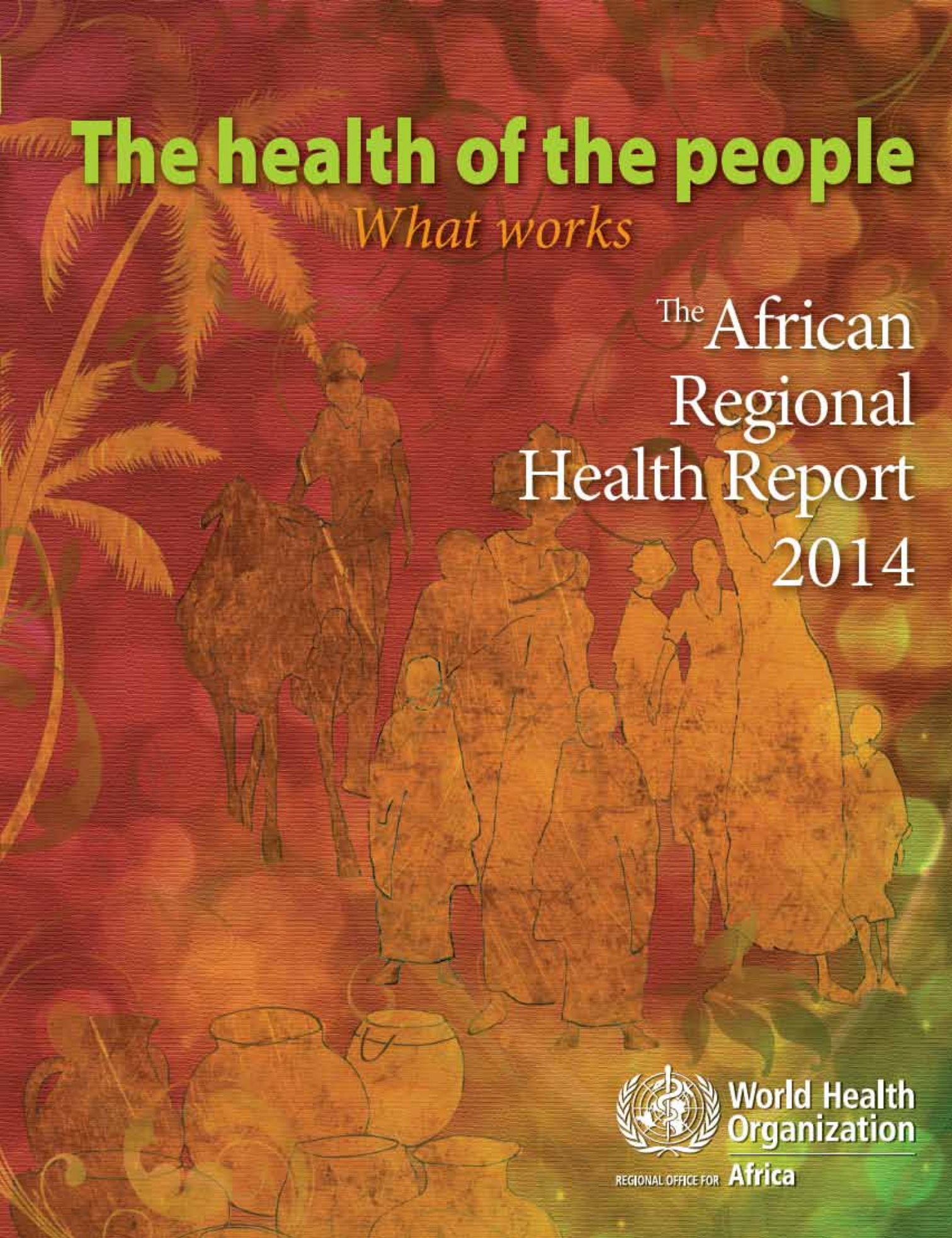
The health of the people

What works

The African Regional Health Report 2014



World Health Organization
REGIONAL OFFICE FOR Africa

The health of the people

What works

The African Regional Health Report 2014

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WHO/AFRO Library Cataloguing – in – Publication
The health of the people: what works – the African Regional Health Report 2014
Public health – organization and administration
Delivery of health care – organization and administration
Health status
Africa
I. World Health Organization. Regional Office for Africa
ISBN: 978 929 023 261 2 (NLM Classification: **WA 541 HA1**)

Acknowledgements

This report has been prepared by a core team from the World Health Organization Regional Office for Africa under the general guidance of Luis G Sambo. The core team was coordinated by Derege Kebede and included Delanyo Yao Tsidi Dovlo, Francis Chisaka Kasolo, Tigest Ketsela Mengestu, Matshidiso Rebecca Moeti, Deo Nshimirimana, Bokar Touré and Yves Turgeon.

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The assistance of the following staff from the WHO Regional Office for Africa is gratefully acknowledged: Samuel Ajibola, Marcelline Itoua and Wenceslas H Kouvividila. Claire Keeton and Peter Mwaura also assisted in collecting case reports.

This report was edited by Margaret Harris and Maggie Beveridge, proofread by Amanda Milligan, indexed by James Lamb and produced by the team from the Bulletin of the World Health Organization: Fiona Fleck, Laragh Gollogly, Sophie Guetaneh Aguettant, Melanie Lauckner, Hooman Momen and Kaylene Selleck.

Printed in Luxembourg

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World Health Organization

REGIONAL OFFICE FOR Africa

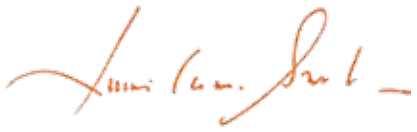
Message from the Regional Director

This report is a follow-up to the first African regional health report in 2006, in which we provided a comprehensive situational analysis of the health status of people living in the World Health Organization African Region. In this second report, we have taken that baseline and examined what has happened since, seeking to answer the question: what has worked and why? Now, more than ever, we need to know – and do – the things that work. Not what might work, not what could work in 10 years' time, but what does work, and should be done here and now, to improve the health of the people of the Region.

In these pages you will find a rich discussion of strategies that work, including a chapter devoted to the elements needed for stronger health systems: good information and surveillance systems; well-trained and motivated health-care workers; well-equipped health facilities with good laboratory services; and well-managed services, trusted by, and functioning in partnership with community involvement. Sadly, these were the elements sorely lacking in the countries whose systems were rapidly overwhelmed by the Ebola virus outbreak. As I write this, the Ebola virus is raging through western Africa, causing the most severe, complex and devastating outbreak seen in the four decades since this virus emerged. The destruction it has wreaked can be measured not only in the mounting toll of human lives lost, but in economies stalled and communities paralysed by fear and panic. The real cost of this outbreak is something that we will be measuring for years to come.

In this report, we have done more than simply describe what works: we have distilled what we have learned from examining what has worked in Africa to 10 essential approaches. Our final chapter describes those approaches and explains why they are crucial. Many of these are things that, had they been applied before Ebola virus disease arrived in western Africa, would have provided early warning and inbuilt resilience to even such a powerful shock.

It is hoped that countries will take up the challenges of implementation or scale-up of proven effective interventions through strong health systems to move towards universal health coverage. We look forward to seeing what we have learned and described in these pages being applied towards reaching our ultimate goal: good health for all the people of the Region.



Dr Luis Gomes Sambo
Regional Director
WHO – Regional Office for Africa

Abbreviations and acronyms

ACT	artemisinin-based combination therapy
AfDB	African Development Bank
ART	antiretroviral therapy
CDC	Centers for Disease Control and Prevention
CEMETRA	PROMETRA International's Experimental Centre for Traditional Medicine
DALYs	disability-adjusted life-years
DFID	Department for International Development
DOTS	Directly observed treatment, short-course, the name of the basic package that underpins the Stop TB Strategy
DTP3	third dose of diphtheria, tetanus and pertussis vaccine
ECA	Economic Commission for Africa
ECOWAS	Economic Community Of West African States
ERF	Emergency Response Framework
EVIPNet	Evidence Informed Policy Networks
FACA	*Fagara zanthoxyloides* and *Calotropis procera*
FAO	Food and Agricultural Organization of the United Nations
GAVI	Global Alliance for Vaccines and Immunization (the GAVI Alliance)
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HHA	Harmonization for Health in Africa
HPV	human papilloma virus
iCCM	integrated community case management
ICT	information and communications technology
IDSR	Integrated Disease Surveillance and Response
IGME	United Nations Inter-agency Group for Child Mortality Estimation
IHP+	International Health Partnership+
IMCI	integrated management of childhood illness
ITN	insecticide-treated net
JICA	Japan International Cooperation Agency
KMC	Kangaroo mother care
MDG	Millennium Development Goal
mhGAP	mental health Gap Action Programme
NCD	noncommunicable disease
NORAD	Norwegian Agency for International Development
NTD	neglected tropical disease

PMNCH	Partnership for Maternal, Newborn & Child Health
PMTCT	prevention of mother-to-child transmission
PROMETRA	Promotion of Traditional Medicine
RBF	results-based financing
REACH	Renewing Efforts Against Child Hunger
SADC	Southern African Development Community
SAFE	Surgery, Antibiotics, Facial cleanliness and Environmental changes
Sida	Swedish International Development Cooperation Agency
SSFFC	substandard/spurious/falsely-labelled/falsified/counterfeit
STEPS	STEPwise approach to Surveillance
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WISN	Workload Indicators of Staffing Need

Executive summary

Africa has a young and rapidly growing population. Currently the second most populated continent in the world with over 1 billion people, it may host 4 billion people by the end of the century, more than one third of humanity.

Sub-Saharan Africa's real gross domestic product growth improved from 2.9% in 2001 to a maximum of 7.1% in 2007 and is projected to be about 5.4% in 2014. Fuelled by rapid urbanization and the consumption of a new and burgeoning middle class, this economic growth is largely endogenous and expected to last.

This rapid economic growth, coupled with a young, growing population, wide uptake of technology, particularly mobile phone technology, and a burgeoning middle class, has led to a new view of Africa. Often referred to as "Africa rising", this new view sees Africa as becoming an increasingly important demographic and economic driver of global growth. This is beginning to change the standard view of Africa as a place plagued by poverty, interminable conflict and incurable health problems.

This report provides an assessment of the current status and trends in health in the World Health Organization (WHO) African Region, which consists of 47 of the 54 countries on the African continent and is one of the six regions of WHO. This report aims to go further than simply establishing the health status of the Region: the purpose of looking at data about health is to identify what can be – and has already successfully been – done to improve health, and what strategies and approaches have been shown to work.

The report is organized thematically. It looks at the multiplicity of initiatives and actors involved in health development in the Region, examines the threats limiting the health and lives of the people from birth to the senior years, describes how the dominant disease threats are being identified, controlled, mitigated and prevented, discusses the key determinants of health in the Region, including social determinants, food and nutrition, the physical environment, and risk factors related to lifestyle. The report also reviews the enormous efforts – by governments, international partners, technical agencies, researchers and other stakeholders – to strengthen the health systems in the Region and, finally, provides a list of strategies that, if applied, can make a significant difference to the health of the people of the Region.

Chapter 1. Introduction

Health yields economic dividends: healthy people are more productive, and healthy infants and children can develop better and become productive adults. A healthy population can also contribute to a country's economic growth. The report found that increased investment in health would translate into hundreds of billions of dollars per year of additional income, which could be used to improve living conditions and social infrastructure in poorer countries. It is estimated that for every 10% increase in life expectancy at birth there is a corresponding rise in economic growth of 0.4% per year.

The Region has seen marked improvements in health outcomes during the past decade. There has been a considerable decline in child, maternal and adult mortality rates, and substantial decreases in the burdens of several diseases. In the period 1990–2011, the Region has struggled with, and begun to overcome, the devastating epidemic caused by HIV.

There has been impressive progress in reducing mortality rates in children aged less than 5 years, which fell between 1990 and 2012 from 173 to 95 per 1000 live births. The worldwide reduction in the maternal death rate has also been achieved in sub-Saharan Africa, which has seen a decline of 41% between 1990 and 2010.

The Millennium Development Goals (MDGs) are a powerful tool for focusing the world's attention on development issues, particularly those issues that need to change. Although it is likely that many countries in the Region will not reach the MDG targets set by 2015, considerable efforts have been made to achieve them.

Chapter 2. Partnerships – working together to achieve health for all

Given the substantive proportion of external resources on health as a percentage of total health expenditures, the number of initiatives and the multiplicity of actors involved in health development in the Region, coordination and harmonization of effort is essential to avoid waste and to target real needs. Some of the major partnerships and initiatives active in the Region that have yielded health solutions that work include:

- Harmonization for Health in Africa, a regional mechanism led by the WHO Regional Office for Africa and set up in 2006 to coordinate partners' support for strengthening African health systems.
- International Health Partnership+ country compacts have served to enhance harmonization and alignment of resources and activities to agreed sector plans and thus reduce transaction costs. They are used as a tool for mutual accountability by introducing indicators for tracking progress against agreed commitments of government and of development partners.
- The Meningitis Vaccine Project, a partnership between WHO and PATH, with funding from the Bill & Melinda Gates Foundation, has developed and rolled out the meningitis A vaccine in the meningitis belt of Africa, one of the

great public health achievements of this century. Since introduction of the vaccine, the number of cases of type A meningococcal meningitis has fallen.

Chapter 3. Health through the life course

Health through the life course addresses population health needs throughout the life course, with a special focus on key stages in life and the transitions between them.

In order to prevent up to two thirds of neonatal deaths, which account for one third of all children's deaths, countries have implemented interventions including community engagement for better maternal and newborn care; prevention of mother-to-child transmission of HIV; provision of access to skilled care during delivery, including newborn resuscitation; strengthening capacity-building to support care of neonates at home; and making available essential newborn care in health facilities.

Political commitments at national and international levels have improved access to interventions that contribute to child survival, such as preventing and managing diarrhoea and pneumonia, immunization, and ensuring adequate nutrition. Increased vaccination coverage has had an impressive impact on reducing child deaths and disability in the Region, particularly those due to measles and polio. However, coverage levels vary widely between countries.

To better address adolescent and youth health issues, several countries are developing national standards aimed at providing youth-friendly quality health-care services and laws that require males and females to be 18 years of age or older before marriage. Major health issues affecting young people in the Region include HIV infection, violence and injuries, child marriage, early initiation of sex and child marriage, and limited access to family planning services.

The reduction in maternal mortality seen in the Region has been the result of deliberate investments in some countries to address challenges such as financial and geographical inaccessibility to quality maternity services (including removal of user fees for maternity services), introduction of results- and performance-based financing, and institutionalization of maternity waiting homes.

The health care of older people is becoming a major challenge in the Region. A growing number of older people are living with chronic diseases and disability, which increases the demand for a variety of health services. Estimated at 43 million in 2010, the number of people aged 60 years and older in the Region is projected to reach 67 million by 2025 and 163 million by 2050.

Chapter 4. Disease threats

Communicable diseases account for two thirds of the total disease burden, the rest being due to noncommunicable diseases (NCDs) and injuries.

HIV incidence has declined sharply where countries have scaled up HIV prevention strategies to change behaviours. In the past decade, there has been a

steady improvement in access to antiretroviral treatment, with 10 countries in the Region now having coverage of more than 80%. This improvement was possible because of the use of standardized, simplified treatment protocols and decentralized service delivery models to deliver treatment to large numbers of HIV-positive adults and children.

Improved coverage of major interventions has proven successful in the control of tuberculosis in the Region. These interventions include the expansion of DOTS, directly observed treatment, short course, the basic package that underpins the Stop TB Strategy; improved diagnostics, resulting in improved case detection in adults and children; and better access to HIV testing and treatment for tuberculosis patients.

In the past 12 years, malaria mortality rates have decreased by about 50% in the Region. This reduction is projected to reach 68% in children by 2015, due to improved availability and use of insecticide-treated nets, diagnosis-based treatment with artemisinin-based combination therapy, engagement of communities in malaria control, and strengthening capacity in vector control for malaria.

Following the effective implementation of the Integrated Disease Surveillance and Response Strategy over the past decade, significant improvement in the detection, reporting and response to priority diseases has been recorded. The importance of early detection was underscored by the ongoing epidemic of Ebola virus disease in western Africa, which has surpassed all other outbreaks in terms of cases, deaths and geographic spread.

Mass administration of medicines for diseases such as lymphatic filariasis, onchocerciasis, schistosomiasis and soil-transmitted helminthiasis, and early case finding and decentralized case management for Buruli ulcer, dracunculiasis, human African trypanosomiasis, leprosy, leishmaniasis and yaws have been useful for preventing and eliminating neglected tropical diseases.

The Region is still at an early stage if the epidemic of NCDs. To stem the tide of these disorders and conditions, it will need to develop a response using low-cost health solutions, particularly prevention and health promotion, for the entire population.

Chapter 5. Health determinants

The determinants of health in the Region are multiple and complex, requiring committed leadership to address the threats posed to social and economic development and, ultimately, human health. However, opportunities exist to take coordinated actions to halt or reverse the negative impact on both health and development in the Region.

Some countries have set up a national coordination body to address the social determinants of health after performing a detailed qualitative review of the social determinants affecting the health of their populations. They are striving to reduce health inequities and inequalities across population groups by the integration of health into all policies and legislation and the participation of individuals, families and communities in the health services delivery process.

Countries have also taken an intersectoral approach and launched national nutrition programmes, combining all nutrition services to address the immediate and underlying causes of malnutrition, especially at community level.

Several countries in the Region have made considerable efforts to update and strengthen their food safety systems and infrastructure in recent years. This has included restructuring of food control systems for better coordination and integration of services.

Household water treatment and safe storage interventions, particularly low-cost technologies such as chemical or solar disinfection, have proven to be highly cost effective for the provision of safe drinking water. Synergy between indoor air and drinking-water quality improvement interventions at the household level have shown promising results by combining household water treatment and delivery of improved cooking stoves.

Countries have taken steps to strengthen their resilience to the adverse effects of climate change by establishing multisectoral country task teams and assessing environmental risk factors affecting human health. Country task teams provide opportunities for experts from different sectors to work together in the development and implementation of national adaptation plans to strengthen country resilience.

Efforts are being made to reduce risk factors related to lifestyle by, among other things, accelerating implementation of the WHO Framework Convention on Tobacco Control; increasing alcoholic beverage taxes and prices to reduce overall alcohol consumption and heavy drinking; and developing and implementing national guidelines on healthy diet and physical activity for prevention and control of NCDs.

Conflicts and emergencies test all the elements of a public health system. Routine health services are disrupted, health personnel displaced, attacked or killed. An Emergency Response Framework has been put in place to guide an effective response to acute public health emergencies triggered either by natural disasters or conflicts. The Framework describes a set of emergency management procedures and functions, including leadership, information management, technical expertise and core services.

Chapter 6. Improving access to health care

Strong health systems are fundamental to maintaining good health throughout the life cycle and managing threats to health. In the past decade, enormous efforts – by governments, international partners, technical agencies, researchers and other stakeholders – have been applied to strengthening the Region's health systems. Are these efforts paying off? It is clear that there are still too many gaps in the Region, including the gap between the level of services enjoyed by the wealthiest and the lack of access for the poorest.

This chapter looks at the elements needed for a functioning health system, such as leadership and governance, human resources, health financing, information and research, access to medicine and health technologies, and service deliv-

ery. As each element of the health system is discussed, approaches and innovations that have been successful in the African context are described, to show what has worked to strengthen health systems in the Region.

Countries have polices and strategies in place that guide investment decisions and activities of all stakeholders. Comprehensive monitoring and evaluation frameworks and other means of monitoring performance, such as joint annual reviews, which have been institutionalized in 37 countries, bring together all stakeholders, permitting inclusive assessment of sector performance and discussion of resource allocation. Comprehensive human resources for health planning is being promoted in countries, linking needs, production and utilization with relevance and appropriateness of the mix of skills. Strengthening education and training of health workers is crucial, but so is providing viable, adequately supported positions to ensure that graduates are absorbed in the health system when they complete their training.

Several approaches to reducing financial obstacles to accessing health care have been adopted by countries, such as removing financial barriers, especially direct payments (user fees); providing financial coverage for people who cannot afford to contribute; making prepayment compulsory; and establishing large risk pools.

Countries are developing national policies and plans to improve access to essential medicines. External quality assessment of national public health laboratories in almost all countries has enabled laboratories to improve their diagnostic performance.

Efforts are underway to reach all the people who need health care, when they need it and where they need it, by scaling up efforts at universal coverage and by using innovative approaches, such as use of mobile clinics based on trains, and increasing service delivery through community workers.

Several countries have made progress in developing policy and strategic frameworks to improve their national health-information systems, national and health facility data sources as well as data management and dissemination. Innovative platforms such as the African Health Observatory and national health observatories support the strengthening of national health-information systems.

Research and the use of research findings are facilitated when driven by demand, and when policy-makers and researchers work as allies accountable to one another. Evidence Informed Policy Networks of researchers and decision-makers in some countries have collated evidence and prepared policy briefs that have been used in policy dialogue with policy-makers.

Chapter 7. Conclusion: what works

It is a convenient untruth that there has been no progress in health in the Region. This report has used a wide range of data to show that, in the past decade, the overall health of the people living in the Region has improved considerably. Some of this has been due to demographic and economic change and improved political stability, leading to fewer conflicts. But much has also been due to sustained efforts to prevent illness and maintain good health, improve access to treatment

when illness does occur, and to find ways to deliver a better level of health care in the African context.

Throughout this report we have looked at what has been shown to work to improve the health of the people in the Region. Some of these are things that have worked elsewhere – but to be effective all have been adapted to the African context. In this chapter we look at the strategies and approaches that are working to bring better health to the Region.

Good governance for health

Good governance is one of the elements of good leadership. Using evidence to form policy, good leadership for health demands accountability at all levels from the community upwards. Good governance is a key determinant of good health outcomes in countries. Within countries, between countries as well as at global levels, governance for health is manifested through policies and legislation in all areas having a direct or indirect bearing on the health of the people. Where leaders are actively engaged in promoting health interventions, demand for such interventions increases. One of the strengths of the polio eradication programme has been active engagement of national leaders, traditional leaders, religious leaders and "champions" to increase community acceptance of polio vaccination.

Health in all policies

Health in all policies is not a new concept but is more often talked about than acted upon. However, in the Region there is evidence that governments are now considering health when raising revenue or applying fines for breaches of the law. For instance, several countries are now using revenue gained by imposing taxes on tobacco products to finance their health services. Some countries are also using revenue from fines for environmental pollution or driving under the influence of alcohol to finance their health services. By doing this, these countries are achieving a "double win" – using taxes and fines to curb unhealthy behaviours known to increase usage of health services, while applying the revenues earned to provide better health services. Health in all policies goes beyond finance. It requires genuine partnership across all sectors. In the Region, infrastructure to support sanitation, provision of clean water, safe roads and transport is lagging behind economic growth. Action on any of these things would lower death and disability in the Region dramatically.

Data-driven decision-making

In the past decade the quality of data and the ability to collect, report and receive timely feedback has improved dramatically in the Region. This has been driven by the demand for quality data to inform the polio eradication programme but is now the platform upon which other real-time data collection and reporting is riding, for example for measles, yellow fever, rotavirus and child bacterial menin-

gitis. It needs to be widened and strengthened to provide accurate data informing action on all the significant threats to human health in the Region.

Good data-driven decision-making is a success that generates success. As better, more real-time data provide decision-makers with information they can use to respond effectively to their population health needs, countries see the value of better data collection.

Find and fill the gaps

Unless gaps are identified early and accurately, simply providing a raft of general interventions will not meet the real health needs of the people of the Region. Better surveillance and a stronger laboratory system have led to early detection and rapid response to disease threats. When the pandemic influenza H1N1 emerged globally, countries in the Region strengthened their early-warning alert and response systems, leading to early detection of the first case of pandemic influenza (H1N1) in South Africa in June 2009, and subsequent cases in other countries in the Region.

Staff properly paid

The Region's severe shortages of health workers are now being reversed in several countries where salaries have been increased and payment guaranteed. To ensure sustainability, these countries are in the process of institutionalizing this approach by increasing the percentage of general government spending on health. This is reflected in improved salaries and more posts, resulting in a better paid and more committed health workforce.

Harnessing local technological capacity

The rapid rise in use of cell phones has been one of the most dramatic changes in the Region. Surveillance systems, diagnostic support for remote health workers, training and support can all be provided by mobile phone. However, to be effective this requires identifying and dedicating people within the system to administer the system, respond to diagnostic images and data appropriately, support surveillance with data collection and feedback, and support community workers with regular training, evaluation and physical support. For example, Cameroon distributed mobile telephones to key personnel to enable them to communicate epidemiological information at no cost. As a result, coverage of the epidemic-prone disease surveillance network increased from 30% to 98%, thus improving the response to cholera, yellow fever, measles and polio epidemics.

Quality in all things

Using external accreditation with support from partner laboratories and organizations, reference laboratories for polio and measles in the Region have reached

international standards. Benchmarking, accreditation, genuine supervision, evaluation and constructive feedback should be used to ensure all health work – from community level up – is performed at the highest world standards. For the past 12 years an external quality assessment programme covering diagnosis of infectious diseases (HIV, tuberculosis, malaria and plague) has been provided to 81 national public health laboratories in 45 countries. Proficiency is tested and results shared with the laboratories, allowing them to improve diagnostic performance.

Performance-based health management

Performance-based management means taking responsibility for use of resources and delivering on promises. In health, these promises can be a matter of life and death for communities that health workers are serving. While linking outcomes to performance is a powerful way to make health workers accountable, equally, health workers need to be able to hold their managers and systems accountable. If vaccines, essential medicines, diagnostic tests, functioning equipment, regular training and logistical support are not readily available, those responsible for failing to deliver should also be held accountable. Burundi introduced a national results-based financing scheme in 2010 to overcome poor provision of services after pilot studies showed an average improvement of 50–60% for every indicator linked to finance.

Community-based intervention

Imposing interventions on communities is difficult and often not sustained because there is no genuine demand for them. Where communities are the planners, decision-makers and are responsible for supporting an intervention, it has more chance of succeeding. In Rwanda, when mutual health organizations are set up, it is community members who decide who should pay what. A strategy was devised to determine mutual health organization contributions, subsidizations and exemptions. This approach is based on traditional values aimed at rallying the people around shared efforts to improve social conditions. In the past, people living in small villages would organize themselves to work on farms and build houses for the poorest people. Development partners saw an opportunity to build on this ethic and set up a system whereby the community identifies destitute people and determines the assistance they need. The Government of Rwanda and development partners then send aid to groups that have identified their own needs, as part of poverty alleviation activities.

Understanding who communities trust for health advice and interventions (e.g. 80% use traditional healers) and why, and including those people in the health system, increases opportunities for bringing better health. Making it real – turning recommendations into implementable actions – requires genuine partnership with, and adaptation by, the communities affected.

Scaling up better

Scaling up, that is putting the theory proven by successful pilot programmes into widely used practice, is often difficult. New programmes tend to be imposed, rather than built up using existing capacity. The need to develop a strong surveillance and delivery system working well at all levels from community, through to district, provincial and national levels, all supported by high-quality laboratory services and a strong logistical system, has built capacity that is now being extended to other areas. Better support for immunization has strengthened community case-finding, diagnostics, reporting and detection of measles, yellow fever and other outbreaks, and malnutrition. This is an opportunity to build up better that should not be missed. The system is working, yielding results and should be widened further to capitalize on this home-grown platform. ■

Chapter 1

Introduction

Poto Poto roundabout (Boniface Nzimy)

Key points

- Rapid economic growth, a young and growing population, a wide uptake of technology – particularly mobile phone technology – and a burgeoning middle class has led to a new view of Africa as an increasingly important demographic and economic driver of global growth.
- In the period 1990–2011, there has been a considerable decline in child, maternal and adult mortality rates, and substantial decreases in the burden of several diseases. The Region has begun to overcome the epidemics caused by the human immunodeficiency virus (HIV), one of the most devastating in human history.
- Communicable diseases still pose the greatest challenge to the health of the people in the Region, although about one third of the disease burden is due to noncommunicable disorders and conditions, including mental disorders and injuries.
- Countries in the Region have made progress over the past 10 years but most are still not on track to achieve the health and health-related Millennium Development Goals. The major challenges include scaling up the implementation of universal access, strengthening health systems, and effective action on the broader social and environmental determinants of health.

1. Introduction

In the past decade, the world has undergone major economic, political and demographic shifts. European and North American populations have aged and their economies have stagnated while the younger nations in eastern Asia, particularly China, have grown ever-stronger economically.

Sub-Saharan Africa's real gross domestic product growth improved from 2.9% in 2001 to 6.2% in 2005 and to a maximum of 7.1% in 2007. Following the onset of the global economic and financial crises, sub-Saharan Africa's average real gross domestic product growth declined to 5.7% in 2008 and to a minimum of 2.6% in 2009. In the latter year, 11 countries recorded negative economic growth, and 21 countries had a growth rate of less than 3%. Economic growth in sub-Saharan Africa is projected to pick up from 4.9% in 2013 to about 5.4% in 2014. However, 44% of the countries are projected to grow at a rate below the average. Fuelled by rapid urbanization and the consumption of a new and burgeoning middle class, this economic growth is largely endogenous and expected to last.

Africa has a young and rapidly growing population, predicted to make it the demographic giant of the 21st century. Currently the second most populated continent in the world with a population of over 1 billion people, it is expected the population will double over the next four decades. By the end of the century, it may host 4 billion people, more than one third of humanity.

This rapid economic growth, coupled with a young, growing population, wide uptake of technology, particularly mobile phone technology, and a burgeoning middle class, has led to a new view of Africa. Often referred to as "Africa rising", this new view sees Africa as becoming an increasingly important demographic and economic driver of global growth. This is beginning to change the standard view of the World Health Organization (WHO) African Region as a place plagued by poverty, interminable conflict and incurable health problems.

In this report, the WHO African Region refers to one of the six regions of WHO and consists of 47 of the 54 countries on the African continent, with 892 million inhabitants in 2012 (Table 1.1). When this report refers to "Africa", it is referring to the continent and islands as a whole. The report

Table 1.1. General population characteristics in the WHO African Region

Characteristic	Year	WHO African Region	Global
Population size (thousands)	2012	892 529	7 044 272
	2011	857 382	6 941 907
Population living in urban areas (%)	2012	39	53
	2000	34	50
Life expectancy at birth (years)	2012	58	70
	1990	50	64
Adult mortality rate (probability of dying between 15 and 60 years per 1000 population)	2012	320	156
	1990	361	198
Per capita total expenditure on health (PPP int. US$)	2012	171	1112
	2000	89	571
	1995	75	451
Gross national income per capita (PPP int. US$)	2011	2510	11 540
	2000	1620	6980

PPP int. US$: purchasing power parity in international US$.
Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

refers to the WHO African Region as "the Region". It is important to note that the WHO African Region does not include all the countries on the African continent and the Region itself is not limited to sub-Saharan Africa.

The investment case for good health

Health yields economic dividends. It has been shown that increased life expectancy and low infant mortality are linked to economic growth. Healthy people are more productive, and healthy infants and children can develop better and become productive adults. A healthy population can also contribute to a country's economic growth. The report also found that increased investment in health would translate into hundreds of billions of dollars per year of additional income, which could be used to improve living conditions and social infrastructure in poorer countries. For example, in some areas high malaria prevalence is associated with reduced economic growth of at least 1% a year. Furthermore, it is estimated that for every 10% increase in life expectancy at birth there is a corresponding rise in economic growth of 0.4% per year.

It is estimated that the African continent requires a total additional investment of between US$ 84 billion and US$ 140 billion to strengthen national health systems and scale up priority interventions over a 5-year period (2011–2015). That investment could save the lives of about 3.1 million people and prevent 3.8–5.1 million children from stunting in 2015 alone. Over the 5-year period, there would be an increase in the number of health workers from 2.0 million to 2.8 million and an additional 58 000–77 000 health facilities. It is further estimated that economic benefits in year 2015 alone from morbidity and mortality averted by the above mentioned investment would be almost US$ 100 billion. That is almost four times the additional investment requirements of around US$ 28–30 billion in 2015 alone. Therefore, health outcomes must

be significantly improved because the current huge burden of disease largely undermines both human rights and socioeconomic development.

Progress on health outcomes

The Region has seen marked improvements in health outcomes during the past decade. There has been a considerable decline in child, maternal and adult mortality rates, and substantial decreases in the burdens of several diseases. In the period 1990–2011, the Region has struggled with, and begun to overcome, one of the most devastating epidemics in human history – that caused by HIV.

Between 1990 and 2008, adult mortality rates increased – largely as a result of the havoc wreaked by HIV/AIDS, which killed large numbers of young adults. However, by 2011, efforts to curb HIV led to a drop in adult mortality to 339 per 1000 adults. Despite the catastrophic effects of the HIV/AIDS epidemic, which peaked in 2004, the Region has managed to achieve an overall increase in life expectancy at birth – from 50 years in 1990 to 56 years in 2011. However, there is still a long way to go to catch up with the rest of the world. The mean global life expectancy in 2011 was 70 years: thus a child born in Africa in 2011 still cannot expect to live as long a life as his or her peers in the rest of the world.

None the less, it should be remembered that this life expectancy is an average across the 47 countries of the Region. When specific country data are analysed it is clear that some countries within the Region have made outstanding progress, raising life expectancies considerably. In the two decades preceding 2011, life expectancy in Liberia increased by 19 years, while during the same period in Niger, life expectancy rose 14 years. However, other countries, especially those dealing with major HIV epidemics, saw a reduction in life expectancies. The two countries worst affected were Lesotho and Swaziland, where life expectancy was 10 and 11 years less, respectively, in 2011 than in 1990.

There were also considerable gender differences in life expectancy. Although the HIV epidemic is affecting women more than men in the Region, as in other parts of the world, females have a longer life expectancy than males. In 2011, life expectancy at birth in the Region was 58 years for females and 55 years for males. The greatest disparities were seen in Cabo Verde, Mauritius and Seychelles, where women lived 8 or 9 years longer than men on average. In these countries, and also in Algeria, both sexes lived longer than the global average of 72 years for females and 68 years for males.

In the two decades since 1990, HIV-related diseases – particularly tuberculosis – became the dominant causes of death in the Region. Other

WHO/Marianne Schwankhart

The WHO African Region has begun to overcome one of the most devastating epidemics in human history – that caused by HIV

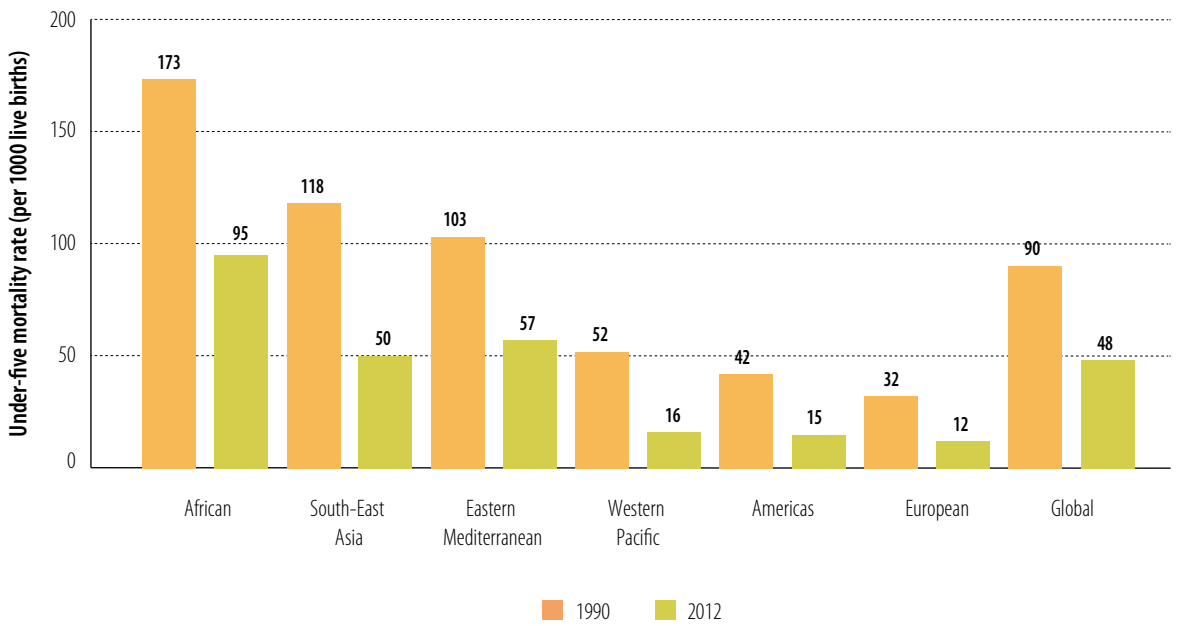
major causes of death were diarrhoeal diseases, malaria, pneumonia, meningitis, malnutrition, preterm birth complications, injuries and violence. Noncommunicable diseases (NCDs), including cancer, cardiovascular disorders and diabetes, are increasing in significance as a cause of death throughout Africa, particularly in the southern African region. Cancer prevalence and mortality rates released by the International Agency for Research on Cancer, for example, indicate that in 2012, while the Region still registered one of the world's lower prevalence rates, cancer mortality rates were relatively high, particularly among women.

There has been impressive progress in reducing mortality rates in children less than 5 years of age. Improving access to treatment for infectious diseases such as pneumonia, diarrhoea, malaria and HIV/AIDS, greater use of preventive measures such as insecticide-treated nets (ITNs), and immunization and nutrition interventions have all had an impact on child survival. Improved management and coverage of severe acute malnutrition has also contributed to the reduction in child deaths.

Between 1990 and 2012, the under-five mortality rate in the Region fell from 173 to 95 per 1000 live births. During the same period, the global mean mortality rate for children less than 5 years of age fell from 90 to 48 per 1000 live births (Fig. 1.1). Infant mortality rate has also been reduced in the Region, falling from 105 to 63 per 1000 live births between 1990 and 2012. Although the death rate has fallen, one third of these deaths are occurring in the neonatal period (the first 28 days after birth), mainly due to complications of prematurity, birth asphyxia and infections.

Worldwide, there has been a marked reduction in the maternal death rate. This has also

Fig. 1.1. Under-five mortality rate (per 1000 live births), both sexes, by WHO region, 1990 and 2012



Source: Atlas of African health statistics 2014. Brazzaville: WHO Regional Office for Africa; 2014.

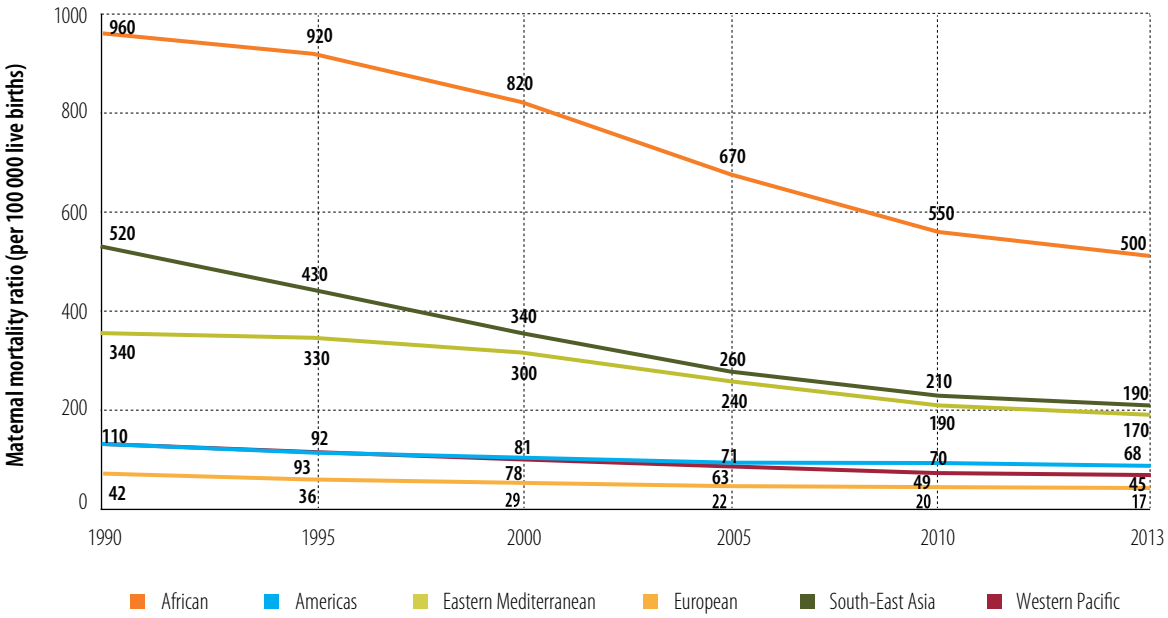
been achieved in sub-Saharan Africa, which has seen a decline in the maternal death rate of 48% between 1990 and 2013 (Fig. 1.2). Several countries have achieved considerable reductions during these years, in particular Rwanda, Equatorial Guinea, Botswana and Eritrea, where the annual average rates of reduction of maternal mortality between 1990 and 2010 were 8.7%, 7.9%, 7.5% and 6.3%, respectively.

When the disabling effect of diseases and injuries on people's ability to live normal lives is assessed, it is clear that infectious diseases still pose the greatest challenge to the health of people in the Region (Fig. 1.3), although about one third of the disability-adjusted life-years (DALYs) lost are due to NCDs and disorders and injuries. (The burden of disease is often measured in DALYs, which are a calculation of the number of years of life lost plus the years of life lived with disability – one DALY can be thought of as one lost year of full health.) In 2011, the Region lost a total of 675.41 million DALYs: 36% from infectious and parasitic diseases, 26% from NCDs, 13% from neonatal conditions, 11% from respiratory infections, 7% from unintentional injuries, 5% from nutritional deficiencies, 2% from maternal conditions and 2% from intentional injuries.

Progress towards the health-related MDGs

The Millennium Development Goals (MDGs) are a powerful tool for focusing the world's attention on development issues, particularly those issues that need to change. Health is central to development, thus all of the eight MDGs set for 2015 involve health-related issues, but the following three refer directly to health: MDG 4 to reduce child mortality; MDG 5 to improve maternal

Fig. 1.2. Maternal mortality ratio (per 100 000 live births) by WHO region, 1990–2013



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

Fig. 1.3. Regional ranking of leading causes of disease burden, measured in disability-adjusted life-years (DALYs), 2011

Cause	African	Americas	South-East Asia	European	Eastern Mediterranean	Western Pacific	Global
Lower respiratory infections	1	9	1	14	1	10	1
HIV/AIDS	2	19	15	16			6
Diarrhoeal diseases	3		3		3		4
Malaria	4						13
Preterm birth complications	5	13	4		2	15	5
Birth asphyxia and birth trauma	6		7		5	17	9
Protein-energy malnutrition	7				18		
Meningitis	8				20		
Congenital anomalies	9	12	10	19	9	14	11
Road injury	10	5	8	8	7	4	8
Neonatal sepsis and infections	11		20		13		
Iron-deficiency anaemia	12		11		11		15
Stroke	13	6	6	2	8	1	3
Endocrine, blood, immune disorders	14	16			17		
Maternal conditions	15						
Ischaemic heart disease	16	1	2	1	4	2	2
Tuberculosis	17				14	20	16
Unipolar depressive disorders	18	2	12	3	6	5	10
Interpersonal violence	19	3					
Epilepsy	20						

Ranking legend: 1–5; 6–14; 15–20; No ranking

Source: adapted from World health statistics 2013. Geneva: World Health Organization; 2013.

health and achieve universal access to reproductive health; and MDG 6 to combat HIV/AIDS, malaria and other diseases.

Other MDGs have an indirect influence on health, for instance MDG 1 aims to halve the proportion of people who suffer from hunger, MDG 7 aims to halve the proportion of communities lacking sustainable access to safe drinking water and sanitation, and MDG 8 has among its targets access to affordable essential drugs

Box 1.1. Some of the major initiatives and commitments made in support of the Millennium Development Goals (MDGs) by countries of the WHO African Region

- 2001 Abuja Declaration requesting countries to allocate 15% of total public expenditure to the health sector
- 2004 resolution on the road map for accelerating attainment of the MDGs related to maternal and newborn health in Africa
- 2005 Maputo Declaration on tuberculosis as an emergency
- 2005 WHO Regional Committee for Africa resolution on achieving the millennium development goals
- adoption of Child Survival: A strategy for the African Region by the fifty-sixth session of the WHO Regional Committee for Africa in 2006
- declaration by African ministers of health of 2006 as Year of Acceleration of HIV Prevention in the Region
- 2008 Ouagadougou Declaration on Primary Health Care and Health Systems in Africa
- 2008 Algiers Declaration on strengthening research for health
- 2008 Libreville Declaration on Health and Environment followed by the 2010 Luanda Commitment
- adoption of the Brazzaville Commitment on Scaling up towards Universal Access to HIV and AIDS Prevention, Treatment, Care and Support in Africa by 2010
- MDGs Africa Initiative, the Global Strategy for Women's and Children's Health and the Harmonization for Health in Africa mechanism
- 2014 Luanda Commitment on Universal Health Coverage in Africa.

in developing countries. Other targets – primary education (MDG 2) and empowerment of women (MDG 3) underpin better health.

Although it is likely that many countries in the Region will not reach the MDG targets set by 2015, considerable efforts have been made to achieve them (see Box 1.1 for a list of initiatives and commitments made in support of the MDGs by countries in the Region). Countries in the Region have made progress over the past 10 years but most are still not on track to achieve the health and health-related MDGs. Of the 47 countries, the number that are on track or have progressed and/or achieved each target is 16 for target 4A (child mortality); four for target 5A (maternal mortality); seven for target 5B (reproductive health); 34 for target 6A (HIV/AIDS); 10 for target 6B (antiretroviral access); 12 for target 6C (malaria); 11 for target 1C (malnutrition); and 23 for target 7C (basic sanitation).

Progress depends on action on a range of fronts. The major changes needed include scaling up the implementation of the interventions for universal access, strengthening health systems, and effective action on the broader social and environmental determinants of health. In this report we will examine action on implementation of recommended interventions (Chapter 3 and Chapter 4), the social and environmental determinants of health (Chapter 5), and strengthening of health systems (Chapter 6), always seeking an answer: what works?

In conclusion, this report highlights what works in the African context. It provides an assessment of the current status of heath, trends in health in different populations, including old threats being managed, current challenges and emerging problems. It is based on a review of the literature and of WHO data and statistics, as well as statistics from other United Nations sources. It is a corporate product, drawing on the experience and expertise of technical officers working at the WHO Regional Office for Africa. It aims to go further than simply establishing the health status of the Region: the purpose of looking at data about health is to identify what can be, and has already successfully been, done to improve health, and what strategies and approaches have been shown to work.

