strengthening the national health system in refugee-dense areas. This work encompasses supporting access to all levels of health care for communicable and noncommunicable diseases and capacity-building and supporting the surveillance system. In late 2014, the government began scaling up its preparedness for Ebola virus disease by assessing and measuring its level of preparedness and readiness using the WHO assessment checklist and, accordingly, identifying critical gaps for improvement. In addition, an international assessment was conducted in 2015 on H5N1.

Demographic profile

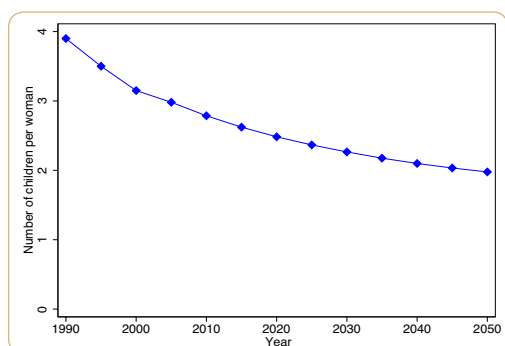
Population pyramid 2010



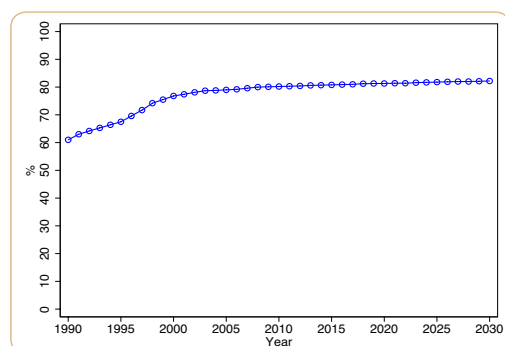
Population pyramid 2050



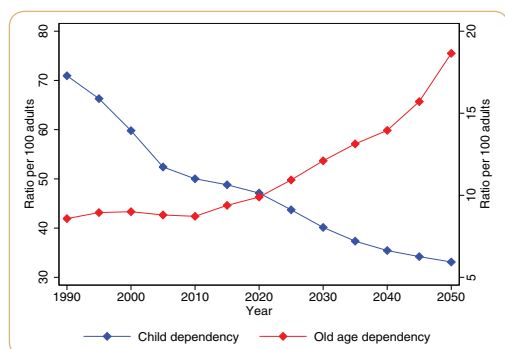
Total fertility rate



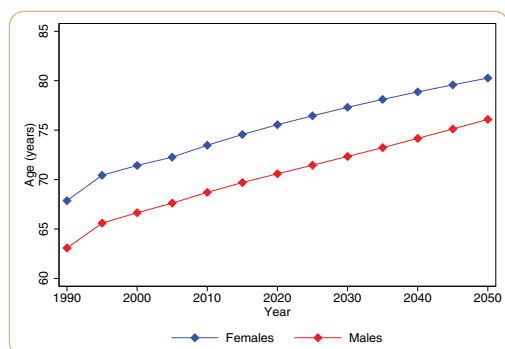
Need for family planning satisfied



Dependency ratio



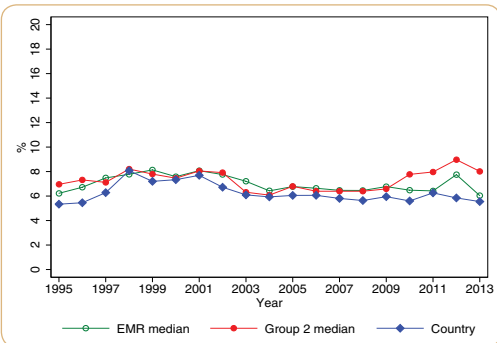
Life expectancy at birth



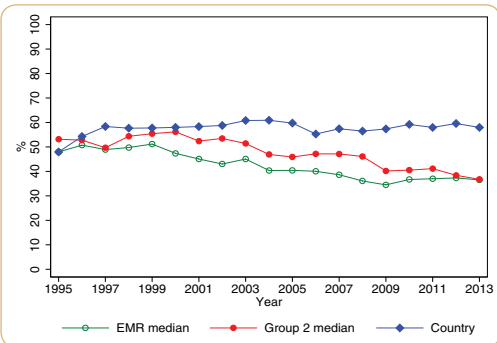
Source for all graphs: (25)

Analysis of selected indicators

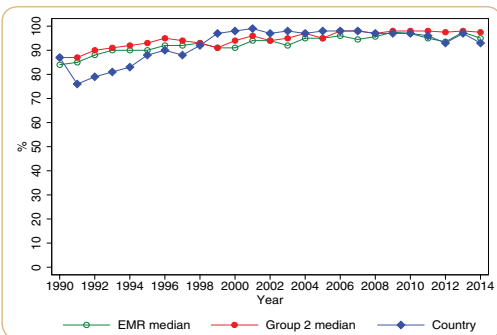
General government expenditure on health as % of general government expenditure (31)