The report is organized thematically. Chapter 2 looks at the multiplicity of initiatives and actors involved in health development in the Region. Chapter 3 examines the threats limiting the health and lives of the people from birth to the senior years. Chapter 4 describes how the dominant disease threats – particularly communicable diseases, but increasingly, NCDs including mental health, injuries and violence – are being identified, controlled, mitigated and prevented. Chapter 5 discusses the key determinants of health in the Region, including the social determinants, food and nutrition, the physical environment and risk factors related to lifestyle. Chapter 6 reviews the enormous efforts – by governments, international partners, technical agencies, researchers and other stakeholders – to strengthen the health systems in the Region. Finally, Chapter 7 provides a list of strategies that, if applied, can make a significant difference to the health of the people of the Region. ■

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Chapter 2

Partnerships – working together to achieve health for all

Equality (Boniface Nzimy)

Key points

- Improving the health of the people, including health security, is dependent on good partnerships between communities, providers, organizations carrying out interventions, governments, technical agencies and international partners.
- The number of initiatives and the multiplicity of actors involved in health development in the Region have increased, leading to a bigger share of external resources in total health expenditure.
- Countries have been setting compacts (negotiated and signed time-bound agreements in which partners commit to implement and uphold the priorities defined in a country health strategy), which has optimized the gains from health partnerships.
- An increasing number of initiatives aggregate around issues, themes or diseases rather than on more comprehensive approaches to health, such as health systems development.

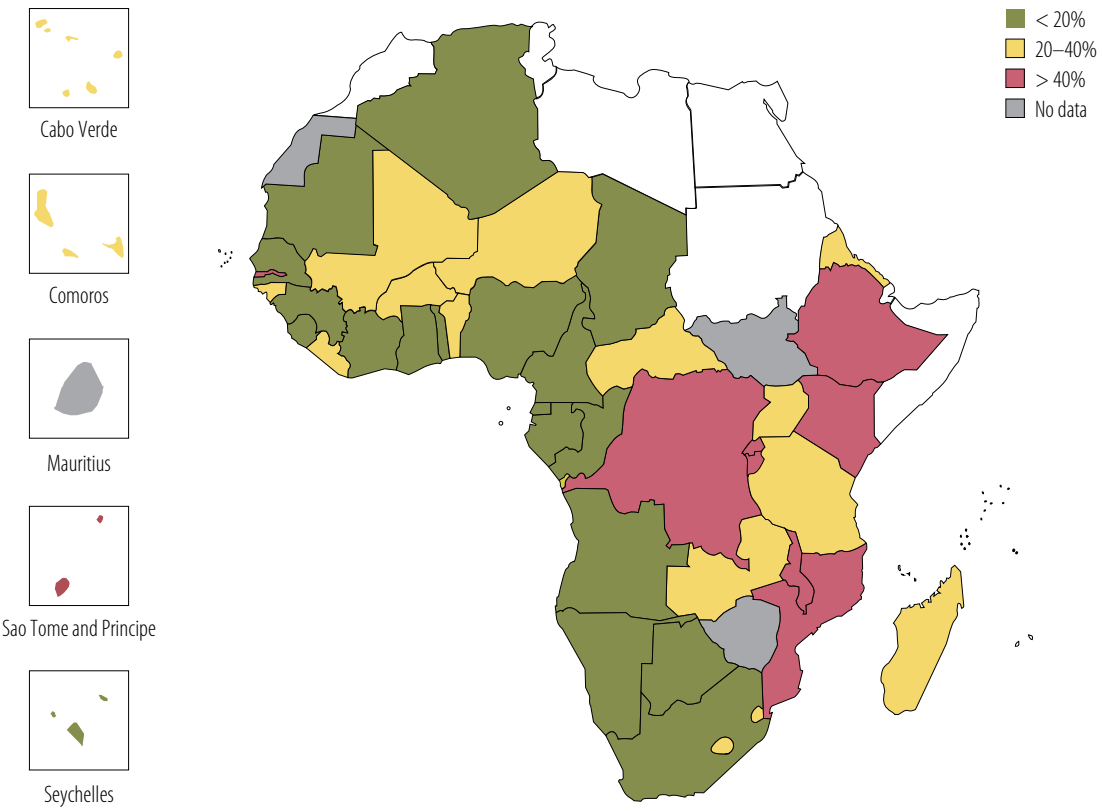
2. Partnerships – working together to achieve health for all

Good health is a complex state and achieving it requires much more than just one or two simple interventions, but an integrated range of preventive strategies; environmental changes; therapies and technology to diagnose and treat ill health; and provision of opportunities for those who need health care to access it. Making this happen effectively is dependent on good partnerships between communities, providers, organizations carrying out interventions, governments, technical agencies and international partners. Given the substantive proportion of external resources on health as a percentage of total health expenditures (Fig. 2.1), the number of initiatives and the multiplicity of actors involved in health development in the Region, coordination and harmonization of effort is essential to avoid waste and target real needs. This chapter looks at partnerships that operate in the Region to answer the question "what works?"

Few successful health initiatives now depend on a single organization and, as a result, partnerships functioning in the Region have multiplied. A variety of names used to describe them have sprung up, for example "partnership", "alliance", "network", "programme", "project collaboration", "joint (advocacy) campaign" and "task force" all describe partnerships of one form or another. The term "partnership" is often – and misleadingly – used to describe a variety of relationships such as sponsor or international partner relationships and the traditional exchange of goods or services for money. In this chapter we use a more narrow definition of "partnership", using it to describe the relationship between individuals or groups characterized by mutual cooperation and responsibility towards achievement of a specified health-related goal.

Partnerships in the health sector encompass a wide range of organizational structures, relationships and collaborative arrangements, from formal, legally incorporated entities to more informal collaborations without independent governance arrangements. The nature of the participating partners also varies, but they are usually intergovernmental organizations (e.g. Economic Community Of West African States [ECOWAS], Southern African Develop-

Fig. 2.1. External resources on health as a percentage of total health expenditure in the WHO African Region, 2012



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

ment Community [SADC], Economic Commission for Africa [ECA], bilateral (e.g. Department for International Development [DFID], Japan International Cooperation Agency [JICA], United States Agency for International Development [USAID], Norwegian Agency for International Development [NORAD]) and multilateral institutions (e.g. United Nations agencies, the African Development Bank [AfDB], the World Bank), public sector entities, nongovernmental organizations, foundations (e.g. the Bill & Melinda Gates Foundation), academic and/or research institutions, the commercial sector and civil society. Sometimes certain United Nations agencies create joint programmes, which may or may not involve other stakeholders.

The existing partnerships work on different aspects of the health sector using varied modes of intervention. Some of them are targeted at specific diseases, such as AIDS, tuberculosis, malaria and immunization, as well as maternal and child health. Others are working on different aspects of health systems, for example health information systems, drug supply, human resources, etc. With regard to the mode of intervention used by partnerships, there are funding partnerships, technical cooperation, policy and strategic dialogue partnerships, advocacy and joint ventures. Some partnerships have been initiated at global level while others have been established at the regional or country level.

In the last decade, global health partnerships – the biggest being the Global Alliance for Genomics and Health (Global Alliance) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) – have provided substantial funding to support health programmes in Africa (Table 2.1). Global health partnerships have mobilized important new resources for major health threats, and brought much needed political and technical focus to priority diseases and interventions. They have injected new energy into the aid architecture by supporting the private sector and civil society to play a more prominent role in the matters of health development.

However, there are concerns that the increasing number of initiatives aggregate around issues, themes or diseases rather than on more comprehensive approaches to health, such as health systems development. This has increasingly become very difficult for countries to manage and further complicates international partners' harmonization efforts at the global level and alignment with national systems and priorities.

In particular, there is a risk that global health partnerships may intensify the financing of vertical programmes by focusing large amounts of new funding on specific, relatively narrow programmes and interventions, leaving national governments little flexibility to reallocate funds according to their priorities or to boost health systems' capacity. Beyond the international partners' priorities, some of the most significant challenges facing partnerships in the Region include legislative frameworks, policies and operational strategies, and sustainability. Legislation that governs public–private partnerships is often absent and as a result partnerships may work in isolation. Some partnerships do not appropriately ensure that partners are held accountable for the delivery of efficient, effective and equitable services. Furthermore, the question of national capacity-building and long-term sustainability is often ignored.

The original purpose was to simplify the aid architecture, focusing aid on areas of perceived neglect. However, the proliferation of such partnerships (there are an estimated 75–100 global health partnerships) has led to greater complexity and significant transactional costs, such as an increased reporting burden for health staff at both national and district level.

To address these challenges, several mechanisms and initiatives have been put in place at global and regional levels and some of them aim to change and reform existing institutions for more effective partnerships. They include:

- **United Nations Reform.** Since the late 1990s, the United Nations System has been implementing reforms to work in a more unified manner and deliver more effectively at country level in the Delivering as One initiative. The Region is fully involved in the Delivering as One initiative, which initially included four pilot countries (Cabo Verde, Mozambique, Rwanda and the United Republic of Tanzania) that have now been joined by an increasing number of countries in the Region. The United Nations Development Assistance Framework is recognized as the main instrument for United Nations reform at country level and all countries of the Region are fully involved in the roll out or implementation of the Framework.
- **Focus on MDGs.** Along with the launch of the United Nations Secretary-General's MDG Africa Initiative to mobilize financing and accelerate achievement of the MDGs, Focus on MDGs has created a platform to engage, at the country level, with government entities and local stakeholders.
- **The Paris Declaration on Aid Effectiveness (2005) and the Accra Agenda for Action (2008**). These mechanisms aim to achieve sustainable development by focusing on five principles: country ownership; alignment; harmonization; management for results; and mutual accountability.
- **Harmonization for Health in Africa (HHA),** formally established in 2006, is

Table 2.1. Examples of global partnerships and initiatives actively involved in health programmes in the WHO African Region

Partnership	Purpose
Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund)	Established in 2002, the Global Fund is an international public–private financing mechanism rather than an implementing agency. However, the Global Fund partners with countries and implementing agencies to improve health outcomes. For example, in 2005, the Global Fund joined other partners in Malawi to strengthen human resources to optimize the implementation of interventions related to Millennium Development Goals (MDGs) 4, 5 and 6. Between 2005 and 2009, health worker density increased by 66% from 0.87 to 1.44 per 1000 population[a] and, using the Lives Saved Tool, an evaluation of four indicators (antenatal care; skilled birth attendance; administration of Nevirapine for prevention of mother-to-child transmission of HIV; and fully immunized children) showed that 13 187 additional lives were saved due to their increased coverage
GAVI Alliance	Launched in 2001, the GAVI Alliance is a public–private global partnership that brings together developing countries, private and government partners, international organizations and the vaccine industry in both industrialized and developing countries to increase access to immunization in the world's poorest countries. Health ministries in developing countries identify their priorities, integrate GAVI Alliance support into their national health and immunization plans, and contribute through cofinancing towards the cost of the vaccines
The international drug purchase facility (UNITAID)	UNITAID was established in 2006 to increase access to essential medicines in developing countries. It provides sustainable funding to boost the availability of affordable medicines and diagnostics for HIV/AIDS, malaria and tuberculosis. By securing lower prices for quality medicines that are otherwise out of reach of poorer populations, UNITAID promotes better treatment for more people. UNITAID does not have its own programmes for the distribution of medication but supports programmes by implementing organizations such as the Stop TB Partnership
Partnership for Maternal Newborn & Child Health (PMNCH)	Launched in September 2005, PMNCH is a global health partnership to accelerate efforts towards achieving MDGs 4 and 5. It is the result of the merger of three existing partnerships: Partnership for Safe Motherhood and Newborn Health, Child Survival Partnership and Healthy Newborn Partnership
Muskoka Initiative on Maternal, Newborn and Child Health	The Muskoka Initiative, which also works to accelerate progress on MDGs 4 and 5, is a funding initiative announced at the 36th G8 Summit that commits member nations to collectively spend an additional US$ 5 billion between 2010 and 2015 to accelerate progress towards the achievement of MDGs 4 and 5, the reduction of maternal, infant and child mortality in developing countries
Roll Back Malaria Partnership	Launched in 1998, Roll Back Malaria is a global health initiative created to implement coordinated action against malaria. The initiative is composed of a multitude of partners, including countries endemic with malaria; bilateral and multilateral development partners; the private sector; nongovernmental and community-based organizations, etc.
President's Malaria Initiative	Launched in 2005, the President's Malaria Initiative focuses on expanding coverage of four highly effective malaria prevention and treatment interventions to the most vulnerable populations: pregnant women and children less than 5 years of age. These interventions are: insecticide-treated mosquito nets; indoor residual spraying with insecticides; intermittent preventive treatment for pregnant women; and prompt use of artemisinin-based combination therapies after malaria has been diagnosed

[a] Data from the Department for International Development, Management Sciences for Health, Management Solution Consulting. Evaluation of Malawi's Emergency Human Resources Programme, EHRP Final Report, 2 July 2010. Cambridge MA: Management Sciences for Health; 2010.

a regional mechanism comprising the regional directors of United Nations agencies and development agencies involved in the health sector. HHA focuses on providing coordinated support to countries in the Region to achieve the health-related MDGs.

- **International Health Partnership+ (IHP+)** created in 2007, aims to improve delivery of MDG outcomes and universal access to health services. IHP+ is a group of partners committed to improving the health of citizens in developing countries. International organizations, bilateral agencies and country governments all sign the IHP+ Global Compact and commit to putting internationally agreed principles, such as the Paris Declaration principles, for effective aid and development cooperation into practice in the health sector. IHP+ achieves results by mobilizing national governments, development agencies, civil society and others to support a single, country-led national health strategy.

Regional economic communities, such as the Arab Maghreb Union, the Common Market for Eastern and Southern Africa, the Community of Sahel-Saharan States, the Economic Community of Central African States, the East African Community, ECOWAS, the Intergovernmental Authority on Development and SADC, provide coordination at the subregional level. At the regional level, over the past two decades the African health aid landscape has become increasingly crowded, thus WHO interacts with a wide range of partner organizations.

There are concerns that the increasing number of initiatives aggregate around issues, themes or diseases rather than on more comprehensive approaches to health, such as health systems development

Strong partnerships with national ministries of health are essential for achieving good health outcomes. Other key partners include:

- development partners and United Nations agencies, such as the AfDB, the African Union, the Canadian International Development Agency, the Centers for Disease Control and Prevention (CDC), DFID, ECA, the European Union, France, Luxembourg, NORAD, the Swedish International Development Cooperation Agency (Sida), USAID and the World Bank;
- the regional economic communities described above;

DAKPOGAN Innocent Césaire Ségla

- nongovernmental entities working in health and development;
- the private sector, including business coalitions;
- academic institutions and researchers;
- foundations such as the Bill & Melinda Gates Foundation;
- public health associations.

Particular efforts have been made to promote technical cooperation between developing countries. WHO is actively engaged in the United Nations Development Group for Africa.

There has also been collaboration between WHO and the African Union, and the first Memorandum of Understanding was signed in September 1969 with the Organization of African Unity. Subsequent to the advent of the African Union, a new Basic Agreement endorsed by the sixty-fifth World Health Assembly was signed between WHO and the African Union in 2012. This Agreement became instrumental in strengthening this partnership by leveraging on the specific mandates and competencies of each institution to influence and drive the continental health agenda. The policy decisions taken by the ministers are now guiding the joint work of the two organizations. Within the framework of the implementation of the above new Agreement, the two institutions are jointly working in key public health endeavours. The landmark joint WHO and African Union ministerial meeting in Luanda, Angola, from 14 to 17 April 2014 adopted commitments in areas of universal health coverage; maternal and child health; prevention and control of communicable and noncommunicable diseases; medicines regulation; and nutrition for improved health outcomes on the continent. The meeting also agreed on mechanisms to strengthen accountability for implementation of resolutions and decisions made.

Many countries are working with an ever-growing number of partners to strengthen health systems, improve health outcomes for specific vulnerable groups such as pregnant women and children less than 5 years of age, or are supporting specific disease control programmes. The increasing number of stakeholders working to overcome major infectious diseases such as malaria, tuberculosis, HIV and neglected tropical diseases (NTDs) poses coordination challenges within countries. Country partnerships bring all the partners together to set priorities and agree on roles, responsibilities and activities to implement country and sector plans. Different approaches have been used in different countries at different times, including sector-wide approaches, which set frameworks for planning objectives, financing and monitoring implementation of agreed activities, and include a memorandum of understanding between international partners and the ministry of health. More recently, countries have been setting compacts – negotiated and signed time-bound agreements – in which partners commit to implement and uphold the defined priorities outlined in the country health strategy.

Partnerships with communities that choose their workers and design interventions and strategies yield effective health care. Partnerships capitalize on the strength of tradition that exists within communities (e.g. care for orphans and the elderly); knowledge within the community (e.g. traditional medicine); and community-based prepayment schemes for health care.

However, a community perceptions study found that community members perceived that health systems exclude community members from decision-making. Respondents from urban, semi-urban and rural areas had similar perceptions about, and experiences with, the health system, showing that regardless of location, lack of interaction with and response to communities is a major weakness of health systems in the Region.

National governments have made numerous commitments to meet health targets. Although the community perceptions study found that community members trust their governments to do what is right for the people, a key lesson from

this study is that governments should recognize the importance of meeting commitments to basic needs as a vital tool for increasing people's trust.

What works?

Some of the major global partnerships and initiatives active in the Region that have yielded health solutions that work are described below.

Optimizing global health partnerships at country level

In Ethiopia, the recruitment and training of 30 000 health extension workers to provide health promoting and disease preventive services and management of diseases at the community level has been supported through the Protection of Basic Services, which is an initiative funded by the World Bank, DFID and other partners, including the GAVI Alliance and the Global Fund. Routine immunization, measured by coverage of the third injection with the diphtheria–tetanus–pertussis vaccine (DTP3 coverage) increased from 69% in 2005 to 86% in 2010.

Similarly, the Government of Rwanda has developed an integrated approach to health delivery and strengthening health system components into grants for global health initiatives (GAVI Alliance and the Global Fund), thus consolidating rather than fragmenting the national health service. This has enabled the renovation and construction of at least 100 health facilities and provided salary support for doctors and nurses to improve their retention, even in rural areas. Based on the *Rwanda demographic and health survey 2010*, under-five mortality declined substantially from 152 to 76 per 1000 live births between 2005 and 2010.

HHA: a "one-stop shop" for strengthening health systems

The establishment of HHA, a regional mechanism set up in 2006 to coordinate partners' support for strengthening African health systems, is an achievement in itself. At that time international health partnerships were very fragmented, so bringing all the actors to the same table was a challenge. Led by the WHO Regional Office for Africa, this partnership began with six members and has grown to 16, expanding beyond United Nations agencies (the Joint United Nations Programme on HIV/AIDS [UNAIDS], the United Nations Population Fund [UNFPA], the United Nations Children's Fund [UNICEF], UN Women

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Many countries are working with an evergrowing number of partners to strengthen health systems, improve health outcomes for specific vulnerable groups such as pregnant women and children less than 5 years or age, or are supporting specific disease control programmes

and WHO) and financial institutions (AfDB and the World Bank) to include country partners such as France, bilateral development agencies from Japan, Norway and USAID, and global health partnerships such as the GAVI Alliance, the Global Fund and Roll Back Malaria. The Global Health Workforce Alliance and PMNCH are HHA associate members. The essence of HHA is that the partners sit together and agree on who will fund, implement and support activities to strengthen health systems in Africa. It provides a "one-stop shop" for countries, groups and other agencies wanting to initiate or support a health systems strengthening activity. At the policy level, HHA plays a significant role in the Region in promoting policy dialogue between ministries of health and ministries of finance, parliamentarians and other health sector stakeholders.

IHP+ country compacts

IHP+ compacts have served to enhance harmonization and alignment of resources and activities to agreed sector plans and thus reduce transaction costs. They are used as a tool for mutual accountability by introducing indicators for tracking progress against agreed commitments by governments and development partners. An example is the Millennium Development Fund in Ethiopia. Since its establishment in 2007, 14 international partners have joined and are channelling their support through a common funding mechanism. Nearly 20 countries in the Region now have, or are developing, some form of compact and some countries who have never had any form of partnership agreement are developing "pre-compacts" as a first step.

The development and roll-out of the meningitis A vaccine in the meningitis belt of Africa represents one of the great public health achievements of this century

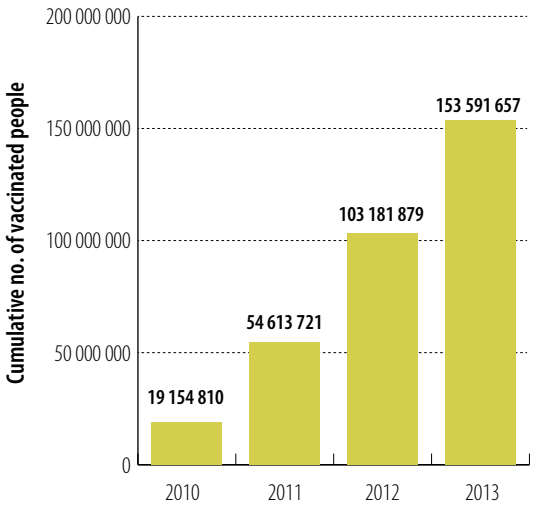
Meningitis Vaccine Project

The development and roll-out of the meningitis A vaccine in the meningitis belt of Africa represents one of the great public health achievements of this century. Meningococcal meningitis is caused by several strains of *Neisseria meningitidis*, but it is strain A that causes most (80–85%) of cases in the Region. It kills and disables hundreds of thousands of people in the meningitis belt of sub-Saharan Africa, which stretches from Senegal in the west to Ethiopia in the east, causing a heavy socioeconomic burden in those countries. In the 2009 epidemic season, 14 African countries reported 88 199 suspected cases, including 5352 deaths.

Development of the meningitis A vaccine broke new ground, resulting in a product that was tailor-made for the meningitis belt, and manufactured in a developing country (India) at a price that countries in the Region could afford. The vaccine was developed by the Meningitis Vaccine Project, a partnership between WHO and PATH, with funding from the Bill & Melinda Gates Foundation.

The meningitis A conjugate vaccine (MenAfriVac®) was first introduced in Burkina Faso, Mali and Niger in 2010. More than 153 million people in 12 countries received the vaccine between 2010 and 2013. Since introduction of the vaccine, the number of cases of type A meningococcal meningitis has fallen dramatically. To date, no cases of meningitis due to *N. meningitides* A have been

Fig. 2.2. The meningitis A conjugate vaccine roll out in the WHO African Region, 2010–2013



Source: World health statistics 2013. Geneva: World Health Organization; 2013.

reported in people who have received the meningitis A conjugate vaccine (Fig. 2.2).

Partnering to end NTDs

The Regional Strategy on Neglected Tropical Diseases in the WHO African Region 2014–2020 aims to accelerate the reduction of the disease burden by the control, elimination and eradication of targeted NTDs and contribute to poverty alleviation, productivity and the quality of life of affected people in the Region. Strong country commitment has already resulted in major success against several NTDs, most notably leprosy, onchocerciasis (river blindness) and guinea-worm disease (dracunculiasis). The African Programme for Onchocerciasis Control has successfully met its goals and the partnership will continue with the capacity developed being translated into a programme focusing on lymphatic filariasis (elephantiasis) and river blindness elimination, within the wider NTD plan.

It is estimated that at least 35 million people are currently infected and over 300 000 of these are irreversibly blind as result. In total, 120 million people living in 37 endemic countries in the Region are at risk of contracting onchocerciasis. The main strategy used to control onchocerciasis in Africa is the use of the drug ivermectin to kill all the microfilariae infecting people, many of them with no obvious symptoms, in endemic communities. The main partners are the Food and Agricultural Organization of the United Nations (FAO), the United Nations Development Programme (UNDP), WHO and the World Bank. In 1987, the manufacturers pledged to provide an unlimited supply of ivermectin free of charge to all those at risk from onchocerciasis and for as long as necessary. With drug supplies secured, the challenge for onchocerciasis control programmes was to work out a way to deliver the treatment to the people who needed it, and to sustain the delivery for a sufficiently long period to bring about control of the disease.

The solution was community-directed treatment where communities in affected areas were encouraged to direct and manage their own treatment. This strategy took community involvement in public health to a level that no programme had done before.

Guinea-worm disease (dracunculiasis), a cause of severe disability and suffering in rural communities, was endemic in 20 African countries in the 1980s but is now close to eradication. This has been achieved through a partnership between WHO, governments, affected communities in endemic countries and supporting organizations, including the Carter Center, CDC, UNICEF and the World Bank. It will be the first parasitic disease in history to be eradicated through environmental improvement (providing clean water) and behavioural change alone, with no vaccines or medications involved.

In conclusion, partnerships – at all levels – are essential for delivery of good health to the African people. However, a programme is only

as good as the effective action that it generates. In the Region, significant achievements have been made in different areas of the health sector thanks to partnerships at all levels that successfully complement governments' efforts. The role played by partnerships in strengthening advocacy efforts, by mobilizing a diverse range of stakeholders and focusing attention on specific issues that are essential for the reduction of morbidity and mortality in countries, has been recognized. As platforms, partnerships facilitate the participation and engagement of a variety of stakeholders, including governments, intergovernmental organizations, nongovernmental organizations, civil society and the private sector. Thus, they are considered as opportunities for countries to benefit from synergies from partners and they mobilize additional funding for the health sector.

Partnerships have been useful in strengthening health systems, including maternal and child health programmes, the prevention and control of communicable and noncommunicable diseases, and in tackling the key determinants of health, as will be discussed in subsequent chapters. Harmonizing and aligning partners' interventions with national priorities helps reduce fragmentation and duplication of efforts. ■

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Chapter 3

Health through the life course

Children, young women, mothers (Sylvestre Mangouandza)

Key points

- In order to prevent up to two thirds of neonatal deaths, which account for one third of all children's deaths, countries are improving community engagement for better maternal and newborn care, prevention of mother-to-child transmission (PMTCT) of HIV, access to skilled care during delivery, newborn resuscitation, capacity-building for care of neonates at home, and essential newborn care in health facilities.
- Political commitment at national and international level has improved access to interventions that contribute to child survival, such as preventing and managing diarrhoea and pneumonia, immunization, and ensuring adequate nutrition. Increased vaccination coverage has had an impressive impact on child deaths and disability in the Region, particularly those due to measles and polio; however, coverage levels vary widely between countries.
- To better address adolescent and youth health issues, several countries are developing national standards aimed at providing youth-friendly quality health-care services and laws that require males and females to be 18 years of age or older before marriage. Major health issues affecting young people in the Region include HIV infection, violence and injuries, child marriage, early initiation of sex, and limited access to family planning services.
- The reduction in maternal mortality seen in the Region has been the result of deliberate investment in some countries to address challenges such as financial and geographical inaccessibility to quality maternity services (including removal of user fees for maternity services), introduction of results- and performance-based financing, and institutionalization of maternity waiting homes.
- The health of older people is becoming a major challenge in the Region. A growing number of older people are living with chronic diseases and disability, which increases the demand for a variety of health services. Estimated at 43 million in 2010, the number of people aged 60 years and older in the Region is projected to reach 67 million by 2025 and 163 million by 2050.

3. Health through the life course

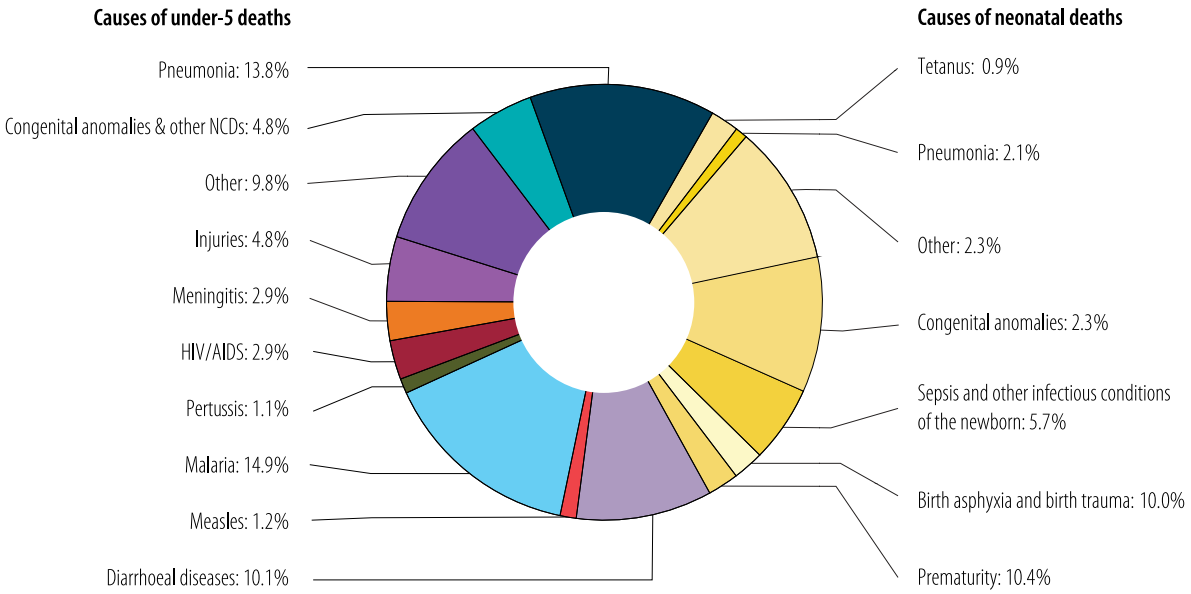
For every person, good health is enjoyed when physical, emotional, psychological, social and economic factors are positively balanced to enable a state of physical and mental well-being. Achieving such a balance is difficult, but the factors leading to ill health are different in different parts of the world and at different points in the course of life.

For a child born in the Region in 2011, healthy life expectancy (a calculation of the number of years that a child could expect to live in good health without disease or injury) is 55 years for males and 58 years for females. By comparison, global healthy life expectancy at birth estimates for the same year are 68 years for men and 72 years for women. However, there is considerable variation across the Region. Children born in Sierra Leone have the lowest healthy life expectancies at 46 years for males and 47 years for females, while children born in Mauritius can expect a longer healthy life of 70 years for females and 78 years for males.

Health through the life course addresses population health needs throughout the life course, with a special focus on key stages in life and the transitions between them, defining protective and risk factors, and prioritizing investment in health care and social determinants. This approach considers health as an integrated, dynamic continuum, not a series of isolated health states. This enables the development of responsive, integrated strategies that take into account how multiple determinants interact and affect health throughout life and across generations.

This chapter will examine the threats affecting the health and lives of people throughout the life course, from birth to the senior years. The process to achieve good health starts even before conception: poverty, inadequate nutrition, lack of opportunity, lack of access to education, disempowerment of women and geographical location are all factors that influence the health of the yet-to-be conceived child. Poor health will be passed on from generation to generation if the key health determinants remain unchanged.

Fig. 3.1. Distribution of causes of death among children less than 5 years of age, 2011



NCDs: noncommunicable diseases.
Sections in yellow refer to newborns, which total 33.7%.
Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

In the Region there are periods during which people are highly vulnerable to losing their lives. These are during the neonatal period, infancy (under 1 year), early childhood (less than 5 years of age, Fig. 3.1) and, in females, the reproductive period – both from sexually transmitted diseases and complications during pregnancy, childbirth and the postnatal period. This chapter will look at why children and their mothers are still dying in numbers and of conditions that are no longer seen in many other parts of the world. However, there are many other threats to be considered: conflict, infectious diseases and accidents kill too many young adults, male and female. As more people are living longer lives, NCDs – heart disease, diabetes, arthritis, injuries and long-term disability such as blindness – are increasingly important threats to good health. All these will be discussed as answers to the question: "what works?" later in this chapter.

Children

Newborn babies

The first 28 days of life, called the neonatal period, is a very risky period for babies in the Region. Although there have been impressive reductions in infant mortality (see Chapter 1), babies born in the Region are still more likely to be born too early, with low birth weight, and in conditions where they are at greater risk of infection (including tetanus), birth trauma and the complications of prematurity. Thus they begin their life cycle at a disadvantage. Many are still being born to mothers who have not had adequate nutrition and antenatal care during pregnancy and were given no skilled care while giving birth and within 2 days after birth. Their mothers are at greater risk of dying during and after delivery, leaving their newborn babies at even greater risk

of illness and death from inadequate care and suboptimal feeding practices.

One third of the world's neonatal deaths occur in the Region with approximately three quarters of deaths occurring during the first week of life and almost half being within the first 24 hours. Deaths in this period of life contribute to one third of the deaths of all the children less than 5 years of age. Quality care with simple, accessible, cost–effective interventions can prevent up to two thirds of these deaths.

What works?

Interventions aimed at addressing the causes of neonatal deaths have helped countries to improve newborn survival. These include community engagement for better maternal and newborn care; prevention of mother-to-child transmission (PMTCT) of HIV; access to skilled care during delivery, including newborn resuscitation; and capacity-building for care of neonates at home and essential newborn care in health facilities. Essential interventions improving the survival of newborn babies include exclusive breastfeeding, kangaroo mother care (KMC) for preterm and low-birth weight babies, and prevention and treatment of infections. Although there has been slow progress in the reduction of neonatal deaths, there are countries that have had great success in reducing neonatal mortality. For instance, in Malawi where KMC has been used in health-care settings, neonatal mortality has been reduced from 40 deaths per 1000 live births in 2000 to 24 deaths per 1000 live births in 2012 (Box 3.1).

Box 3.1. Kangaroo mother care in Malawi

Kangaroo mother care (KMC) is caring for preterm infants by carrying the baby skin-to-skin, usually by the mother. This approach was initially developed in the late 1970s by two doctors in Bogotá, Colombia as a response to high numbers of infant deaths, overcrowding, infections and other problems at health facilities. It has since been developed as a means of reducing infant morbidity and mortality by promoting breastfeeding on demand, thermal maintenance and maternal–infant bonding.

Using KMC to care for stable preterm babies can be especially beneficial in resource-poor settings, as incubators, which are usually in short supply, can be kept for infants with breathing and other life-threatening medical problems. It has been shown to reduce mortality among preterm babies (< 2000 g) in hospitals by 51% if started in the first week of life compared with incubator care. In Malawi, complications from preterm birth contribute to almost four out of every 10 neonatal deaths, claiming more than 5600 lives each year. It is due to this high death rate that the Government of Malawi committed to increasing the use of KMC for preterm babies.

For more than a decade, Malawi has worked to establish KMC units in facilities, has trained service providers, and has revised protocols and policies to include KMC. By 2011, the number of institutions using KMC had increased to 121, up from 18 in 2008. This has been a significant contributor to the reduction of neonatal and under-five mortality, making Malawi one of the few countries in the Region that has already achieved its Millennium Development Goal (MDG) 4 targets.

Infants and young children

Infants who have survived the neonatal period are vulnerable to infectious diseases, especially lower respiratory tract infections, diarrhoeal disease, malaria, measles and HIV. These children may also lack access to nutritious food, which increases their risk of developing diseases. When young children do develop illness, many will not have access to life-saving treatments. For example, less than half (48%) will be taken to a health-care clinic if they develop an acute respiratory infection. Only 42% of children with diarrhoea are getting oral rehydration therapy. Zinc supplementation, an effective intervention recommended by WHO, is even less likely to be provided.

One third of the population in the Region still lacks access to improved drinking water sources and even fewer have improved sanitation, making it difficult for parents to provide the level of hygiene needed to prevent diarrhoeal disease. Although their chances of survival would be improved by sleeping under ITNs, breathing clean, smoke-free air inside their homes, being exclusively breastfed for the first 6 months of life and being free of malnutrition, few will enjoy this level of protection. Only 37% of children in sub-Saharan Africa are exclusively breastfed for the first 6 months of life. Millions of children less than 5 years of age suffer from different forms of malnutrition. For instance, in 2012, 40% (59 million) of children less than 5 years of age in Africa were found to be stunted (i.e. too short for their age), accounting for over one third of the world's stunted children. In addition, wasting (being too thin for their height) affected 14.5 million (9.8%), underweight affected 36 million (25%) and overweight affected 9 million (6%) children less than 5 years of age in Africa. The prevalence of various forms of malnutrition in children less than 5 years of age remains very high in some countries of the Region and continues to increase. However, there have also been improvements, for example in Ethiopia where the prevalence of stunting has dropped from 57% in 2000 to 44% in 2011, and Ghana where stunting has fallen from 35% in 2003 to 28% in 2011.

Malnutrition has life-long effects on the health, educational prospects, and the economic and social well-being of children. Stunting leads to short stature, mental impairment, poor performance in school, lower productivity and a reduction of potential income of up to 22%. Malnutrition reduces national economic growth and contributes up to 3% loss in gross domestic prod-

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uct due to direct productivity loss, intellectual loss and educational limitation. Stunting also increases the risk of childhood illness and death, and of adult obesity, diabetes and cardiovascular disease. Wasting, which is usually the result of acute significant food shortage and/or disease, is a strong predictor of mortality in young children. Children with severe wasting are nine times more likely to die, if left untreated, than the rest of the under-five population.

The home environment also poses a threat to the health of many children less than 5 years of age in the Region. The majority of households (77%) in Africa use solid fuels (wood, animal dung) for heating their homes and cooking. Burning solid fuel (biomass fuels) indoors produces smoke containing lung-damaging chemicals that make small children prone to pneumonia. When cleaner fuels (electricity, gas) are used in the home, levels of childhood pneumonia drop dramatically. Use of solid fuels for heating and cooking in the home also leads to injuries and deaths from burns and scalds in babies and young children crawling and playing near fires.

Other unintentional injuries are an important cause of disability and death in young children in the Region. A study of unintentional injury in children attending the National Paediatric Emergency Unit in Kampala City, Uganda, found more males were injured (60% of cases) and that the common causes were falls, burns and traffic injuries. Almost half the children (43.8%) had to be admitted, 10% were left disabled and 1% died. This study, and research from Nigeria, found that the main places where these injuries took place were at home, on roads and at school.

A specific form of intentional injury to female children, female genital mutilation (i.e. forcible removal of part or all of the external female genitalia), continues to be practised in many countries in the Region. Children who have this done to them are at risk of death from acute bacterial infection or haemorrhage and are at greater risk of contracting HIV. They are left with lifelong pain, severe psychological trauma from the experience, urinary problems, and are at greater risk of complications during childbirth. Recent research into community reasons for continuing this practice, defined as a form of physical child abuse, indicate that male community members believe that it is women who want to continue the practice, while women agree to it because they believe it is a prerequisite for marriage.

What works?

Some of the interventions that contribute to child survival are: preventing and managing diarrhoea and pneumonia; child survival strategies; political commitment at the national and international level; and immunization.

Ensuring adequate nutrition

Exclusive breastfeeding for the first 6 months of life, with timely introduction of nutritionally adequate and safe complementary foods while breastfeeding continues for the first 2 years of life and beyond, effectively improves infant survival. It has been calculated that early initiation and exclusive breastfeeding promotion and support is associated with a 45% reduction in all-cause and infection-related neonatal mortality, while about 12% of deaths of children aged under 2 years are attributed to suboptimal breastfeeding.

Focusing nutrition interventions on the first 1000 days of a child's life (and working to ensure that women are well nourished in the 3 months before conception) prevents irreversible harm such as growth retardation and intellectual impairment. Effective interventions include micronutrient supplementation, targeted fortification and food supplementation, management of severe and moderate acute malnutrition, and improving the nutrition of lactating women.

Preventing and managing diarrhoea and pneumonia

Use of vaccines against *Streptococcus pneumoniae* and *Haemophilus influenzae* type b, the two most common bacterial causes of childhood

pneumonia, and against rotavirus, the most common cause of childhood deaths from diarrhoea, substantially reduces the disease burden and deaths caused by these infectious agents.

Use of simple, standardized guidelines for the identification and treatment of pneumonia, diarrhoea and malaria in the community, at health facilities such as those for integrated management of childhood illness (IMCI), substantially reduces child deaths.

Child survival strategies

The implementation of national child survival strategies in the Region has guided country priorities for improving child survival. These include:

- the IMCI strategy;
- integrated community case management (iCCM) for pneumonia, diarrhoea and malaria, and improving antibiotic treatment for suspected cases of pneumonia in children less than 5 years of age;
- vaccination against common vaccine-preventable diseases;
- use of long-lasting ITNs.

Improving the skills of health workers for managing sick children has enabled them to provide better quality care. A study on the effectiveness and cost of facility-based IMCI conducted in the United Republic of Tanzania in 2003 showed that during the phase-in period, mortality rates in children less than 5 years of age were almost identical in IMCI and comparison districts. Over the next 2 years, the mortality rate was 13% lower in districts using IMCI than in comparison districts, even though other factors, such as the use of mosquito nets, all favoured the comparison districts. The costs of providing child health care using IMCI were similar to, or lower than, those for case management without IMCI. A child survival programme in Niger was able to reduce child mortality at an annual rate of 5.1%, a pace which exceeds that required to meet the MDG 4 target (Box 3.2).

Box 3.2. Child survival programme in Niger

An analysis of the child survival programme in Niger showed that during the period 1998–2009 mortality rates of children less than 5 years of age fell from 226 to 128 deaths per 1000 live births. The study concluded that government policies supporting universal access; provision of free health care for pregnant women and children; and decentralized nutrition programmes contributed to these child survival gains. The study also indicated that the coverage of most child survival interventions, namely insecticide-treated bed nets (ITNs); improvements in nutritional status; vitamin supplementation; treatment of diarrhoea with oral rehydration salts and zinc; care-seeking for fever, malaria or childhood pneumonia; and vaccinations increased during this period. An analysis using the Lives Saved Tool, estimated that in 2009 the lives of 59 000 children aged less than 5 years of age were saved as a result of the introduction of these interventions. During this period, Niger successfully reduced child mortality at an annual rate of 5.1%, a pace which exceeds that required to meet the Millennium Development Goal (MDG) 4 target.

Political commitment at the national and international level

The Global Strategy for Women's and Children's Health, launched in 2010, calls for a continuum of care approach to services, aiming to save 16 million lives. Other important contributing initiatives include the Global Vaccine Action Plan, which sets out a strategy for preventing childhood disease through vaccination; a Global Strategy on Infant and Young Child Feeding (2003) and, most recently, a comprehensive nutrition implementation plan to improve maternal, infant and young child nutrition with six global targets by 2015 endorsed by WHO Member States in 2012 (i.e. 40% reduction in stunting; 50% reduction of anaemia in women of reproductive age; 30% reduction in low birth weight; no increase in childhood overweight; increase in exclusive breastfeeding in the first

months to at least 50%; and reduction and maintenance of childhood wasting to less than 5%).

Overall, global, regional and national efforts have contributed to increased population coverage of high-impact child survival interventions, especially improving access to antibiotics for treatment of respiratory infections; increasing total health expenditure; continuing the reduction of individual out-of-pocket expenses; reducing the prevalence of underweight children; and reducing maternal deaths.

Other factors that have contributed to accelerating the reduction in under-five mortality rates in the Region include the estimated 84% reduction in the number of measles deaths between 2000 and 2011 and treatment of pregnant women with HIV that has prevented transmission of the HIV virus from mother to child (see Chapter 4). The incidence of malaria also fell by 33% between 2000 and 2010, which has a significant impact on child survival, as malaria most commonly affects children less than 5 years of age in the Region.

Immunization

One intervention that has had an impressive effect on reduction of child deaths and disability in the Region is immunization, particularly that for measles and polio. Three decades ago, routine childhood immunization was almost non-existent in Africa. Today there is much greater public awareness of the benefits of vaccines; a competent workforce has been built up to procure, transport, store and administer these vaccines; and data are being collected and disseminated rapidly and efficiently, revealing progress achieved and pitfalls encountered. Immunization now also serves as a means to deliver other life-saving interventions, such as vitamin A supplementation, distribution of ITNs for protection against malaria, and deworming medicine distribution for treating intestinal worms.

However, while routine vaccination of children has been established in all countries of the Region, levels vary widely from 99% coverage in Eritrea (measured by coverage of the DTP3 vaccination) to only 33% in Equatorial Guinea. In 2012, coverage of DTP3 even declined in some countries, most notably the Central African Republic, Equatorial Guinea and Nigeria. As a result, despite 18 countries reporting DTP3 coverage of over 90%, the regional average is 72% (Fig. 3.2), considerably below the global average of 83%.

Inequity – lower education levels, lower incomes, living in rural areas – tends to be associated with lower levels of coverage, although some countries (e.g. Gambia, Ghana, Malawi, Rwanda and Swaziland) have reduced the inequity gap in immunization coverage.

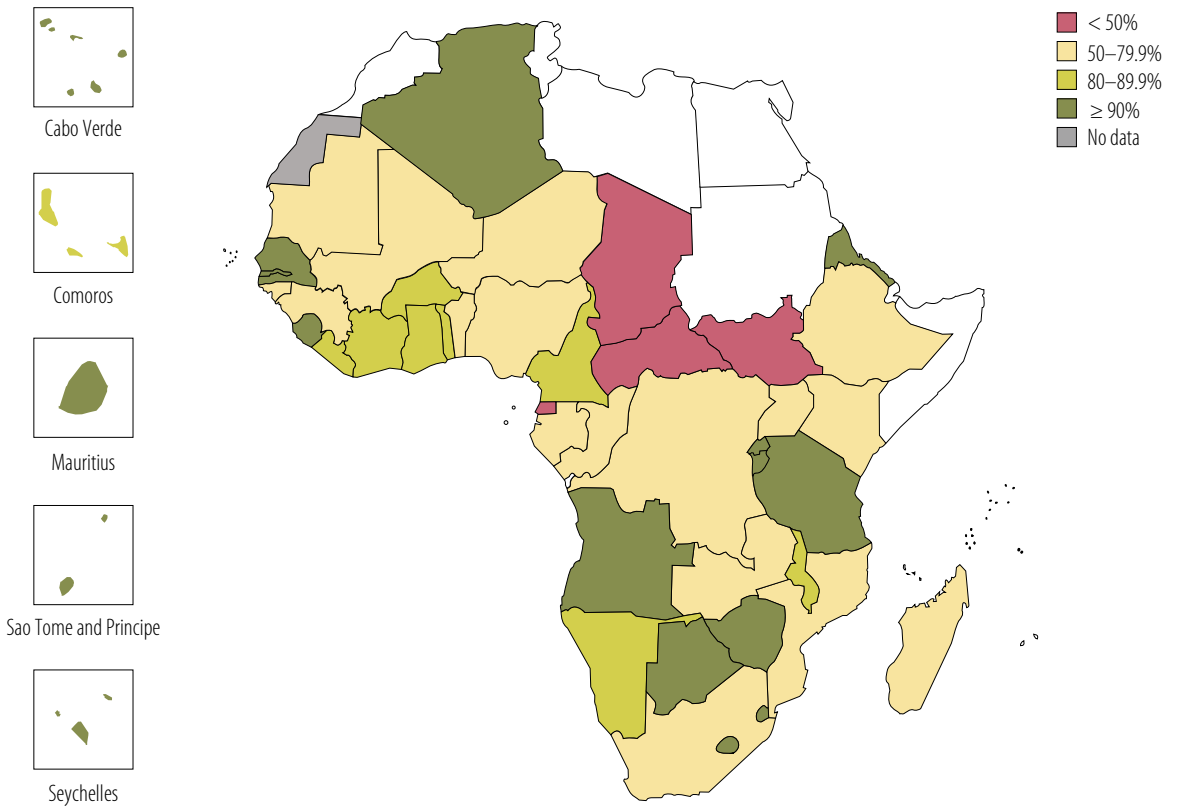
The African Vaccination Week is a regional initiative started in 2010 to draw attention to the right of every person, in particular women and children, to be protected from vaccine-preventable diseases. Throughout the week, activities and information campaigns are used to introduce and reinforce vaccines and other high-impact life-saving interventions. The number of countries participating has grown from 35 to 43, with each country selecting the interventions (such as vitamin A, deworming, ITNs, soap) and vaccines. Priority is given to reaching children in hard-to-reach areas. In 2013, more than 180 million people were vaccinated with oral polio vaccine in 23 countries during African Vaccination Week. Other vaccines such as the measles rubella, pneumococcal conjugate, diphtheria–tetanus–pertussis, yellow fever, hepatitis b, and the human papillomavirus vaccines were provided, as were 31.5 million vitamin A, and 21.2 million deworming tablets. At the same time, 6.4 million children were screened for malnutrition and 3.8 million kits for improving water, sanitation and hygiene were distributed.

What works?

Polio: close to eradication

Polio, a disease that leaves children crippled for life, has been eliminated from most countries in the Region. In 1988, when WHO and partners

Fig. 3.2. Diphtheria tetanus toxoid and pertussis (DTP3) immunization coverage among 1-year-old children (%) in the WHO African Region, 2013



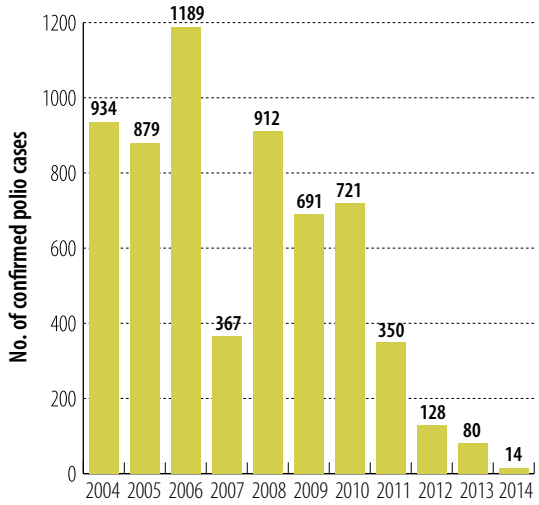
Source: WHO/UNICEF review of national immunization coverage, 1980–2013 [online database]. Geneva: World Health Organization; 2014.

established the Global Polio Eradication Initiative, aiming to eradicate polio, the disease was paralysing over 1000 children per day and was active in all countries of the Region. In 2006, a total of 1189 polio cases were confirmed from nine of the 46 countries in the Region. In 2013, the Region reported 80 confirmed polio cases from four countries (Fig. 3.3). Only one country in the Region, Nigeria, remains endemic for wild poliovirus transmission and, even in this country, the number of confirmed cases has been dramatically reduced.

The factors that have contributed to the progress in polio eradication in the Region are:

- personal commitment of political leaders;
- implementation of intensive surveillance activities in all countries of the Region;
- a polio laboratory network made up of 16 laboratories providing critical information, including genetic sequencing data;
- innovative approaches in social mobilization and communication to overcome misconceptions and rumours;
- cross-border collaboration and the implementation of synchronized immunization campaigns across large numbers of countries simultaneously;
- use of improved vaccines and new technologies to improve vaccination coverage.

Fig. 3.3. Trends in confirmed polio cases in the WHO Africa Region, 2004–2014



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

Measles: towards elimination

The estimated number of measles deaths in the Region has declined by 88%, from 354 900 in 2000 to 41 400 deaths in 2012. Numbers of officially reported measles cases have also dropped, from 520 102 cases in 2000 to 106 052 in 2012 (Fig. 3.4). The Democratic Republic of the Congo accounted for 68% of the cases reported in the Region in 2012. The percentage of eligible children given a first dose has improved from 56% to 73% between 2000 and 2012 (according to the WHO and UNICEF estimates, Fig. 3.4), and in 2012, nine countries achieved measles vaccination coverage of 95%, while 15 had coverage of 90% or more.

Sentinel surveillance in preparation for introduction of new vaccines

By the end of 2013, all countries in the Region, except South Sudan, had introduced vaccines against *Haemophilus influenzae* type b (one of the major causes of childhood meningitis), while 29 out of 47 countries in the Region had introduced pneumococcal conjugate vaccine (which prevents a major cause of pneumonia) into their national immunization programmes. Data from ongoing surveillance have also contributed to increased awareness of the high mortality that rotavirus diarrhoea causes in children. This triggered a decision to introduce rotavirus vaccines in 19 countries and an accelerated introduction of these vaccines is expected to continue in all countries in the Region.

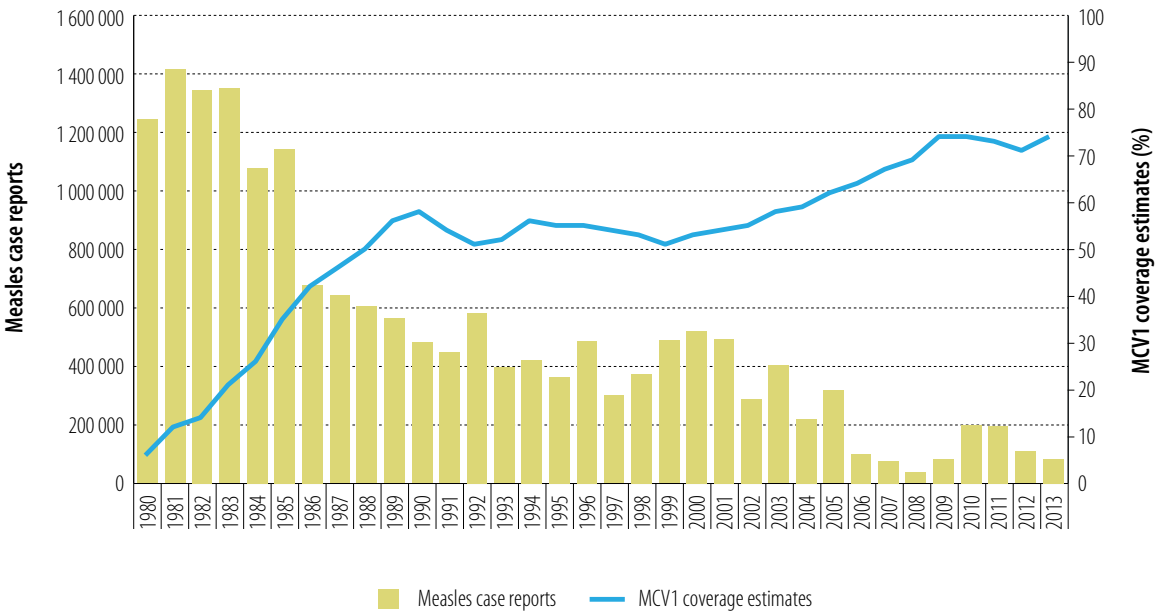
Young people

Young people – defined as individuals aged 10–24 years, which includes adolescents (10–19 years) and youth (15–24 years) – in the Region face rapid social, technological and cultural changes that expose them to new ideas and attitudes. Social, political and economic upheavals, lack of job opportunities, and failure to remain in school are serious challenges for young people in the Region, limiting their choices and leading to emotional distress, conflict, a sense of powerlessness and risk-taking behaviour.

Major health issues affecting young people in the Region include HIV infection, violence and injuries, early initiation of sex and child marriage, and limited access to family planning services. About 41% of new annual HIV infections are occurring in adolescents and HIV is now the leading cause of adolescent death in sub-Saharan Africa. Adolescent girls are at higher risk of developing and dying from HIV, which is responsible for nearly one third of deaths in 16–19-year-old girls. They are also at risk of contracting wart virus – human papilloma virus (HPV) – leading to cervical cancer in later life. Cervical cancer is now the leading cause of cancer death in women in Africa, and the Region accounts for the world's highest burden of cervical cancer.

Violence in general, and in particular sexual violence against young girls often linked to forms of sexual predation, is prevalent in many African countries. A study carried out in Swaziland in 2007 found that 33% of females aged 13–24 years reported having experienced some

Fig. 3.4. Measles-containing vaccine (MCV) immunization – WHO/United Nations Children's Fund (UNICEF) coverage estimates among 1-year-old children, and measles case reports in the WHO African Region, 1980–2013



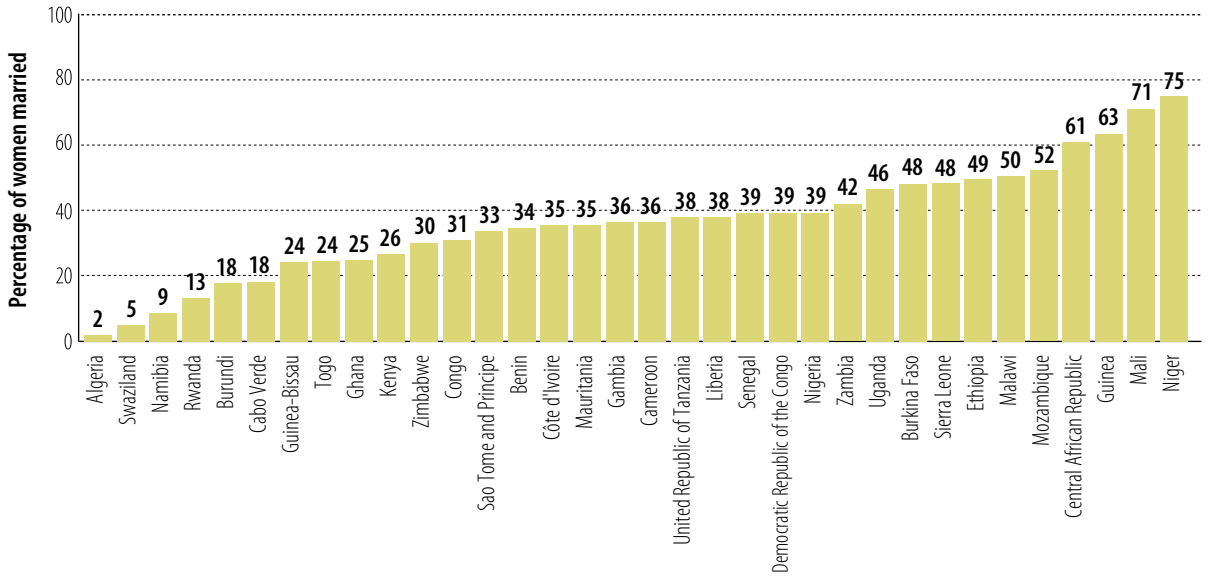
MCV1: first dose of measles-containing vaccine.
Source: adapted from World health statistics 2013. Geneva: World Health Organization; 2013.

form of sexual violence before reaching 18 years of age. Traumatic fistula – rupture of the vagina, creating an opening into the bladder or bowels – is increasingly being reported as a consequence of violent sexual assault in young girls. Female genital mutilation, which involves partial or total removal of the female external genitalia by cutting, burning or scraping, is inflicted on more than 2 million girls between the ages of 4 and 12 years. It is estimated that about 12 million girls between the ages of 10 and 14 years have had sequels of female genital mutilation, notably in Ethiopia, Kenya, Nigeria and Uganda.

The prevalence of child marriage in the Region varies substantially across countries, with the highest (75%) in Niger. Fig. 3.5 shows the information on early marriage in some of the countries in the Region. Early initiation of sex, including through early marriage, is associated with a high adolescent pregnancy rate, estimated at 117 per 1000 in the Region. Married girls (those married before 18 years) are vulnerable to sexual and reproductive ill health, with potentially life-threatening consequences. Access to family planning, crucial for young people, is very limited owing to the lack of adequate health-care services tailored to their needs, the lack of accurate information and counselling, and the persistence of financial and psychosocial barriers.

In line with international and regional standards, 32 African countries have laws that require males and females to be 18 years of age or older before marriage, while 18 countries have a discriminatory minimum age, meaning that females and males are allowed to marry at different ages, or below 18 years of age.

Fig. 3.5. Percentage of women aged 20–24 years that were married before the age of 18 years in selected countries of the WHO African Region, 2004



Source: adapted from World health statistics 2012. Geneva: World Health Organization; 2012.

What works?

Youth friendly services

To better address adolescent and youth health issues in the Region, 23 countries are developing national standards for quality health-care services aimed at being youth-friendly (Box 3.3 gives an example of such services from Zimbabwe). The strategy uses HIV prevention and the control of early pregnancy as entry points to tackle other health issues, such as tobacco and alcohol use.

HPV vaccine

HPV has been shown to cause almost all cervical cancer. Vaccines that protect against the two most common strains of HPV are now being introduced in Africa as part of the comprehensive strategy to prevent and control cervical cancer. HPV vaccination provides a major opportunity to link with other adolescent health interventions. However, it does not replace the need for regular screening and education about safe sexual behaviours.

For example, in South Africa, national introduction resulted in successful vaccination of 325 642 out of 373 109 girls for a dose 1 coverage of 87%. South Africa (a non-GAVI Alliance eligible country) completed the first round of its nationwide introduction of the HPV vaccination targeting 9-year-old girls in school grade 4, under the leadership of the Minister of Health in close collaboration with the Minister of Basic Education. Many challenges were overcome, including misinterpretation and rumours, successful vaccine price negotiation, collaboration between health and education ministries to support joint school health programmes, and enhanced capacity for vaccine storage and distribution.

Box 3.3. Adolescent and youth-friendly health services in Zimbabwe

In 2009, Zimbabwe, with the technical support of the World Health Organization (WHO), conducted a pilot project focusing on behaviour change among young people and delivery of effective, quality health services for this age group. The purpose of the pilot project was to reduce unwanted pregnancies among nursing students at Parirenyatwa Nursing School. The problems identified before launching the project were: high pregnancy rates; high unsafe abortion rates; high rate of unmet needs among students who had discontinued their studies; and lack of friendly health-care services tailored to young people.

The pilot project was a student-run programme, so young people were involved in the planning, implementation and monitoring of all activities. As students who attended the health facilities were treated with respect and their privacy and confidentiality were protected, more than 75% of students used the services.

Key results after 3 years of implementation were:

- the pregnancy rate reduced from 21 in 2009 to 2 in 2011;
- the number of unsafe abortions reduced from 5 in 2009 to 1 in 2011;
- students from other schools and nursing colleges and the university began to use the service;
- similar services have been established in two other nursing schools in Harare;
- planning for nationwide provision of such services began in 2011.

Adult women

Women in the Region are more likely to die from communicable diseases (e.g. HIV, tuberculosis and malaria), maternal and perinatal conditions, and nutritional deficiencies, than women in other regions. Globally, about 468 million women aged 15–49 years (30% of all women) are thought to be anaemic, at least half because of iron deficiency and most of these anaemic women live in Africa (48–57%). Anaemia and iron deficiency, which are associated with fatigue, physical weakness and increased susceptibility to infections, need to be tackled before women become pregnant to reduce their risks of poor maternal health and having low-birth-weight babies.

Preventing this toll of unnecessary deaths requires support for optimal nutrition, access to family planning and comprehensive and responsive health care available at all times, including before conception, during pregnancy and after delivery. However, the solution needs a more fundamental change than simply providing better services. Genuine socioeconomic empowerment of women is essential for achieving better outcomes. Until women are recognized as a vital social and economic resource that should not be squandered, the political will to preserve their lives and protect their health will remain weak.

While HIV and the complications of pregnancy and childbirth are the major killers of women in their reproductive years, African women are increasingly at risk of NCDs, notably cardiovascular diseases, breast and cervical cancers, diabetes and chronic respiratory diseases. Increasing levels of overweight and obesity are leading to a range of chronic illnesses, including diabetes, high blood pressure and heart disease, that are affecting women disproportionately in the Region (see Chapters 4 and 5).

Family planning

Family planning is closely related to maternal and infant health and survival, as well as socioeconomic development. Compelling evidence shows that family planning can help prevent one third of maternal deaths by allowing women to delay motherhood, space births, avoid unintended pregnancies and unsafe abortions and stop childbearing when the desired family size has been reached. Spacing births also reduces child malnutrition and neonatal and infant mortality. Despite this, use of contraception is still low and unmet need for contraception remains high in many parts of Africa. In surveys of married women aged 15–49 years carried out

between 2005 and 2012 in the Region, one quarter of women reported an unmet need for family planning (Fig. 3.6). This translates into more than 47 million women without access to family planning in the Region, a number considerably higher than that reported in other parts of the world.

A modest increase in the contraceptive prevalence rate was registered in the Region between 2007 and 2012 (from 23% to 27%). The total fertility rate (the number of births a women would have by the end of her reproductive life) dropped from 6.2 to 4.8 between 1990 and 2012.

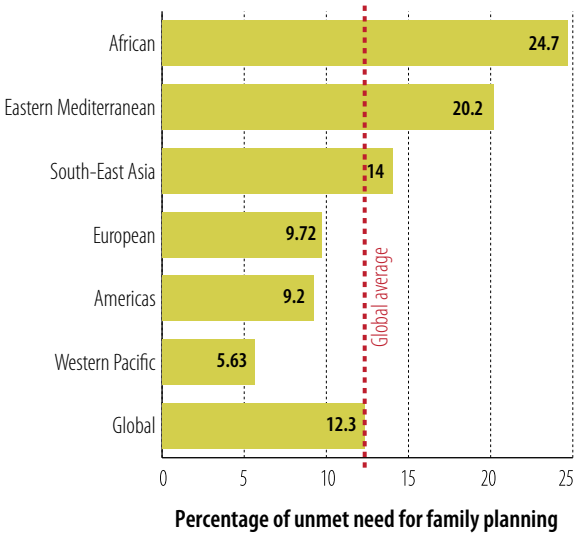
What works?

Achieving greater use of contraception requires access to, and availability of, appropriate commodities and services at both health facility and community level. This depends on political commitment and leadership. For example, the contraceptive prevalence rate in Madagascar rose from 5% in 1992 to 29% in 2009, due to strong government commitment that enabled the inclusion of family planning targets in national development plans and the provision of free contraceptives in all public health facilities. Awareness campaigns at both national and community levels contributed towards greater understanding of the benefits of family planning for women and birth spacing for child survival.

Pregnancy and childbirth

Every time a woman conceives a child she is embarking on a very dangerous phase of her life. While pregnancy is a time of increased risk for all women, the risk of death and disability is considerably greater for women living in the Region. This has been so for many decades and, while the rates of maternal death have been reduced by almost half, from 960 per 100 000 live births in 1990 to 510 per 100 000 live births in 2013, women are still dying too often because they have been denied the skilled care and support needed to diagnose and treat lethal complications of pregnancy.

Fig. 3.6. Percentage of unmet need for family planning (married women ages 15–49 years) by WHO region, 2005–2012



Source: adapted from World health statistics 2013. Geneva: World Health Organization; 2013.

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Achieving greater use of contraception requires access to, and availability of, appropriate commodities and services at both health facility and community level

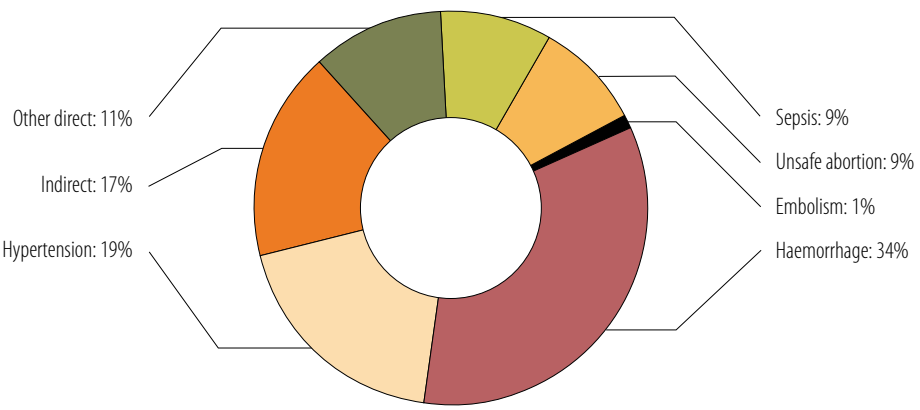
The major conditions killing women in pregnancy and childbirth have changed over the past few decades. Previously, infection and anaemia were the major killers, but these, while still important, are no longer the leading causes of death. In 2010, haemorrhage (34%) and hypertensive disease of pregnancy (19%) (Fig. 3.7) were given as causes for more than half of maternal deaths in sub-Saharan Africa. Both these conditions need a skilled attendant to diagnose the problem, and access to a well-equipped health centre to manage it effectively. Severe bleeding after birth can kill a healthy woman within 2 hours if she is unattended, but even those in hospitals with skilled carers will die if blood and blood products are not available. Managing hypertensive disease of pregnancy requires knowledge and experience to detect signs of deterioration and a supply of appropriate medication to avert the convulsions, internal organ haemorrhage and ultimate death that follows.

Access to skilled care tends to be determined by wealth and geography. Surveys performed from 2000 to 2011 found big differences in access to a skilled attendant during birth for the richest and poorest women. The widest gaps (more than 70% difference) between the poorest and richest were in Guinea, Madagascar and Nigeria, and the smallest gap, of around 20%, was in Sao Tome and Principe.

Levels of antenatal care have increased in most other regions of the world, so that it is now the norm for pregnant women to have at least four antenatal care visits and to have a skilled person – a nurse, midwife or medical practitioner – care for them throughout childbirth. However, this is not the norm in many parts of the Region, particularly in remote rural areas or among the poorest groups. Only 12 countries reported antenatal care coverage with four visits at levels of 68–78%. In other words, even in the best-performing countries, one third of pregnant women are not receiving adequate care.

Lack of education, living in rural areas and lack of financial resources are all factors associated with poor antenatal care – although this varies between countries. The widest gaps between coverage among the non-educated and the highest educated were seen in Chad, Ethiopia, Mali, Niger and Nigeria (e.g. in Nigeria, coverage was 31% among the non-educated and 88% among the highest educated). However, in several countries there was very little difference in coverage between the wealth quintiles. For instance, in Rwanda coverage was 97% and 99% in the poorest and richest quintiles, respectively.

Fig. 3.7. Main causes of maternal death in sub-Saharan Africa, 2010



Source: World Health Organization and United Nations Children's Fund. Countdown to 2015 decade report (2000–2010): taking stock of maternal, newborn and child survival. Geneva: World Health Organization; 2010.

Vaccination rates against tetanus – a common cause of neonatal deaths, especially where women give birth in unhygienic conditions without a skilled birth attendant – has been low in the Region. Only one third of countries have achieved protection levels of at least 80% among women of childbearing age.

What works?

The reduction in maternal mortality seen in the Region has been the result of improvement of services in some countries where deliberate investments have been made to address challenges such as financial and geographical inaccessibility to quality maternity services. Removal of user fees for maternity services, which has been introduced in 24 countries; institutionalization of maternity waiting homes in some countries, including Eritrea (Box 3.4); and introduction of results- and performance-based financing in Rwanda have all contributed to the reduction of maternal mortality in the past decade (Box 3.5).

Box 3.4. Maternity waiting homes – a strategy to improve access to emergency obstetric care in Eritrea

To overcome high death rates during childbirth among nomadic women and those living in remote areas, Eritrea introduced maternity waiting homes in 2006. These enabled women living far from centres providing skilled obstetric services to travel and stay close to such a centre before they were due to give birth. The high maternal mortality rate among women living in remote areas and in nomadic groups was attributed to the "second delay" – delay in getting to the health facility even when the decision to seek care has been made on time. Maternity waiting homes increase access to skilled birth attendance and hence reduce deaths, for example due to haemorrhage. Eritrea has since reduced its maternal mortality rates every year and is now one of the countries in the Region on track to achieve the Millennium Development Goal (MDG) target of reducing maternal deaths.

Box 3.5. Impact of national health system reforms on maternal and child health in Rwanda

In 1994, post-genocide Rwanda was struggling to provide adequate care for maternal- and child-health services. Challenges included a severe health workforce shortage, limited infrastructure, poor access to skilled care and inadequate coverage of emergency obstetric and newborn care. In response, the Government of Rwanda focused on health system strengthening and governance; quality maternal, neonatal and child services, including use of Kangaroo Mother Care; strong community involvement; family planning; community-based health insurance; and a performance-based financing system. The combination of supply and demand side interventions contributed to an increase in coverage and access to maternity services. As a result, maternal mortality decreased from 910 per 100 000 live births in 1990 to 340 per 100 000 in 2010, a decrease of more than 50%. In addition, the under-five mortality rate decreased by 63%, from 151 deaths per 1000 live births in 1990 to 55 per 1000 live births in 2012.

Increased financing from domestic resources and from the Global Fund has helped countries to provide antiretroviral medicines to more pregnant women living with HIV. The percentage of pregnant woman with HIV being treated with antiretroviral therapy (ART) has gone up from 34% in 2009 to 63% in 2012 and is above 80% in 12 countries. This has led to a decline in AIDS-related maternal deaths between 2008 and 2010 in high-burden HIV countries such as Botswana, Swaziland, Zambia and Zimbabwe.

Adult males

Men are less likely to live as long as women, even though women have higher rates of HIV and face such high risks of death during childbirth. They are also likely to die from or suffer chronic disease and disability from communicable diseases such as HIV, tuberculosis and malaria, the com-

plications of high blood pressure, poor diets, conflict, road traffic accidents, occupational conditions, abuse of alcohol, and depressive disorders. In some countries, such as Uganda, alcohol abuse is the leading cause of premature death and disability.

While HIV is a very important cause of death and disability in males in the Region, the prevalence is lower in males than females. However, because HIV is largely spread through heterosexual activity in the Region, changing male behaviour (e.g. encouraging condom use at all times and specific interventions like male circumcision) is vital to the prevention and control of the epidemic.

Violence

Violence is a problem for both genders, but it is males who both suffer from and cause greatest suffering through conflict and violence. Children subjected to violence are at risk of growing into violent adults. Violence is preventable. Evidence from both high-income countries and low- and middle-income countries shows strong relationships between levels of violence and potentially modifiable factors such as economic inequality, access to firearms, access to and harmful use of alcohol, and poor monitoring and parental supervision of children.

Violence takes a variety of forms and can occur in different contexts. It includes child abuse and neglect by parents and caregivers; violence between adolescents and young adults; violence between intimate partners; violence associated with property crimes, rape and other sexual violence; workplace violence; and the abuse of the elderly by relatives and other caregivers. The risk factors for violence are related to a combination of personal, family, community and societal factors, which are detailed later in this chapter.

Of the total of 657.4 million DALYs lost in the Region, 2% was from intentional injuries in 2002. (Violence and injuries are the second leading cause of death and loss of DALYs in South Africa, with an overall injury death rate of 157.8 per 100 000 people, which is nearly double the global average. In South Africa, most homicides of women are linked to intimate partner violence and the national rate of intimate partner violence-linked mortality is more than twice as high as the rate in the United States of America.)

Socioeconomic factors such as poverty, the role of women, and HIV/AIDS, can all have an impact on the prevalence of interpersonal violence. In a study in townships in the Western Cape in South Africa it was found that 26% of women experienced interpersonal violence linked to alcohol. Social acceptance of violence also plays a role. A study in a rural population in KwaZulu-Natal (South Africa) that aimed to identify sociodemographic risk factors associated with adult injury-related deaths found that the root causes of violent and accidental deaths were linked to social inequality, poverty and alcohol abuse.

There is a growing body of scientific evidence showing that programmes to address the underlying causes of violence are effective in reducing the rate of new cases. Controlling access to firearms reduces the number and extent of injuries caused by violence. And when, despite preventive actions, violence does occur, strong health systems providing pre-hospital and emergency medical care can reduce the number of deaths and other negative health consequences.

Older men and women

More people in the Region are living longer lives. Estimated at 43 million in 2010, the number of people aged 60 years and older in sub-Saharan Africa is projected to reach 67 million by 2025 and 163 million by 2050. Ageing is becoming a major challenge as it increases the demand for a variety of health services as a growing number of older people are living with chronic diseases and disability.

In most countries in the Region, health systems do not make adequate provision for

older people and are not prepared to respond to the needs of their rapidly ageing populations. There is a lack of health-care services specifically catering for older people, infrastructure is inappropriate, and geriatric medicine and gerontology are not adequately covered in health-training institutions. Other support systems, such as housing, transportation, water and sanitation, are currently unable to meet the basic needs of a growing ageing population. Active ageing, which refers to optimizing opportunities to improve health, participation and security to enhance quality of life as people age, has not been addressed adequately, and the need for accessible and appropriate care for elderly people has not yet been met in the Region.

Women account for an estimated 54% of people aged 60 years and above. However, gender-based inequities, disparities in economic power, and the undermining effects of traditional and cultural practices contribute immensely to poverty in older women. Poverty is, in turn, closely associated with ill health and has significant consequences for women's access to health services. For older women, age and gender discrimination can lead to disempowerment and result in poor health outcomes, victimization and even death.

While infectious diseases remain the biggest overall killers, rates of NCDs are rising rapidly in the Region, particularly in older people. However, little attention is being paid to risk factors such as diets high in fat, sugars and salt, physical inactivity and tobacco use (see Chapter 5). In addition, in most countries of the Region, the health systems remain unprepared to respond to the needs of the ageing population: health-care facilities focusing on elderly people are lacking, infrastructure is inappropriate, and health professionals are not well trained in old age care and active ageing (active ageing refers to the process of seizing and optimizing opportunities for physical, social and mental well-being throughout the entire life course in order to extend healthy life expectancy). The need for accessible and adequate care for the elderly is not met.

In conclusion, the spectrum of illness that people of the Region are exposed to throughout their life course varies greatly, from the old foes, malnutrition, infection, complications of childbirth and childhood diseases, to new challenges

More people in the Region are living longer lives. Estimated at 43 million in 2010, the number of people aged 60 years and older in sub-Saharan Africa is projected to reach 67 million by 2025 and 163 million by 2050

Pierre-Michel Virot

– increasingly illness caused by lifestyle such as heart disease, diabetes, overweight and obesity – problems often starting in childhood. However, as this description of the health threats that people in the Region face as they journey through life reveals, many of the diseases they succumb to are preventable. For instance, it is widely recognized that maternal and child deaths have their roots in denial of human rights and inequities, which manifest, for example, in violence against women and children, the under-prioritization of services and goods that only women and children require, and lack of accountability mechanisms to respond to preventable deaths in vulnerable population groups.

The next chapters on disease threats and on health determinants will look at what is currently being done to prevent the diseases described in this chapter from developing - and how much more needs to be done. ■

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Chapter 4

Disease threats

Village life (Boniface Nzimy)

Key points

- HIV incidence has declined sharply where countries have scaled up HIV prevention strategies to change behaviours. There has been a steady improvement in access to ART in the past decade, with 10 countries in the Region now having coverage of more than 80%. This improvement was possible because of the use of standardized, simplified treatment protocols and decentralized service delivery models to deliver treatment to large numbers of HIV-positive adults and children.
- Improved coverage of major interventions has proven successful in the control of tuberculosis in the Region. These include expansion of the basic package that underpins the Stop TB Strategy (DOTS), improved diagnostics resulting in improved case detection in adults and children, and improved access to HIV testing and treatment for tuberculosis patients.
- The malaria mortality rate has decreased by over 50% in children in the past 12 years. This reduction is projected to reach 68% by 2015, due to improved availability and use of ITNs, diagnosis-based treatment with artemisinin-based combination therapy (ACT), engagement of communities in malaria control, and strengthening capacity in vector control for malaria.
- Following the effective implementation of the Integrated Disease Surveillance and Response (IDSR) strategy over the past decade, significant improvement in the detection, reporting and response to priority diseases has been recorded. The importance of early detection was underscored by the ongoing epidemic of Ebola virus disease in western Africa, which has surpassed all other outbreaks in terms of cases, deaths and geographic spread.
- Mass administration of medicines for diseases such as lymphatic filariasis, onchocerciasis, schistosomiasis and soil-transmitted helminthiasis, and early case finding and decentralized case management for Buruli ulcer, dracunculiasis, human African trypanosomiasis, leprosy, leishmaniasis and yaws have been useful for preventing and eliminating NTDs.
- The Region is still at an early stage in the epidemic of NCDs. To stem the tide of these disorders and conditions, it will need to develop a response to this challenge using low-cost solutions, particularly prevention and health promotion.

4. Disease threats

Diseases, particularly communicable diseases, but increasingly NCDs including mental disorders, injuries and violence, pose major threats to human health. As stated in Chapter 1, communicable diseases account for two thirds of the total disease burden, the rest being due to NCDs and injuries. This chapter looks at how the dominant disease threats are being identified, controlled, mitigated and prevented in the Region.

Communicable diseases

HIV/AIDS

Although the Region was home to around 71% of all people living with HIV in 2012, there are encouraging signs that the HIV/AIDS epidemic is slowing down. New infections reported in sub-Saharan Africa have declined by 38.5% between 2001 and 2012. Data from testing of women attending antenatal clinics and from general population surveys in the Region confirm that prevalence rates have declined or stabilized in most countries. However, HIV is still spreading in the Region, with 1.6 million new infections reported in 2012. Young people aged 15–24 years accounted for almost half (42%) of new infections reported worldwide, and almost 80% of these were living in sub-Saharan Africa. Although the epidemic is slowing, more people are living with HIV. Since 2001, the population living with HIV has risen by 12% in the Region. This number is partly explained by increased survival rates due to improved access to ART. The number of people dying from AIDS-related causes is also on the decline, with 33% fewer AIDS-related deaths in Africa in 2012 than in 2005.

The HIV epidemic in the Region continues to be diverse with prevalence varying between and within countries, and between genders, groups and risk populations. HIV prevalence rates are much higher in women than men, with the largest differences being seen in the age group 15–24 years. Prevalence tends to be higher in urban than rural areas, although this difference is less in southern Africa. There are also wide variations across subregions and between

countries. Southern Africa remains disproportionately affected by the epidemic, with just over one third of all people living with HIV in 2012 residing in the 10 countries of that subregion. The same countries are home to 31% of people newly infected with HIV, and 34% of people dying from AIDS-related causes.

What works?

Three major interventions have been successful in HIV prevention and treatment in the Region: increasing access to ART using a public health approach; the strategic use of ART to prevent PMTCT of HIV; and reducing new HIV infections using combination prevention strategies.

Increasing access to ART using a public health approach

In the past decade there has been a steady improvement in access to ART in the Region. This improvement was possible because of the use of standardized, simplified treatment protocols and decentralized service delivery models to deliver treatment to large numbers of HIV-positive adults and children.

By the end of 2012, a total of 7 524 000 people in need of treatment were receiving ART, an increase of more than 100% from 3 192 000 in 2009. The expansion of access to ART has been particularly impressive in the eastern and southern Africa subregions that account for about 50% of all people living with HIV and where, by 2012, almost 6.4 million people were receiving ART. Ten countries, six of which are in southern Africa (Botswana, Namibia, South Africa, Swaziland, Zambia and Zimbabwe), three in eastern Africa (Eritrea, Kenya and Rwanda) and one in western Africa (Cabo Verde) had ART coverage of more than 80% in 2012.

Strategic use of ART to prevent mother-to-child HIV transmission

Considerable progress has been made towards the elimination of mother-to-child transmission of HIV in the Region. Between 2009 and 2012, the Region experienced a 37% decline in

Box 4.1. Reducing mother-to-child transmission rates of HIV in Ghana

Until recently, Ghana had a high level of mother-to-child HIV transmission. In 2010, the country committed to scaling up prevention of mother-to-child transmission (PMTCT), setting as its goal "to ensure a generation free of AIDS and to eliminate mother-to-child transmission of HIV by 2015". This commitment has borne fruit. By 2012, Ghana achieved the highest reduction in new infections among children in Africa and was ranked among the countries with the most successful PMTCT programmes. The risk that a woman living with HIV will transmit the virus to her child has declined from 31% in 2009 to 9% (7–11%) in 2012.

These results were driven by integrating PMTCT within maternal, newborn and child health services. Elements crucial to this success included:

- strong programmatic leadership, clear national guidelines, protocols and manuals for implementation and training;
- PMTCT delivery in the context of focused antenatal care and collaboration with the Family Health Department of the Ghana Health Service;
- a change in the type of antiretroviral therapy (ART) provided, replacing less effective with more effective medicines;
- including a PMTCT course as part of the curriculum in midwifery and community health training schools;
- integration of family planning with PMTCT services, including procurement and distribution of key commodities and using SMS texting (common information technology platform) for commodity stock monitoring;
- a highly motivated and dedicated cadre of health-care workers able to multitask.

the number of new HIV infections among children. The uptake of ART has also improved substantially, with 63% of pregnant women living with HIV receiving ART in 2012 compared with 34% in 2009. This has led to a decline of 37% in new HIV infections among children between 2009 and 2012. Provision of ART to HIV-infected children is steadily improving but remains low, with only 33% receiving ART in 2012. These results were driven by integrating PMTCT within maternal, newborn and child health services. Elements crucial to this success included, among others, strong leadership and a highly motivated and dedicated cadre of healthcare workers able to multitask (an example from Ghana is shown in Box 4.1).

Reducing new HIV infections using combination prevention strategies

Using a combination of behavioural and biomedical HIV prevention interventions that are tailored to national epidemics is the most effective approach for reducing new HIV infections. This involves behaviour change counselling; HIV testing and counselling; condom programming; voluntary medical male circumcision; infection control; and using standard precautions to ensure injection, surgical and blood safety. Where countries have scaled up HIV prevention strategies to change behaviours, HIV incidence has declined sharply. This has been seen in several African countries with generalized epidemics, the most notable recent example being South Africa (Box 4.2).

Box 4.2. Increasing access to antiretroviral treatment (ART) in South Africa

South Africa has more people on life-saving ART than anywhere else in the world, a decade after the country's leaders launched a public sector programme to combat the HIV/AIDS epidemic. An estimated 2.4 million people are receiving ART, roughly 80% of those who require treatment based on WHO 2010 guidelines, and accredited nurses are initiating therapy. The successes of the national ART programme and prevention and research efforts in South Africa are clear:

- life expectancy among adults has increased – for example by 11 years among adults in rural KwaZulu-Natal, the province worst hit by HIV/AIDS;
- fewer babies are born with HIV – rates have dropped from between 25% and 30% in infants born HIV positive in 2003 to 2.7% in 2011;
- the rate of new infections among adults is also declining;
- more than 20 million South Africans had been tested for HIV by December 2013;
- by December 2013, 1.2 million men had undergone medical male circumcision to reduce the risk of HIV infection.

Studies show that expansion of therapy has improved adult life expectancy and reduced mortality.

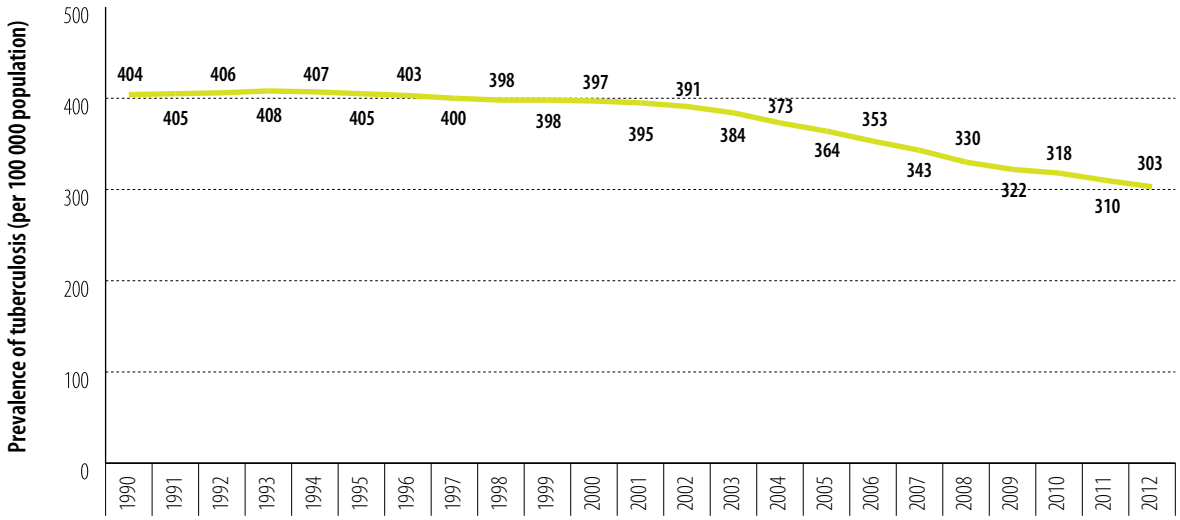
Tuberculosis

Tuberculosis is a major problem worldwide with 1.3 million new cases recorded in 2012, 27% of which occurred in the Region. Eight of the 10 countries with the highest tuberculosis incidence are from the Region. Although the prevalence of tuberculosis was high in 2012 (303 per 100 000 population), this is a significant improvement over 1990 when it was 404 per 100 000 (Fig. 4.1). The Region is now on track to meet MDG target 6c of halting and beginning to reverse tuberculosis incidence.

This high tuberculosis burden is linked to socioeconomic factors, particularly poverty and overcrowding, compounded by the emergence of new problems such as HIV and strains of tuberculosis resistant to anti-tuberculosis therapy. About 46% of people with tuberculosis are found to be HIV positive, and tuberculosis is the leading cause of death among people living with HIV, accounting for one in five HIV-related deaths. Coinfection is increasingly causing tuberculosis to occur in younger, more economically productive members of society, especially in young women aged 15–24 years.

The number of people in the Region diagnosed with multidrug-resistant tuberculosis (i.e.

Fig. 4.1. Trend in tuberculosis prevalence (per 100 000 population per year) in the WHO African Region, 1990–2012



Source: World health statistics 2014. Geneva: World Health Organization; 2014.

tuberculosis resistant to the two most powerful drugs, rifampicin and isoniazid), has increased dramatically from 115 in 2003 to 18 129 in 2012. The numbers of those found to have extensively drug-resistant tuberculosis (i.e. tuberculosis resistant to at least four of the core anti-tuberculosis drugs) has also increased considerably, from 85 in 2004 to 3487 in 2012. Although the number of people with multidrug-resistant tuberculosis being treated has increased fivefold since 2008, only about 57% of people with this type of tuberculosis were receiving treatment at the end of 2012.

What works?

Four major interventions have proven successful in the control of tuberculosis in the Region:

- expansion of the basic package that underpins the Stop TB Strategy (DOTS), resulting in an increased number of countries achieving tuberculosis treatment success rates of 85%;
- improved diagnostics, resulting in improved case detection and, detection and treatment of multidrug-resistant and extensively drug-resistant tuberculosis;
- implementation of WHO paediatric tuberculosis guidelines, leading to improved detection and notification of all forms of tuberculosis in children;
- tuberculosis/HIV integration, resulting in improved access to HIV testing and treatment for tuberculosis patients.

Expansion of DOTS

DOTS is a standard course of antimicrobial drugs that is provided, along with information, supervision and support to the patient, by a health worker or trained volunteer. It is an approach that ensures patients continue taking their drugs until they are no longer infectious. DOTS coverage has been expanded since the beginning of the 1990s and by the end of 2008, the regional average for DOTS coverage was 93%.

Between 1995 and 2012, the treatment success rate (a measure of whether patients are no longer infectious) among patients with smear-positive pulmonary tuberculosis increased from 60% to 82%, and 18 countries surpassed the global target (85%). This high treatment success rate means that more of the people placed on treatment cease to be sources of infection to others. A high treatment success rate also reduces the risk of causing the emergence of drug-resistant tuberculosis, thus available medicines remain effective and the health security of the populace is guaranteed. The involvement of communities, and strengthening linkages with health facilities, enabled the rapid expansion of the strategy.

Improved case detection due to improved diagnostics

Introduction of tuberculosis rapid diagnostic tests that provide results within 2 hours has led to improved sensitivity, timeliness and simultaneous detection of drug resistance. In addition to offering the opportunity to rapidly detect tuberculosis among people living with HIV, this technique also permits timely detection of multidrug-resistant tuberculosis or extensively drug-resistant tuberculosis in people living with HIV. The tuberculosis case detection rate has increased in the Region from 39% in 1995 to 59% in 2012.

Implementation of WHO paediatric tuberculosis guidelines

In 2005–2006, introduction of WHO paediatric tuberculosis guidelines and revision of tuberculosis reporting tools permitted notifications of cases in children who had smear-negative tuberculosis. Prior to 2005, only smear-positive tuberculosis cases were reported, a practice that led to underreporting of tuberculosis in children since most of them cannot expectorate sputum for diagnosis. Since then there has been an eightfold increase in the number of children reported annually in the Region. As a result, more children are being treated early and more resources are being applied to caring for this previously unrecognized group. In 2013, nearly 10% of notified tuberculosis cases in the Region were in children under the age of 14 years.

Tuberculosis/HIV integration

Tuberculosis is common among people with HIV, thus tuberculosis/HIV collaborative activities were introduced in 2004 with a major focus on compulsory HIV screening of all tuberculosis patients. Before this, tuberculosis patients' survival remained low, even when placed on early tuberculosis treatment, due to undetected coinfection with HIV. In 2013, 74% of people in the Region known to have tuberculosis had an HIV test. Of those found to be positive for HIV, 57% received WHO-recommended ART. Thus, this integration of HIV/tuberculosis services, both for testing and treating, has improved the health of people with both HIV and tuberculosis. Strong collaboration of both tuberculosis and HIV programmes through joint planning and supervision led to better scale up of these two programmes.

Malaria

Malaria remains a major global health problem and the WHO African Region is the world region most severely affected. In 2012, there were an estimated 207 million cases of malaria worldwide, 80% of them in the Region. Although too many people are still dying from malaria, especially mothers and children, control efforts are paying off. Numbers of cases and deaths are declining and the use of preventive strategies is increasing.

The estimated number of malaria cases per 1000 persons at risk, which takes into account population growth over time, has been reduced by 29% globally between 2000 and 2012, and by 31% in the Region during the same period. If the annual rate of decrease over the past 12 years is maintained, then the malaria case incidence is projected to decrease by 36% globally and 39% in the Region by 2015. It is estimated that 337 million cases of malaria and 3.08 million malaria-

WHO

All countries have adopted a policy on universal health coverage with ITNs defined as two ITNs for two people at risk of malaria

related deaths were averted between 2001 and 2012 in Africa.

In 2012, 90% of the estimated 627 000 malaria deaths worldwide occurred in the Region. In the general population, between 2000 and 2012, the malaria mortality rate decreased by about 50%. However, an estimated 462 000 deaths occurred in children less than 5 years of age in the Region. Although large numbers of children are still dying of malaria, malaria death rates have decreased by 54% in children less than 5 years of age. Again, if the annual rate of decrease seen over the past 12 years is maintained, malaria mortality rates are projected to decrease by 68% in children less than 5 years of age by 2015.

The progress in malaria control in the Region has been enabled by the commitment of governments, the African Union, subregional economic communities and massive international funding, which increased from less than US$ 100 million in 2000 to US$ 1.93 billion in 2013.

What works?

Four major interventions have proven very useful for the prevention and control of malaria. These are:

- availability and use of ITNs;
- diagnosis-based treatment with ACT;
- engagement of communities in malaria control;
- strengthening capacity in vector control for malaria.