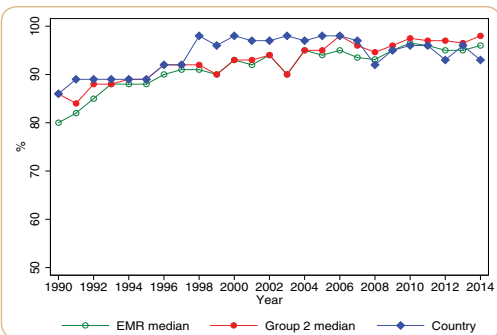
Out-of-pocket expenditure as % of total health expenditure (31)



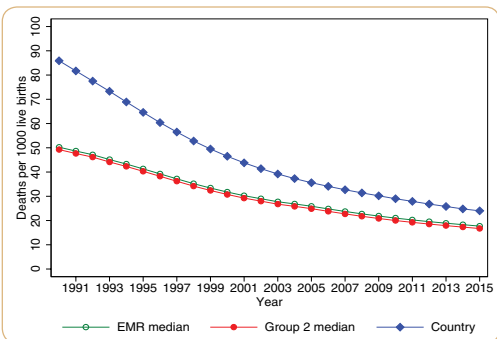
DPT3/pentavalent coverage among children under 1 year of age (%) (10)



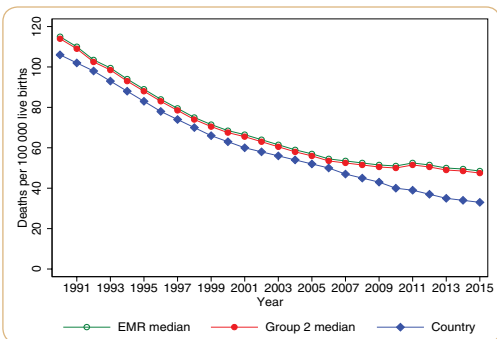
Measles immunization coverage (%) (10)



Under-5 mortality (per 1000 live births) (23)



Maternal mortality ratio (per 100 000 live births) (22)



References

1. Global health observatory data repository: Prevalence of HIV. Geneva: World Health Organization; 2014 (<http://apps.who.int/gho/data/node.main.562?lang=en>, accessed 7 April 2015).
2. UNAIDS Middle East and North Africa regional report on AIDS 2011. Geneva: Joint United Nations Programme on HIV/AIDS (UNAIDS); 2011 (http://www.unaids.org/sites/default/files/media_asset/JC2257_UNAIDS-MENA-report-2011_en_1.pdf, accessed 3 February 2015).
3. The gap report. Geneva: Joint United Nations Programme on HIV/AIDS; 2014 (http://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS_Gap_report_en.pdf, accessed 7 April 2015).
4. National HIV programme situation and gap analysis: Egypt 2015. Cairo: National AIDS Control Programme, Ministry of Health and Population; 2015 (http://www.unaids.org/sites/default/files/country/documents/EGY_narrative_report_2015.pdf, accessed 7 February 2016).
5. El-Zanaty F, Way A. Egypt demographic and health survey 2008. Cairo: Ministry of Health and Population, El-Zanaty and Associates and Macro International; 2009 (<http://dhsprogram.com/pubs/pdf/fr220/fr220.pdf>, accessed 6 July 2015).
6. Egypt health issues survey 2015. Cairo and Maryland: Ministry of Health and Population, El-Zanaty and Associates and the DHS Program, ICF International; 2015 (<http://dhsprogram.com/pubs/pdf/FR313/FR313.pdf>, accessed 7 February 2016).
7. WHO global tuberculosis database 2014. Geneva: World Health Organization; 2014 (<http://www.who.int/tb/country/data/profiles/en/>, accessed 25 March 2015).
8. Malaria in the Eastern Mediterranean Region 2013. Cairo: World Health Organization Regional Office for the Eastern Mediterranean; 2014 (http://applications.emro.who.int/dsaf/emropub_2014_EN_1778.pdf?ua=1&ua=1, accessed 2 April 2015).
9. Global health observatory data repository: Neglected tropical diseases. Geneva: World Health Organization; 2015 (<http://apps.who.int/gho/data/node.main.A1629?lang=en>, accessed 7 April 2015).
10. Global health observatory data repository: Immunization. Geneva: World Health Organization; 2015 (<http://apps.who.int/gho/data/node.main.A824?lang=en>, accessed 8 April 2015).
11. Global health estimates 2014 summary tables: Estimated deaths by cause, sex and WHO Member State 2012. Geneva: World Health Organization; 2014 (http://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html, accessed 12 October 2014).