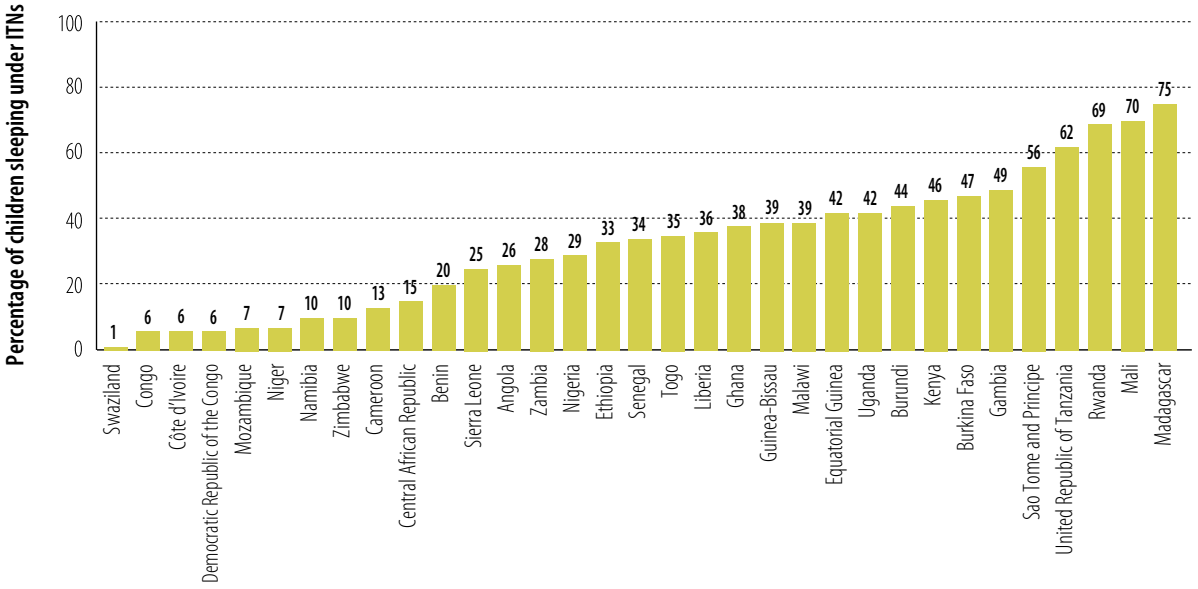
Insecticide-treated nets

The 31% decline in malaria incidence and 49% drop in numbers of malaria deaths in the period 2000–2012 has been largely due to the expanded use of ITNs. This is a highly cost–effective intervention, with nets usually provided free or at a heavily subsidized price. Scale up of ITN use in the Region was deployed in two steps. Between 2005 and 2008, a mortality reduction objective was pursued through targeting ITN distribution to the two most vulnerable populations – pregnant women and children less than 5 years of age. As a result, ITN distribution was linked with other effective interventions such as antenatal care services and routine immunization. By 2009, the strategy of universal access was introduced to better scale up ITN ownership and use. Thus nationwide distribution of ITN to all populations at risk was adopted. Therefore by the end of 2012, all countries had adopted a policy on universal coverage with ITNs defined as two ITNs for two people at risk of malaria. This better scale-up strategy resulted in ITNs being distributed free in 39 of the 44 malaria-endemic countries of the Region, including distribution through antenatal clinics in 34 countries and through Expanded Programme on Immunization clinics in 26 countries. The percentage of households owning at least one ITN was estimated to be 53% at the end of 2012, while the population sleeping under an ITN was estimated as 36% in 2012. The proportion of the population sleeping under an ITN remained an estimated 36% in 2013. However, the percentage of children and pregnant women using nets still remains significantly below the 80% target set by the World Health Assembly (Fig. 4.2).

Diagnosis-based treatment with ACT

The practice of providing ACT to people with a confirmed parasitological diagnosis is expand-

Fig. 4.2. Percentage of children less than 5 years of age sleeping under insecticide-treated bed nets (ITNs) in the WHO African Region, 2005–2011



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

ing in the Region and partly accounts for the 49% decline in malaria deaths during the period 2000–2012. ACT was used in 42 countries in 2012 (only Algeria and South Africa have not adopted this policy). If ACT is given early to people proven to be positive for malaria, most will recover from the disease. Of the 147 million ACT treatments distributed globally in 2012, 134 million were in Africa. The expansion of rapid diagnostic tests has enabled appropriate use of ACT, which should hinder the development of resistance by the malaria parasites. In 2012, 41 of 44 countries with ongoing malaria transmission in the Region reported adoption of the policy of providing parasitological diagnosis for all age groups. Hence the proportion of suspected malaria cases receiving a diagnostic test in the public sector at the end of 2012 was 61%. Most of this achievement in testing is attributable to an increase in the use of rapid diagnostic tests and its expansion to the community level. The rapid scale up of rapid diagnostic test use in the Region has been a major boost for improved quality of care and rational use of drugs. The proportion of patients in the public sector treated with ACTs reached 60% in 2012.

Engagement of communities

Recent assessment of approaches to malaria prevention has indicated that many communities regard malaria as the status quo – something that has always existed and will never be changed. Hence, when health workers advise draining of swamps, spraying homes and use of ITNs, this advice may be ignored. Work is now focusing on multisectoral malarial control – for instance, involving agricultural advisors whose advice is often taken more seriously by rural communities, such as was found in Kenya. Potential interventions include:

- water-management-based interventions;
- using a development-oriented focus such as advocacy for reducing the malaria

burden to increase productivity and food security;
- collaborating with agrochemical businesses to integrate better malaria control;
- collaborating with farmers' field schools for integrating malaria with pest management programmes;
- using intermittent wet/dry irrigation;
- increasing the distance between residential areas and crops/methods that increase malaria.

A variety of strategies have been used to raise community awareness of malaria prevention and control interventions. iCCM is being promoted as a strategy for reducing morbidity and mortality in the population less than 5 years of age through the delivery of adequate services by volunteer community health workers. The focus of iCCM is training and equipping community volunteers to recognize, diagnose and treat malaria, diarrhoea and pneumonia – the three top childhood killers. The experience of Senegal is described in Box 4.3.

Box 4.3. Successful implementation of integrated community case management (iCCM) of childhood illness in Senegal

Senegal has successfully implemented iCCM since 2003, with more than 4000 community sites in 72 out of 76 districts covered in 2013. This enabled community health workers to manage malaria, diarrhoea and pneumonia effectively. Malaria, diarrhoea and pneumonia were respectively responsible for 19%, 14% and 13% of deaths in children less than 5 years of age. An evaluation indicated that after the training of community health workers in the use of rapid diagnostic tests, the number of cases diagnosed as malaria declined significantly and therefore antimalarial drug use became more rational and cost–effective. Ninety-three percent of suspected patients benefited from a rapid diagnostic test and 100% of malaria-confirmed cases received adequate treatment.

Lessons learnt from the implementation of iCCM include:

- establishing a favourable policy environment and effective institutional support;
- reinforcing links between the health system and the communities;
- rapidly scaling up the delivery of quality services by community health workers to households;
- designing and implementing behaviour-change community activities for iCCM.

Strengthening capacity in vector control for malaria

Vector control is a major strategy of malaria control in the Region. However, technical capacity for vector control is weak in many countries. Where capacity does exist, poor collaboration between institutions with the expertise in vector control and national malaria control programmes leads to suboptimal use of entomological information

Box 4.4. Country project to strengthen capacity for vector control

This seven-country project contributed to filling gaps in skills, expertise, infrastructure and work procedures. It also strengthened the entomological skills of national malaria control programmes and local research institutions in the participating countries. Seven national reference entomology laboratories were renovated and fully equipped; more than 300 national technicians were trained in basic entomology and vector control; and 20 graduate students in four countries were sponsored to complete their BSc, MSc, and PhD courses. Functional sentinel sites for vector surveillance were also established within the countries. Insectaries equipped with vector sampling and rearing facilities were built to facilitate and intensify vector resistance monitoring activities. A regional database comprising over 1909 insecticide resistance patterns covering 364 different sites in 30 countries was developed and has since provided the basis for evidence-informed vector control. It was used to produce the first ever atlas of vector resistance in the WHO African Region that shows trends in malaria vector resistance to commonly used insecticides. Most countries are now able to undertake advanced entomological surveillance.

for decision-making. In 2008, a 4-year project to improve infrastructure and strengthen entomological skills was implemented in Cameroon, Kenya, Madagascar, Mali, Mozambique, Senegal and the United Republic of Tanzania (Box 4.4). Strong partnership between national authorities and research institutions within these countries was instrumental to the capacity-building effort. In all of these countries, researchers collaborated with the national malaria control programmes to define the need for specialized skills in vector control, develop a capacity-building plan and implemented and evaluated the plan.

Epidemic- and pandemic-prone diseases

Epidemic- and pandemic-prone diseases threaten public health security. They can be responsible for high levels of morbidity and mortality and have a devastating impact on the economies of the Region. These diseases can occur across borders and affect the world as a whole. Countries in the Region have reported epidemics of cholera, Ebola and Marburg viruses, influenza, yellow fever, meningococcal meningitis and Lassa fever. In 1998, the Integrated Disease Surveillance and Response Strategy was set up to address the burden of communicable diseases and improve the availability and use of data in detecting and responding to public health events.

Three major interventions have been useful for improving preparedness and response to epidemic and pandemic diseases: the enhancement of surveillance systems for timely reporting of notifiable diseases; the early detection of emerging dangerous pathogens; and enhanced systems for detection and response to pandemic influenza.

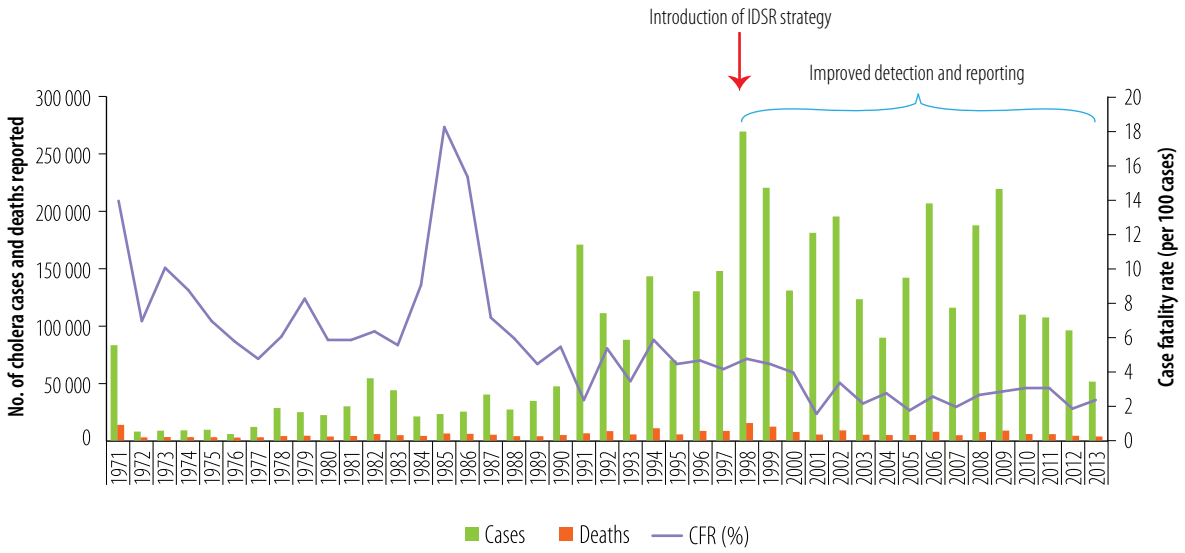
What works?

Enhanced surveillance systems for timely reporting of notifiable diseases

Following the effective implementation of the Integrated Disease Surveillance and Response Strategy over the past decade, significant improvement in the detection, reporting and response to priority diseases has been recorded. For example, between 2007 and 2013 a total of 877 526 cholera cases, including 23 461 deaths, were reported in the Region, giving an overall case fatality ratio of 2.7%. Fig. 4.3 illustrates progressive improvement in detection and reporting of cholera cases, from 1971 to 2013, in the Region.

Enhanced surveillance systems, early detection of emerging pathogens and enhanced health systems are key to improving preparedness and response to epidemic and pandemic disease

Fig. 4.3. Trend of cholera cases and deaths reported in the WHO African Region, 1971–2013



CFR: case fatality rate; IDSR: Integrated Disease Surveillance and Response.

Early detection of emerging dangerous pathogens

The Ebola virus was first diagnosed in 1976 in Yambuku, a village along the River Ebola in the Democratic Republic of Congo. Since then, more than 20 Ebola outbreaks have occurred, mainly in eastern and central African countries. Progress made by countries in strengthening their national public health laboratories' capacities and the networking of laboratories at regional level has led to early detection of emerging dangerous pathogens, such as Ebola and Marburg viruses, and enabled a better, more effective response. There has been a significant progressive decrease in the number of cases and deaths recorded during Ebola virus disease outbreaks over the past 30 years.

The importance of early detection was underscored by the ongoing epidemic of Ebola virus disease in Guinea, Liberia and Sierra Leone. In March 2014, Guinea notified WHO about cases of Ebola virus disease. The cases were initially confined to rural Guinea with the epicentre being Gueckedou. What started as a rural outbreak has spread to Conakry, the capital of Guinea, as well as across the borders into Liberia and Sierra Leone. The current Ebola virus disease outbreak has surpassed all other outbreaks in terms of cases, deaths and geographic spread across Guinea, Liberia and Sierra Leone. As of 19 October 2014, the cumulative number of cases attributed to Ebola virus disease in the three countries stands at 9936, including 4877 deaths.

Enhanced systems for detection and response to pandemic influenza

When the pandemic influenza H1N1 emerged globally, countries in the Region enhanced their pandemic influenza preparedness and response systems. Actions taken included:

- reactivation of public health event management committees;
- updating the national pandemic influenza preparedness plans, based on the regional pandemic influenza preparedness plan;

- strengthening networking of influenza laboratories at the regional level;
- prepositioning of essential supplies, reagents and drugs;
- strengthening of early-warning alert and response systems;
- procurement of influenza vaccines.

These preparedness activities resulted in the early detection of the first case of pandemic influenza (H1N1) in South Africa in June 2009, and subsequent cases in other countries in the Region.

Enhanced cross-border collaboration to improve preparedness and response to epidemic and pandemic diseases

Following the adoption and implementation of the International Health Regulations (2005) to prevent, protect against, control and provide public health responses to the international spread of diseases, there has been increased collaboration between Member States to address priority epidemic- and pandemic-prone diseases likely to cross their borders. In 2011, ministers of health from Angola, the Congo, the Democratic Republic of Congo, Namibia and Zambia held a cross-border ministerial meeting in Lusaka, Zambia, signing a memorandum of understanding on cross-border collaboration on epidemic diseases and other public health issues. This collaboration has promoted synchronization of vaccination campaigns in the control of epidemics such as polio and yellow fever. In addition, the WHO Regional Office for Africa convened a 2-day emergency ministerial meeting on the Ebola virus disease outbreak in Accra, Ghana, in July 2014. The meeting reached a consensus on coordinated actions by all stakeholders, effective national leadership, and enhanced cross-border collaboration in the response. A subregional control centre has been established in Guinea to act as a coordinating platform to consolidate and harmonize technical support to countries by all major partners and assist in resource mobilization.

Neglected tropical diseases

The Region bears a disproportionately high burden of NTDs, diseases that affect mainly impoverished and disempowered populations. Some of these diseases, including guinea-worm disease, Buruli ulcer and human African trypanosomiasis, are found only on, or mainly on, the African continent. NTDs are distinguished by their slowly evolving symptoms that often lead to debilitating complications. All 47 countries in the Region are endemic for at least one NTD and 36 of them (78%) are co-endemic for at least five of these diseases.

Although neglected, hundreds of millions of people are at risk of these diseases: 470 million for lymphatic filariasis; 330 million for soil-transmitted helminthiasis; 250 million for blinding trachoma; 220 million for schistosomiasis; and 123 million for onchocerciasis. Chronic and insidious, these diseases impair the physical and intellectual capacities of affected people, thus perpetuating the poverty cycle and impeding socioeconomic development. Their impact on agricultural productivity contributes to poverty over

Some NTDs, including guinea-worm disease, Buruli ulcer and human African trypanosomiasis, are found only on, or mainly on, the African continent

generations. In terms of DALYs and deaths, of the global burden attributable to infectious and parasitic diseases, NTDs account for 25% of DALYs and 10% of the deaths. In 2001, it was estimated that the burden of lymphatic filariasis alone was 4.7 million DALYS annually.

Many NTDs are treatable and preventable, and have thus been targeted for eradication or elimination. These include guinea-worm disease (dracunculiasis) and yaws, lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiasis and blinding trachoma. Leprosy and human African trypanosomiasis, which are treated using intensified case management, are also targeted for elimination as public health problems. Buruli ulcer and leishmaniasis are still targeted for control, not elimination, because of lack of simple diagnostic tools, and safe and affordable medicines.

What works?

The two most effective approaches for preventing and eliminating NTDs are:

- mass administration of medicines (preventive chemotherapy) for diseases such as lymphatic filariasis, onchocerciasis, schistosomiasis and soil-transmitted helminthiasis;
- early case finding and decentralized case management for Buruli ulcer, dracunculiasis, human African trypanosomiasis, leprosy, leishmaniasis and yaws.

Elimination of blinding trachoma is managed effectively using the SAFE approach (Surgery, Antibiotics, Facial cleanliness and Environmental changes).

Mass-administered preventive chemotherapy

The most effective intervention for the five commonly occurring NTDs is mass-administered preventive chemotherapy over several years. Although the cost of such treatment is low, it is still beyond the reach of many governments and individuals, and coverage levels remain too low. In 2006, WHO launched a preventive chemotherapy and transmission control strategy based on available, safe and effective drugs that can be administered to all at-risk populations. A variety of methods such as school health days, child health days, vaccination campaigns, community-directed treatment initiatives, and other proven mass drug administration activities are being used to deliver these treatments to communities at risk. For example, Togo successfully interrupted the transmission of lymphatic filariasis by conducting annual mass administration campaigns using ivermectin and albendazole, between 2000 and 2009 (Box 4.5). The success of the mass treatments was due to social mobilization and information, education and communication campaigns, carried out before and during the medicine distribution and involvement of community health workers in the distribution of the medicines.

Box 4.5. Elimination of lymphatic filariasis in Togo: a success story

In 2010, Togo was the first country in the WHO African Region to eliminate lymphatic filariasis. The country conducted at least six consecutive rounds of mass treatments in targeted districts. These mass treatments, conducted door-to-door with the support of community health workers, led to the killing of the microfilaria and interrupted local transmission of the disease. The success of the mass treatments was due to social mobilization and information; education and communications campaigns, carried out before and during the medicine distribution; and involvement of community health workers in the distribution of the medicines.

Further to conducting assessment surveys in 2009 and 2010, the country was confirmed free of local transmission of lymphatic filariasis. Since then the country has been under post-mass drug administration surveillance, which is carried out nationwide through a network of district level laboratories and has confirmed the interruption of local transmission of the disease.

Early case findings and decentralized case management

Preventing blinding trachoma

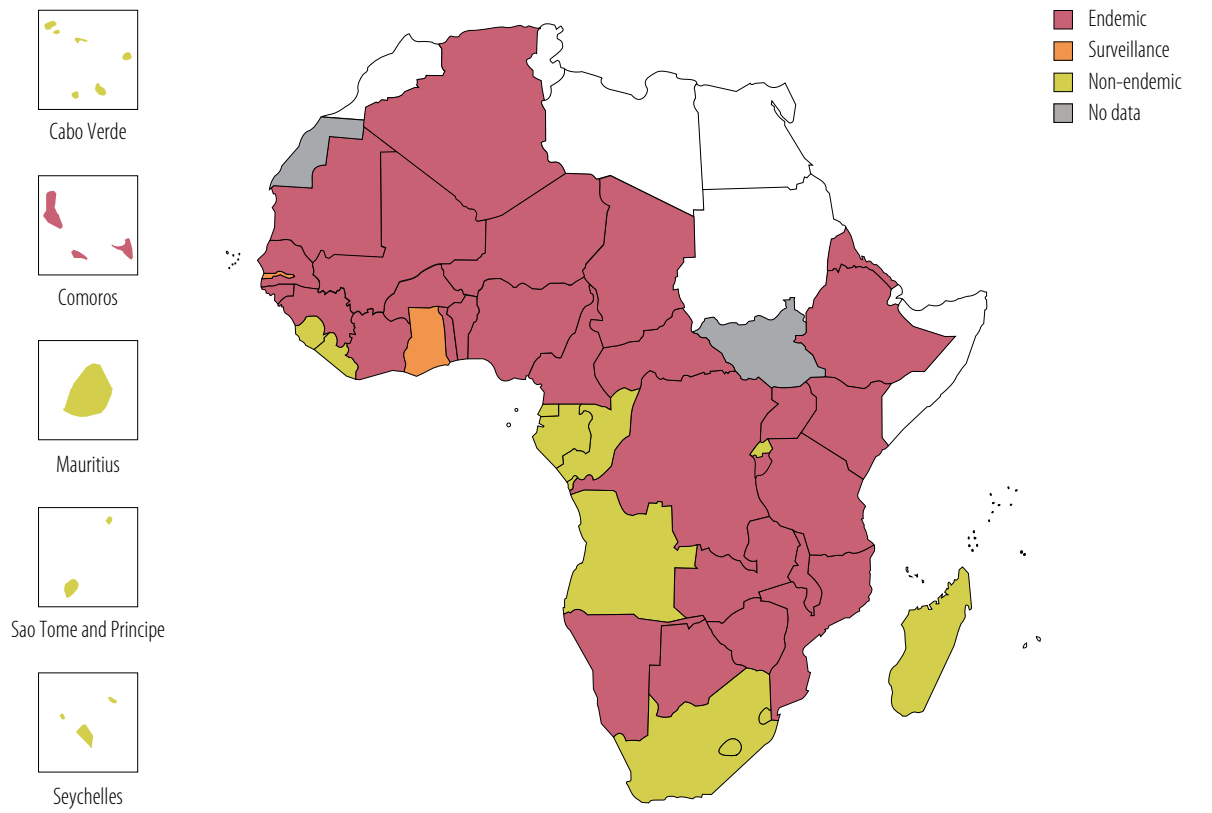
Trachoma, an infection of the eye caused by *Chlamydia trachomatis*, is an important cause of blindness in the Region (Fig. 4.4). Active infection often begins during infancy or childhood and can become chronic. If left untreated, it ultimately leads to irreversible blindness, typically between 30 and 40 years of age. Infection spreads from person-to-person, and is frequently passed from child-to-child and from child to mother, especially where there is shortage of water, numerous flies and crowded living conditions. Treating and preventing trachoma requires implementation of the SAFE strategy. This involves providing surgery for those who already have complications, antibiotics to people in endemic communities, face washing, and environmental changes (improving personal hygiene and access to clean water).

Ghana eliminated blinding trachoma in 2013 (Box 4.6). Burkina Faso started mass drug administration of azithromycin in 2010 in 30 districts that had been confirmed as endemic for trachoma. An impact assessment conducted in 2013 showed significant reduction in trachoma prevalence, with only four districts remaining endemic.

Guinea-worm eradication

The success of efforts to eradicate guinea-worm disease is remarkable because there are no specific drugs or vaccines available to treat the disease. Preventive measures such as health edu-

Fig. 4.4. Status of endemicity for blinding trachoma in the WHO African Region, 2010



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

Box 4.6. Elimination of blinding trachoma in Ghana

Ghana, which eliminated blinding trachoma in 2013, began activities to control the disease in 2000, when 16% of children had trachomatous inflammation – follicular. The full SAFE (Surgery, Antibiotics, Face washing and Environmental changes) strategy was implemented from 2004 and by 2007–2008, the highest prevalence detected was 2.8%. By that time, 70% of households had access to potable water and 38% of households had access to household latrines.

The success of the SAFE programme has been linked to the strong collaboration between the Ministry of Health, other ministries and nongovernmental organizations. Many stakeholders from the health, education and water, sanitation and hygiene sectors were involved in initial planning and budgeting for implementation of the SAFE strategy, which was implemented in full in all endemic districts.

Active screening is carried out by ophthalmic nurses using a magnifying glass and flashlight. Passive screening is conducted by appropriately trained health workers, who submit a list of suspected cases to the subdistrict health authorities every 2 weeks. Active case-finding and treatment are performed by an ophthalmic nurse who visits the community and screens schoolchildren and the families of children with suspected cases. At the beginning of every academic year, five schools in every district undergo screening. Awareness of the health problem has been increased over the years by regularly broadcasting messages on local radio stations and via school health activities, provision of information materials and involvement of local chiefs and community leaders.

cation; strong partnerships with communities leading to early case notification and management; provision of clean water sources; treating water sources with mild larvicides; use of cloth water filters; and strong epidemiological surveillance have brought the disease close to eradication. However, it has also been important to have a clear roadmap towards eradication as well as political commitment from countries and a clear certification process. In the 15 years between 1998 and 2013, 39 countries in the Region have been certified by WHO as guinea-worm disease free. Four countries are non-endemic, although not yet WHO-certified (Fig. 4.5). The remaining four are still endemic but are making good progress to interrupt transmission.

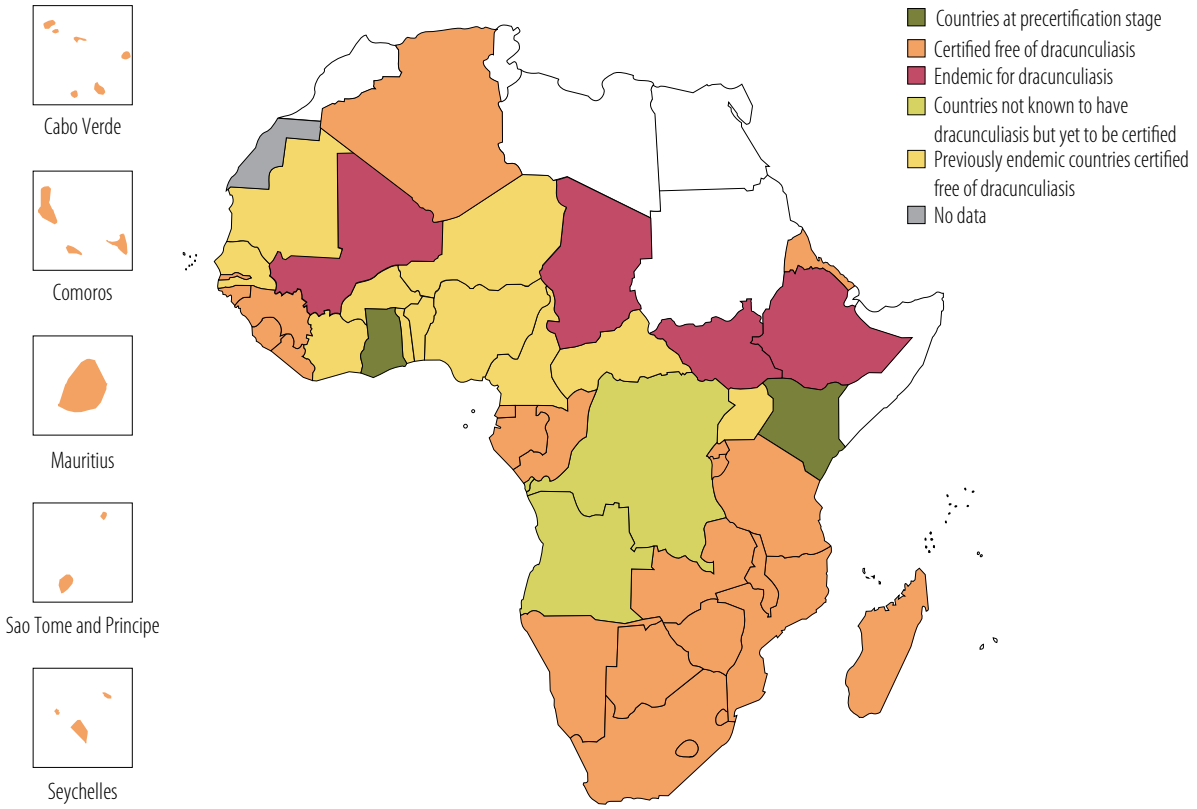
Leprosy elimination

Leprosy has been eliminated as a national public health problem (a prevalence rate less than 1 case per 10 000 inhabitants) in all countries of the Region since 2007. It only remains highly endemic in localized areas in some districts of countries, for example in the Comoros (Island of Anjouan) and the Democratic Republic of the Congo (in the provinces of Bandundu, Equateur, Katanga and Province Orientale). The success of leprosy elimination is to be linked to simplified diagnosis and classification of cases into multibacillary and paucibacillary forms of the disease for treatment. This classification is based on counting the number of skin patches or leprosy lesions; multibacillary cases having more than five skin patches or lesions. WHO recommended multiple-drug chemotherapy composed of the administration of monthly blister packs of two antibiotics for 6 months or three antibiotics for 12 months, depending on the form of the disease. This multiple-drug chemotherapy has been key to successful elimination, along with integration into primary health care and decentralizing treatment to community level, with involvement of volunteers enabled to carry out early diagnosis and cure millions of cases of leprosy. As the example from Mozambique shows (Box 4.7), social mobilization and community participation was instrumental to eliminating leprosy.

Noncommunicable diseases

The Region has not escaped the global epidemic of NCDs. WHO estimates that deaths from NCDs are likely to increase globally by 17% over the next 10 years, and the Region will experience a 27% increase, that is 28 million additional

Fig. 4.5. Dracunculiasis (guinea-worm disease) certification status of countries in the WHO African Region, beginning of 2013



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

deaths from these conditions which are projected to exceed deaths due to communicable, maternal, perinatal and nutritional diseases combined by 2030. In some African countries, such as Mauritius, Namibia and Seychelles, NCDs cause over 50% of all reported adult deaths. This implies that NCDs will soon be a leading cause of ill health, disability and premature death in the Region, and will have an adverse impact on socioeconomic development.

The four main risk factors for major NCDs are tobacco use; physical inactivity; harmful use of alcohol; and unhealthy diet. These risk factors, acting singly or in combination, significantly contribute to common NCDs and related conditions. The risk factors for NCDs that influence individuals, households and communities are driven by social and economic determinants that exist outside the domain of the health sector. These include poverty, globalization, trade, education, urbanization, climate change, employment conditions and gender disparities among others (see Chapter 5 for further discussions on risk factors.).

The Region is still at an early stage of the NCD epidemic and if it is able to develop a response to this challenge using low-cost health solutions, particularly prevention and health promotion to the entire population, it may be able to stem the tide of NCDs. Legislation will be a key element and all government departments, nongovernmental organizations and the private sector

Box 4.7. Social mobilization and community participation: the COMBI project in northern provinces of Mozambique

In the beginning of 2000, Mozambique was still highly endemic for leprosy, especially in the three northern provinces of Nampula, Niassa and Cabo Delgado, with a prevalence rate higher than five cases per 10 000 in many districts. The burden of the disease was worsened by poor health services coverage and difficult-to-access areas, with many health facilities and roads destroyed during the civil war after the independence of the country.

To enable early case finding and treatment of leprosy cases in these provinces, a project entitled COMBI (COMmunication for Behaviour Impact) was launched in schools and children were given a small sheet of paper with a body chart to report any skin patch found in their respective family members with the following theme "Check your Skin for ELSI" – ELSI being the acronym for Early Leprosy SIgn.

In addition, because of the scarcity of peripheral health centres, some community members volunteered to be health workers for suspected leprosy cases, referring them for confirmation of the diagnosis to the nearest health centre. After confirmation, the community volunteer collects the required quantities of multiple drug chemotherapy blister packs for treating the leprosy patients at their respective localities.

Using the COMBI project and the community volunteers, Mozambique was able to reduce the prevalence of leprosy in these three provinces within 5 years (2002–2007) and to achieve leprosy elimination as a public health problem at national level.

should work together to strengthen the proposed organization of care for NCDs at the primary, secondary and tertiary health care level and ensure a comprehensive approach to the problem.

Cardiovascular diseases

Cardiovascular diseases such as hypertension, stroke, heart failure and diseases of the coronary arteries are increasing rapidly in the Region and now represent a major public health problem. Cardiovascular diseases have a major impact on individuals, families and societies in terms of health-care costs, absenteeism and loss of productivity.

One reason for the recent rise in cardiovascular diseases is the ageing population in the Region. Behavioural and physiological risk factors (raised blood pressure, blood glucose and blood cholesterol, overweight and obesity) are responsible for 75% of cardiovascular diseases. An important phenomenon seen in Africa is a tendency for symptoms to appear at younger ages.

High blood pressure is a very common problem among adults in the Region, which reports the world's highest prevalence of hypertension (38.1% among males, 35.5% among females) with some countries (e.g. Cabo Verde, Mozambique, Niger, Sao Tome and Principe) reporting prevalence rates of 50% or higher. The prevalence of hypertension has increased significantly over the past two to three decades. There were approximately 80 million adults with hypertension in sub-Saharan Africa in 2000 and projections based on current epidemiological data suggest that this figure will rise to 150 million by 2025. Furthermore, there is evidence indicating that complications of hypertension, particularly stroke and heart failure, are becoming increasingly common in sub-Saharan Africa.

High salt intakes are common in the Region, usually because salt is used to preserve food but also because it is added to make food tastier. Salt is also added to already-prepared food by the consumer, as processed food is rare. Studies have shown that decreased salt intake not only reduces blood pressure and related cardiovascular disease risk, but has other beneficial cardiovascular effects (see Chapter 5 for discussion of country efforts to reduce salt levels in food).

Chronic respiratory diseases

Chronic respiratory diseases such as asthma, chronic obstructive pulmonary disease, tuber-

culosis and lung cancer, are major causes of illness and death among Africans. These may start in childhood through exposure to infection, indoor air pollution and tobacco smoke and cause great disability and eventual death in older adults. Chronic respiratory diseases have received little attention in the Region but an emerging body of evidence suggests that the burden of disease attributable to them is substantial and underrecognized. Asthma prevalence is rising in Africa, possibly due to increased urbanization and air pollution. An asthma prevalence of 23% has been reported in urban South Africa.

A *Global burden of disease* study estimated the global prevalence of chronic obstructive pulmonary disease to be 9.33 per 1000 people for men and 7.33 per 1000 for women. In sub-Saharan Africa, the rates are 4.41 per 1000 for men and 2.49 per 1000 for women. As the world's population ages, these estimates are projected to rise to alarming levels in the context of the continued exposure to potential risk factors such as tobacco smoke, biomass fuels and environmental dusts. It is important to note that infectious diseases prevalent in the Region, such as tuberculosis, have a powerful impact on respiratory disease. Studies in South Africa found that a history of tuberculosis infection was the commonest risk factor for chronic obstructive pulmonary disease. Infection with HIV has a very poor prognosis in people with chronic obstructive pulmonary disease, as it often leads to rapid decline in lung function.

Cancer

Cancer is on the rise in the Region, especially among women, who have the world's highest rates of cervical cancer. Major causes of cancer in Africa are infectious agents, increasing tobacco and alcohol use, unhealthy diets, physical inactivity and environmental pollution. A greater proportion of cancers are caused by infectious agents (36%) than are seen in other parts of the world: such cancers include cervical, liver and stomach carcinomas, Kaposi's sarcoma and Burkitt's lymphoma. The most common cancers among women are breast, cervical, stomach, lung and colorectal cancer. Breast cancer incidence rates show marked inequalities between rich and poor countries. Although the highest incidence is seen in more developed regions, mortality rates are relatively much higher in less-developed countries due to late detection and poor access to treatment facilities. Among men, the most common cancers are prostate and liver cancers.

Estimates from 2008 show that cancer was responsible for 5% of deaths in the Region; ranging from 2% in countries such as Burkina Faso, the Democratic Republic of Congo, Mali, Niger, Sierra Leone and Zimbabwe, to 7% in Algeria. Projections for 2030 suggest there will be 1.3 million cases and about 1 million deaths from cancer in the Region, largely as a result of population growth and ageing. However, two of the most common cancers in the Region – cervical and liver cancer – are associated with vac-

Lagos Ministry of Health

Cancer is on the rise in the Region, especially among women, who have the world's highest incidence of cervical cancer

cine-preventable infections. These cancers are more prominent in the Region than other parts of the world, suggesting that use of appropriate, currently available vaccines may reduce the incidence of these cancers in future generations.

What works?

Strong leadership to tackle the use of tobacco

Smoking tobacco is the strongest risk factor for chronic respiratory and cardiovascular diseases, including cancer. A combination of legislation and evidence-based advocacy for government intervention has been instrumental in the fight against tobacco. South Africa has shown that tobacco control works to prevent chronic lung disease. Initially, strong and consistent lobbying was needed to persuade the government to implement an effective tobacco control strategy. Country-specific research, drawn from a variety of disciplines, was used to provide a credible evidence base to back the lobbyists' appeals. Once the South African Government decided to act, they used several strategies. Rapid increases in the excise tax on cigarettes, which increased the price, were particularly effective in reducing tobacco consumption. An increase of 10% in the real price of cigarettes decreased consumption by between 6% and 8% in South Africa. While an increase in the excise tax is generally regarded as the most effective tobacco control measure, tobacco control legislation also plays an important role in a comprehensive tobacco control strategy. Bans on tobacco advertising and bans on smoking in public and in work places, as introduced in South Africa, make other tobacco control interventions more effective. Tobacco control legislation, particularly laws banning smoking in indoor public places, is largely self-enforcing as it clarifies and explains that the rights of non-smokers to clean air supersede the right of smokers to smoke (see Chapter 5 for further discussions on risk factors).

WHO/Julie Pudlowski

The two most common cancers in the Region – cervical and liver cancer – are associated with vaccine-preventable infections

Visual cervical cancer screening and cryotherapy

Pilot studies conducted in two areas (rural and urban) in Guinea over 4 years found that use of simple visual tests to screen the cervix detected 300 precancerous lesions and 100 invasive cervical cancers that were then treated. All women with cervical lesions received timely treatment, either cryotherapy (freezing off the lesion) for precancerous lesions or surgery and radiotherapy for invasive cancers. There is an urgent need to make these affordable and effective approaches available, not only throughout Guinea but also in other African countries.

Sickle cell disease

Sickle cell disease, a genetic condition where red blood cells are malformed into a crescent or sickle shape, is the most prevalent genetic disease in the Region. The misshapen cells can block small blood vessels, slowing blood flow, causing chronic pain, infection and even tissue death. The shape of the cells also means they are more easily destroyed, making someone with sickle cell disease likely to develop anaemia. Although more than 40 countries in the Region

have people with sickle cell disease, most of the information about prevalence comes from hospitals so may not give a complete picture of how many people are affected in the community. Most sickle cell disease complications are easily treated but these treatments are not accessed by most patients, specifically the vulnerable groups: children less than 5 years of age, adolescents and pregnant women. Laboratory facilities able to make an accurate diagnosis are also limited. People with sickle cell disease are often stigmatized, and recurrent sickle cell crises interfere with education, work and psychosocial development. In the Democratic Republic of Congo, 12% of children hospitalized in paediatric wards have sickle cell disease and the estimated annual cost for care is more than US$ 1000 per patient.

Despite logistic and economic constraints, neonatal sickle cell disease screening together with comprehensive health care management has been successfully practised in some parts of Africa. Comprehensive health care management consists of: parental and patient education; adequate nutrition; adequate hydration; use of prophylactic antibiotics and antimalarials; folic acid supplementation; use of specific vaccines; continuous medical follow up; and early detection and management of complications. Successful implementation of comprehensive health care management is possible with trained personnel, dedicated facilities, and tailoring the strategies to the local needs of each community. In Benin, where comprehensive health care management has been implemented, the mortality from sickle cell disease in children less than 5 years of age is 10 times lower than the overall local mortality rate for children less than 5 years of age.

Noma

Noma, often described as "the face of poverty", affects children under the age of 6 years in sub-Saharan Africa. Most countries in the Region report cases of noma, with Burkina Faso, Ethiopia, Mali, Niger, Nigeria and Senegal recording the highest numbers; an estimated 100 000 cases. Noma is a severe type of gangrene that starts as a benign lesion of the gums or cheek before rapidly destroying both the soft and hard tissues of the mouth and face. In the absence of treatment, the disease is fatal in 70–90% of cases. Survivors are disfigured for life and the functional damage can leave them unable to speak or eat.

In recent years, several countries have built capacity by training health workers, especially in health posts and district clinics, to identify and manage noma. Equally important is ensuring that all health centres have the necessary antiseptics and drugs to treat the disease and nutritional supplements to treat malnutrition in these children. Informing at-risk groups, especially mothers, about what the disease is and how it can be prevented and cured is crucial. Early detection can be achieved simply by ensuring all children are examined for ulcerations of the mouth. Finally, awareness campaigns are essential to overcome discrimination and false myths, such as belief in the risk of contamination.

Mental and neurological disorders

Mental health services specifically catering for people with severe psychiatric illness remain very limited in the Region. Severe and untreated mental disorders are a major risk factor for permanent disability and premature death. According to the *Mental health atlas 2011*, 80% of people who suffer from severe mental, neurological and substance use disorders in the Region do not receive any form of standard treatment. This may be due to lack of information, lack of access to health care, stigmatization and discrimination but is most often due to a lack of qualified mental health-care workers able to provide appropriate services.

Box 4.8. How the adapted mental health Gap Action Programme (mhGAP) is managing mental and neurological disorders in Mauritius

Under the WHO Biennium 2012–2013 Work Plan, the WHO mhGAP Intervention Guide was adapted to local settings and disseminated to medical and health officers and community physicians in the Ministry of Health of Mauritius. In the country there has been only partial decentralization of psychiatric services. Although the country has psychiatrists at the regional hospitals and they attend clinics at some of the area health centres, there are no such clinics at the community health centres. Psychiatric nurses in any of the five regional hospitals are limited and there are no community psychiatric nurses. The psychiatric disorders that were included in the adapted WHO mhGAP were depression, psychosis, bipolar disorders, dementia, alcohol use disorders and self-harm/suicide. A total of 110 nursing cadres from the regional hospitals were trained on the adapted mhGAP, which has definitely helped in the management of psychiatric patients both at the regional hospitals, and the area and community health centres where nursing staff work on a rotational basis. They are now in a better position to observe and manage the patients and counsel them.

About 20–25% of patients attending the outpatient clinics at the area and community health centres have psychiatric disorder comorbidity present with their physical illnesses. Dissemination of adapted mhGAP to the medical and health officers and the community physicians helps them to better manage the mental health problems of their patients and prevent the worsening of their conditions. The mhGAP has also helped them to identify those cases that need to be referred to specialists for treatment.

What works?

Providing mental health services at primary health care level

Some countries in the Region, such as Botswana, Côte d'Ivoire, Ethiopia, Madagascar, Namibia, Nigeria, South Africa and Uganda, are reporting good results after the integration of mental health into primary and general health care. Countries such as Ethiopia, Ghana, Mauritius, Mozambique, Nigeria and Uganda are also applying the mental health Gap Action Programme (mhGAP) developed by WHO, which outlines ways to identify and care for people with mental health problems at primary health care level, particularly where specialized services are not available or difficult to access (Box 4.8). Other countries such as Benin, Burkina Faso, Burundi, Mauritius, Niger, Sierra Leone and Togo are using mhGAP modules for the treatment of mental, neurological and substance use disorders.

Road traffic injuries

Although the Region possesses only 2% of the world's vehicles, it contributes 16% to global road traffic deaths and has the highest road fatality rate of all WHO regions.

Nigeria and South Africa have the highest fatality rates (33.7 and 31.9 deaths per 100 000 population per year, respectively) in the Region. More than one in four deaths in the Region occurs on Nigeria's roads. Nigeria and six other countries (the Democratic Republic of the Congo, Ethiopia, Kenya, South Africa, Uganda and the United Republic of Tanzania), account for 64% of all road deaths in the Region. These seven countries must reduce their road deaths considerably if the Region is to achieve a significant reduction in deaths.

Vulnerable road users – pedestrians, cyclists and people riding motorized two- and three-wheelers – constitute more than half (52%) of road users killed on the Region's roads. More than one third of people killed were pedestrians (37%). However, there are significant variations across countries. For instance, in Liberia and Mozambique being a pedestrian is particularly dangerous. In Mozambique, 55.5% of those killed on the road were pedestrians and in Liberia, 66.3% of road deaths were on foot. However, in the Democratic Republic of Congo, 5% of those killed were pedestrians.

Most countries in the Region still lack policies for protecting vulnerable road users and have not yet enacted comprehensive laws concerning the major risk factors: speed control, driving under the influence of alcohol, helmet and seat-belt use, and use of child restraints. When laws are in place, poor enforcement renders them ineffective. Finally, post-crash care is inadequate or lacking in many countries.

While statistics clearly point to a high economic cost to the respective countries, only nine countries have calculated an estimate of the cost in terms of their gross domestic product. This ranged from 1% in six of the countries, to 9% in Angola.

Road safety management must encompass the following enforced laws to reduce road traffic injury risks: speed limits; prevention of driving under the influence of alcohol; wearing of motorcycle helmets and seatbelts; use of child restraints; and prohibition of mobile phone use while driving. Roads should be designed to ensure the safety of their users, and be subjected to safety audits performed by an independent agency. Lastly, efficient surveillance and post-crash care must be available, including communication (emergency numbers), and transportation to health facilities with trauma services.

Complex disease interactions

NCDs are complex, have shared risk factors and may develop as complications of communicable diseases and/or their treatment. Challenges for the Region include:

- the association between diabetes and tuberculosis;
- the effects of use of ART for HIV, which increases the risk of developing metabolic syndrome;

DAKPOGAN Innocent Césaire Ségla

- HIV infection itself, which has been linked to an increased risk of developing both diabetes and cardiovascular disease.

Where an individual has such complex illness, proper management of all conditions is necessary to ensure good outcomes. For instance, good tuberculosis management is necessary for good diabetes management and good diabetes management is necessary to ensure the success of tuberculosis treatment.

What works?

Patient-centred care

The health systems in the Region need to find ways to address these interplays between conditions and risk factors and move away from a disease focus to one more centred on the individual who may have one or more risk factors and/or diseases that cut across the traditional noncommunicable/communicable disease boundaries. In looking at the joint burden of diabetes and tuberculosis, experts have defined key areas that need to be addressed, namely screening of people with diabetes for tuberculosis (and vice versa), the impact of poor diabetes management on tuberculosis, the implementation of a DOTS model for diabetes management, and the development and evaluation of better point-of-care diagnostic and monitoring tests (Box 4.9).

The Region is still at an early stage of the NCD epidemic and if it is able to develop a response to this challenge using low-cost health solutions, particularly prevention and health promotion to the entire population, it may be able to stem the tide of NCDs. Legislation will be a key element and all government departments, nongovernmental organizations and the private sector should work together to ensure a comprehensive approach to the problem.

In conclusion, the diseases threatening the health of the people of the Region are many and varied. The Region has taken great strides in implementing cost–effective interventions to mitigate the impact of the various communicable diseases. Certain issues need to be addressed, such as sustainable funding, responsiveness to new evidence and the scaling up of a range of interventions. Success stories suggest that these interventions can work if fully implemented and sustained. Throughout this chapter we have looked at ongoing efforts or what has been shown to work for improving the health of the people in the Region, particularly reducing the communicable and noncommunicable disease burden. The outcomes and impact observed were the result of a full involvement of health facilities at all levels of the health system, community and a wide range of stakeholders at country and regional levels. Some of the best approaches

Box 4.9. Proposed organization of care for noncommunicable diseases (NCDs)

Primary health care level:

- make presumptive diagnosis;
- refer to secondary level for initiation of treatment;
- routine care using adapted clinical guidelines as a basis;
- primary health-care worker's role is to manage the person with diabetes – any abnormal results (e.g. elevated blood pressure, elevated blood glucose, etc.) or complications would mean the patient is referred to the secondary care level;
- patient education adapted to the individual and local context.

Secondary health care level:

- confirmation of diagnosis made at primary health care level;
- initiation of treatment and education;
- screening for complications;
- routine care, referral and support to primary level.

Tertiary health care level:

- establish NCD centres of excellence;
- diagnosis of complications;
- provision of care for complications;
- routine care, referral and support to secondary and primary levels.

to prevent and treat many diseases include the strengthening of health systems, which will be discussed in Chapter 6, and managing risks, which will be the subject of Chapter 5. ■

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Chapter 5

Health determinants

Still life of fish (Antoine Sita)

Key points

- Some countries have taken the right steps towards addressing the social determinants of health by conducting qualitative reviews of the determinants affecting the health of their populations and setting up national coordination bodies to address them.
- National nutrition programmes that combine all nutrition services to address the immediate and underlying causes of malnutrition, especially at community level, are able to protect people from the effects of food insecurity, an underlying cause of stunting.
- Several countries in the Region have made considerable efforts to update and strengthen their food safety systems and infrastructure in recent years. This includes restructuring food control systems for better coordination and integration of services.
- Household water treatment and safe storage interventions, particularly low-cost technologies such as chemical or solar disinfection, have proven to be highly cost effective for the provision of safe drinking water. Synergy between indoor air and drinking-water quality improvement interventions at the household level has shown promising results by combining household water treatment and delivery of improved cooking stoves.
- Countries have taken steps to strengthen their resilience to the adverse effects of climate change by establishing multisectoral country task teams and by assessing environmental risk factors affecting human health and vulnerability to climate change. Country task teams provide opportunities for experts from different sectors to work together in the development and implementation of national adaptation plans.
- Efforts are being made to reduce risk factors related to lifestyle by, among other things, accelerating implementation of the WHO Framework Convention on Tobacco Control, increasing alcoholic beverage taxes and prices to reduce overall alcohol consumption and heavy drinking, and by developing and implementing national guidelines on healthy diet and physical activity for prevention and control of NCDs.
- An emergency response framework (ERF) has been put in place to help guide an effective response to acute public health emergencies triggered by natural disasters or conflicts. The Framework describes a set of emergency management procedures and functions, including leadership, information management, technical expertise and core services.

5. Health determinants

Introduction

This chapter discusses the key determinants of health in the Region, including social determinants, food and nutrition, the physical environment, and risk factors related to lifestyle. Understanding the significance of broad health determinants is essential, given the wide range of potential risk factors in African countries, and the increasing number of people exposed to them. Health status improves when actions are taken on the key determinants of heath; that is, the societal conditions in which people are born, grow, live, work and age and the systems put in place to deal with illness to produce health.

In the 1980s and 1990s, most parts of sub-Saharan Africa witnessed increasing economic deprivation and poverty, diminishing food security, environmental destruction, increasing unemployment, and general reversal of human development indicators. In the past decade, fewer conflicts, and more stability and investment have seen some of these negative influences mitigated, but those earlier years of instability and insecurity have had a powerful, determining effect on the health of the people.

Confronting high levels of poverty, malnourishment and inequity, a large fraction of the population faces major health problems without the means to treat them. The poor face greater health risks and pass them on to the next generation. They also have lower survival rates. Breaking this vicious circle requires reducing economic and social inequalities, thereby serving the cause of justice as well as that of health and development. Health is a driver of poverty reduction, and vice versa.

This chapter discusses the key determinants of health in the Region, including the social determinants, food and nutrition, the physical environment and risk factors related to lifestyle.

Social determinants

The circumstances in which people grow, live, work and age, and the systems put in place to deal with illness, determine health outcomes. These conditions, in turn, are shaped by political, social and economic forces and policies.

Africa is rapidly urbanizing, leading to greater overcrowding, poor-quality housing, and inadequate and unsafe water supplies. In 2009, 62% of African people were living in informal settlements in slums and rural areas, with little access to health services. Only 38% were living in urban areas and had good access to health services.

While Africa is enjoying a surge in economic growth, the number of formal sector jobs has not increased proportionately to the rate of economic growth. Between 2000 and 2012, employment in 49 lower income countries increased by just 2.9% – well below the average economic growth of 7% during the same period.

Social determinants are a major part of the MDGs. The MDGs are compacts between rich and poor regions of the world to tackle poverty and inequities. Progress towards achieving the MDGs has been slow but perceptible in the Region. Although reliable data are scarce, the information that is available suggests that progress towards reducing poverty (MDG 1) is slow. Most countries are likely to achieve universal primary education (MDG 2) by 2015, while 10 countries had already achieved gender parity in primary and secondary education (MDG 3) by 2005. However, it is expected that most of the MDG targets will not be met, even in those countries that are making some progress. Thus, the situation is unlikely to change for the poorest and most vulnerable groups in the Region. Consequently, there is a need to address the social determinants of health in the Region to ensure that the poor are not left behind.

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The Rio Political Declaration on Social Determinants of Health 2011 identified five priority action areas. These are:

- action area 1: adopt a "health in all policies" approach and foster intersectoral action for health;
- action area 2: promote social participation in policy-making and implementation;
- action area 3: further reorient the health sector towards reducing health inequities;
- action area 4: align global and national priorities and stakeholders;
- action area 5: monitor progress and increase accountability.

A strategy for addressing the key determinants of health

The regional strategy for addressing the key determinants of health in the Region encourages countries to set up a task force for social determinants of health and establish coordination units at all levels of government and across all sectors. The strategy assists Member States to promote actions to reduce health inequities through intersectoral policies and plans to effectively address the key determinants of health, for example education, urbanization, trade and governance. It also urges countries to undertake equity analyses to address local issues and reduce health inequities. Mozambique has taken several steps towards achieving this, setting up a national coordination body to address the social determinants of health. The Seychelles has performed a detailed qualitative review of the social determinants affecting the health of its population.

Health in all policies

The health in all policies approach applies knowledge of ways to take intersectoral action to address health, health equity and its determinants. The structural drivers influencing inequities in the Region include education, trade, globalization, employment and working conditions, food security, housing, water and sanitation.

South Africa took an intersectoral approach – working with academics (who provided the evidence) and industry – to develop a sodium reduction in foodstuffs policy to tackle their high rate of hypertension. South Africa is the first country in the world to regulate sodium consumption at the manufacturing level for several industries.

Ghana has been using microfinance as a vehicle for promoting intersectoral action on health, and Kenya introduced an intersectoral economic stimulus plan that included establishing fish farming to improve both nutrition and opportunities for economic development (Box 5.1).

Box 5.1. Changing the diet in Kenya

Fish farming makes a difference in Kenya.

The government has embarked on an Eat More Fish Campaign, while at the same time encouraging fish farming. Today aquaculture, which takes many different forms ranging from small hand-dug kitchen ponds to fairly large earth ponds of 1000 m^2, is now popular among poor peasant farmers.

Production has increased more than tenfold, from 4700 metric tonnes in 2007 to 48 790 metric tons in 2013, valued at about US$ 21 million. There are now more than 150 000 fish farmers. Under a programme known as the Fish Farming Economic Stimulus started in 2009, the government has invested approximately US$ 70 million in pond construction and provision of fish fingerlings and feeds to farmers. Local universities have also introduced courses on aquaculture for farmers as well as regular students.

Aquaculture in Kenya now produces nearly six times more fish than marine capture fisheries. In addition, it has created employment for over 500 000 and indirect employment for over 1 million Kenyans, according to Kenya's Department of Fisheries.

Social participation and dialogue in policy-making and implementation

Social participation and dialogue concerning priority health interventions have been used to develop national policies and create public awareness on determinants and risk factors. Priority programmes that have benefited from social participation and dialogue include immunization, HIV/AIDS, and disease outbreak investigation and response.

Occupational risks to health

Most workers in sub-Saharan Africa are engaged in what is defined as vulnerable employment – own-account workers and contributing family workers. In 2009, 77% of workers were engaged in vulnerable employment. Workers in such employment have little control over their working conditions or job security. In 2010, WHO, in collaboration with the International Labour Organization, developed a new tool known as HealthWISE. This is an action-oriented and practical tool for introducing changes in the workplace through combined efforts from both management and employees, to ensure the sustainability of the changes. This approach to improving working conditions in the health sector provides examples of smart, simple and low-cost practices that can be applied in any workplace setting. In 2010 and 2011, the draft HealthWISE tool was applied in Senegal and the United Republic of Tanzania and effectively identified the links between working conditions and productivity. This contributed to the empowerment of employees, was low cost and adaptable to local context, captured and documented improvements, and strengthened employer networks through sharing of good practices.

Food and nutrition

Nutrition

Although the Region is one of the world's most food-insecure regions and is burdened by malnutrition, it is also facing a newer but growing obesity and diet-related chronic disease burden. Nutrition problems persist in many countries. Twenty of the 34 countries with the world's highest burdens of malnutrition, accounting for 90% of the global burden, are in the Region and child undernutrition causes 45% of all deaths in children less than 5 years of age. There has been little change in the prevalence of stunting (i.e. being under the expected height for age) in the Region – estimated at 41.6% in 1990, 35.6% in 2011 and 35.0% in 2012. The prevalence of being underweight for age among children less than 5 years of age went down from 23.6% during the period 1991–2001 to 17.5% during the period 2002–2012, a slow but significant decrease.

Undernutrition, obesity and diet-related chronic diseases are all rooted in nutritional health during the first 1000 critical days of a child's life. Therefore, the importance of maternal and child nutrition cannot be overemphasized (also see Chapter 3). In the Region, years of nutritional neglect have led to a cycle of malnutrition and poor health, beginning in utero, continuing throughout childhood and adolescence, and transferring to the next generation with the birth of a malnourished, low-birth-weight baby. Malnourished children are less likely to go to school, less likely to stay there, more likely to struggle academically, and earn less than their better-fed peers.

The underlying causes of most nutrition problems in the Region are chronic poverty; food insecurity – an inadequate supply of safe and nutritious food in quantity and quality; poor access to health services; an unhygienic environment; and poor quality water and sanitation. The HIV epidemic has also had a fundamental effect on infant and young child feeding. Without preventive interventions, approximately one third

of infants born to HIV-positive mothers contract HIV through mother-to-child transmission, becoming infected in the womb, during birth, or while breastfeeding. Recently, urbanization has led to changes in the dietary patterns and lifestyles of individuals, not all of them positive, further complicating nutrition issues in the Region. These factors are compounded by low levels of education, especially for women, cultural taboos and suboptimal feeding patterns.

Situation analysis dashboard

Renewing Efforts Against Child Hunger (REACH) dashboards, developed by the REACH partnership, are tools used to assess data related to nutrition and to use the results to provide an early warning system. These enable countries to use data effectively to avert nutrition emergencies and improve nutrition overall. The example in Table 5.1 is a generic version used to identify stunting. Countries adapt the dashboard to their specific population's characteristics and needs but the aim is to portray indicators from all sectors relevant to nutrition. The stoplights are informed by existing public health thresholds, building on the existing scientific consensus.

REACH dashboards have been drafted for Ethiopia, Ghana, Mozambique, Niger, Rwanda, Uganda and the United Republic of Tanzania. Dashboards for Chad and Mali are underway.

What works?

National nutrition programme

Some countries have launched national nutrition programmes, combining all nutrition services to address the immediate and underlying causes of malnutrition, especially at community level. Box 5.2 shows the case of Ethiopia, which has effectively protected people from the effects of food insecurity, an underlying cause of stunting. Between 2006 and 2010, the number of months during which people were food secure increased significantly in the areas covered, as did the number of meals children consumed during the lean seasons.

Table 5.1. Situation analysis dashboard – Renewing Efforts Against Child Hunger (REACH) dashboard

Existing categories of public health significance	REACH stoplight classification[a]
Critical: ≥ 40% stunting	Red: urgent problem requiring urgent action
Serious: 30–39% stunting	Red: urgent problem requiring urgent action
Poor: 20–29% stunting	Yellow: requiring action
Acceptable: < 20% stunting	Green: not currently a serious problem

[a] See http://www.reachpartnership.org/en/web/94591/toolkit/indicatordashboard.

Box 5.2. How Ethiopia used a comprehensive national strategy to reduce undernutrition

Although Ethiopia depends mainly on rain-fed agriculture, making the population vulnerable to drought and food insecurity, it has managed to reduce stunting and mortality in children less 5 years of age over the past decade. Between 2000 and 2011, under-five mortality fell from an estimated 139 deaths per 1000 live births to 77 per 1000 live births. Rates of stunting among children less than 5 years of age also decreased during this period, from an estimated 57% to 44%.

This programme has been enhanced by Ethiopia's robust social protection strategies which include:

- A safety net programme covering more than 7 million people in the poorest areas of the country. The safety net programme targets poor households.
- Community-based nutrition interventions have been integrated into health services through the health extension programme, which has increased primary health care coverage from 77% of communities in 2004 to 92% in 2010.

Evidence from evaluations suggests that services have improved and people have changed their behaviour. In 2011, 71% of children aged 6–59 months were provided with vitamin A supplementation and 52% of children aged 0–5 months were exclusively breastfed.

Food security

The recent global food crisis has worsened the already precarious food situation in the Region. The greatest threat is in the Sahel region where, in 2011–2012, more than 18 million people were food insecure and over 1 million children were at risk of severe acute malnutrition. Despite better agricultural production in 2012 and good conditions for pastoralists, the situation in the Sahel remains critical. This is mostly due to the continuing effects of the 2012 crisis exacerbated by floods and the Mali conflict. In 2013, an estimated 10.3 million people were food insecure, with over 1.4 million children at risk of severe acute malnutrition.

Despite this, food and nutrition security and food safety are not adequately reflected in national development plans and policies, and there is insufficient intervention. There is a need to translate policies into action by including nutrition into national budgets, as most financial support for improving nutrition currently comes from international partners. As agriculture remains the backbone of economies in the Region, a strong food security and safety control system is essential to protect both imported and exported food markets. However, the human capacity and resources needed to achieve this are lacking in most countries and the problem is compounded by the fact that food laws are often incomplete or outdated. The intersectoral nature of food security and the difficulties this poses for coordinating effective policies and actions across sectors is a major reason for the lack of coherent action.

What works?

In the past 5 years much has been achieved in the area of setting up policies to bolster agriculture, food and nutrition security and food safety in the Region. The Kenya Food and Nutrition Policy (2011) is an example. One of the commitments by the Government of Kenya was to continue to advance appropriate measures to increase quality food production to meet the needs of its citizens at all times. To ensure a sustainable increase in food production, the Government undertook to support the production of nutrient-rich foods (crops, livestock, fisheries) by promoting diversification and exploring biofortification options (Box 5.1). However, much still remains to be achieved and the coordination of interventions that are based on country priorities is critical. In particular, African governments must take responsibility and provide leadership to address food insecurity and hunger by providing the required resources for development. They also need to implement appropriate polices, strengthen capacity for food control, including those for nutrition and foodborne disease surveillance, and undertake health promotion to ensure that consumers make informed safe, healthy and nutritious food choices.

Food safety

In most countries of the Region consumers have little opportunity to assess the safety of the food they eat. Frequent outbreaks of cholera, foodborne zoonotic diseases such as typhoid and shigellosis, konzo (an acute paralysis caused by consumption of high cyanide cassava) and acute aflatoxicosis continue to occur in many countries. Worrying developments are the presence of chemical contaminants in food and the development of multidrug-resistant strains of the causative agents of foodborne diseases, due to their misuse in health care and animal husbandry.

Certain bacteria, for example *Salmonella* spp. and *Listeria monocytogenes*, survive for prolonged periods in sewage sludge commonly applied to agricultural soil as fertilizers. Unhygienic handling of fresh produce at markets exposes it to more contamination. Handling of crops, especially vegetables and grain during harvest, and sorting at ground level also exposes food to dust and mud. Limited water supplies mean produce tends not to be washed with clean water before arriving at the markets or being eaten.

Lack of appropriate storage, including refrigeration, means food products are displayed at high ambient temperatures that permit bacterial growth. Inappropriate drying and storage of cereals and pulses increases the risk of aflatoxicosis.

Inadequate coordination between ministries and agencies, overlaps between food regulatory authorities, and the lack of national policies on food safety has compounded the problem. Food safety experts, and the training institutions needed to produce them, are in short supply.

What works?

Food safety control systems

Several countries in the Region have made considerable efforts to update and strengthen their food safety systems and infrastructure in recent years. This has included restructuring of food control systems for better coordination and integration of services. For instance in Mali, a national food safety agency was established by law in 2003, and a national food safety council was created to coordinate food safety activities, including technical and scientific support, risk assessment, supporting surveillance activities, epidemiological networks and risk communication. In Gabon, Ghana and Kenya, efforts to coordinate food safety responsibility have begun by creating working groups and coordination bodies.

Consumer involvement

Consumer activism is important for ensuring food safety. In Nigeria, for example, the government has established a consumer protection agency, located in the Federal Ministry of Commerce. The agency is represented in the National Codex Committee, councils of the National Agency for Food and Drug Administration and Control, the Standards Organization of Nigeria, and their technical committees. In Benin, it is

To ensure a sustainable increase in food production, countries are supporting the production of nutrient rich foods (crops, livestock, fisheries) by promoting diversification

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reported that the number of consumer associations has increased since 2001. The two most important associations *Que choisir (*/What to choose) and *Ligue pour la défense des consommateurs*/ (Consumer Defence League) are members of the National Codex Committee.

Quality assurance

The Kenyan horticulture sector is an example of how investments in quality assurance and food safety have enhanced the ability to meet external market food safety requirements. By investing in improved sanitation and storage systems, Kenya's major fresh vegetable producers have reaped significant economic benefits. In the period 1991–2005, the value of Kenya's fresh vegetable exports increased significantly.

The physical environment

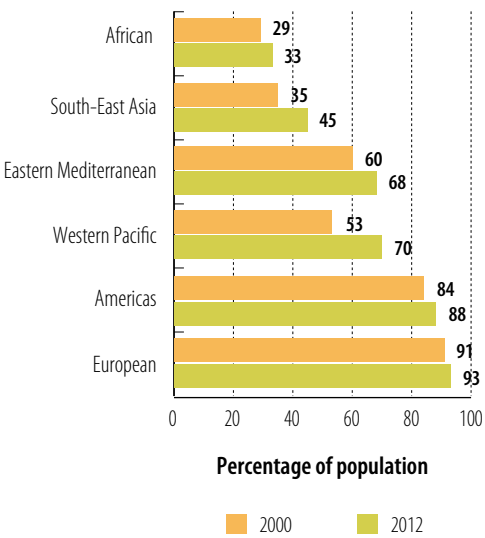
The 2008 Libreville Declaration on Health and Environment in Africa is the framework African countries and their development partners use to address the environmental determinants of human health. A 2013 evaluation of the Declaration revealed that the major health and environment challenges remain provision of safe drinking water, sanitation and hygiene services; management of water, soil and air pollution; vector control; management of chemicals and wastes; food safety; and health in the workplace. These are exacerbated by the negative impacts of climate change, unplanned urbanization, uncontrolled rapid population growth and urban migration, all of which increase pressure on already overburdened health systems.

Water, sanitation and hygiene

In 2011, only 64% of people in the Region had access to an improved drinking-water source, with levels of access varying from 47% in Mozambique to 100% in Mauritius. While the Region has shown substantial progress in meeting the MDG target for drinking water (MDG 7 target C), this figure hides huge discrepancies between urban (85%) and rural (52%) coverage.

Access to improved sanitation facilities (improved toilets) is very limited in most countries of the Region. The regional average is only 33% (Fig. 5.1), with country coverage of improved sanitation varying from very low levels in South Sudan (9%) and Niger (10%) to 97% in the Seychelles. With only 26% of the rural population using improved sanitation, rural areas lag far behind urban areas, where the rate is 47%. By 2011, only four countries in Africa were on track for meeting the MDG sanitation targets. Open defecation continues to be a major concern in sub-Saharan Africa, with the number of people compelled by lack of any alternative to use this

Fig. 5.1. Percentage of the population using improved sanitation facilities by WHO Region, 2000 and 2012



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

practice increasing in absolute numbers from 188 million in 1990 to 200 million in 2011.

What works

Household water treatment and safe storage

Provision of safe drinking water is fundamental to protecting and improving the health of people in the Region. An assessment of water safety plans in Kenya, South Africa, Uganda and the United Republic of Tanzania found that there is a general lack of technical capacity in African countries (with the exception of South Africa) to develop and implement such plans. However, household water treatment and safe storage interventions, particularly low-cost technologies such as chemical or solar disinfection, have proven to be highly cost–effective. Recently, emphasis has been laid on integrating these interventions with wider health priorities, such as preventing cholera and indoor air pollution reduction mechanisms.

Improving personal hygiene

The Global Handwashing Day raises awareness of the importance of using handwashing with soap as a means of disease prevention. Many African countries hold Handwashing Day events, which have increasingly grown in size and scope. Celebrations in several countries such as Ethiopia, Ghana and Mali have been linked to broader initiatives, such as promoting handwashing in schools (Box 5.3).

Indoor air pollution

Indoor air pollution from household use of solid fuels (e.g. wood, crop waste, animal dung, charcoal and coal) is one of the most important environmental contributors to the global burden of disease. In the Region, most households (83%) lack access to cleaner cooking fuels.

Box 5.3. Improving access to drinking water, sanitation and hygiene in health-care facilities during emergencies in northern Mali

Since 2012, Mali has been facing a serious humanitarian crisis causing displacement of over 300 000 people. This large influx of people from conflict zones in the north has affected health-care facilities, overwhelming their capacity to provide drinking water and maintain good sanitation. In the conflict zones the water supply has been interrupted frequently, contributing to degradation of the sanitation in health facilities.

WHO worked with the Mali Ministry of Health and a local nongovernmental organization (Groupe de Recherche pour l'Amélioration des Initiatives) to assess the water, sanitation and hygiene situation in health facilities in the districts of Gao and Ansongo and provide interventions to improve conditions where needed. Such interventions included provision of equipment and products (bleach, water treatment kits); development of communication materials (posters and leaflets); and education on hygiene practices. A post intervention evaluation found:

- The percentage of facilities with safe drinking water (treated water) increased from none to 77% and those with safe water storage increased from 26% to 100%.
- The problem of wastewater around the facilities improved considerably, from 42% with wastewater in 2012 to 0% after the intervention. Fewer facilities had stagnant water around their water points also. There were fewer signs of open defecation (this decreased from 32% in 2012 to 8% after the intervention).
- Management of medical wastes also improved. The number of facilities with adequate rubbish bins increased from none to 92% but waste segregation did not improve, despite the provision of colour-coded bins for sorting.

This experience is now being applied to water and sanitation interventions in conflict zones in South Sudan.

In rural areas of sub-Saharan Africa, only 11% have access to electricity and 5% to other cleaner cooking fuels, such as gas.

The health burden associated with indoor air pollution in the Region is substantial, calculated in 2004 at 551 000 deaths from child pneumonia, chronic obstructive pulmonary disease and lung cancer. Slightly more than half of these deaths (53%) are from child pneumonia.

Specific health risks posed by the type of cooking fuel (solid fuel such as wood, crop wastes, charcoal, coal and dung) and method used (such as open fires and leaky stoves) are being evaluated in 44 countries in the Region.

What works?

Integrating indoor air quality and water treatment at the household level

Improved stoves and household water treatment are two environmental interventions that can play an important role in health protection by preventing diarrhoea and respiratory diseases. To establish synergy between indoor air and drinking-water quality improvement interventions at household level, projects in Cameroon and Kenya have shown promising results by combining household water treatment (checking storage conditions and improving water quality at household level) and delivery of improved cooking stoves, some still using biomass fuels, some using gas. A preliminary assessment of the projects found:

- Significant reductions in the amount of fuel used (around 30%) and associated costs (26%), and some evidence of reduced time spent cooking (10%) but no difference in the total time the stove was used during the day.
- Cost savings were realized because stoves and household water treatment was provided at the same time, by the same personnel, who also provided training and information on use of the new equipment.
- Delivery of interventions and messages through community health workers proved effective as they established trust, and bridged the divide between implementers and the community.

Climate change

Climate change has been recognized as a major 21st century global health threat. Its effects will be greatest in settings with scarce resources, limited technology and frail infrastructure, including many parts of the Region. Sub-Saharan Africa already bears a heavy burden of infectious diseases, many of them climate sensitive (e.g. malaria, dengue fever, schistosomiasis, cholera and meningococcal meningitis). It is expected that climate change will widen the geographic spread of these climate-sensitive infectious agents and thus increase their impact on human health.

An analysis of country climate change adaptation plans revealed that the health components were very weak. Most were focused on agriculture, the environment and fisheries but had not taken health into consideration. WHO worked with African countries to strengthen their resilience to the adverse effects of climate change by establishing multisectoral country task teams in 34 countries. The main sectors represented in a country task team include health, environment, agriculture, academia, research, and management of water resources and other related areas such as local governance, civil society organization and nongovernmental organizations. In addition, country task teams were supported to assess their environmental risk factors affecting human health, including the management systems, as well as their vulnerability to climate change. The country task teams provide opportunities for experts from different sectors to work together to strengthen country resilience by developing and implementing health national adaptation plans. To date, 42 countries (i.e. all regional countries except Algeria, the Democratic Republic of the Congo, Rwanda, South Sudan, and the United Republic of Tanzania) have developed such plans, which are now being implemented in several countries (e.g. Ethiopia,

Ghana, Kenya, Malawi, Mali and the United Republic of Tanzania) in projects investigating the impact of climate change on specific conditions such as diarrhoeal- and vector-borne diseases and malnutrition. These projects aim to enhance understanding of the local health effects of climate change and to generate evidence on appropriate local adaptation measures. The example from Kenya (Box 5.4) illustrates the potential of climate information to improve operational disease surveillance and early warning.

Box 5.4. Strengthening national adaptive capacity to prevent epidemic highland malaria in Kenya

The distribution and intensity of malaria transmission are strongly influenced by climate and environmental factors. Rainfall and temperature are the major factors affecting epidemiological patterns of malaria. Rainfall leaves surface water in which malaria-carrying mosquitoes breed, and temperature affects the biology of both mosquitoes and the malarial parasites. In Kenya, communities living at altitudes greater than 1100 m, especially those in the western highlands, are more vulnerable to malaria epidemics due to lack of immunity, lack of preparedness and climate variability. At present up to 20 million Kenyans are at risk of malaria. This is expected to increase as climate change facilitates malaria transmission in the highlands.

In response to this, the Ministry of Health in Kenya is working with WHO on a 4-year climate change adaptation project (which started in October 2010) to address malaria. It aims to strengthen capacity to prevent malaria epidemics in the western highlands.

The project compiled 10 years of baseline retrospective data (clinical- and laboratory-confirmed malaria) and climate data (temperature and rainfall) to develop a 3-months-in-advance national malaria epidemic prediction model and decision support tool. This user friendly early warning tool is based on a simple algorithm that correlates malaria data and meteorological data. District health officers have been trained in the use of the tool, and automatic weather stations have been installed with the necessary software. The malaria early warning tools enabled the national malaria control programme to plan response activities, including prepositioning commodities, capacity-building and community sensitizations in epidemic-prone settings such as Kericho, Kisii and Nandi zones. WHO is currently supporting Kenya to further develop the malaria early warning tool for use in other countries with similar malaria patterns.

Toxic substances

Management of chemicals remains problematic in the Region, leading to intoxication, fatalities and environmental contamination on a large scale. Chemical incidents arise from poor control over the use, recycling and disposal of chemicals in many countries. Although chemical substances are used in almost all workplaces, their use is particularly widespread in agriculture. In agricultural settings, cheaper pesticides may be used, creating greater hazards than when safer but more expensive alternatives are used.

Box 5.5. Identification and management of mass poisoning by bromide in Angola

On 24 October 2007, Angolan health authorities detected an outbreak of acute neurological disease affecting more than 40 people in the Cacuaco Municipality, Luanda Province. Signs suggested a toxic etiology.

Site surveys revealed toxic chemicals around the community. Reference laboratories detected high levels of bromide in blood samples taken from affected people and high levels of sodium bromide in table salt samples collected from the homes of people with symptoms.

WHO coordinated several partners to eventually identify the largest outbreak of bromide poisoning ever reported, with 458 cases recorded between 19 October and 5 December 2007.

The identification of bromide proved challenging for different reasons, in particular because of the atypical presentation of this intoxication, resulting from cumulative exposure to bromide over a period of several days. This mass poisoning highlights the need to implement effective national chemical and food safety programmes.

In 2004, an estimated 346 000 people died worldwide from unintentional poisoning and more than 90% of these fatal poisonings occurred in low- and middle-income countries. Unintentional poisoning also caused the loss of over 7.4 million years of healthy life in 2004. In Africa, poisoning causes approximately 7500 deaths per year, with the main causes being pesticides; household products, particularly kerosene; pharmaceuticals; venomous snake bites; traditional medicines and plants; and food-borne intoxication (Box 5.5 gives an example from Angola). To date, only seven countries in the Region have a poisons centre: Algeria, Ghana, Kenya, Madagascar, Senegal, South Africa and Zimbabwe.

WHO has been working with six countries (Cameroon, Kenya, Madagascar, Mozambique, Senegal and the United Republic of Tanzania) to strengthen their management of pesticides. All the project countries have established national regulatory frameworks to improve pesticide registration procedures and have strengthened post-registration monitoring, evaluation and control of pesticides such as dichlorodiphenyltrichloroethane (DDT) used for public health purposes. Personnel from all relevant sectors, particularly health and agriculture, and the industrial pesticide registration authority have been trained in pesticide management issues, enabling the health sector to influence pesticide management policies in other relevant sectors.

Lifestyle risks

In recent decades, NCDs have become a significant problem in the Region, adding to the long-standing burden of infectious disease. NCDs tend to be caused by lifestyle factors, and in the Region the rise can be attributed to three main factors: population ageing, rapid urbanization and globalization. However, other factors such as alcohol abuse, drug abuse and tobacco use are high on the list of critical factors affecting health in the Region. Only a small number of countries have alcohol control policies or advertising regulations in place, and very few have any in-depth understanding of the nature and extent of drug use. Health services and interventions for those affected are scarce.

Changes in work patterns and increasing urbanization are leading to lower levels of physical activity and rising levels of obesity. These factors are contributing to a rise in hypertension (high blood pressure), and a rise in blood sugar and cholesterol levels. These in turn are leading to a rise in cardiovascular diseases and diabetes. It is not uncommon to find multiple risks in the same individual.

Harmful use of alcohol

Disease caused by harmful use of alcohol is rising in the Region. Between 2000 and 2004, the estimated percentage of deaths attributable to the harmful use of alcohol was 2.1–2.4%. More recent evidence indicating a relationship between heavy drinking and infectious diseases suggests that the percentage of alcohol-attributable deaths is considerably higher. Surveys of alcohol use in the Region reveal great variety in levels of use, ranging from high levels of abstention in some countries to high volumes of consumption, with the associated negative health and social consequences, in others.

Despite the significant damage heavy alcohol use inflicts on health, few countries have adequate alcohol policies. In surveys carried out in 2008–2009, only 10 countries in the Region reported having recent alcohol policies in place, and only 16 had any advertising regulations.

WHO/Julie Pudlowski

Many countries still do not operate systematic surveillance and monitoring systems. Few countries have hospital or outpatient facilities offering interventions or management of alcohol abuse and dependence. Reasons for this include low or non-existent budgetary allocations, the general weakness of health systems, and lack of public health infrastructure.

Interventions focusing on population-based community education on the harmful effects of alcohol, provision of recreation alternatives, use of taxation to increase the cost of alcoholic beverages, and enforcement of public laws are likely to reduce the harmful use of alcohol. In South Africa, an increase in alcohol beverage taxes and prices reduced overall alcohol consumption and heavy drinking.

Substance abuse

Drug use disorders are associated with increased risk for other diseases and health conditions, including HIV/AIDS, tuberculosis, hepatitis, suicides, overdose deaths and cardiovascular diseases.

Trends in use of the most common illicit drugs (heroin, cocaine and amphetamines) suggest that they are increasing across the Region. Differences in drug use patterns are primarily determined by local availability. This increase is linked not only to rapid economic and social change, but also to the prevailing political instability in many African countries, which leads in turn to poor law enforcement mechanisms, corruption, and the poverty that increases vulnerability to drug markets.

Significant increases in the availability of illicit drugs have been recorded in coastal areas. A wide range of western African countries, including Benin, Cameroon, Côte d'Ivoire, Ghana, Guinea-Bissau, Liberia, Nigeria, Senegal and Togo, are used as transit platforms for the transport of cocaine. In eastern Africa, an increase in heroin trafficking has also been reported in the coastal regions of countries such as Kenya, Mauritius, Mozambique and the United Republic of Tanzania. There are indications that Ethiopia, Uganda and Zambia are vulnerable to becoming new drug-transit countries. The above-mentioned 16 countries from eastern and western Africa account for approximately 53% of the total drug-using population in the Region.

The prevention and treatment of drug dependence are essential to the reduction of demand for illicit drugs and prevention of drug-related harm. The current limited understanding in African countries of the nature and extent of drug use hampers a targeted response. Absence of surveillance systems also limits the identification of emerging drug use patterns.

Inadequate funding, insufficient skilled health professionals, poor laboratory facilities, inadequate treatment facilities, and lack of political will are some of the impediments to controlling substance abuse in the Region.

Resources invested in formal control measures need to be combined with measures to prevent drug use and treat drug dependence. To address these shortcomings, the United Nations Office on Drugs and Crime and WHO have agreed to undertake a joint programme, strengthening their collaboration on drug dependence treatment and care, sharing intervention networks, and interacting with other intergovernmental organizations and Member States.

Interventions focusing on population-based community education on the harmful effects of alcohol, provision of recreation alternatives, use of taxation to increase the cost of alcoholic beverages, and enforcement of public laws are likely to reduce the harmful use of alcohol

Tobacco use

Intensification of marketing efforts by the tobacco industry and rapid population growth in sub-Saharan Africa have led to a rise in availability of tobacco products in the Region. To counter this, efforts are being made to accelerate implementation of the WHO Framework Convention on Tobacco Control and countries in the Region are now developing and implementing tobacco control policies.

South Africa used an intersectoral process to address its tobacco use epidemic through legislation. The economics of tobacco played a significant role in tobacco legislation, and country-specific research and econometric models measured the costs and benefits of tobacco consumption. Public opinion polls complemented quantitative data and revealed that the majority of South African citizens supported all forms of tobacco regulation. As a result of the multifaceted evidence and attention focused on the issue, the Government of South Africa passed the Tobacco Products Control Act in 1993, which among other things increased taxation on tobacco products. Strong political will was an important part of this process. In 1993, the South African president indicated his strong commitment to regulating tobacco products, engaging various stakeholders in a dialogue on tobacco control. This was sustained when in 1998 the Minister of Health committed to enacting stricter regulations.

What works?

Banning smoking in public places

Banning smoking in indoor and in semi-covered public places effectively protects members of the public from exposure to second-hand smoke. Twenty-eight countries have banned smoking in public places and five have comprehensive 100% smoke-free environments. These countries require the posting of no smoking signs prominently in all public places.

Banning advertising

A comprehensive ban on tobacco advertising, promotion and sponsorship is highly effective for reducing the initiation of, and current, tobacco use. Most countries in the Region either ban or restrict tobacco advertising, promotion and sponsorship. Ten countries have a comprehensive ban on tobacco advertising and two countries have a comprehensive ban on tobacco promotion and sponsorship. Ghana's president made a personal commitment to achieving strong tobacco control legislation and in July 2012 the Public Health Act, a consolidation of nine separate public health laws that included a series of tobacco control measures, was passed. Among other measures, this law bans all tobacco advertising, promotion and sponsorship, including at the point-of-sale.

WHO/Julie Pudlowski

Twenty-eight countries have banned smoking in public places and five have comprehensive 100% smoke-free environments

Pictorial health warnings

Pictorial health warnings communicate the health risks of tobacco more effectively than text-only warnings. Thirty-three countries in the Region require health warnings on packages of tobacco products and five of these now require pictorial health warnings. In these countries the tobacco pack is no longer a vehicle for free and continuous publicity for the tobacco industry but a means of positive health communication to the public. In July 2012, the Government of Madagascar adopted regulations requiring pictorial health warnings on all tobacco packages. The health warnings cover 50% of both the front and the back of tobacco packages, with a pictorial warning on the front and a text warning in the Malagasy language ot the back.

Taxation

Increasing the retail price of tobacco products through higher taxes is an effective intervention being used widely in the Region. When taxes on tobacco products are increased, prices will increase and consumption will subsequently decrease. Although all countries have various taxes on tobacco products, the form that most effectively raises retail prices is the excise tax. About 90% of countries in the Region levy excise taxes on tobacco products.

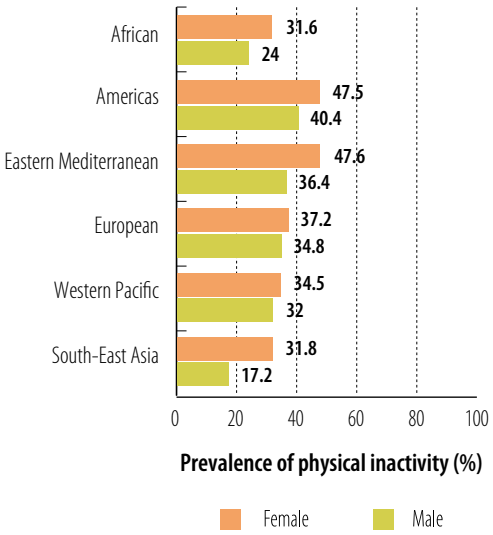
Monitoring and surveillance

Monitoring and surveillance of tobacco use and tobacco control policies are critical for assessing the effects of tobacco control initiatives. Forty-five countries in the Region conduct youth surveys to track trends in tobacco use and evaluate the impact of tobacco control interventions over time. Countries have also begun to insert questions about tobacco use into existing national population surveys.

Physical inactivity

Physical inactivity is a risk factor for diabetes and heart disease that is a growing but largely unrecognized problem in the Region. While

Fig. 5.2. Prevalence of physical inactivity among adults aged 15 years or older (%) by sex and WHO region, 2008



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

the average level of physical inactivity (28%) is lower than that for most other regions, there are very wide differences between and within countries. Women are particularly inactive, reporting higher levels of inactivity than men in almost every country of the Region (Fig. 5.2). In Swaziland, 72.1% of women are physically inactive (for men the rate is 65.9%) while in Namibia, 65.9% of women are physically inactive, compared with 51.9% of Namibian men.

In Africa, most physical activity is associated with occupational activities, especially in rural areas. With urbanization increasing rapidly and with occupations changing from manual labour to more sedentary, office-based activities, physical inactivity is an increasingly important risk factor.

Several countries, including Cabo Verde, Lesotho, Rwanda and Togo have developed, or are developing, national multisectoral strategies to address risk factors in line with the Global Action Plan for the Prevention and Control of

Noncommunicable Diseases 2013–2020. These strategies support some of the following actions:

- development and implementation of national guidelines on physical activity for health;
- introduction of transport policies in cooperation with relevant sectors that promote active and safe methods of travelling to and from schools and workplaces;
- ensuring that physical environments support safe active commuting, and creation of space for recreational activity; for example, Mauritius has set up free gymnasiums and developed health tracks where people can walk or jog safely to enable people of all ages to do regular physical activity.

Unhealthy diet

Eating unhealthy food is an important risk factor for NCDs. Unhealthy diets are those high in saturated and trans fats, salt, sugar and calories but low in nutrients obtained from fruits and vegetables. There is a paucity of data on population intake of fats, sugar, salt and calories in the Region. Data from the WHO STEPwise approach to Surveillance (STEPS) (a simple, standardized method developed by WHO for collecting, analysing and disseminating data in member countries) and other surveys carried out in the Region over the past decade show low consumption of fruits and vegetables in most countries. The consumption of unhealthy foods is associated with factors such as rapid urbanization and globalization and the persistence of poverty and underdevelopment.

In several countries of the Region, overweight and obesity levels have reached epidemic proportions, especially among women. According to STEPS survey data, 59.4% of women in Mauritania were classified as overweight or obese and numbers were similar in Lesotho (58.2%). Around half of the women in the overweight/obese category were obese.

High blood glucose and cholesterol levels may be caused by diets rich in sugars and fats and poor in fruits, vegetables and nutrients, and by physical inactivity. Persistently raised blood glucose may lead to diabetes, and high levels of blood cholesterol may lead to heart disease and strokes. Ill health due to these factors contributes significantly to mortality in low- and middle-income countries. It has been predicted that diabetes will become the seventh leading global cause of death by the year 2030. Total deaths from diabetes are projected to rise by more than 50% in the next 10 years. In countries where STEPS survey data on fasting blood glucose are available, between 5% and 15% of the population has been found to have diabetes.

Only a small number of African countries document national cholesterol levels. These are generally low except for in Mauritius and the Seychelles, where elevated cholesterol levels have been found in 31.5% and 59.7% of the population. Several governments are working to reduce excessive levels of sugar and salt in foods sold to their people, either through dialogue with the industry or outright bans. Mauritius has banned the sale of sugar-sweetened soft drinks and juices and unhealthy snacks (high in calories, salt, fats and sugar) in school canteens and introduced a tax on sugar found in sugar-sweetened beverages. The Mauritian Government has also begun a dialogue with the food industry, aiming to achieve a voluntary reduction in the salt content of bread and processed foods. South Africa regulates salt in processed foods and the use of trans fat in food production processes.

Sexual behaviour

Sexual behaviour varies greatly between countries and regions. Unsafe or unprotected sex increases a person's chances of contracting HIV, other sexually transmitted infections and unwanted pregnancy.

Of the 2.7 million new HIV infections worldwide in 2010, 70% (1.9 million) were in sub-Saharan Africa. Most newly infected people

in this region acquire the virus during unprotected heterosexual intercourse. The prevalence of HIV infection among young women in sub-Saharan Africa is disproportionately higher than among young men. In 2010, 71% of people living with HIV aged 15–24 years were women and one quarter of all new HIV infections globally were in young women aged 15–24 years. This is attributed to women having a sexual debut earlier than men, and fewer numbers using condoms than men (42% versus 63.6%) during the sexual act, sexual violence against women and girls and biological factors. In addition, adolescent girls have an increased risk because they are often married to older partners, who are more likely to have been exposed to HIV. For example in one study, the husbands of adolescent girls were found to have HIV 30% of the time, while the male peers of these girls had only a 12% HIV rate.

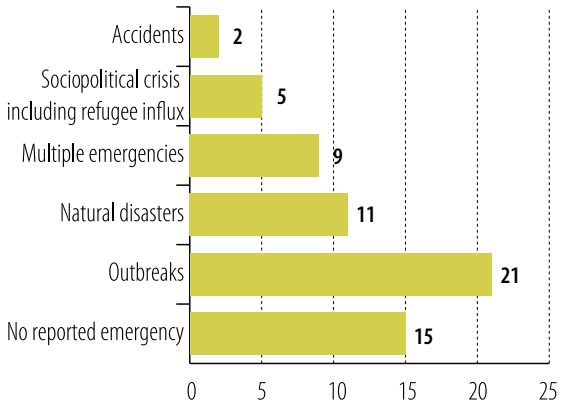
Several other infections result from risky sexual behaviour. HPV, which is responsible for almost all cervical cancer, is sexually transmitted. Cervical cancer is the leading cause of cancer deaths in the Region. Other sexually transmitted infections such as syphilis, gonorrhoea and chlamydia are entirely attributable to unsafe sex, and still occur in several African countries.

Disasters – including conflict

Conflicts and emergencies test all the elements of a public health system. Routine health services are disrupted, health personnel displaced, attacked and killed. In 2011, 35 countries in the Region reported emergencies, defined as threatening conditions that require urgent action. In 2012, more than 27 countries reported emergency situations (Fig. 5.3)

An emergency often escalates into a disaster, which is defined as serious disruption of the functioning of a community or a society, causing widespread human, material, economic or environmental losses exceeding the ability of the affected community or society to cope using its own resources.

Fig. 5.3. Countries that reported emergency situations in the WHO African Region, 2012



Recent disasters in the Region include:

- 2007–2008 post-election violence in Kenya that displaced over 300 000 people;
- large cholera outbreak in Zimbabwe in 2008 with more than 11 000 cases and high mortality;
- 2009 Horn of Africa drought that affected about 13 million people;
- November 2010 post-election violence in Côte d'Ivoire that displaced over 900 000 people;
- 2010–2011 floods in nine countries of southern Africa that affected around 150 000 people and destroyed farmlands, housing and social infrastructure, including health facilities;
- 2011–2012 Sahel food crisis (involving nine countries in western Africa);
- 2012 floods in Cameroon, Comoros, Congo, Mozambique and Nigeria;
- 2012 cholera outbreaks in Congo, Democratic Republic of the Congo, Sierra Leone and Uganda (95 000 cases);
- 2012 Ebola virus disease in the Democratic Republic of the Congo and Uganda;

- late 2013, armed conflict developed in the Central African Republic and South Sudan, requiring an integrated response by WHO and other partners;
- 2014 Ebola virus disease outbreak in western Africa, which has since evolved into the largest, most severe and most complex outbreak in the history of the disease.

What works?

The WHO Emergency Response Framework at work

The strategy on disaster risk management for the health sector in the Region was endorsed by Member States in 2012. While the strategy aims at building country capacities for risk management in the longer term, strategies are constantly needed to manage the ever-changing public health emergencies. The Emergency Response Framework (ERF) was published by WHO in 2013 to guide WHO's effective response to acute public health emergencies, triggered either by natural disasters or conflicts. The ERF describes a set of emergency management procedures and the critical functions of WHO for an effective response to acute public health emergencies. These functions are: leadership, information management, technical expertise and core services.

On 5 December 2013, there was an upsurge of violence in the Central African Republic that led to the killing of more than 1000 people in 1 week, and the displacement of more than 400 000 people in Bangui alone. The looting and destruction of health services and the killing of health workers resulted in the complete collapse of the health system. More than 2.5 million people were directly affected by the crisis with no access to health care. On 16 December 2013, the Director-General of WHO declared a humanitarian crisis in the Central African Republic, a Grade 3 public health emergency (the highest level of crisis). ERF procedures were immediately activated. In less than 1 week, WHO deployed a senior health emergency leader with a strong response team. In the course of the following weeks, more than 20 public health emergency staff were deployed for response operations in the field. WHO effectively coordinated the health partners, helping to assess the critical needs, mobilizing resources and planning for delivery of basic primary health services. Emergency measles and polio vaccination campaigns were organized, reaching approximately 40 000 children. Essential medicines and supplies were distributed to meet the needs of 180 000 people for 3 months. A disease surveillance and early warning and response system was established as well as an emergency referral system, which continue their operations to date. The activation of ERF procedures helped to save hundreds of lives in the Central African Republic.