12. Noncommunicable diseases country profiles. Geneva: World Health Organization; 2014 (<http://www.who.int/nmh/countries/en/#E>, accessed 12 October 2014).
13. Global youth tobacco survey 2009. Cairo: World Health Organization; 2012 (http://www.emro.who.int/images/stories/tfi/documents/GYTS_FS_EGY_2009.pdf?ua=1, accessed 12 October 2014).
14. Global status report on alcohol and health 2014. Geneva: World Health Organization; 2014 (http://www.who.int/substance_abuse/publications/global_alcohol_report/en/, accessed 12 October 2014).
15. Global status report on noncommunicable diseases 2014. Geneva: World Health Organization; 2014. (<http://www.who.int/nmh/publications/ncd-status-report-2014/en/>, accessed 11 March 2015).
16. Mental health atlas–2011 country profiles. Geneva: World Health Organization; 2011 (http://www.who.int/mental_health/evidence/atlas/profiles/en/, accessed 1 April 2015).
17. Preventing suicide: a global imperative. Geneva: World Health Organization; 2014 (http://www.who.int/mental_health/suicide-prevention/world_report_2014/en/, accessed 12 October 2014).
18. Atlas: substance use in the Eastern Mediterranean Region 2012. Cairo: World Health Organization Regional Office for the Eastern Mediterranean; 2013 (EMRO Technical Publications Series 42) (http://applications.emro.who.int/dsaf/emropub_2013_1607.pdf, accessed 12 October 2014).
19. Global status report on road safety 2013: supporting a decade of action. Geneva: WHO; 2013 (http://www.who.int/violence_injury_prevention/road_safety_status/2013/en/, accessed 12 October 2014).
20. Disability in the Arab region: an overview. Beirut: United Nations Economic and Social Commission for Western Asia; 2014 (https://www.unescwa.org/sites/www.unescwa.org/files/page_attachments/disability_in_the_arab_region-_an_overview_-_en_1.pdf, accessed 29 March 2015).
21. Egypt Demographic and Health Survey 2014. Cairo and Maryland: Ministry of Health and Population, El-Zanaty and Associates and the DHS Program, ICF International; 2014 (<http://dhsprogram.com/pubs/pdf/PR54/PR54.pdf>, accessed 9 July 2015).
22. Trends in maternal mortality: 1990 to 2015. Estimates by WHO, UNICEF, UNFPA, the World Bank and the United Nations Population Division. Geneva: World Health Organization; 2015 (<http://www.who.int/reproductivehealth/publications/monitoring/maternal-mortality-2015/en/>, 11 January 2016).
23. Levels and trends in child mortality. Report 2015. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation. New York: United Nations

- Children's Fund; 2015 (http://www.who.int/maternal_child_adolescent/documents/levels_trends_child_mortality_2015/en/, 11 January 2016).
24. World health statistics 2014. Geneva: World Health Organization; 2014 (http://www.who.int/gho/publications/world_health_statistics/2014/en/, accessed 12 October 2014).
 25. World population prospects: the 2012 revision (DVD edition). New York: United Nations, Department of Economic and Social Affairs, Population Division; 2013.
 26. Human development report 2014. New York: United Nations Development Programme; 2014 (<http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf>, accessed September 2014).
 27. UNESCO Institute for Statistics: data centre [online database] (<http://data.uis.unesco.org/>, accessed 30 April 2015).
 28. World development indicators. Washington DC: World Bank Group; 2014 (<http://databank.worldbank.org/data/views/variableSelection/selectvariables.aspx?source=world-development-indicators>, accessed 12 October 2014).
 29. Global health observatory data repository: Indicator and measurement registry: Literacy rate among adults aged ≥ 15 years (%). Geneva: World Health Organization; 2015 (<http://apps.who.int/gho/data/view.main.2100>, accessed 7 April 2015).
 30. Global health observatory data repository: Population using solid fuels (estimates): data by country. Geneva: World Health Organization; 2015 (<http://apps.who.int/gho/data/node.main.135>, accessed 7 April 2015).
 31. Global health expenditure database: Table of key indicators, sources and methods by country and indicators. Geneva: World Health Organization; 2015 (http://apps.who.int/nha/database/Key_Indicators_by_Country/Index/en, accessed 4 April 2015).
 32. Global health observatory data repository: Health workforce: aggregated data: density per 1000: data by country. Geneva: World Health Organization; 2015 (<http://apps.who.int/gho/data/node.main.A1444>, accessed 23 April 2015).
 33. Global health observatory data repository: Total density per 100 000 population: hospitals (health systems). Geneva: World Health Organization; 2015 (<http://apps.who.int/gho/data/view.main.30000>, accessed 23 April 2015).
 34. Global health observatory data. Geneva: World Health Organization; 2015 (<http://www.who.int/gho/en/>, accessed 23 April 2015).
 35. Acute flaccid paralysis (AFP) cases by week of onset. Cairo: WHO Regional Office for the Eastern Mediterranean; 2015 (AFP surveillance Number 853, Week 06, ending 8 February 2015) (http://www.emro.who.int/images/stories/polio/documents/Polio_Fax_issues_2015/Week_06-15.pdf?ua=1, accessed 23 March 2015).

36. Regional refugee and resilience plan 2015–2016 in response to the Syria crisis: regional strategic overview. New York: United Nations Development Programme and United Nations/United Nations High Commissioner United for Refugees; 2015 (<http://www.3rpsyriacrisis.org/wp-content/uploads/2015/01/3RP-Report-Overview.pdf>, accessed 30 April 2015).