In conclusion, the determinants of health in the Region are multiple and complex, requiring committed leadership to address the threats posed to social and economic development and, ultimately, human health. However, opportunities exist to take coordinated actions to halt or reverse the negative impact on both health and development in the Region.

This chapter shows that some countries have set up a national coordination body to address the social determinants of health after performing a detailed qualitative review of the social determinants affecting the health of their populations. They are striving to reduce health inequities and inequalities across population groups by (i) the integration of health into all policies and legislation to protect the health of the population; and (ii) the participation of individuals, families and communities in the health services delivery process.

Countries have also taken an intersectoral approach and launched national nutrition programmes, combining all nutrition services to address the immediate and underlying causes of malnutrition, especially at community level. Still others have shown promising results by combining household water treatment and delivery of

improved cooking stoves to improve the physical environment of households. Efforts are also being made to accelerate implementation of the WHO Framework Convention on Tobacco Control by developing and implementing tobacco control policies, including through an intersectoral process to address the tobacco use epidemic through legislation. However, key to accelerating the response to addressing the basic determinants of health are: a strong health system that is responsive to the needs of poor populations (see Chapter 6); monitoring implementation and gathering evidence; and a strong partnership to mobilize technical and financial resources. ■

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Chapter 6

Improving access to health care

Health care for all (Boniface Nzimy)

Key points

- Countries have polices and strategies in place that guide investment decisions and activities of all stakeholders. Comprehensive monitoring and evaluation frameworks and other means of monitoring performance, such as joint annual reviews, bring together all stakeholders permitting inclusive assessment of sector performance and discussion of resource allocation.
- Comprehensive human resources for health planning is being promoted in countries. Strengthening education and training of health workers is crucial, but so is providing viable, adequately supported positions to ensure that graduates are absorbed in the health system when they complete their training.
- Several approaches to reducing financial obstacles to accessing health care have been taken by countries, such as removing financial barriers to ensure equitable access, especially direct payments (user fees); providing financial coverage for people who cannot afford to contribute; making prepayment compulsory; and establishing large risk pools.
- Countries are developing and implementing national medicine policies and plans to improve access to essential medicines.
- External quality assessment of public health laboratories in almost all countries has enabled laboratories to improve their diagnostic performance.
- Efforts are underway to reach all people who need health care, when they need it, and where they need it, by scaling up efforts at universal coverage for example by using innovative approaches such as mobile clinics based on trains, and increasing service delivery through community workers.
- Several countries have put in place policy and strategic frameworks to improve their national health information systems, their national and health-facility data sources, as well as data management and dissemination. Innovative platforms such as the African Health Observatory and national health observatories support the strengthening of national health information systems.
- Research and the use of research findings are facilitated when driven by demand and when policy-makers and researchers work as allies accountable to one another. EVIPNets of researchers and decision-makers in some countries have collated evidence and prepared policy briefs that are being used in a policy dialogue with policy-makers.

6. Improving access to health care

Strong health systems are fundamental to maintaining good health throughout the life cycle and managing threats to health. Although immunization and other interventions described in earlier chapters have saved millions of young lives, millions more are still dying because weak health systems are failing to deliver the interventions that work. In many countries in the Region, health systems have been weakened by the ravages of war, economic crises and debt, among other things, that have led to drastic loss of staff and failure to maintain buildings, technology and supplies. However, in the past decade, enormous efforts by governments, international partners, technical agencies, researchers and other stakeholders committed to improving the health of the African people have been applied to strengthening their health systems.

Are these efforts paying off? Specific outcomes used to evaluate the effectiveness of health systems include antenatal care coverage, percentage of births attended by skilled birth attendants, child immunization rates, proportion of children brought to a health-care facility for specific treatments, and the rate at which family planning needs are being met. These have all been discussed in earlier chapters. It is clear that although some countries have effectively reduced child and maternal deaths by improving access to skilled care and prevention services, there are still too many gaps in the Region. One of the biggest is the gap between the level of services enjoyed by the wealthiest and the lack of access for the poorest.

Difficult geography, lack of specialist health-care workers and poor infrastructure make it difficult to deliver the preventive, diagnostic and curative services people in Africa need to achieve good health. This chapter looks at the elements needed for a functioning health system, such as leadership and governance, human resources, health financing, information and research, access to medicine and health technologies, and service delivery. As each element of the health system is discussed, approaches and innovations that have been successful in the African context are described to show what has worked to strengthen health systems in the Region.

Leadership and governance

Leadership and governance refers to the role the government plays in supporting provision of health care and its relationship to all others whose activities impact on health. Governments should direct resources, health system performance and stakeholder activities towards achieving health system goals, in a transparent, accountable, equitable manner responsive to population needs. To achieve this, strategic frameworks combined with effective oversight must be put in place. Partnerships bringing together all actors need to be established and within these, inclusive participation should be ensured with roles and responsibilities for the different actors spelt out. Monitoring, regulation and accountability mechanisms also need to be put in place.

All countries in the Region have polices and strategies in place and these guide the investment decisions and activities of all stakeholders. Partnerships have been strengthened in several ways: public–private partnerships are in place in 37 countries, while 25 countries have signed compacts. Public–private partnerships spell out areas of collaboration and the roles and responsibilities for each partner. Compacts, defined as "a negotiated and signed time-bound agreement in which partners commit to implement and uphold the defined priorities outlined in the country health strategy", encompass more partners, including international partners, civil society and governments. An example of such strengthened alignment is the Millennium Development Fund established in Ethiopia in 2007, which has been joined by 14 international partners who channel their support through a common funding mechanism.

Accountability requires transparent and comprehensive means of monitoring and evaluating health systems. Currently, 14 countries in the Region have such comprehensive monitoring and evaluation frameworks. Other means of monitoring performance include joint annual reviews, which have been institutionalized in 37 countries as shown in Fig. 6.1. Joint annual reviews bring together all stakeholders, permitting inclusive assessment of sector performance and discussion of resource allocation.

Improving accountability and value for money has become a central issue. As a means to this end, some countries have implemented results-based financing (RBF) with positive results. However, to date, only Benin, Burundi, Comoros, Rwanda and Sierra Leone have implemented this on a national scale (Box 6.1)

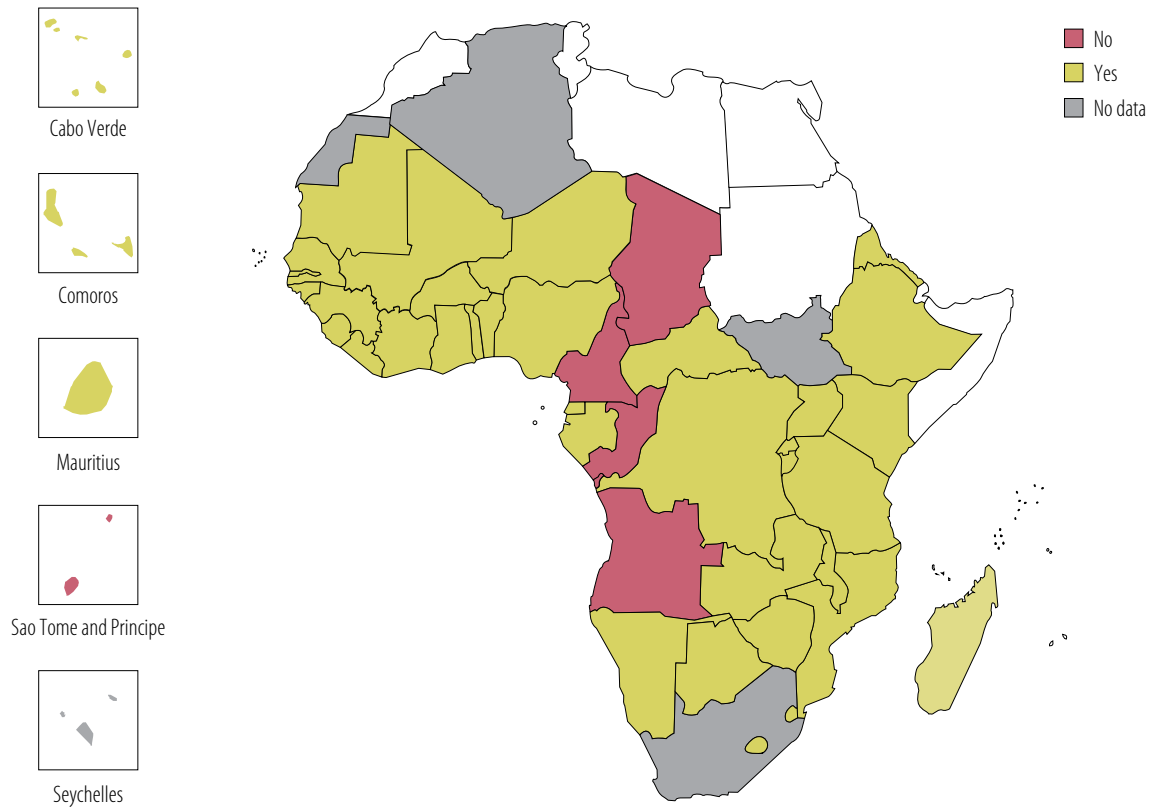
Box 6.1. Burundi's adoption of results-based financing (RBF)

Faced with challenges of underfunding; implementation of user-fee schemes with subsequent impoverishment; low utilization of services that were of poor quality; and poor health indicators; the Government of Burundi introduced fee exemptions for pregnant women and children less than 5 years of age in 2006. Although this led to a marked increase in health service utilization, the persistent underfunding for health by the government further compromised the quality of health services, with disgruntled health workers and subsequently reduced utilization rates. Official user fees were replaced by under-the-table payments.

RBF pilots were introduced in 2008. RBF is a health-financing strategy that links funding to outputs. The health facilities in the pilots received performance bonuses for both the quantity and quality of services delivered, and quantity indicators related to a basic health package, which included services that were exempted from the fee scheme.

The pilots produced positive results with an average increase of 50–60% for each indicator compared with the period before the introduction of RBF. RBF was scaled up to more provinces and a national RBF scheme was launched.

Fig. 6.1. Countries with institutionalized joint annual reviews in the WHO African Region, 2013



Source: adapted from Atlas of African health statistics 2014. Brazzaville: WHO Regional Office for Africa; 2014.

Strengthening human resources for health

Innovative strategies to strengthen institutions and address long-term governance, harnessing the potential of management reforms to strengthen human resources for health, are needed in the Region. To achieve this, a regional roadmap for scaling up the health workforce has been developed for the period 2012–2025. This roadmap is a guide for countries to strengthen their human resources for health according to their needs and contexts. If well applied, the six strategic areas detailed in the roadmap (Box 6.2) will not only improve service delivery but also help countries reach the desired destination of "all people everywhere having access to a

Box 6.2. The six strategic areas of the human resources for health roadmap

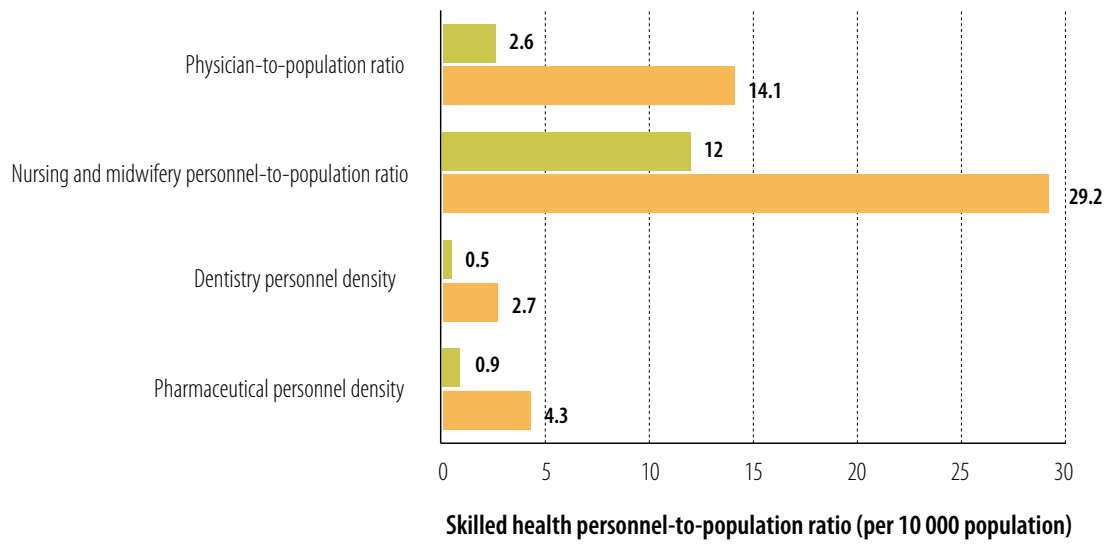
1. Strengthening leadership and governance capacity of the health workforce.
2. Strengthening human resources for health regulatory capacity in the Region by establishing or strengthening regulatory and professional bodies.
3. Scaling up education and training of health workers.
4. Optimizing the utilization, retention and performance of the available health workforce.
5. Improving health workforce information and evidence.
6. Strengthening partnership and dialogue for the health workforce.

skilled, qualified and positively motivated health worker equipped to serve those in need of care appropriately".

In the past decade, most countries have established human resources for health units in their ministries of health as a demonstration of their commitment to improving human resources for health governance. A health management tool has been used by countries to tailor health workforce requirements based on actual workload by applying the Workload Indicators of Staffing Need (WISN). This tool has been used in different parts of the world and in Africa as a means of establishing or reviewing staffing norms. Cameroon, for example, used the tool to revise its staffing norms for different levels of the system. The method was participative and used an evidence-based approach. Thereafter, the ministry of health used the results to advocate for more funding. Rwanda has also strengthened its system and improved outcomes, by using performance-based management and results-based financing.

African health workforce issues are often characterized as a lack of human resources in general. In fact some countries produce more staff than they are able to employ, but the limitation is due to capacity to pay, rather than the need on the ground. Underinvestment in the domains of training, deployment, creation of decent working conditions and proper management has negatively affected production, recruitment, equitable deployment and retention. This has led to growing migration from the public to the private sector, from rural to urban areas, and from the health sector to other sectors. It has also led to migration, both in and out of the Region, to more stable countries with better economic conditions, resulting in a seriously inequitable geographical distribution of skilled health workers at the global level (Fig. 6.2). Export of workers may also be part of intraregional cooperation; for instance Kenya has sent nurses to assist neighbouring countries such as Botswana and Namibia, notwithstanding their own shortages in rural areas.

Fig. 6.2. Skilled health personnel-to-population ratios (per 10 000 population) in the WHO African Region and globally, 2006–2013



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

What works?

Strengthening education and training of health workers is crucial but equally crucial is providing viable, adequately supported posts to ensure that the graduates are absorbed in the health system when they complete their training. Comprehensive human resources for health planning that links needs, production and utilization, matched with relevance and appropriateness of the mix of skills, is being promoted in countries. Linked to this is the need to have functional human resource information systems able to inform recruitment and deployment. Several countries such as Ghana, Kenya, Mali, Sierra Leone and the United Republic of Tanzania have improved their human resources for health information systems by computerizing their personnel data. The role that less-specialized cadres, such as community health workers, can play when given the relevant training and professional support has been significant. Putting those workers on performance-based contracts has yielded even better results.

Health workforce observatories based in ministries of health are platforms where valid information on the health workforce situation can be found and where policy discussion can be informed and conducted in a more neutral and objective manner. This is an important step towards improving the evidence base for advocacy, policy-making, strategic planning and capacity-building. The ability of human resources for health observatories to gather all relevant stakeholders and partners around the human resources for health agenda ensures best use of available resources and ways to close identified gaps.

Who pays for health care?

In too many countries in the Region, it is the poorest people who are paying proportionally most for health care. In 22 countries in the Region, household out-of-pocket expenditure makes up more than 40% of total health expenditure. Countries with a low level of public investment in health tend to have high levels of out-of-pocket payments (Fig. 6.3), which are a major hindrance to accessing health care. When families arrive at health centres with a dying child or a woman struggling to give birth, the fees demanded before care is given may consume all their ready funds, forcing them to borrow and pushing them into deeper poverty. The child may die while funds are being raised, further alienating the poorest groups from the health system. Future care might be sought from more trusted and less costly sources such as traditional healers or village "wise women".

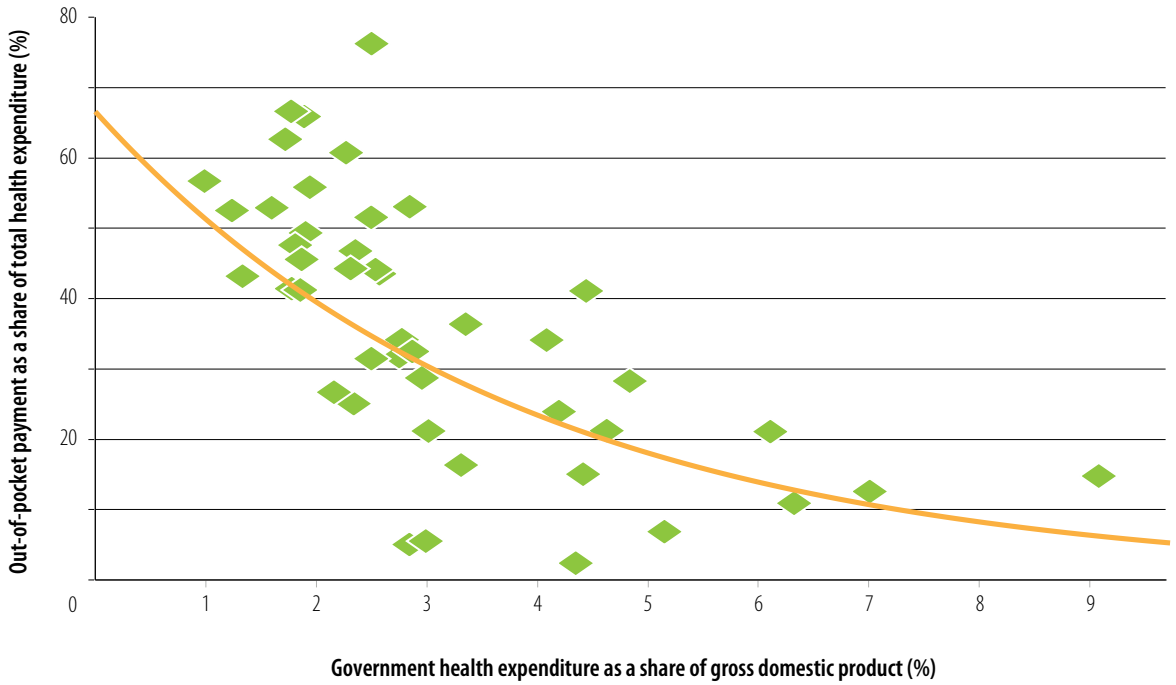
The Abuja Declaration of 2001 proposed that 15% of public expenditure be allocated to the health sector. However, progress towards this target has been slow and health spending continues to be seen as "consumption" rather than "investment". Only five countries, Botswana, Madagascar, Rwanda, Togo and Zambia, have been able to achieve the target set in the Abuja Declaration – dedicating more than 15% of general government expenditure to health care and spending over US$ 44 per capita on health care. In 2006, the health financing strategy for the Region urged Member States to develop prepayment mechanisms to finance health services. Countries are gradually developing strategies to strengthen protection against financial risk and reduce out-of-pocket payments but progress has been slow.

What works?

Several approaches to reducing financial obstacles to accessing health care include:

- ensuring equitable access by removing financial barriers, especially direct payments (user fees);
- providing financial coverage for people who cannot afford to contribute;
- making prepayment compulsory;
- establishing large risk pools.

Fig. 6.3. Government health expenditure as a share of gross domestic product and out-of-pocket payments as a share of total health expenditure in the WHO African Region, 2012



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

Removing financial barriers

Many countries have removed user fees – some for all services while others have chosen to be selective, removing fees for vulnerable populations such as pregnant women and young children. For example, removing user fees for health care for children in Burkina Faso doubled attendance. The average increase attributable to the intervention in 12 districts was almost 2000 visits per year per centre, or 110%. It is important to note that removing user fees has increased access to services, but in some countries there have been unexpected negative effects.

Using government revenue to cover health costs

The few countries in the Region making substantial investments in health have been rewarded with increased access to health services and improved health outcomes. Botswana is one such country (Box 6.3). Other countries are using or considering putting health taxes on natural

Box 6.3. Health financing in Botswana

Botswana is one of the few countries in the Region to make a significant government investment in health. The current health financing system provides a high level of financial risk protection for its population compared with other countries in the Region. Botswana uses a tax-based system to cover the population for a wide range of services, and has one of the Region's lowest levels of out-of-pocket spending on health at only 8% of total health expenditure. Government expenditure on health, at US$ 384 per capita is also considerably higher than the average (US$ 147 per capita) for other countries in the Region.

resource industries (e.g. mining) and other commercial activities.

Many countries are now raising money for health services through taxes on products known to damage health, such as tobacco, alcohol and petroleum products, and from fines for health-damaging activities such as environmental pollution and drink driving (Table 6.1). Such taxes and fines are used to curb use of health-damaging products and unhealthy behaviours, and hence should reduce the need for health services for the NCDs that develop as a result of substance use and other unhealthy behaviours. By using this money to finance health care, countries are achieving a double gain – better health finances and lower rates of NCDs. A review of 22 low-income countries found that if they raised tobacco taxes by 50% they could collectively raise US$ 1.42 billion.

Making prepayment compulsory

One of the countries that has made prepayment compulsory is Rwanda. In 2008, Rwanda enacted a law on compulsory health insurance and published it in the *Official gazette of the Republic of Rwanda*. This law sets out provisions relating to the creation, organization, operation and management of mutual health organizations within the strategy of extending health insurance coverage in Rwanda. It stipulates in section 33 that "Any person residing in Rwanda shall be bound to health insurance. Any foreigner entering the country or territory of Rwanda shall also be bound to health insurance within a time limit

Table 6.1. Examples of financing strategies being used or considered by countries in the WHO African Region to finance health care

Country	Levy on companies	Levy on currency/ transactions	Tobacco/alcohol excise tax	Comments
Cabo Verde	–	–	Under debate	–
Comoros	–	–	Tobacco	–
Cote d'Ivoire	–	–	Tobacco tax specifically for HIV programme	Funds from UNITAID used for tuberculosis/HIV
Gabon	10% tax on mobile phone operators	1.5% profits tax on remittances	–	–
Gambia	–	–	Alcohol	Fines for environmental pollution
Ghana	–	–	–	VAT levy/payroll tax
Kenya	Petroleum products	–	–	–
Niger	–	–	–	Potential for raising taxes from mining has not yet been tapped
Sierra Leone	–	–	Alcohol	–
Swaziland		Currency transactions	Alcohol	Fines for drink–driving
United Republic of Tanzania	–	–	–	% of general tax. Earmarked for HIV to replace external aid
Zimbabwe	Company levy	–	–	–

VAT, value added tax.

Source: adapted from State of health financing in the African Region. Brazzaville: WHO Regional Office for Africa; 2013.

not exceeding 15 (fifteen) days". Currently, 92% of the population is covered by health insurance.

Establishing risk pools

Mutual health organizations are voluntary organizations that provide health insurance services to their members and are usually owned, designed and managed by the communities they serve. They are important sources of resource mobilization and financial protection against devastating health care expenditures and increase financial access to care, promote equity through risk-pooling, and strengthen community solidarity and demand for quality care. Member households pay an enrolment fee, followed by regular payments to cover a membership-defined benefits package. After a waiting period, the members will be able to use health services for a small copayment. The rest of the health-care provider's fee will be paid by the mutual health organization.

In the Region, particularly western Africa, mutual health organizations have sprung up with amazing speed, suggesting that communities recognize that the major barrier to getting health care is the out-of-pocket cost. A study on the effect of mutual health organizations on access to health care in Mali found that mutual health organization members are more likely to have their fever treated in a modern health facility, to use oral rehydration salts or seek care for children less than 5 years of age with diarrhoea, and to make at least four prenatal visits during pregnancy. Mutual health organization members are also more likely to sleep under an ITN during pregnancy and have children less than 5 years of age sleeping under ITNs.

In many countries, mutual health organizations have remained local solutions or pilot projects but Gabon has made an effort to establish a risk pools model. In 2007, Gabon initiated reforms in its health financing system to achieve universal health coverage. The reform culminated in the establishment of the National Health and Social Insurance Fund with a mission to ensure universal health coverage. The Fund receives its resources from special taxes paid by mobile telephone and money transfer companies. The Fund is also financed through social contributions by wage earners, independent workers, employers and state subventions. The authorities adopted a gradual approach to membership, starting in 2008 with the poorest, state employees in 2010, and private sector workers in 2013. The Caissse Nationale d'Assurance Maladie et de Securité Sociale resources for health have multiplied by approximately four in 3 years, from about 10 billion CFA francs in 2008 to more than 37 billion CFA francs in 2011. The pooling of funds facilitated access to the health services of various categories of populations such as the formal and informal sector, both the rich and the poor.

Access to essential medicines

Functioning health systems should have essential medicines available at all times in adequate amounts, in the appropriate dosage forms, with assured quality and adequate information, and at a price patients can afford. Access to essential medicines for malaria, HIV/AIDS and tuberculosis has improved in several African countries. However, the need for essential medicines for other communicable and noncommunicable diseases is growing.

Countries are developing, implementing and monitoring the implementation of national medicine polices and plans to improve access to essential medicines. By the end of 2013, 36 countries had adopted their national medicine policies and another eight countries had draft policies pending adoption.

Pharmaceutical sector assessments, price and availability surveys and assessment of procurement and supply systems have yielded vital information including major challenges. These surveys found low availability of essential medicines in public health facilities; uncoordinated procurement activity; high prices of medicines;

price variations between generic brands across countries; poor transparency and weak governance for medicines. Most of the pharmaceutical products in countries were also imported.

In some countries local manufactures are upgrading their facilities to improve manufacturing standards. This can enhance sustainable supply of essential medicines and contribute to improving access. For example, some medicines produced by four African pharmaceutical manufacturers located in Kenya, South Africa, Uganda and Zimbabwe and one vaccine manufactured in Senegal have been prequalified by WHO.

Ensuring the quality and safety of medicines is equally important. However, the regulatory systems in most African countries remain weak and substandard/spurious/falsely-labelled/falsified/counterfeit (SSFFC) medical products are proliferating in the local markets. Some countries in the Region have reinforced their capacity and are participating in the WHO global surveillance and monitoring project through notification of suspected SSFFC medical products.

During the past 10 years, 26 countries have assessed their regulatory systems and implemented institutional development plans. Under the framework of the African Vaccines Regulatory Forum, 22 countries have strengthened their regulatory capacity. Burkina Faso, Mali and Niger reviewed their guidelines for marketing authorization and registered the new conjugate meningococcal A vaccine. Six medicine quality-control laboratories located in Algeria, Kenya, South Africa and the United Republic of Tanzania have been prequalified by WHO.

Use of national essential medicine lists

National essential medicine lists improve efficiency in procurement and supply management systems and rational use of medicines. Most countries in the Region have developed their national list of essential medicines and standard treatment guidelines for evidence-based selection, effective procurement, and supply systems and rational use of medicines. For example, through using the essential medicine list, Zambia improved the selection and procurement of life-saving medicines with district-level planners. Paediatric malaria medicines have become available in 88% of public health centres in pilot districts, against 51% in control districts.

Traditional medicine

Traditional medicine refers to knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures. Estimates show that traditional medicine is the main – and sometimes the only – source of health care for 80% of the people in the developing world. In 2000, countries in the Region agreed to integrate traditional medicine into their health systems, with the ultimate aim of enhancing collaboration and complementa-

WHO/Julie Pudlowski

Policies and regulations for the conservation of medicinal plants and for the protection of intellectual property rights and traditional medicine knowledge have also been developed in several countries

rity between practitioners of the two systems of medicine.

By 2012, 40 countries had developed national traditional medicine policies, 19 had strategic plans and codes of ethics, 29 developed regulations, six had established national practitioners' councils, and 39 and 24 countries had established national offices and national programmes of traditional medicine in their ministries of health, respectively. Policies and regulations for the conservation of medicinal plants and for the protection of intellectual property rights and traditional medicine knowledge have also been developed in several countries. Acceptance of traditional medicine as part of mainstream health care is growing. For example, both Ghana and Mali have succeeded in establishing traditional medicine clinics in hospital settings. In addition, Ghana has selected 80 traditional medicine products for use in a pilot study in primary care in hospitals.

Strong government commitment and stakeholders' willingness to collaborate translated into action is a key factor to integration of traditional medicine into national health systems. Some countries such as Mali, Senegal, Uganda and the United Republic of Tanzania have created formal networks of medical doctors and traditional health practitioners working together in patient diagnosis and treatment, patient referral and research. For example, the organization Promotion of Traditional Medicine (PROMETRA), based in Senegal, has for many years been promoting collaboration between modern and traditional systems of medicine (Box 6.4).

Box 6.4. Promotion of traditional medicine (PROMETRA), Senegal

At PROMETRA International's Experimental Centre for Traditional Medicine (CEMETRA) in Fatick, Senegal, 450 member associations of traditional health practitioners from Sine, known as MALANGO, collaborate with western-trained medical doctors. An important characteristic of CEMETRA is that the health practitioners are officially recognized by the Government of Senegal but only authorized to treat patients within the centre. The medical doctor measures the patient's vital signs, such as blood pressure, pulse, respiratory cycle, temperature, weight, etc., and makes a diagnosis after analysis of laboratory tests, but cannot take part in treatment. The role of the medical doctor here is to make an initial diagnosis and send the patient to the qualified traditional health practitioners.

After treatment, the traditional health practitioner sends the patient back to the modern medical unit to measure the impact of the traditional medicine treatment. Physical examinations and laboratory tests are carried out before and after the treatment, and the impact and outcome of treatment are determined by comparison of pre- and post-treatment laboratory results, vital signs and physical examination findings. This collaboration helped to reduce health workers' scepticism and strengthened mutual appreciation, understanding and respect between practitioners of the two health systems of medicine.

Access to health technologies, including diagnostics

Medical devices are articles intended for use in the diagnosis or cure, mitigation, treatment, or prevention of diseases or abnormalities in humans. Although medical devices are readily available, few countries in the Region can afford to purchase or use them. When devices are donated, appropriate use can still be a problem. There are gaps between needs and appropriate matching to conditions, and there is very little regulation governing the use of medical devices in the Region.

There is a severe lack of safe and appropriate diagnostic imaging services in large parts of the Region. A large number of images are of poor quality and are of no diagnostic use. Many are also misread. In other areas, imaging facilities are simply not available, or not functioning. Thus, disease diagnosis is usually based on clinical conditions, unsupported by radiological evidence, and treatment may therefore be inappropriate or even dangerous. The challenges are

lack of awareness, resources, equipment and qualified staff.

Functioning national health laboratory services rely on quality diagnostics, effective disease surveillance and prevention of major emerging, re-emerging and endemic communicable and noncommunicable diseases. In the Region, a shortage of qualified personnel; lack of essential laboratory supplies, infrastructure and equipment; and lack of national standards and systems for laboratory accreditation, proficiency testing, quality control and logistics are the main obstacles to early detection of epidemics such as haemorrhagic fever viruses (Ebola virus disease, Marburg virus, etc.) and both multidrug-resistant and extensively drug-resistant tuberculosis, among others. On the other hand, when laboratory or other diagnostic tools are available, incorrect interpretation of results is a common problem.

Organ transplantation demand has not been assessed but is certainly important in the Region. Transplantation activities are expanding slowly from pioneer countries such as Algeria, Ghana, Kenya, Mauritius, Nigeria and South Africa, where kidney transplantation is becoming more common. Several countries have shown interest in developing organ transplantation services, but a legal framework and regulatory issues need addressing.

Use of technologies

Paradoxically, rapid advances in health technology development have placed countries under intense pressure to import modern health technology. The proliferation of these technologies, resulting in a bewildering array of choices, creates demands that tax limited resources. Consequently, the introduction of technology is driven more by pressures from technology producers and users than by country needs. Therefore, there is a need for clear and comprehensive policies on health care technology.

Telemedicine is still at an early stage of development in the Region and most countries lack telemedicine facilities. The challenge is to ensure that telemedicine is widely used and disseminated to strengthen primary health care, train healthcare workers, and improve national quality of care, including laboratory and diagnostic imaging services. There is a need for clear and appropriately adapted regulation for telemedicine and other medical technologies in the Region.

For the past 12 years an external quality assessment programme covering diagnosis of infectious diseases (HIV, tuberculosis, malaria and plague) has been provided to 81 national public health laboratories in 45 countries of the Region by the WHO Regional Office for Africa with the technical support of the National Institute for Communicable Diseases in Johannesburg, South Africa. Proficiency is tested and

Functioning national health laboratory services enable quality diagnostics, effective disease surveillance and prevention of major emerging, re-emerging and endemic communicable and noncommunicable diseases

results shared with the laboratories, allowing them to improve diagnostic performance.

To further strengthen laboratory services in the Region, the Regional Office and its partners, including the African Society for Laboratory Medicine and CDC, established the Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA), a stepwise process that enables public health laboratories in developing countries to reach the ISO 15189 standards that govern laboratory standards. Laboratories develop and document their ability to detect, identify and promptly respond to and report all diseases of public health significance that may be present in clinical specimens. SLIPTA started in 2012 with training of laboratory auditors and laboratory assessments. Since then, six laboratories in Kenya, Togo, Uganda and the United Republic of Tanzania have been accredited as having met ISO 15189 and 56 laboratories have been audited. More than 500 laboratories in the Region are on good track to meet ISO 15189 standards and accreditation.

Blood and blood products

Blood transfusion can be a life-saving treatment, whether it is for women haemorrhaging during or after childbirth, children with severe anaemia due to malaria and malnutrition, victims of trauma and accidents, or people with chronic diseases. When blood is not available at the time it is needed, reversible conditions can lead to death.

Considerable efforts have been made to improve access to safe blood and blood products. By 2012 almost all countries in the Region (45) had formulated a national blood policy, compared with 32 countries in 2006. However, only 31 countries have made progress with implementation of their blood policies. Just over half of the countries in the Region (24 countries) are now collecting 80% of their blood for transfusion from voluntary, non-remunerated blood donors and several countries have improved their voluntary blood donation rates considerably. Algeria, Cabo Verde, Eritrea, Mauritius and Nigeria have raised levels of voluntary donation from less than 50% to 80% and above.

Monitoring of blood for transfusion-transmitted infections has also improved, with 41 countries reporting that 100% of their blood supply had been tested for HIV, while 39 tested for hepatitis B virus and syphilis and 38 for hepatitis C virus. Thirty-three countries have a blood transfusion quality management programme in their blood transfusion services.

Patient safety

Health-care associated infection is a major patient safety issue in the Region. Although there are little data on patient safety issues in the Region, studies on hospital-wide health-care associated infections from some African countries report high infection rates (Mali 18.9%, the United Republic of Tanzania 14.8% and Algeria 9.8%). Patients undergoing surgery are the group most frequently affected. Most countries lack national policies on safe health-care practices. Inappropriate funding and lack of critical support systems, including strategies, guidelines, tools and patient safety standards, are major problems. There is a need for investment to enhance patient safety in all health-care services in the Region. To achieve this, countries need to:

- develop and implement national policies for patient safety;
- improve knowledge and learning in patient safety;
- minimize health-care associated infection;
- ensure safe surgical care;
- ensure appropriate use, quality and safety of medicines;
- strengthen surveillance and capacity for research on patient safety.

Activities to increase knowledge and change behaviour to improve patient safety include the WHO celebrates the SAVE LIVES: Clean Your Hands campaign and African Partnerships for Patient Safety, which facilitates partnerships between hospitals in developed countries and hospitals in the Region.

What works?

In 2008, WHO launched a global programme called "Safe Surgery Saves Lives" to improve patient safety. Senior surgeons and anaesthetists were brought together to develop ways to implement the surgical safety checklist in the Region. By December 2013, the surgical safety checklist had been successfully used in hospitals in Botswana, Mali, Namibia, Rwanda, Swaziland, Uganda and Zambia. The checklist has been successful where its use has been mandatory, where there has been strong support for it from hospital senior management, and where group discussions and regular meetings address issues arising from its use.

Service delivery: reaching everyone

Reaching all the people who need health care, when they need it, and where they need it, is particularly difficult in the Region where geography, poverty and limited human resources conspire against service delivery. Some countries are applying innovative approaches to bring scarce expertise to remote communities, such as the Phelophepa train in South Africa.

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What works?

Increasing service delivery through community workers

Other countries, such as Ethiopia, Ghana and the United Republic of Tanzania, are strengthening the reach into communities by strengthening the numbers, capacity and financial support for community health workers, known as health extension workers. In Ghana, 92% of caregivers of sick children sought treatment from community-based agents trained to manage pneumonia and malaria and most sought care for their children within 24 hours of the onset of fever. In Zambia, a study on pneumonia and malaria found that 68% of children with pneumonia received early and appropriate treatment from community health workers, and that overtreatment of malaria significantly declined. In Ethiopia, workers deployed in remote communities delivered two and a half times as many treatments for childhood diarrhoea, malaria and pneumonia than all the facility-based providers in the same district.

Information: better data, better health care

A functioning health information system requires an integrated effort to collect, process, report, and use health information and knowledge to influence policy-making, programme action, and research.

Assessments of health information resources in several countries in the Region found policy weaknesses, including inadequate legislation, absence of a national strategic plan, and non-functioning coordination mechanisms. The institutional frameworks for health information are often found to be fragmented, with responsibility and ways for collecting health data divided across different ministries and disease-specific programmes, creating multiple parallel systems of data collection.

Core health indicators are required to assess change in three domains: determinants of health; the health system; and health status, including mortality, morbidity, disability and well-being. In several countries national minimum core indicators have been identified that also cover health-related MDGs. However, the increased demand for health information from international partners has led to a proliferation of indicators and often multiple excessive monitoring systems.

There are major challenges related to weak data sources, including:

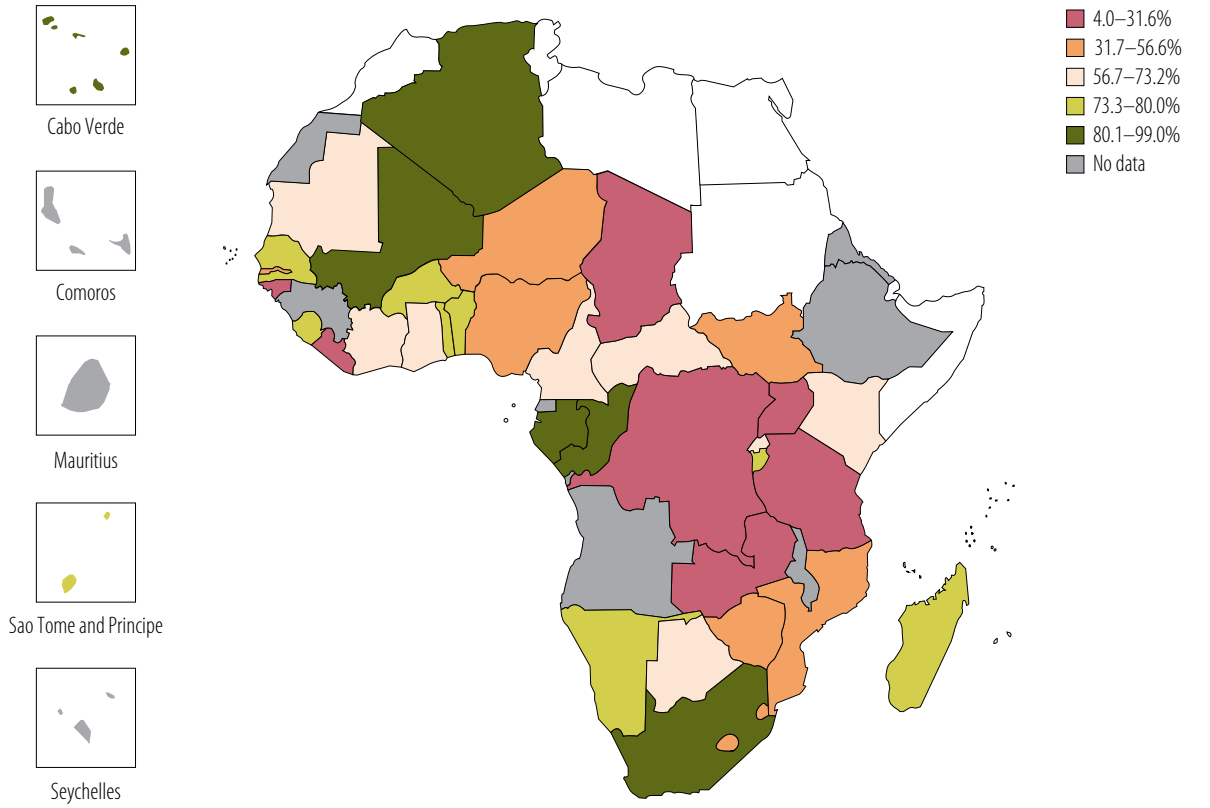
- the inadequate content, frequency, quality and efficiency of national health surveys;
- lack of birth and death registration and cause of death ascertainment (Fig. 6.4);
- unavailability of recent demographic data and statistics from censuses;
- weak surveillance and service statistics.

For example, trend data on the health-related MDGs are not available for several indicators and global reporting is often based on estimates rather than on empirical and timely data collection. Capacity for analysis and evaluation is lacking in many countries and decision-making may not be data-based.

Despite these constraints, several countries have made progress by putting in place adequate policy and strategic frameworks for improving their national health information systems, improving their national and health facility data sources, as well as data management and dissemination.

In most countries, electronic medical records are either not used at all, or used in some hospitals or health centres. In other sectors – private practice, traditional medicine and nongovernmental entities – electronic medical records are rarely used. In all countries of the Region, the ministry of health is the chief source of all types of knowledge used by clinical service providers.

Fig. 6.4. Percentage of civil registration coverage for births in the WHO African Region, 2006–2012



Source: adapted from World health statistics 2014. Geneva: World Health Organization; 2014.

What works?

Analysis of the knowledge gap and the state of research, information and knowledge management in the Region described above has paved the way for better approaches aiming to improve access to information and evidence. One such platform is the African Health Observatory (Box 6.5). Several countries are also establishing their own national health observatories.

e-Health

e-Health is the cost–effective and secure use of information and communication technologies for health and health-related purposes. The use of e-health solutions can enhance service delivery; develop the health workforce and improve performance by eliminating distance and time barriers; improve the availability, quality and use of information and evidence; and improve access to health information and knowledge.

Existing e-health solutions in the Region include national health observatories (see Box 6.5), enterprise resource planning for better management, and telemedicine and mobile health (m-health). Other examples are electronic medical records, electronic referrals and prescriptions, and distance learning and electronic resources (Box 6.6). A wide range of technologies and devices is used, enabling services such as mobile telephony, text messaging, teleconferencing, electronic mail and video-conferencing. Many initiatives have been launched in countries by both public and private sectors but the

Box 6.5. The African Health Observatory: better information, better action on health

The African Health Observatory is a web-based platform with the objectives of improving the availability and use of information and evidence on health status and trends for policy dialogue, and for monitoring and evaluation of the implementation of national strategies and plans.

The observatory data and statistics platform offers the best available health-related data and statistics on the Region. It includes the *Atlas of African health statistics*, which is updated yearly, and comprehensive statistical health profiles for the Region as a whole and for each of the 47 countries in the Region.

Another platform offers comprehensive and analytical country health profiles to inform policy and decision-making on a wide range of areas: health status, health systems, specific programmes and diseases, health determinants and progress on the Millennium Development Goals (MDGs) and other internationally agreed goals. A key observatory publication is the *African health monitor* – a serial publication that comes out four times a year.

The observatory also offers a platform for networking and communities of practice. Members of communities learn and work together and strive to translate and use the best available evidence for policy-making and decision-making.

The observatory provides support to countries to establish their own national health observatories with similar functions and structure. Several countries are in the process of establishing national health observatories that will also serve as multistakeholder and collaborative platforms to strengthen national health information systems.

Further information can be obtained from the observatory website (www.aho.afro.who.int).

Box 6.6. Optimizing epidemic-prone diseases surveillance networks in Cameroon using information and communications technology (ICT)

Between 2010 and 2012, Cameroon distributed mobile telephones to 310 key personnel to enable them to communicate epidemiological information at no cost and thus improve the response to cholera, yellow fever, measles and polio epidemics. Staff who received the telephones were working in 181 districts and at all levels of the health system.

The pilot project proved very effective, thus in 2013 the initiative was extended to cover the entire country. The mobile network now comprises nearly 2000 members at all levels of the health system, all listed in a dedicated telephone directory.

As a result, coverage of the epidemic-prone disease surveillance network, which was 30% before the provision of the mobile telephones, reached 98% during the last week of 2013.

Readiness also increased from 6% to 77% on average for the same period. Use of the mobile network has permitted the use of deadlines for providing laboratory results to regions and health districts, enabling a quick response to outbreaks. The deadlines for investigating cases have also been reduced from 2 weeks to 48 hours.

success rate is not as yet clear, due to a lack of documentation and formal evaluations.

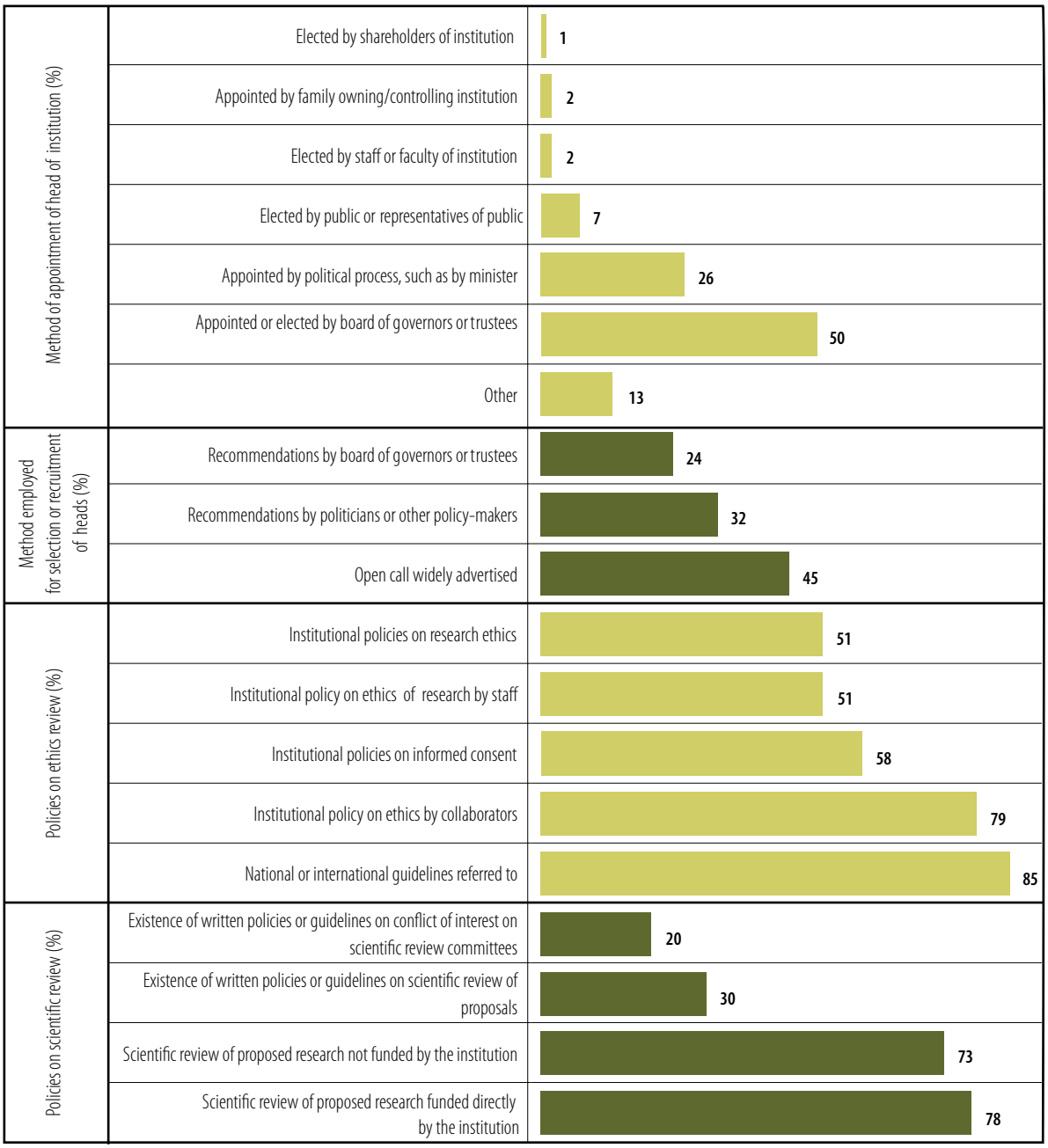
Internet users in the Region are estimated as 16 per 100 inhabitants, and mobile phone users at 63 per 100 inhabitants. In both cases, rates are lower in rural than urban areas. Very few countries have fibre-optic or satellite broadband connections.

Research

A health research system is the people, institutions and activities involved in the generation and dissemination of knowledge. It is an integral part of the health system and should produce evidence to inform the development and strengthening of the health system.

Governance of research has a fundamental influence on all the other functions. Only a few countries have successfully coordinated the support and involvement of development partners, the private sector and civil society to improve the research policy environment by developing health research policies, strategic plans, legislation and programmes. Policy-makers and decision-makers are not strongly active in national

Fig. 6.5. Governance of health institutions conducting research in the WHO African Region, 2008



Source: adapted from Atlas of African health statistics 2014. Brazzaville: WHO Regional Office for Africa; 2014.

research agenda priority-setting. Only half of the health research institutions surveyed reported having a written policy requiring that researchers obtain the informed consent of research participants (Fig. 6.5).

Little or no money is allocated to health research in almost all the countries in Region. Although several research projects conducted in the Region, such as conjugate meningitis A, conjugate pneumococcal, and rotavirus vaccines trials (see Chapters 2 and 3 for more detail), were of critical importance in reducing the burden of diseases that affects the Region, they were externally funded. Continued dependence on external funds for research may not always align to regional priorities and may not be sustainable.

Research institutions in the Region have insufficient facilities and infrastructure: less than half have institutional websites, provide email addresses to research staff and have a library. There is a serious shortage of qualified staff engaged in health research. Although the majority of researchers are full-time staff, significant numbers also leave their institutions for various reasons, leading to shortages of experienced senior researchers.

In spite of these constraints, a significant amount of research is conducted and reported in regional and national journals, and as working paper series or unpublished manuscripts. However, the Region's relative share of publications in international journals is low. Researchers have also not always been able to push for their evidence to be used to drive policy. While policy-makers tend not to base policy and practice on evidence, there have been notable exceptions as the discussion below indicates.

What works?

In Burkina Faso, a combination of *Fagara zanthoxyloides* and *Calotropis procera* (FACA), identified by traditional medicine practitioners, was subjected to rigorous research and development processes. FACA was analysed and found to have a combination of antisickling, anti-inflammatory, antipyretic properties that work against the principal symptoms of sickle cell anaemia. Consequently, approval has been given for use, large-scale production and exportation of FACA to other countries.

Research and use of its findings are facilitated when driven by demand, and when policy-makers and researchers work as allies accountable to one another. Following concern about malaria drug resistance, the Ministry of Health of Cameroon requested researchers and the knowledge translation team EVIPNet (Evidence Informed Policy Networks) of Cameroon to confirm or disprove the issue. The EVIPNet team collated evidence on the prevalence of malaria drug resistance from within and outside the country, and prepared a policy brief that was used in a dialogue with policy-makers, resulting in a change in policy for the drug used in the treatment of malaria in the country.

In conclusion, we know what works to achieve equitable access to care is a combination of financing, services delivery, availability and equitably distributed human resources for health, and availability of essential medicines, health technologies and diagnostics at all times, which must be backed by good governance and stewardship. All countries in the Region have developed policies and strategies that call for effective stakeholder coordination and harmonization and alignment of all available resources to ensure implementation. Each country can do something, some through larger reforms and others through more incremental actions, to strengthen their health system to cover large sections of their populations, with particular attention to the poor and vulnerable, in order to achieve the goal of universal health coverage. The priority is good policies and evidence-based strategies as well as knowledge generation and exchange of best practices between countries, with participation of other actors that are not traditionally involved in the health system, for example the ministries of finance, labour and social security and other ministries involved in management of factors related to social determinants. ■

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Chapter 7

Conclusion: what works?

Fishermen (Abdel Inoua)

7. Conclusion: what works?

It is a convenient untruth that there has been no progress in health in the Region. This report has used a wide range of data to show that, in the last decade, the overall health of the people living in the Region has improved considerably. Some of this has been due to demographic and economic change and improved political stability, leading to fewer conflicts. But much has also been due to sustained efforts to prevent illness and maintain good health, improve access to treatment when illness does occur, and to find ways to deliver a better level of health care in the African context.

Much more needs to be done. Mothers and their children need protection from the threats and diseases still harming and killing them in numbers far greater than in the rest of the world. The HIV epidemic has been curbed but is still killing too many young people.

Quality health care – that is care that is readily available, affordable, and provided by well-trained professionals equipped to identify the right problems and provide the best treatments – must be available to all, not just the wealthy living in towns and cities.

As health care improves and people survive their illnesses and injuries, disability and the consequences of living with chronic disease are becoming increasingly important threats to the health and well-being of people living in the Region. More attention needs to be paid to the health of older people. Mental health has long been neglected throughout the Region but is increasingly being recognized as essential to the health of not only individuals but also societies and nations.

Throughout this report we have looked at what has been shown to work to improve the health of the people in the Region. Some of these are things that have worked elsewhere – but to be effective all have been adapted to the African context. In this chapter we look at the strategies and approaches that are working to bring better health to the Region.

Good governance for health

Village elders (Sylvestre Mangouandza)

Good governance is one of the elements of good leadership. Using evidence to form policy, good leadership for health demands accountability at all levels from the community upwards. Good governance is a key determinant of good health outcomes in countries. Within countries, between countries as well as at global levels, governance for health is manifested through policies and legislation in all areas having a direct or indirect bearing on the health of the people. Where leaders are actively engaged in promoting health interventions, demand for such interventions increases. One of the strengths of the polio eradication programme has been active engagement of national leaders, traditional leaders, religious leaders and "champions" to increase community acceptance of polio vaccination.

Health in all policies

Laundry time (Sylvestre Mangouandza)

Health in all policies is not a new concept but is more often talked about than acted upon. However, in the Region there is evidence that governments are now considering health when raising revenue or applying fines for breaches of the law. For instance, several countries are now using revenue gained by imposing taxes on tobacco products to finance their health services. Some countries are also using revenue from fines for environmental pollution or driving under the influence of alcohol to finance their health services. By doing this, these countries are achieving a "double win" – using taxes and fines to curb unhealthy behaviours known to increase usage of health services, while applying the revenues earned to provide better health services. Health in all policies goes beyond finance. It requires genuine partnership across all sectors. In the Region, infrastructure to support sanitation, provision of clean water, safe roads and transport is lagging behind economic growth. Action on any of these things would lower death and disability in the Region dramatically.

Data-driven decision-making

In the past decade the quality of data and the ability to collect, report and receive timely feedback has improved dramatically in the Region. This has been driven by the demand for quality data to inform the polio eradication programme but is now the platform upon which other real-time data collection and reporting is riding, for example for measles, yellow fever, rotavirus and child bacterial meningitis. It needs to be widened and strengthened to provide accurate data informing action on all the significant threats to human health in the Region, for instance the REACH dashboard described below.

Cubic style (Abdel Inoua)

Good data-driven decision-making is a success that generates success. As better, more real-time data provide decision-makers with information they can use to respond effectively to their population health needs, countries see the value of better data collection.

Good data-driven decision-making is a success that generates success. As better, more real-time data provide decision-makers with information they can use to respond effectively to their population health needs, countries see the value of better data collection.

Find and fill the gaps

Unless gaps are identified early and accurately, simply providing a raft of general interventions will not meet the real health needs of the people of the Region. Better surveillance and a stronger laboratory system have led to early detection and rapid response to disease threats. When the pandemic influenza H1N1 emerged globally, countries in the Region strengthened their early-warning alert and response systems, leading to early detection of the first case of pandemic influenza (H1N1) in South Africa in June 2009, and subsequent cases in other countries in the Region.

Collecting water (Axel Biloudji)

REACH dashboards are tools used to assess data related to nutrition and apply it to provide an early-warning system. This enables countries to use data effectively to avert nutrition emergencies and improve nutrition overall. Countries adapt the dashboard to their specific population characteristics and needs but the aim is to portray indicators from all sectors relevant to nutrition. REACH dashboards have been drafted in Ethiopia, Ghana, Mozambique, Niger, Rwanda, Uganda and the United Republic of Tanzania.

Staff properly paid

The Region's severe shortages of health workers are now being reversed in several countries where salaries have been increased and payment guaranteed. To ensure sustainability, these countries are in the process of institutionalizing this approach by increasing the percentage of general government spending on health. This is reflected in improved salaries and more posts, resulting in a better paid and more committed health workforce.


Bread seller (Adam Opou)

WISN is a tool that permits planners to use data to determine their genuine staffing needs. This tool has been used in different parts of the world and in Africa as a means of establishing or reviewing staffing norms. For example, Cameroon used the WISN tool and revised its staffing norms for different levels of the system (see Chapter 6). The method was participative but based on evidence and enabled the Ministry of Health to use the results to advocate for more funds to pay for staff.

Harnessing local technological capacity

The rapid rise in use of cell phones has been one of the most dramatic changes in the Region. Surveillance systems, diagnostic support for remote health workers, training and support can all be provided by mobile phone. However, to be effective this requires identifying and dedicating people within the system to administer the system, respond to diagnostic images and data appropriately, support surveillance with data collection and feedback, and support community workers with regular training, evaluation and physical support. For example, Cameroon distributed mobile telephones to key personnel to enable them to communicate epidemiological information at no cost. As a result, coverage of the epidemic-prone disease surveillance network increased from 30% to 98%, thus improving the response to cholera, yellow fever, measles and polio epidemics (see Box 6.6).


Market (Boniface Nzimy)

Quality in all things


Gillnet fisherman (Antoine Sita)

Using external accreditation with support from partner laboratories and organizations, reference laboratories for polio and measles in the Region have reached international standards. Benchmarking, accreditation, genuine supervision, evaluation and constructive feedback should be used to ensure all health work – from community level up – is performed at the highest world standards. For the past 12 years an external quality assessment programme covering diagnosis of infectious diseases (HIV, tuberculosis, malaria and plague) has been provided to 81 national public health laboratories in 45 countries. Proficiency is tested and results shared with the laboratories, allowing them to improve diagnostic performance.

Surgery is an essential area of health care in which complications are common (3–16%). A surgical safety checklist had been successfully used in hospitals in Botswana, Mali, Namibia, Rwanda, Swaziland, Uganda and Zambia. The checklist has been successful where its use has been mandatory, where there has been strong support for it from hospital senior management, and where group discussions and regular meetings address issues arising from its use.

Performance-based health management


Bicycles (Sylvestre Mangouandza)

Performance-based management means taking responsibility for use of resources and delivering on promises. In health, these promises can be a matter of life and death for communities that health workers are serving. While linking outcomes to performance is a powerful way to make health workers accountable, equally, health workers need to be able to hold their managers and systems accountable. If vaccines, essential medicines, diagnostic tests, functioning equipment, regular training and logistical support are not readily available, those responsible for failing to deliver should also be held accountable. Burundi introduced a national results-based financing scheme in 2010 to overcome poor provision of services after pilot studies showed an average improvement of 50–60% for every indicator linked to finance (see Box 6.1).

Community-based intervention

Evening in the village (Boniface Nzimy)

Imposing interventions on communities is difficult and often not sustained because there is no genuine demand for them. Where communities are the planners, decision-makers and are responsible for supporting an intervention, it has more chance of succeeding. In Rwanda, when mutual health organizations are set up, it is community members who decide who should pay what. A strategy was devised to determine mutual health organization contributions, subsidizations and exemptions. This approach is based on traditional values aimed at rallying the people around shared efforts to improve social conditions. In the past, people living in small villages would organize themselves to work on farms and build houses for the poorest people. Development partners saw an opportunity to build on this ethic and set up a system whereby the community identifies destitute people and determines the assistance they need. The Government of Rwanda and development partners then send aid to groups that have identified their own needs, as part of poverty alleviation activities.

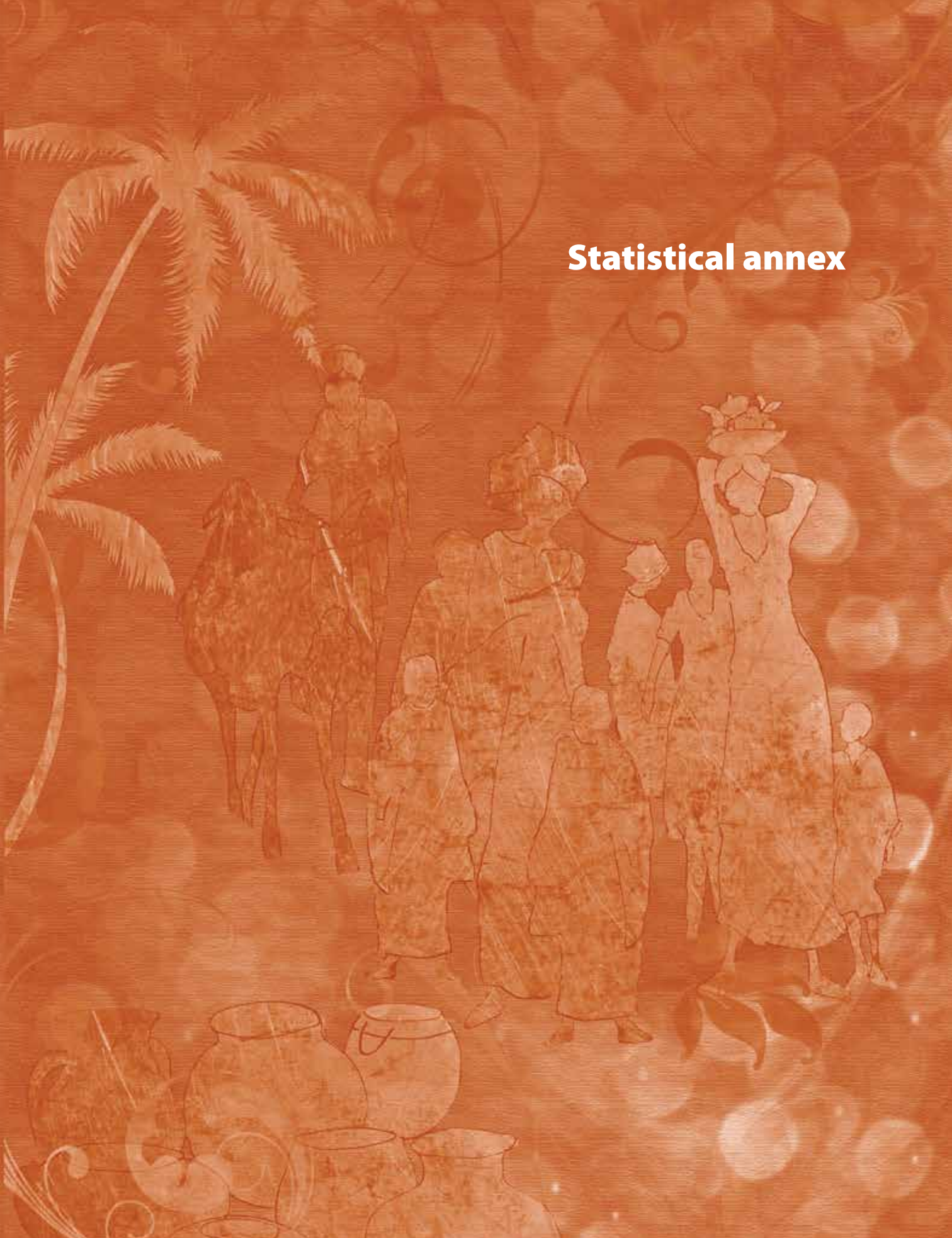
Understanding who communities trust for health advice and interventions (e.g. 80% use traditional healers) and why, and including those people in the health system, increases opportunities for bringing better health. Making it real – turning recommendations into implementable actions – requires genuine partnership with, and adaptation by, the communities affected.

Scaling up better

Gillnet fishing (Antoine Sita)

Scaling up, that is putting the theory proven by successful pilot programmes into widely used practice, is often difficult. New programmes tend to be imposed, rather than built up using existing capacity. The need to develop a strong surveillance and delivery system working well at all levels from community, through to district, provincial and national levels, all supported by high-quality laboratory services and a strong logistical system, has built capacity that is now being extended to other areas. Better support for immunization has strengthened community case-finding, diagnostics, reporting and detection of measles, yellow fever and other outbreaks, and malnutrition. This is an opportunity to build up better that should not be missed. The system is working, yielding results and should be widened further to capitalize on this home-grown platform.

Statistical annex



African Region of the World Health Organization

This report refers to the 47 Member States of the WHO African Region, as illustrated in this map. The WHO African Region does not include all the countries on the African continent and is not limited to sub-Saharan Africa.

The "Region" is used when referring to the African Region as defined by WHO, while "Africa" is used when discussing the continent as a whole, including its islands. The WHO Regional Office for Africa is based in Brazzaville in the Congo.

It should be noted that the World Bank divides the African continent into two regions: North Africa and sub-Saharan Africa, while UNICEF divides it into three regions: Eastern and South Africa; West and Central Africa; and North Africa.

Statistical annex

Summary indicators

The summary tables in this report include some of the most recent health statistics available from the 47 Member States of the Region. They are based on evidence available in 2013 and represent the best estimates of WHO for a broad range of key public health indicators. The statistics cover the following categories:

1. Demographic and socioeconomic statistics
2. Life expectancy and mortality
3. Cause-specific mortality and morbidity
4. Selected infectious diseases
5. Health service coverage
6. Risk factors
7. Health systems
8. Health expenditure
9. Health inequities

These estimates are computed by WHO using standardized categories and methods in order to enhance cross-national comparability. They may not agree with estimates at country level and are not necessarily the official statistics of Member States.

More detailed information is available from the African Health Observatory (https://www.aho.afro.who.int/en) and the Global Health Observatory (http://www.who.int/gho/en).

For a definition of the health statistics' categories included in this annex, as well as the rationale for their inclusion and the estimation methods used in their productions, see section 7, Explanatory notes of the *Atlas of African health statistics 2014*.

Member State	Population[a]						Civil registration coverage (%)		Crude birth rate[a] (per 1000 population)
	Total (000s)	Median age (years)	Aged under 15 (%)	Aged over 60 (%)	Annual growth rate (%)	Living in urban areas (%)	Births[b]	Causes of death[c]	
	2012	2012	2012	2012	2002–2012	2012	2006–2012		2012
Algeria	38 482	27	27	7	1.7	74	99	…	24.6
Angola	20 821	16	48	4	3.4	60	…	…	44.8
Benin	10 051	18	43	5	3	46	80	…	36.9
Botswana	2 004	22	34	6	1	62	72	…	23.8
Burkina Faso	16 460	17	46	4	2.9	27	77	…	41.4
Burundi	9 850	18	44	4	3.4	11	75	…	45
Cabo Verde	494	24	30	7	0.7	63	91	…	20.4
Cameroon	21 700	18	43	5	2.6	53	61	…	37.7
Central African Republic	4 525	20	40	6	1.8	39	61	…	34.5
Chad	12 448	16	49	4	3.3	22	16	…	46.4
Comoros	718	19	42	5	2.5	28	…	…	35.9
Congo	4 337	19	42	5	2.8	64	91	…	38
Côte d'Ivoire	19 840	19	41	5	1.7	52	65	…	36.7
Democratic Republic of the Congo	65 705	17	45	5	2.8	35	28	…	43.2
Equatorial Guinea	736	20	39	5	2.9	40	…	…	35.8
Eritrea	6 131	18	43	4	3.6	22	…	…	37.4
Ethiopia	91 729	18	43	5	2.7	17	…	…	33.5
Gabon	1 633	21	38	7	2.4	87	90	…	32.2
Gambia	1 791	17	46	4	3.2	58	53	…	43
Ghana	25 366	20	39	5	2.5	53	63	…	31.3
Guinea	11 451	19	42	5	2.4	36	…	…	37.3
Guinea-Bissau	1 664	19	42	5	2.2	45	24	…	37.9
Kenya	43 178	19	42	4	2.7	24	60	…	35.5
Lesotho	2 052	21	37	6	0.8	28	45	…	27.6
Liberia	4 190	18	43	5	3.1	49	4[j]	…	36
Madagascar	22 294	18	43	4	2.9	33	80	…	34.9
Malawi	15 906	17	45	5	2.9	16	…	…	40.1
Mali	14 854	16	47	4	3.1	36	81	…	47.4
Mauritania	3 796	20	40	5	2.8	42	59	…	34.5
Mauritius	1 240	34	20	13	0.3	42	…	100	11.5
Mozambique	25 203	17	45	5	2.7	31	48	…	39.4
Namibia	2 259	21	37	5	1.4	39	78[j]	…	26.4
Niger	17 157	15	50	4	3.7	18	32	…	49.8
Nigeria	168 834	18	44	4	2.7	50	42	…	41.5
Rwanda	11 458	18	44	4	2.4	19	63	…	35.8
Sao Tome and Principe	188	19	42	5	2.6	63	75	…	34.7
Senegal	13 726	18	44	5	2.8	43	75	…	38.1
Seychelles	92	32	22	10	1.1	54	…	100	17.1
Sierra Leone	5 979	19	42	4	2.9	40	78	…	37.1
South Africa	52 386	26	30	8	1.3	62	95[j]	92	21.1
South Sudan	10 838	19	42	5	4.1	18	35	…	36.5
Swaziland	1 231	20	38	5	1.3	21	50	…	30.2
Togo	6 643	19	42	4	2.6	38	78	…	36.8
Uganda	36 346	16	49	4	3.4	16	30	…	43.7
United Republic of Tanzania	47 783	17	45	5	2.9	27	16	…	39.7
Zambia	14 075	17	47	4	2.8	40	14	…	43
Zimbabwe	13 724	19	40	6	0.8	39	49	…	31.6
African Region	**892 529**	**19**	**43**	**5**	**2.6**	**39**	**…**	**…**	**37.6**
Global	**7 044 272**	**30**	**26**	**11**	**1.2**	**53**	**…**	**…**	**19.6**

Endnotes appear after the summary tables.

Crude death rate[c] (per 1000 population)	Total fertility rate[a] (per woman)	MDG 5 Adolescent fertility rate[d] (per 1000 girls aged 15–19 years)	Literacy rate among adults aged ≥15 years[e] (%)	MDG 2 Net primary school enrolment rate[e] (%) Male	Female	Gross national income per capita[f] (PPP int. $)	MDG 1 Population living on <$1 (PPP int. $) a day[g] (%)	MDG 8 Cellular phone subscribers[h] (per 100 population)	Member State
2012	2012	2006–2011	2006–2012	2006–2012		2012	2006–2012	2012	
5.7	2.8	4	73	98	96	8 360	…	98	Algeria
14.4	6	…	70	97	74	5 400	43.4	47	Angola
9.7	4.9	94	29 [l]	100	88	1 550	…	84	Benin
8.1	2.7	51	85	83 [k]	85 [k]	16 060	…	154	Botswana
9.8	5.7	130	29	68	65	1 490	44.6	61	Burkina Faso
11.5	6.1	65	87	94	94	550	81.3	23	Burundi
5.2	2.3	…	85	99	96	4 930	…	86	Cabo Verde
11	4.9	127	71	97	86	2 270	9.6	60	Cameroon
14.4	4.5	229	57	81	64	1 080	62.8	25	Central African Republic
14	6.4	203	35	72	56	1 620	…	35	Chad
8.3	4.8	…	76	86	80	1 210	…	40	Comoros
10.4	5	147	…	88	96	3 450	54.1	99	Congo
12.7	4.9	128	57	67	56	1 920	23.8	91	Côte d'Ivoire
14	6	135	61	…	…	390	87.7	31	Democratic Republic of the Congo
11.9	4.9	…	94	62	62	18 570	…	68	Equatorial Guinea
6.5	4.8	…	69	36	32	550	…	5	Eritrea
7.5	4.6	79	39	…	…	1 110	30.7	22	Ethiopia
9.2	4.1	114	89	…	…	14 090	4.8	179	Gabon
8.4	5.8	118	51	71	76	1 830	…	85	Gambia
8.3	3.9	70	71	84 [k]	81 [k]	1 910	28.6	101	Ghana
10.3	5	146	25	81	70	970	43.3	42	Guinea
12.2	5	…	55	73	69	1 100	…	63	Guinea-Bissau
8.6	4.5	106	72 [l]	82 [k]	83 [k]	1 730	43.4	71	Kenya
14.1	3.1	92	76 [l]	80	84	2 170	…	75	Lesotho
8.2	4.9	177	43 [l]	42	40	580	83.8	57	Liberia
7.1	4.5	147	64 [l]	…	…	930	81.3	39	Madagascar
9.5	5.5	157	61 [l]	90	97	730	61.6	29	Malawi
11.5	6.9	…	33	78	68	1 140	50.4	98	Mali
7.9	4.7	…	59	68	73	2 480	23.4	106	Mauritania
7.3	1.5	31	89	98	98	15 060	…	120	Mauritius
12.4	5.3	167	51	89	84	1 000	59.6	36	Mozambique
6.3	3.1	…	76 [l]	87	90	7 240	…	95	Namibia
10.5	7.6	206	…	69	58	760	43.6	31	Niger
12.3	6	113	51 [l]	61 [k]	56 [k]	2 450	68	67	Nigeria
6.8	4.6	41	66 [l]	97	100	1 320	63.2	50	Rwanda
6.6	4.1	110	70 [l]	98	100	1 810	…	65	Sao Tome and Principe
7.2	5	96	50	77	82	1 880	29.6	84	Senegal
6.7	2.2	78	92 [l]	92	95	25 740	<2.0	148	Seychelles
17.1	4.8	122	43	…	…	1 340	51.7	37	Sierra Leone
11.6	2.4	54	93	90 [k]	91 [k]	11 010	13.8	131	South Africa
11.6	5	…	…	48 [k]	34 [k]	…	…	21	South Sudan
11.7	3.4	89	88	84	86	4 760	40.6	65	Swaziland
9.8	4.7	88	60	98	87	900	28.2	50	Togo
9.7	6	146	73	90	92	1 120	38	45	Uganda
8.4	5.3	128	68 [l]	98	98	1 560	67.9	57	United Republic of Tanzania
10.4	5.7	…	61 [l]	95 [k]	96 [k]	1 590	74.5	75	Zambia
10.1	3.6	115	84 [l]	…	…	…	…	92	Zimbabwe
10.4	**5**	**114**	**60**	**81**	**77**	**2 594**	**51.5**	**61**	**African Region**
7.9	**2.5**	**49**	**84**	**92**	**90**	**12 018**	**21.5**	**89**	**Global**

Member State	Life expectancy at birth[a] (years)						Life expectancy at age 60[a] (years)					
	Both sexes		Male		Female		Both sexes		Male		Female	
	1990	2012	1990	2012	1990	2012	1990	2012	1990	2012	1990	2012
Algeria	68	72	66	70	69	73	17	18	16	17	18	19
Angola	43	51	41	50	45	52	14	16	13	15	14	16
Benin	53	59	51	57	56	60	15	16	14	15	16	16
Botswana	65	62	65	61	66	63	17	18	18	18	17	18
Burkina Faso	50	58	48	57	51	59	15	15	14	15	15	15
Burundi	49	56	48	54	51	57	15	16	14	15	16	17
Cabo Verde	66	74	63	71	68	78	17	20	16	17	18	22
Cameroon	54	56	53	55	56	57	16	16	15	16	16	17
Central African Republic	48	51	46	50	50	52	15	16	14	15	15	16
Chad	45	51	43	50	47	52	14	15	13	14	15	15
Comoros	56	62	54	60	58	63	15	16	14	15	16	17
Congo	56	59	55	57	58	60	16	17	16	17	17	18
Côte d'Ivoire	51	53	50	52	54	54	16	16	15	15	17	16
Democratic Republic of the Congo	49	52	48	50	51	53	15	15	14	15	16	16
Equatorial Guinea	48	55	46	54	49	57	15	16	14	16	15	17
Eritrea	48	63	46	61	50	66	12	15	11	13	13	17
Ethiopia	45	64	42	62	48	65	15	18	14	17	15	19
Gabon	61	63	60	62	63	64	17	18	17	18	18	19
Gambia	52	61	50	59	53	63	16	17	15	16	16	17
Ghana	57	62	55	61	58	64	16	17	16	17	17	18
Guinea	47	58	46	57	48	59	15	16	15	16	16	17
Guinea-Bissau	49	54	47	53	52	56	14	15	14	14	15	15
Kenya	60	61	58	59	62	62	17	18	16	17	18	18
Lesotho	61	50	59	49	62	52	17	16	16	15	17	17
Liberia	42	62	39	60	46	63	14	16	13	15	15	17
Madagascar	51	64	50	62	53	65	15	17	15	16	16	17
Malawi	45	59	43	58	46	60	15	16	14	16	15	17
Mali	46	57	46	57	46	57	14	15	14	15	14	16
Mauritania	58	63	57	61	60	65	16	16	15	16	16	17
Mauritius	70	74	66	70	74	78	17	20	15	18	19	22
Mozambique	43	53	41	52	45	54	14	16	14	16	15	17
Namibia	63	67	62	64	64	69	16	18	16	18	16	19
Niger	43	59	43	59	43	59	15	15	14	15	15	16
Nigeria	46	54	45	53	47	55	15	16	14	15	15	16
Rwanda	48	65	46	63	50	66	15	18	14	17	15	19
Sao Tome and Principe	61	67	59	65	63	69	17	18	17	17	18	19
Senegal	57	64	56	63	59	66	16	16	15	15	16	17
Seychelles	69	74	64	69	75	78	17	20	14	17	21	23
Sierra Leone	38	46	38	45	38	46	11	13	11	12	11	13
South Africa	62	59	59	56	66	62	15	16	13	14	17	18
South Sudan	42	55	41	54	44	56	14	16	13	16	14	17
Swaziland	61	54	62	52	61	55	16	17	16	17	15	17
Togo	55	58	54	57	57	59	16	17	16	16	17	17
Uganda	47	57	44	56	49	58	15	16	14	16	16	17
United Republic of Tanzania	51	61	49	59	52	63	16	18	15	17	16	18
Zambia	43	57	40	55	47	58	15	17	14	16	16	18
Zimbabwe	62	58	60	56	64	60	18	18	17	17	18	19
African Region	**50**	**58**	**48**	**56**	**52**	**59**	**15**	**17**	**14**	**16**	**16**	**17**
Global	**64**	**70**	**62**	**68**	**67**	**73**	**18**	**20**	**17**	**18**	**20**	**21**

Endnotes appear after the summary tables.

Healthy life expectancy at birth[a] (years)	Neonatal mortality rate[b] (per 1000 live births)		MDG 4 Infant mortality rate[b] (probability of dying by age 1 per 1000 live births)			MDG 4 Under-five mortality rate[b] (probability of dying by age 5 per 1000 live births)			Adult mortality rate[a] (probability of dying between 15 and 60 years of age per 1000 population)				Member State
Both sexes	Both sexes		Both sexes			Both sexes			Male		Female		
2012	1990	2012	1990	2000	2012	1990	2000	2012	1990	2012	1990	2012	
62	23	12	42	30	17	50	35	20	199	165	152	122	Algeria
44	52	45	126	121	100	213	203	164	505	376	409	336	Angola
50	41	28	109	91	59	181	147	90	318	284	246	240	Benin
53	25	29	38	55	41	48	85	53	243	370	242	327	Botswana
50	40	28	102	96	66	202	186	102	371	301	313	259	Burkina Faso
48	46	36	100	92	67	164	150	104	417	370	356	313	Burundi
64	21	10	47	31	19	62	38	22	240	149	167	70	Cabo Verde
48	35	28	84	92	61	135	150	95	340	371	287	349	Cameroon
43	47	41	113	109	91	171	164	129	447	445	376	430	Central African Republic
44	47	40	114	105	89	209	189	150	501	413	401	385	Chad
53	41	31	87	71	58	124	99	78	347	283	283	236	Comoros
50	33	32	65	75	62	100	118	96	379	325	325	284	Congo
46	48	40	104	99	76	152	145	108	412	409	351	396	Côte d'Ivoire
44	47	44	112	112	100	171	171	146	401	382	345	323	Democratic Republic of the Congo
47	47	34	123	99	72	182	143	100	411	379	353	336	Equatorial Guinea
54	35	18	92	58	37	150	89	52	534	313	447	245	Eritrea
55	54	29	121	90	47	204	146	68	478	250	366	212	Ethiopia
54	33	25	60	56	42	92	86	62	267	285	221	273	Gabon
53	46	28	80	63	49	170	116	73	348	296	300	244	Gambia
54	40	28	80	66	49	128	103	72	299	263	260	227	Ghana
49	54	34	142	104	65	241	171	101	355	306	307	277	Guinea
47	58	46	122	105	81	206	174	129	365	354	286	307	Guinea-Bissau
53	33	27	64	68	49	98	110	73	287	307	228	261	Kenya
43	45	45	68	80	74	85	114	100	297	560	247	503	Lesotho
52	51	27	165	120	56	248	176	75	544	282	376	246	Liberia
55	40	22	97	69	41	159	109	58	370	263	320	213	Madagascar
50	50	24	143	103	46	244	174	71	467	376	407	330	Malawi
48	59	42	130	116	80	253	220	128	348	282	340	277	Mali
53	43	34	82	75	65	128	111	84	270	235	223	188	Mauritania
65	16	9	20	16	13	23	19	15	264	204	121	96	Mauritius
45	54	30	155	112	63	233	166	90	459	466	384	453	Mozambique
57	29	18	49	48	28	73	73	39	268	293	230	204	Namibia
50	48	28	137	101	63	326	227	114	317	257	295	246	Niger
46	52	39	126	112	78	213	188	124	408	371	364	346	Nigeria
55	38	21	92	108	39	151	182	55	487	253	406	212	Rwanda
57	31	20	67	57	38	104	87	53	264	222	210	169	Sao Tome and Principe
55	41	24	71	70	45	142	139	60	282	246	220	194	Senegal
67	10	8	14	12	11	17	14	13	318	217	127	101	Seychelles
39	59	50	153	143	117	257	234	182	525	444	512	426	Sierra Leone
51	21	15	47	51	33	61	74	45	344	463	219	350	South Africa
48	57	36	149	109	67	251	181	104	448	373	391	349	South Sudan
46	29	30	54	80	56	71	121	80	253	494	288	411	Swaziland
50	41	33	89	77	62	143	122	96	304	318	259	293	Togo
49	39	23	107	89	45	178	147	69	503	389	418	360	Uganda
52	43	21	101	81	38	166	132	54	388	342	328	277	United Republic of Tanzania
49	44	29	114	99	56	192	169	89	634	398	452	353	Zambia
49	31	39	50	61	56	74	102	90	308	390	255	313	Zimbabwe
50	**44**	**32**	**105**	**94**	**63**	**173**	**154**	**95**	**395**	**343**	**326**	**298**	**African Region**
62	**33**	**21**	**63**	**53**	**35**	**90**	**75**	**48**	**233**	**187**	**161**	**124**	**Global**

Mortality

Member State	Age-standardized mortality rates by cause[a] (per 100 000 population)			Years of life lost[a] (per 100 000 population)				MDG 4		Distribution of causes of death among children aged < 5 years[a,b] (%)							
								Number of deaths among children aged < 5 years[a] (000s)		HIV		Diarrhoea		Measles		Malaria	
	Communicable	Non-communicable	Injuries	All causes	Communicable	Non-communicable	Injuries	2000	2012	2000	2012	2000	2012	2000	2012	2000	2012
	2012			2012													
Algeria	98	710	54	19 635	4 810	12 406	2 418	20	20	0	1	7	4	6	1	0	0
Angola	873	768	138	102 199	75 280	17 031	9 887	133	149	1	1	19	15	1	1	15	13
Benin	577	761	98	53 328	35 559	12 712	5 057	43	31	1	1	12	10	7	1	26	21
Botswana	555	612	88	39 743	26 187	9 111	4 444	4	3	46	5	5	7	8	1	1	0
Burkina Faso	648	784	119	62 658	42 924	13 422	6 312	96	66	2	1	13	11	5	1	29	23
Burundi	705	729	147	74 914	51 897	14 209	8 809	42	43	4	1	16	13	5	0	8	5
Cabo Verde	142	482	54	15 736	5 127	8 695	1 914	0	0	6	4	11	5	2	0	0	0
Cameroon	769	675	106	66 447	45 696	14 488	6 263	97	74	4	3	14	12	5	1	19	12
Central African Republic	1 212	551	108	86 460	69 308	10 575	6 577	24	19	6	3	10	9	10	1	23	25
Chad	1 071	713	114	94 968	75 598	12 700	6 670	73	82	3	2	14	13	5	0	24	19
Comoros	495	695	132	47 196	29 959	11 603	5 634	2	2	0	1	12	9	0	0	15	15
Congo	667	632	89	62 710	45 395	11 739	5 576	14	15	6	3	10	8	5	0	22	25
Côte d'Ivoire	861	794	124	78 319	54 054	16 884	7 382	87	75	6	2	10	10	4	0	22	16
Democratic Republic of the Congo	921	724	137	94 624	70 873	14 227	9 524	352	391	1	1	12	12	11	4	19	16
Equatorial Guinea	757	729	134	71 724	48 783	15 054	7 887	3	3	3	7	11	8	5	4	24	15
Eritrea	506	672	119	36 628	22 640	9 469	4 519	15	12	2	1	12	10	24	6	0	0
Ethiopia	559	476	94	42 966	29 697	8 571	4 697	412	205	4	2	16	10	5	2	5	3
Gabon	589	505	77	44 352	30 028	10 127	4 197	3	3	7	2	8	7	3	1	19	19
Gambia	590	630	96	53 070	35 805	11 970	5 295	6	5	1	1	11	7	4	0	23	20
Ghana	476	670	76	45 576	28 629	12 863	4 084	65	56	3	1	8	7	10	1	21	19
Guinea	680	681	96	64 439	45 952	12 912	5 574	68	42	1	2	11	8	15	2	24	27
Guinea-Bissau	870	765	112	75 954	56 025	13 835	6 094	9	8	2	3	11	10	8	1	23	18
Kenya	657	515	101	51 435	37 031	9 133	5 271	128	108	13	4	13	10	1	0	5	4
Lesotho	1 110	672	142	76 738	57 102	11 697	7 939	7	6	34	19	8	7	1	1	0	0
Liberia	609	657	83	47 041	32 485	10 525	4 030	23	11	1	1	11	8	17	1	23	21
Madagascar	430	649	89	39 785	24 877	10 233	4 675	71	44	1	1	15	10	8	1	5	7
Malawi	778	655	98	54 730	41 453	9 228	4 049	81	43	13	12	13	8	0	1	20	15
Mali	588	866	120	76 206	55 170	14 432	6 603	102	82	1	1	14	12	3	1	25	14
Mauritania	619	555	83	45 160	31 786	9 373	4 001	11	11	1	0	13	10	5	1	9	10
Mauritius	62	577	44	21 106	2 399	16 472	2 235	0	0	0	0	2	1	0	0	0	0
Mozambique	998	594	175	73 589	53 997	11 531	8 061	122	84	5	6	12	9	4	0	25	18
Namibia	357	580	76	29 801	18 018	8 027	3 755	4	2	29	9	8	6	1	3	3	0
Niger	740	649	98	70 633	54 270	10 726	5 637	121	90	0	0	16	12	5	0	27	19
Nigeria	866	674	146	81 624	59 843	13 237	8 544	1 035	827	2	3	11	10	15	1	23	20
Rwanda	402	585	106	40 122	24 964	9 517	5 642	79	24	3	1	19	10	1	1	6	4
Sao Tome and Principe	…	…	…	…	…	…	…	0	0	2	1	14	9	0	1	9	8
Senegal	588	558	89	39 510	26 368	9 505	3 637	53	30	0	1	11	7	5	1	24	17
Seychelles	…	…	…	…	…	…	…	0	0	…	…	…	…	…	…	…	…
Sierra Leone	1 327	964	150	113 198	82 802	21 114	9 282	43	39	0	0	13	14	12	6	25	14
South Africa	612	711	104	50 128	30 989	14 121	5 017	74	49	36	17	9	7	1	1	0	0
South Sudan	827	623	143	70 179	50 404	12 108	7 667	49	40	2	3	18	11	3	2	7	6
Swaziland	884	702	119	66 341	48 011	11 412	6 918	4	3	35	15	10	9	0	0	0	0
Togo	682	679	93	61 629	43 673	12 507	5 449	22	22	4	1	10	9	6	1	24	18
Uganda	697	664	167	60 022	41 005	10 918	8 098	167	103	7	7	12	9	8	0	18	13
United Republic of Tanzania	584	570	129	48 220	32 565	9 699	5 956	177	98	10	6	12	8	2	0	19	10
Zambia	764	587	156	66 252	49 853	9 379	7 020	76	50	14	6	12	9	5	1	19	16
Zimbabwe	711	599	82	57 699	42 568	9 782	5 349	39	39	45	9	6	9	0	1	2	1
African Region	**683**	**652**	**116**	**63 153**	**44 628**	**12 045**	**6 480**	**4 014**	**3 070**	**5**	**3**	**13**	**10**	**8**	**1**	**18**	**15**
Global	**178**	**539**	**73**	**28 311**	**11 315**	**13 343**	**3 654**	**9 848**	**6 554**	**2**	**2**	**13**	**9**	**5**	**2**	**8**	**7**

Endnotes appear after the summary tables.

Mortality

Distribution of causes of death among children aged < 5 years[a,b] (%)

Acute respiratory infections		Prematurity		Intrapartum-related complications		Neonatal sepsis		Congenital anomalies		Other diseases		Injuries		Member State
2000	2012	2000	2012	2000	2012	2000	2012	2000	2012	2000	2012	2000	2012	
15	12	23	20	11	13	6	8	11	20	15	14	6	8	Algeria
18	17	9	11	7	9	3	5	2	5	21	19	4	5	Angola
13	15	9	12	7	10	5	6	2	4	13	15	3	5	Benin
7	13	10	24	7	14	4	8	3	9	6	14	2	5	Botswana
14	15	8	11	6	9	3	5	2	4	15	16	3	5	Burkina Faso
19	19	10	12	8	11	4	7	2	4	19	20	5	7	Burundi
19	14	17	19	9	8	4	5	12	19	16	23	4	3	Cabo Verde
15	17	10	11	7	11	3	6	3	5	16	18	4	6	Cameroon
12	14	10	12	8	10	3	5	2	3	13	14	3	4	Central African Republic
14	17	8	11	7	8	2	3	2	3	18	19	3	5	Chad
16	15	16	15	10	13	6	8	3	5	16	15	4	5	Comoros
12	12	13	14	10	10	4	6	3	5	12	12	3	4	Congo
12	15	12	13	10	12	6	8	3	5	12	15	3	5	Côte d'Ivoire
14	16	11	12	8	9	3	5	2	3	16	17	3	5	Democratic Republic of the Congo
13	15	12	13	9	11	4	6	2	4	14	14	3	4	Equatorial Guinea
17	19	8	9	9	12	5	7	3	8	15	19	5	8	Eritrea
19	18	10	13	10	15	4	8	2	5	21	18	5	6	Ethiopia
12	12	18	17	9	12	5	7	5	8	11	12	3	5	Gabon
12	13	11	13	11	13	6	8	4	7	13	13	4	5	Gambia
11	13	11	14	11	13	6	8	4	7	11	13	3	5	Ghana
12	13	8	11	8	12	4	6	2	3	13	13	3	4	Guinea
13	14	11	11	8	12	4	7	3	4	15	15	3	4	Guinea-Bissau
17	18	10	13	10	14	5	7	3	6	16	18	5	7	Kenya
11	12	12	16	11	14	6	8	3	4	11	13	3	4	Lesotho
12	14	9	11	7	13	3	7	2	5	13	14	3	5	Liberia
19	18	11	12	9	13	5	7	2	6	19	18	5	7	Madagascar
14	13	8	12	7	11	4	7	2	5	15	13	3	5	Malawi
14	16	10	13	6	10	3	6	2	3	17	18	3	5	Mali
17	16	17	18	9	11	5	8	3	6	16	16	4	5	Mauritania
4	10	40	27	10	5	4	7	22	29	12	13	7	7	Mauritius
13	14	9	12	8	11	5	6	2	4	14	14	3	5	Mozambique
13	13	12	20	10	13	5	7	4	10	11	13	4	6	Namibia
15	18	6	10	6	7	2	5	2	3	18	19	3	6	Niger
12	16	8	12	8	11	3	5	2	3	13	16	3	4	Nigeria
21	18	7	12	10	13	5	7	2	7	21	18	5	8	Rwanda
19	16	14	13	10	13	6	7	5	10	17	16	5	7	Sao Tome and Principe
13	13	12	15	8	13	5	8	3	7	14	13	3	5	Senegal
...	...	...	...	...	...	...	...	...	...	...	...	...	...	Seychelles
13	17	9	9	6	9	3	5	2	4	15	18	3	4	Sierra Leone
12	16	11	14	7	10	3	4	4	6	14	18	4	7	South Africa
19	20	11	14	7	10	3	6	2	4	21	19	4	5	South Sudan
13	15	10	14	10	12	5	7	3	6	12	16	3	6	Swaziland
12	15	12	12	9	12	5	7	3	5	12	15	3	5	Togo
14	15	9	12	7	11	4	6	2	5	15	16	4	6	Uganda
14	15	8	11	10	14	5	8	2	7	14	15	3	6	United Republic of Tanzania
13	15	7	11	8	12	4	6	2	4	14	15	3	5	Zambia
9	15	10	17	9	14	5	8	3	6	8	15	2	5	Zimbabwe
14	**16**	**9**	**12**	**8**	**11**	**4**	**6**	**2**	**4**	**15**	**17**	**3**	**5**	**African Region**
17	**15**	**13**	**17**	**11**	**11**	**6**	**7**	**5**	**7**	**16**	**17**	**5**	**6**	**Global**

Member State	Mortality							
	MDG 5			MDG 6				
	Maternal mortality ratio[c] (per 100 000 live births)			Cause-specific mortality rate (per 100 000 population)				
				HIV/AIDS[d]		Malaria[e]	Tuberculosis among HIV-negative people[f]	
	1990	2000	2013	2001	2012	2012	2000	2012
Algeria	160	120	89	...	...	0	14	15
Angola	1 400	1 100	460	59	60	99	42	42
Benin	600	490	340	57	31	79	14	9.4
Botswana	360	390	170	1 171	282	0.1	50	21
Burkina Faso	770	580	400	163	33	101	13	8.5
Burundi	1 300	1 000	740	191	48	33	40	18
Cabo Verde	230	84	53	<44	<20	...	34	23
Cameroon	720	740	590	176	159	56	51	29
Central African Republic	1 200	1 200	880	...	...	116	143	50
Chad	1 700	1 500	980	160	116	136	24	18
Comoros	630	480	350	0	6.7	68	6.9	6.3
Congo	670	610	410	280	119	104	36	42
Côte d'Ivoire	740	670	720	283	157	71	56	22
Democratic Republic of the Congo	1 000	1 100	730	65	48	105	61	54
Equatorial Guinea	1 600	790	290	<187	194	69	0	0
Eritrea	1 700	670	380	66	19	3.2	7.7	4.6
Ethiopia	1 400	990	420	148	51	17	41	18
Gabon	380	330	240	187	143	67	81	44
Gambia	710	580	430	<39	<56	82	36	51
Ghana	760	570	380	100	46	69	27	6.9
Guinea	1 100	950	650	37	44	103	44	23
Guinea-Bissau	930	840	560	<77	136	95	28	29
Kenya	490	570	400	412	133	28	19	22
Lesotho	720	680	490	858	755	...	16	17
Liberia	1 200	1 100	640	67	40	69	54	46
Madagascar	740	550	440	29	28	27	69	46
Malawi	1 100	750	510	743	287	64	28	9
Mali	1 100	860	550	74	33	87	12	9
Mauritania	630	480	320	<18	<26	50	57	93
Mauritius	70	28	73	1.3[a]	5.5[a]	...	0.7	1
Mozambique	1 300	870	480	210	305	70	75	53
Namibia	320	270	130	483	219	0.1	24	14
Niger	1 000	850	630	28	20	110	46	16
Nigeria	1 200	950	560	120	142	108	38	16
Rwanda	1 400	1 000	320	267	49	33	49	10
Sao Tome and Principe	410	300	210	<71	<53	43	13	16
Senegal	530	480	320	13	14	59	26	20
Seychelles	...	...	...	...	...	...	2	1.8
Sierra Leone	2 300	2 200	1 100	25	55	108	59	143
South Africa	150	150	140	438	449	0.1	44	59
South Sudan	1 800	1 200	730	100	119	56	...	30
Swaziland	550	520	310	713	443	0.2	34	63
Togo	660	580	450	158	108	83	12	8.7
Uganda	780	650	360	424	174	55	35	13
United Republic of Tanzania	910	770	410	339	167	44	17	13
Zambia	580	610	280	745	215	78	31	28
Zimbabwe	520	680	470	1 252	288	9.1	17	33
African Region	**960**	**820**	**500**	**221**	**377**	**63**	**38**	**26**
Global	**380**	**330**	**210**	**32**	**56**	**11**	**22**	**13**

Endnotes appear after the summary tables.

Morbidity									Member State
MDG 6									
Incidence rate (per 100 000 population)					Prevalence (per 100 000 population)				
HIV/AIDS[d]		Malaria[e]	Tuberculosis[g]		HIV/AIDS[d]		Tuberculosis[g]		
2001	2012	2012	2000	2012	2001	2012	2000	2012	
...	...	0.2	87	89	...	...	148	152	Algeria
133	134	18 241	250	316	894	1 195	421	474	Angola
104	41	29 282	86	70	866	712	134	110	Benin
1 518	616	30	918	408	16 694	16 850	720	343	Botswana
70	35	33 759	71	54	1 502	696	108	82	Burkina Faso
82	46	8 492	288	130	1 842	909	408	199	Burundi
...	...	22	160	144	285	161	311	237	Cabo Verde
381	206	16 877	310	238	2 955	2 767	504	319	Cameroon
...	...	34 675	1 071	367	...	...	1 495	520	Central African Republic
266	125	26 152	151	151	2 213	1 712	252	221	Chad
...	...	22 419	39	34	0.1	1 098	64	62	Comoros
277	108	33 824	353	381	2 856	1 717	455	530	Congo
356	149	20 730	369	172	3 845	2 268	513	228	Côte d'Ivoire
107	52	25 999	327	327	909	733	611	576	Democratic Republic of the Congo
...	...	24 767	101	139	2 276	4 259	130	164	Equatorial Guinea
45	<8	1 282	157	93	738	290	194	152	Eritrea
185	22	4 563	421	247	1 912	827	429	224	Ethiopia
468	62	24 892	527	428	3 348	2 490	898	563	Gabon
122	<56	29 095	225	284	569	798	373	490	Gambia
144	31	27 337	152	72	1 385	930	257	92	Ghana
...	...	38 333	234	178	716	1 031	429	274	Guinea
320	219	28 120	192	242	1 584	2 480	290	312	Guinea-Bissau
426	228	8 200	286	272	5 024	3 812	273	299	Kenya
1 759	1 284	. . .	553	630	14 822	17 482	387	424	Lesotho
142	<12	27 793	242	304	1 110	521	482	495	Liberia
...	...	6 020	293	234	337	264	609	442	Madagascar
956	414	27 462	467	163	9 206	7 103	365	140	Malawi
106	28	20 399	77	60	1 021	675	117	92	Mali
...	...	17 591	277	350	327	276	536	794	Mauritania
...	...	. . .	24	21	615	850	46	39	Mauritius
870	467	27 947	513	552	4 508	6 169	701	553	Mozambique
1 213	458	23	1 407	655	8 853	9 742	1 429	688	Namibia
69	6.6	27 726	191	104	500	270	396	166	Niger
320	153	28 710	172	108	2 044	2 030	326	161	Nigeria
198	68	5 714	325	86	2 761	1 806	417	114	Rwanda
<353	<53	12 375	114	93	<705	731	159	159	Sao Tome and Principe
47	14	27 925	155	137	264	312	273	219	Senegal
...	...	. . .	37	30	...	...	57	39	Seychelles
141	51	19 027	264	674	618	965	537	1 304	Sierra Leone
1 399	700	33	576	1 003	9 512	11 589	568	857	South Africa
...	...	29 891	. . .	146	1 777	1 419	. . .	257	South Sudan
1 618	966	43	803	1 349	13 614	17 291	573	907	Swaziland
353	73	23 543	72	73	2 635	1 929	114	104	Togo
374	380	24 597	427	179	4 094	4 262	380	175	Uganda
381	174	17 318	236	165	4 340	3 082	234	176	United Republic of Tanzania
984	396	26 087	713	427	9 082	7 861	524	388	Zambia
1 063	501	7 844	726	562	14 679	9 969	389	433	Zimbabwe
377	**176**	**18 579**	**310**	**255**	**3 203**	**2 774**	**397**	**303**	**African Region**
56	**33**	**3 752**	**148**	**122**	**494**	**511**	**263**	**169**	**Global**

Member State	Number of reported cases								
	Cholera[a] 2012	Diphtheria[b] 2012	Human African trypanosomiasis[c] 2012	Japanese encephalitis[b] 2012	Leishmaniasis[c] 2012	Leprosy[d] 2012	Malaria[e] 2012	Measles[b] 2012	Meningitis[f] 2013
Algeria	…	0	…	0	9 127	…	887	18	…
Angola	1 215	15	70	…	…	431	1 496 834	4 458	…
Benin	625	0	0	…	…	243	1 151 038	288	833
Botswana	…	0	…	…	…	1	308	7	…
Burkina Faso	143	0	0	…	…	313	6 089 101	7 362	2 917
Burundi	214	…	…	…	…	…	2 151 076	49	…
Cabo Verde	…	0	…	0	…	…	8 751	0	…
Cameroon	363	…	7	…	…	502	313 315	609	1 010
Central African Republic	21	0	381	…	…	152	451 012	141	210[j]
Chad	…	…	197	…	…	…	590 786	120	371
Comoros	…	…	…	…	…	…	49 840	1	…
Congo	1 181	1	39	0	…	…	117 640	260	…
Côte d'Ivoire	424	…	9	…	0	1 030	2 168 215	137	255
Democratic Republic of the Congo	33 661	…	5 983	…	…	3 607	6 263 607	72 029	9 339[k]
Equatorial Guinea	…	0	2	…	…	4	15 169	1 190	…
Eritrea	…	8	…	…	…	…	42 178	194	…
Ethiopia	…	…	…	…	2 500	3 776	3 876 745	4 347	…
Gabon	…	…	9	…	…	30	137 695	2	…
Gambia	…	0	…	0	…	33	271 038	0	248[l]
Ghana	9 548	0	0	…	…	…	8 774 516	1 613	454
Guinea	7 350	0	70	…	…	438	1 220 574	6	480
Guinea-Bissau	3 068	0	…	0	…	…	50 381	0	…
Kenya	…	…	2	0	457	…	5 788 381	…	…
Lesotho	…	0	…	0	…	…	…	179	…
Liberia	219	0	…	0	…	…	1 407 455	43	…
Madagascar	…	1	…	…	…	1 474	359 420	2	…
Malawi	187	…	18	…	…	…	3 659 565	11	…
Mali	219	…	0	…	…	228	2 171 739	341	358
Mauritania	…	0	…	…	…	…	165 834	35	14
Mauritius	…	0	…	0	…	…	…	0	…
Mozambique	647	…	…	…	…	758	1 813 984	145	…
Namibia	…	2	…	…	…	…	3 163	86	…
Niger	5 284	0	…	0	…	464	3 525 112	272	311
Nigeria	597	…	2	…	0	3 805	2 087 068	6 447	871
Rwanda	9	0	…	…	…	41	483 470	75	…
Sao Tome and Principe	…	0	…	…	…	2	12 550	0	…
Senegal	1	…	…	…	…	224	366 912	46	379
Seychelles	…	0	…	0	…	…	…	0	…
Sierra Leone	23 124	…	…	…	…	236	1 537 322	678	…
South Africa	…	…	…	…	…	15	6 846	32	…
South Sudan	…	…	317	…	5 012	1 801	1 125 039	1 952	259[m]
Swaziland	…	0	…	0	…	…	626	0	…
Togo	61	0	0	…	…	…	697 374	238	266
Uganda	6 326	…	91	…	87	264	10 338 093	2 027	…
United Republic of Tanzania	286	0	4	0	…	2 528	2 441 750	1 668	…
Zambia	198	0	6	0	…	…	4 695 400	896	…
Zimbabwe	23	0	9	0	…	…	276 963	0	…
African Region	**994 94**	**…**	**899 6**	**…**	**…**	**599 20**	**733 079 77**	**052 106**	**…**
Global	**…**	**490 4**	**…**	**…**	**410 230**	**847 232**	**435 194 89**	**722 226**	**…**

Endnotes appear after the summary tables.

Number of reported cases									Member State
Mumps[b] 2012	Pertussis[b] 2012	Poliomyelitis[g] 2013	Congenital rubella syndrome[b] 2012	Rubella[b] 2012	Neonatal tetanus[b] 2012	Total tetanus[b] 2012	Tuberculosis[h] 2012	Yellow fever[b] 2012	
0	104	0	0	420	0	0	21 880	0	Algeria
…	1 259	0	…	65	6	543	51 819	0	Angola
…	0	0	0	41	4	7	3 966	0	Benin
…	0	0	…	163	0	0	6 161	…	Botswana
…	0	0	…	677	1	1	5 210	0	Burkina Faso
…	0	0	…	11	1	1	6 921	…	Burundi
40	0	0	0	18	0	2	420	0	Cabo Verde
…	…	8 [i]	…	147	23	23	24 802	31	Cameroon
…	124	0	…	11	65	74	8 084	0	Central African Republic
…	…	4 [i]	…	…	225	225	10 585	48	Chad
…	…	0	…	0	…	…	120	…	Comoros
0	12	0	0	22	2	2	11 303	1	Congo
…	…	0	…	298	9	9	23 762	4	Côte d'Ivoire
…	3 407	0	…	1 860	1 252	1 296	108 984	1	Democratic Republic of the Congo
…	0	0	0	…	0	0	…	0	Equatorial Guinea
2 350	208	0	…	18	0	19	3 143	0	Eritrea
…	…	9	…	795	40	…	145 323	0	Ethiopia
…	…	0	…	2	2	2	4 929	0	Gabon
0	0	0	0	39	0	0	2 333	1	Gambia
…	…	0	0	272	0	456	14 753	3	Ghana
…	…	0	…	55	8	…	11 407	0	Guinea
0	0	0	0	23	0	0	1 939	0	Guinea-Bissau
0	…	14	0	…	2	2	92 987	0	Kenya
0	0	0	0	68	0	0	10 776	0	Lesotho
0	0	0	0	39	12	12	8 093	17	Liberia
…	33	0	…	110	9	490	25 782	…	Madagascar
…	…	0	…	56	1	1	20 335	…	Malawi
…	…	0	…	19	10	108	5 446	0	Mali
…	30	0	0	…	0	0	2 616	0	Mauritania
11	0	0	1	9	0	0	128	0	Mauritius
…	…	0	…	428	…	110	47 741	…	Mozambique
0	2	0	…	42	3	3	10 003	…	Namibia
0	0	1 [i]	0	77	3	75	10 989	0	Niger
…	11 628	56 [i]	…	239	110	112	92 818	0	Nigeria
…	0	0	5	172	0	0	6 091	0	Rwanda
…	0	0	…	…	0	0	115	0	Sao Tome and Principe
…	…	0	…	44	14	118	12 265	1	Senegal
0	0	0	0	0	0	0	20	0	Seychelles
…	…	0	…	…	23	…	13 074	94	Sierra Leone
…	…	0	…	2 298	1	1	323 664	…	South Africa
…	…	0	…	20	48	…	8 403	0	South Sudan
0	0	0	0	23	0	0	7 165	0	Swaziland
…	32	0	0	33	20	20	2 843	12	Togo
…	…	0	…	2 027	149	1 019	44 663	32	Uganda
…	0	0	…	55	0	…	62 178	0	United Republic of Tanzania
…	0	0	0	134	0	0	40 726	0	Zambia
0	0	0	63	20	6	6	35 760	0	Zimbabwe
…	**839 16**	**92**	**…**	**830 10**	**001 2**	**737 4**	**122 344 1**	**245**	**African Region**
120 687	**556 249**	**461**	**…**	**030 94**	**650 4**	**392 10**	**838 776 5**	**…**	**Global**

Member State	MDG 5								Immunization coverage among 1-year-olds[d] (%)					
	Unmet need for family planning[a] (%)	Contraceptive prevalence[a] (%)	Antenatal care coverage[b] (%)		Births attended by skilled health personnel[b] (%)	Births by caesarean section[b] (%)	Postnatal care visit within two days of childbirth[b] (%)	Neonates protected at birth against neonatal tetanus[c] (%)	MDG 4					
			At least 1 visit	At least 4 visits					Measles			DTP3	HepB3	Hib3
	2006–2012	2006–2012	2006–2013		2006–2013	2006–2012	2006–2012	2012	1990	2000	2012	2012	2012	2012
Algeria	...	61	89	...	95	...	...	90	83	80	95	95	95	95
Angola	...	18	68 [k]	47	49 [k]	...	...	72	38	41	97	91	91	91
Benin	27	13	86	61	84	4	66	93	79	70	72	85	85	85
Botswana	...	53	94	73	99 [k]	...	...	92	87	91	94	96	96	96
Burkina Faso	25	16	95	34	67	2	72	88	79	48	87	90	90	90
Burundi	32	22	99	33	60	4	30	85	74	72	93	96	96	96
Cabo Verde	...	...	91 [l]	...	99	...	...	92	79	86	96	90	90	90
Cameroon	24	23	85 [k]	62	64 [k]	4	37	85	56	49	82	85	85	85
Central African Republic	...	19	55	38	40	5	...	66	82	36	49	47	47	47
Chad	28	5	43	23	17	2	...	43	32	28	64	45	45	45
Comoros	...	...	92	...	82	...	...	85	87	70	85	86	86	86
Congo	...	45	90	79	90	6	64	83	75	34	80	85	85	85
Côte d'Ivoire	...	18	89	44	57	3	70	82	56	68	85	94	94	94
Democratic Republic of the Congo	24	18	89	44	80	7	80	70	38	46	73	72	72	72
Equatorial Guinea	...	...	91	67	68	...	44	75	88	51	51	33	...	...
Eritrea	...	...	...	...	...	...	...	94	...	76	99	99	99	99
Ethiopia	26	29	34	19	10	2	7	68	38	33	66	61	61	61
Gabon	...	31	95 [k]	78	89 [k]	10	59	75	76	55	71	82	82	82
Gambia	22	13	86	72	57	3	...	92	86	89	95	98	98	98
Ghana	36	24	96	87	67	11	68	88	61	90	88	92	92	92
Guinea	...	6	85 [k]	50	45 [k]	2	41 [p]	80	35	42	58	59	59	59
Guinea-Bissau	6	14	93	68	43	2	...	80	53	71	69	80	76	76
Kenya	26	46	92	47	44	6	42	73	78	78	93	83	83	83
Lesotho	23	47	92	70	62	7	48	83	80	74	85	83	83	83
Liberia	36	11	96	66	61	4	60	91	0	63	80	77	77	77
Madagascar	19	40	86	49	44	2	46	78	47	57	69	86	86	86
Malawi	26	46	95	46	71	5	43	89	81	73	90	96	96	96
Mali	28	8	74	35	58	2	22 [n]	89	43	49	59	74	74	74
Mauritania	...	9	72	...	57	...	...	80	38	46	75	80	80	80
Mauritius	...	...	...	...	100 [m]	44 [q]	...	95	76	84	99	98	98	98
Mozambique	...	12	60	51	19	4	...	83	59	71	82	76	76	76
Namibia	21	55	95	70	81	13	65	83	...	69	76	84	84	84
Niger	16	14	83	15	29	1	12 [n]	84	25	37	73	74	74	74
Nigeria	19	14	61	57	38 [k]	5	38	60	54	33	42	41	41	10
Rwanda	21	52	98	35	69	7	18	85	83	74	97	98	98	98
Sao Tome and Principe	38	38	98	72	81	5	37	...	71	69	92	96	96	96
Senegal	30	13	95	50	51	6	68	91	51	48	84	92	92	92
Seychelles	...	...	...	...	99 [k]	23	...	...	86	97	98	98	99	98
Sierra Leone	27	11	91	75	61 [k]	5	58	87	0	37	80	84	84	84
South Africa	...	...	...	...	...	...	...	77	79	72	79	68	73	68
South Sudan	...	4	40	17	17	<1	...	0	...	...	62	59	...	...
Swaziland	13	65	97	77	82	12	22	86	85	92	88	95	95	95
Togo	37	15	51	55	44	9	...	81	73	58	72	84	84	84
Uganda	34	30	95	48	58	5	33	85	52	57	82	78	78	78
United Republic of Tanzania	25	34	88	43	49	5	31	88	80	78	97	92	92	92
Zambia	27	41	94	60	47	3	39	81	90	85	83	78	78	78
Zimbabwe	15	59	90	65	66	5	27	66	87	75	90	89	89	89
African Region	**25**	**27**	**75**	**47**	**48**	**4**	**41**	**75**	**58**	**53**	**73**	**72**	**72**	**65**
Global	**12**	**63**	**81**	**56**	**72**	**16**	**48**	**81**	**73**	**73**	**84**	**83**	**79**	**45**

Endnotes appear after the summary tables.

Children aged 6–59 months who received vitamin A supplementation[e] (%)	Children aged < 5 years (%)					Pregnant women with HIV receiving antiretrovirals to prevent MTCT[h] (%)	MDG 6					Member State
	With ARI symptoms taken to a health facility[e]	With suspected pneumonia receiving antibiotics[e]	With diarrhoea receiving ORT (ORS and/or RHF)[e]	MDG 6			Anti-retroviral therapy coverage among people eligible for treatment[h] (%)	Case-detection rate for all forms of tuberculosis[i] (%)		Smear-positive tuberculosis treatment-success rate[j] (%)		
				Sleeping under insecticide-treated nets[f]	With fever who received treatment with any antimalarial[g]							
2006–2013	2006–2013			2006–2012		2012	2012	2000	2012	2000	2011	
…	53	59	27	…	…	…	…	67	64	87	92	Algeria
…	…	…	…	26	28	17	42	46	79	68	55	Angola
49	31	29	54	…	38	40	67	45	57	78	90	Benin
…	…	…	…	…	…	>95	>95	58	75	77	81	Botswana
63	56	47	24	47	35	66	62	28	58	60	78	Burkina Faso
81	55	43	41	44	17	54	58	33	54	80	92	Burundi
…	…	…	…	…	…	…	>95	…	59	64	77	Cabo Verde
…	30	45	22	11	23	64	45	11	48	77	80	Cameroon
78	22	31	38	…	34	…	…	…	49	58	68	Central African Republic
98	26	31	48	…	43	14	40	…	56	…	68	Chad
…	…	…	…	…	28	…	…	58	49	93	25	Comoros
65	52	59	37	31	25	19	39	84	68	69	71	Congo
61	38	29	22	37	18	68	49	25	69	57	78	Côte d'Ivoire
82	40	42	53 [o]	6	39	13	31	40	51	78	87	Democratic Republic of the Congo
30	54	27	44	42	…	…	…	…	…	…	…	Equatorial Guinea
50	45	…	58	…	13	46	73	110	55	76	87	Eritrea
53	27	7	31	33	26	41	61	33	64	80	90	Ethiopia
54	68	50	37	39	26	70	62	…	71	…	51	Gabon
73	68	70	65	…	30	…	55	56	46	…	88	Gambia
74	41	56	59	38	53	95	58	38	81	50	86	Ghana
41	37	38	37	…	28	44	50	27	56	68	82	Guinea
79	52	35	81	…	51	33	37	52	48	…	73	Guinea-Bissau
30	56	50	72	46	23	53	73	72	79	80	88	Kenya
34	67	…	71	…	…	58	54	95	83	…	74	Lesotho
43	51	49	62	26	57	87	43	21	64	80	86	Liberia
72	42	…	29	45	20	…	1	…	49	70	83	Madagascar
86	70	…	69	39	33	60	69	45	78	73	85	Malawi
72	30	…	40	70	32	…	52	53	61	…	68	Mali
56	45	24	31	…	20	…	35	41	20	…	73	Mauritania
…	…	…	…	…	…	…	36	55	49	93	90	Mauritius
75	50	12	62	7	30	86	45	23	34	75	…	Mozambique
52	72	…	69	10	20	94	90	40	68	56	84	Namibia
60	53	11	47	…	19	…	46	22	62	65	80	Niger
65	35	45	38	5	45	17	32	12	51	79	85	Nigeria
93	50	…	35	56	11	87	87	22	62	61	89	Rwanda
48	75	60	57	56	8	…	44	61	66	78	72	Sao Tome and Principe
78	50	…	27	29	8	…	62	56	65	52	85	Senegal
…	…	…	…	…	…	…	…	69	73	82	67	Seychelles
91	74	58	84	25	62	93	33	34	32	77	88	Sierra Leone
…	…	…	…	…	…	83	80	59	62	63	79	South Africa
…	…	…	…	…	51	13	8	…	53	…	73	South Sudan
68	58	61	81	1	2	83	82	69	43	…	73	Swaziland
88	32	41	31 [o,r]	35	34	86	46	40	59	…	85	Togo
57	79	47	48	32	65	72	64	29	69	63	77	Uganda
61	31	…	59	25	54	77	61	68	79	78	88	United Republic of Tanzania
63	68	47	67	28	34	>95	79	69	68	67	88	Zambia
66	48	31	63	91	2	82	79	56	46	69	81	Zimbabwe
65	**49**	**…**	**44**	**25**	**…**	**64**	**63**	**39**	**59**	**71**	**82**	**African Region**
46	**59**	**…**	**44**	**…**	**…**	**62**	**61**	**42**	**67**	**69**	**87**	**Global**

The health of the people: *what works*

Member State	MDG 7									Children aged < 5 years[e] (%)				
	Population using improved drinking-water sources[a] (%)			Population using improved sanitation[a] (%)			Population using solid fuels[b] (%)	Preterm birth rate[c] (per 100 live births)	Infants exclusively breastfed for the first 6 months of life[d] (%)	Wasted	Stunted	MDG 1 Underweight		Overweight
	1990	2000	2012	1990	2000	2012	2012	2010	2006–2012	2006–2012		1990–1995	2006–2012	2006–2012
Algeria	94	89	84	89	92	95	<5	7	7	…	…	9.2	…	…
Angola	42	46	54	29	42	60	56	13	…	8.2	29.2	…	15.6	…
Benin	57	66	76	5	9	14	94	11	33	16	44.6	…	21.3	17.9
Botswana	92	95	97	39	52	64	37	15	…	7.2	31.4	…	11.2	11.2
Burkina Faso	44	60	82	8	12	19	95	11	25	10.9	32.9	29.6	24.4	2.8
Burundi	69	72	75	42	44	47	>95	11	69	6.1	57.5	…	29.1	2.9
Cabo Verde	…	83	89	…	44	65	31	11	…	…	…	11.8	…	…
Cameroon	51	62	74	40	42	45	78	13	20	5.8	32.6	18	15.1	6.5
Central African Republic	59	62	68	15	17	22	>95	13	34	7.4	40.7	23.3	23.5	1.8
Chad	40	45	51	8	10	12	93	13	3	15.6	38.8	…	30.3	2.8
Comoros	87	92	…	18	28	…	71	17	…	11.1	30.1	16.2	15.3	9.3
Congo	…	69	75	…	13	15	76	17	21	5.9	24.4	…	11.6	3.3
Côte d'Ivoire	76	78	80	15	18	22	79	14	12	7.1	28	20.9	14.1	2.8
Democratic Republic of the Congo	43	44	46	17	23	31	93	12	37	8.5	43.5	30.7	24.2	4.9
Equatorial Guinea	…	51	…	…	89	…	78	17	…	…	…	…	…	…
Eritrea	43	54	…	9	11	…	63	12	…	…	…	36.9	…	…
Ethiopia	13	29	52	2	8	24	>95	10	52	10.1	44.2	43.3	29.2	1.8
Gabon	…	84	92	…	39	41	21	16	6	3.4	17.5	…	6.5	7.7
Gambia	76	83	90	…	61	60	>95	14	36	9.5	23.4	…	17.4	1.9
Ghana	54	71	87	7	10	14	84	15	46	6.2	22.7	25.1	13.4	1.4
Guinea	52	63	75	8	13	19	>95	14	21	5.6	35.8	21.2	16.3	3.1
Guinea-Bissau	36	52	74	…	12	20	>95	11	38	5.8	32.2	…	18.1	3.2
Kenya	43	52	62	25	27	30	84	12	32	7	35.2	20.1	16.4	5
Lesotho	78	79	81	…	24	30	62	12	54	3.9	39	13.8	13.5	7.3
Liberia	…	61	75	…	14	17	>95	14	29	2.8	41.8	…	14.9	4.2
Madagascar	29	38	50	8	11	14	>95	14	51	…	49.2	35.5	…	…
Malawi	42	62	85	10	10	10	>95	18	71	4.1	47.8	24.4	13.8	9.2
Mali	28	45	67	15	18	22	>95	12	38	8.9	27.8	…	18.9	4.7
Mauritania	30	40	50	16	21	27	56	15	19	11.6	22	43.3	19.5	1.2
Mauritius	99	99	100	89	89	91	<5	13	…	…	…	13	…	…
Mozambique	34	41	49	8	14	21	>95	16	43	6.1	43.1	23.9	15.6	7.9
Namibia	67	79	92	24	28	32	55	14	24	7.5	29.6	21.5	17.5	4.6
Niger	34	42	52	5	7	9	94	9	23	18	43.9	41	36.4	2.4
Nigeria	46	55	64	37	32	28	75	12	15	10.2	36	35.1	24.4	3
Rwanda	60	66	71	30	47	64	>95	10	85	3	44.3	24.3	11.7	7.1
Sao Tome and Principe	…	78	97	…	21	34	71	11	51	11.2	31.6	…	14.4	11.6
Senegal	60	66	74	35	43	52	56	10	38	8.7	15.5	19	14.4	0.7
Seychelles	96	96	96	97	97	97	<5	12	…	…	…	…	…	…
Sierra Leone	37	47	60	11	12	13	>95	10	32	9.2	44.9	25.4	21.1	10.3
South Africa	81	87	95	58	65	74	13	8	…	4.7	23.9	8	8.7	…
South Sudan	…	…	57	…	…	9	>95	…	…	22.7	31.1	…	27.6	6
Swaziland	39	52	74	49	52	57	62	14	44	0.8	31	…	5.8	10.7
Togo	48	53	61	13	12	11	>95	13	62	4.8	29.8	…	16.5	1.6
Uganda	42	56	75	26	30	34	>95	14	63	4.8	33.7	21.5	14.1	3.8
United Republic of Tanzania	55	54	53	7	9	12	>95	11	50	6.6	34.8	25.1	13.6	5.5
Zambia	49	53	63	41	41	43	83	13	61	5.6	45.8	21.2	14.9	8.4
Zimbabwe	79	80	80	41	40	40	70	17	31	3.1	32.3	11.7	10.1	5.8
African Region	**50**	**57**	**66**	**27**	**29**	**33**	**78**	**12**	**35**	**9.8**	**39.9**	**34.3**	**24.6**	**6.4**
Global	**76**	**82**	**90**	**47**	**56**	**64**	**41**	**11**	**37**	**7.8**	**24.7**	**24.9**	**15.1**	**6.7**

Endnotes appear after the summary tables.

Prevalence of raised fasting blood glucose[f] (≥ 25 years) (%)		Prevalence of raised blood pressure[g] (≥ 25 years) (%)		Adults aged ≥20 years who are obese[h] (%)		Alcohol consumption among adults aged ≥15 years[i] (litres of pure alcohol per person per year)	Prevalence of smoking any tobacco product among adults aged ≥15 years[j] (%)		Prevalence of current tobacco use among adolescents aged 13–15 years[k] (%)		MDG 6 Prevalence of condom use by adults aged 15–49 years during higher-risk sex[l] (%)		MDG 6 Population aged 15–24 years with comprehensive correct knowledge of HIV/AIDS[m] (%)		Member State
Male	Female	Male	Female	Male	Female		Male	Female	Male	Female	Male	Female	Male	Female	
2008		2008		2008		2010	2011		2006–2012		2006–2010		2006–2010		
9	9.3	33.9	33.2	10.7	24.3	1	28	2	…	…	…	…	…	…	Algeria
8.2[n]	8.7[n]	39.6[n]	33.8[n]	3.8[n]	10.2[n]	7.5	…	…	…	…	…	…	…	…	Angola
6.7	6.5	38.1	34.1	3.5	9.5	2.1	21	3	…	…	22	30	14	8	Benin
8[n]	10[n]	39.1	37.9	3	22.8	8.4	36	7	27	21	…	…	…	…	Botswana
8.9[n]	8.7[n]	36.7[n]	35.2[n]	1.7	3	6.8	…	…	…	…	27	62	36	31	Burkina Faso
6.2[n]	5.9[n]	42.2[n]	39.5[n]	2.8[n]	3.7[n]	9.3	…	…	21	17	14	14	47	45	Burundi
15.6	14.7	47.7	38.4	6.3	15.3	6.9	14	3	15	12	73	51	89	90	Cabo Verde
9.5	10.4	35.6	29.8	7	15.1	8.4	…	…	…	…	43	37	34	29	Cameroon
7.3[n]	8[n]	39.1[n]	34.5[n]	2	5.3	3.8	…	…	…	…	…	…	27	17	Central African Republic
8.8[n]	8.7[n]	35.5	31.3	2.4	3.8	4.4	20	4	21	14	…	…	…	…	Chad
7.9[n]	7.6[n]	40.8[n]	36.5[n]	3.5	5.3	0.2	25	2	22	15	…	…	…	…	Comoros
7.8[n]	8.5[n]	40.3	36.1	2.8	7.5	3.9	9	3	28	20	28	29	22	8	Congo
9.2[n]	9.7[n]	41.6	35.7	3.9	9.7	6	16	9	26	11	…	…	…	…	Côte d'Ivoire
6.6[n]	7.8[n]	38.5	33.3	0.7	3	3.6	16	5	…	…	16	9	21	15	Democratic Republic of the Congo
8.7[n]	8.7[n]	43.5[n]	35.8[n]	7.9[n]	14.8[n]	6.6	…	…	25	17	…	…	…	…	Equatorial Guinea
7.8[n]	7.3[n]	32.2	28.1	1.3	2.3	1.1	13	<1	8	5	18	2	34	25	Eritrea
7.3[n]	7[n]	33	28.3	0.9	1.6	4.2	…	…	…	…	16	47	34	24	Ethiopia
9.1[n]	9.9[n]	40	33	8.4	21.5	10.9	19	3	…	…	51	44	36	29	Gabon
9.9	11.3	39.7	34.2	2.3	14.4	3.4	32	3	…	…	…	…	…	…	Gambia
9.9	10.3	32.7	31.6	4.4	11.7	4.8	14	7	14	11	26	18	34	28	Ghana
8.8[n]	8.6[n]	38.4[n]	36.8[n]	4.3	5.1	0.7	23	2	31	20	…	…	…	…	Guinea
8.6[n]	9.1[n]	37.6[n]	35.3[n]	2.6[n]	8.1[n]	4	…	…	…	…	…	…	…	…	Guinea-Bissau
7.6[n]	7.8[n]	37.1	33	2.5	6.8	4.3	26	<1	15	15	37	32	55	47	Kenya
9[n]	12[n]	36.4[n]	35.9[n]	3.1	26.6	6.5	…	…	26	22	52	39	29	39	Lesotho
8.4[n]	9.3[n]	38.5[n]	35.7[n]	3.1	7.7	4.7	18	2	…	…	22	14	27	21	Liberia
8.1[n]	7[n]	40.6	37.5	1.8	1.5	1.8	…	…	33	14	7	8	26	23	Madagascar
6.4	6.2	44.5	39.4	2.6	6.2	2.5	23	5	17	11	25	27	45	42	Malawi
9[n]	9.5[n]	30.5	31.3	2.4	6.8	1.1	28	2	23	9	12	8	22	18	Mali
7.5	8.3	38.4[n]	33.9[n]	4.3	23.3	0.1	29	4	28	18	…	…	…	…	Mauritania
11.6	9.9	40.6[n]	34.5[n]	12.9	23	3.6	39	5	20	8	…	…	…	…	Mauritius
8[n]	8.2[n]	46.3	41.4	2.6	7.8	2.3	…	…	…	…	26	31	52	30	Mozambique
8.6[n]	9.6[n]	43.7	38.1	4.3	16.8	10.8	30	9	32	30	74	66	53	59	Namibia
7.8[n]	8.3[n]	50.3	41	1.5	3.7	0.3	9	<1	12	6	7	8	16	13	Niger
7.9	12	38.6	41.2	5.1	9	10.1	10	2	…	…	33	23	33	22	Nigeria
6.7[n]	6.1[n]	43.6[n]	40.2[n]	4.9	4	9.8	…	…	13	10	28	29	46	52	Rwanda
9.3[n]	10.3[n]	46.3	42.4	6.4	15.4	7.1	8	3	31	23	33	28	43	43	Sao Tome and Principe
9.3[n]	10.6[n]	37.9[n]	34.4[n]	3.2	12.5	0.6	16	<1	20	10	21	22	31	29	Senegal
13.7	13.2	43.2	31.9	15.1	33.7	5.6	31	8	27	25	…	…	…	…	Seychelles
9.2[n]	10[n]	41.9	40.5	3.6	10.1	8.7	48	20	…	…	15	7	28	17	Sierra Leone
11.9	11.7	39.9	34.9	23.2	42.8	11	28	8	24	19	…	…	…	…	South Africa
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	South Sudan
9[n]	12.2[n]	40.5[n]	36.4[n]	6.1	37.1	5.7	16	2	16	9	56	55	52	52	Swaziland
8.7[n]	9.1[n]	38.8[n]	35.3[n]	3	6.1	2.3	14	2	18	8	…	…	…	…	Togo
6.8[n]	6.5[n]	42.9[n]	39.6[n]	4.3	4.9	9.8	16	3	19	16	13	16	38	32	Uganda
8.3	8.5	36.2	33.9	4	6.8	7.7	…	…	…	…	24	27	43	48	United Republic of Tanzania
7.2	7.5	41	37.9	1.2	7	4	24	4	25	26	28	33	37	34	Zambia
8.7[n]	9.9[n]	36.9	36.4	2.8	13.8	5.7	25	<1	…	…	33	48	47	52	Zimbabwe
8.3	**9.2**	**38.1**	**35.5**	**5.3**	**11.1**	**6**	**22**	**7**	**…**	**…**	**…**	**…**	**35**	**29**	**African Region**
9.8	**9.2**	**29.2**	**24.8**	**10**	**14**	**6.2**	**36**	**8**	**20**	**10**	**…**	**…**	**…**	**…**	**Global**

Member State	Density of health workforce (per 10 000 population)					Infrastructures and technologies		
	Physicians[a]	Nursing and midwifery personnel[a,b]	Dentistry personnel[a,c]	Pharmaceutical personnel[a,d]	Psychiatrists[e]	Hospitals[f] (per 100 000 population)	Hospital beds[g] (per 10 000 population)	Psychiatric beds[e] (per 10 000 population)
		2006–2013			2006–2010	2013	2006–2012	2006–2010
Algeria	12.1	19.5	3.3	2.4	0.2	…	…	1.4
Angola	1.7	16.6	…	…	<0.05	…	…	…
Benin	0.6	7.7	<0.05[j]	<0.05[j]	<0.05	0.4[k]	5	0.2
Botswana	3.4	28.4	…	…	<0.05	1.3[k]	18	2.2
Burkina Faso	0.5	5.7	<0.05[j]	0.2	<0.05	0.3	4	…
Burundi	…	…	…	0.2	<0.05	0.5[k]	19	…
Cabo Verde	3	4.5	0.1[j]	0.1[j]	0.1	1	21	0.9
Cameroon	0.8	4.4	<0.05[j]	<0.05[j]	<0.05	0.8	13	0.1
Central African Republic	0.5	2.6	<0.05	<0.05	<0.05	0.5	10	0.1
Chad	0.4	1.9	…	…	<0.05	0.7	…	0
Comoros	…	…	…	…	<0.05	0.7[k]	…	0
Congo	1	8.2	…	0.2	<0.05	…	…	…
Côte d'Ivoire	1.4	4.8	0.1[j]	0.2[j]	<0.05	1.7	…	…
Democratic Republic of the Congo	…	…	…	<0.05[j]	<0.05	0.4[k]	…	…
Equatorial Guinea	…	…	…	…	…	…	21	…
Eritrea	…	…	…	…	<0.05	0.4	7	…
Ethiopia	0.3	2.5	…	0.3	<0.05	0.2	63	<0.05
Gabon	…	…	…	…	<0.05	3.5	63	0.8
Gambia	1.1	8.7	0.3	0.5	<0.05	0.7[k]	11	0.6
Ghana	1	9.3	0.1	0.7	<0.05	1.4	9	0.7
Guinea	…	…	…	…	<0.05	0.4	3	0.1
Guinea-Bissau	0.7	5.9	0.1	0.1	…	56.4	…	…
Kenya	1.8	7.9	0.2[j]	1.6	<0.05	1.5	14	…
Lesotho	…	…	…	…	<0.05	…	…	0.3
Liberia	0.1	2.7	<0.05[j]	0.8	<0.05	0.4[k]	8	…
Madagascar	1.6	…	<0.05[j]	…	<0.05	0.5	2	0.1
Malawi	0.2	3.4	…	0.2[j]	<0.05	0.4[k]	13	…
Mali	0.8	4.3	0.1	0.1[j]	<0.05	0.5[k]	1	0.1
Mauritania	1.3	6.7	0.3	0.4	<0.05	1	…	…
Mauritius	…	…	…	…	0.2	1[k]	34	5.5
Mozambique	0.4	4.1	…	0.6[j]	<0.05	…	7	0.2
Namibia	3.7	27.8	0.4[j]	1.8	<0.05	1.9	…	0.8
Niger	0.2	1.4	<0.05[j]	<0.05	<0.05	0.5	…	0.1
Nigeria	4.1	16.1	0.2[j]	1.1	<0.05	…	…	…
Rwanda	0.6	6.9	0.1	0.1	<0.05	…	…	0.4
Sao Tome and Principe	…	…	…	…	0.1	…	29	3.6
Senegal	0.6	4.2	0.1[j]	0.1	<0.05	0.2[k]	…	0.3
Seychelles	…	…	…	…	0.2	1.1[k]	36	…
Sierra Leone	0.2	1.7	<0.05[j]	0.2	<0.05	…	…	0.3
South Africa	7.8	49	2	4.1	<0.05	0.7[k]	…	2.2
South Sudan	…	…	…	…	…	…	…	…
Swaziland	1.7	16	0.4	0.5	<0.05	0.8	21	1.3
Togo	0.5	2.7	<0.05	<0.05[j]	<0.05	0.6[k]	7	0.2
Uganda	…	…	…	0.3	<0.05	0.4	5	0.3
United Republic of Tanzania	0.1	2.4	0.1	<0.05	<0.05	…	7	0.3
Zambia	0.7	7.8	0.2[j]	1.3	<0.05	0.5	20	0.3
Zimbabwe	0.6	12.5	0.1[j]	1.9	<0.05	0.5	17	1
African Region	**2.6**	**12**	**0.5**	**0.9**	**<0.05**	**0.8**	**…**	**0.6**
Global	**14.1**	**29.2**	**2.7**	**4.3**	**0.3**	**…**	**27**	**2.5**

Endnotes appear after the summary tables.

Infrastructures and technologies			Essential medicines				Member State
			MDG 8				
Computed tomography units[f] (per million population)	Radiotherapy units[f] (per million population)	Mammography units[f] (per million females aged 50 to 69 years)	Median availability of selected generic medicines[h] (%)		Median consumer price ratio of selected generic medicines[i]		
			Public	Private	Public	Private	
2013	2013	2013	2001–2009				
…	0.4[l]	…	…	…	…	…	Algeria
0.4	<0.05[k]	6.3[k]	…	…	…	…	Angola
0.3	0	16.1	…	…	…	…	Benin
1[k]	0[k]	19.1[k]	…	…	…	…	Botswana
0.6	0	13.6	87.1	72.1	2.2	2.9	Burkina Faso
0.2	0	2.7	…	…	…	…	Burundi
2	0	140.6	…	…	…	…	Cabo Verde
0.6	0.1	17.4	60	52.5	2.2	13.6	Cameroon
0	0	4.7	…	…	…	…	Central African Republic
0.1[n]	…	4.7	31.3	13.6	3.9	15.1	Chad
1.4	0	31.3	…	…	…	…	Comoros
…	…	…	21.2	31.3	6.5	11.5	Congo
0.7	0	0	…	…	…	…	Côte d'Ivoire
0.1	<0.05	0.7	55.6	65.4	2	2.3	Democratic Republic of the Congo
…	…	…	…	…	…	…	Equatorial Guinea
0.3	0	16.6	…	…	…	…	Eritrea
0.4	<0.05	…	…	…	…	…	Ethiopia
3.6	0.6	73.1	…	…	…	…	Gabon
1.1	0[n]	16.5	…	…	…	…	Gambia
0.2[k]	0.1[k]	…	17.9	44.6	2.4	3.8	Ghana
0[k]	0[k]	0[k]	…	…	…	…	Guinea
0	0	0	…	…	…	…	Guinea-Bissau
0.2	<0.05	6.8[k]	37.7	72.4	2	3.3	Kenya
…	…	…	…	…	…	…	Lesotho
…	…	…	…	…	…	…	Liberia
0.1	<0.05	6.2	…	…	…	…	Madagascar
0.3	0	0[k]	…	…	…	…	Malawi
0.2[k]	0.1	5.4	81	70	1.8	5.4	Mali
1.5	0.3[l]	22.4	…	…	…	…	Mauritania
6.4	2.4	49.7	88.8	70	…[m]	5.9	Mauritius
…	…	…	…	…	…	…	Mozambique
4.8	0.4	42.3	…	…	…	…	Namibia
0.2	0	10.9	…	…	…	…	Niger
…	0.1[l]	…	26.2	36.4	3.5	4.3	Nigeria
…	…	…	…	…	…	…	Rwanda
…	…	…	56.3	22.2	2.4	13.8	Sao Tome and Principe
0.4[k]	0.1[k]	5.2[k]	…	…	…	…	Senegal
10.8[k]	…	127.7[k]	…	…	…	…	Seychelles
0.3	…	…	…	…	…	…	Sierra Leone
1[k]	0.6[k]	7.8[k]	…	71.7[o]	…	6.5[o]	South Africa
…	…	…	…	…	…	…	South Sudan
2.4	0	33.6	…	…	…	…	Swaziland
0.7	…	10.4	…	…	…	…	Togo
0.5	0.1	4.4	20	80	…[m]	2.6	Uganda
0.1	0.1[k]	6.1	23.4	47.9	1.3	2.7	United Republic of Tanzania
0.2	0.1	4.6	…	…	…	…	Zambia
0.4	0.4	6.9	…	…	…	…	Zimbabwe
0.4	**0.1**	**7.4**	**…**	**…**	**…**	**…**	**African Region**
…	**1.8**	**…**	**…**	**…**	**…**	**…**	**Global**

Member State	Health expenditure ratios[a]											
	Total expenditure on health as % of gross domestic product		General government expenditure on health as % of total expenditure on health[b]		Private expenditure on health as % of total expenditure on health[b]		General government expenditure on health as % of total government expenditure		External resources for health as % of total expenditure on health		Social security expenditure on health as % of general government expenditure on health[c]	
	2000	2011	2000	2011	2000	2011	2000	2011	2000	2011	2000	2011
Algeria [f]	3.5	4.4	73.3	82	26.7	18	8.8	9	0.1	0	35.5	31.6
Angola [f]	3.4	3.4	49.5	62.6	50.5	37.4	2.9	5.6	2.5	2.3	0	0
Benin [f]	4.3	4.5	44.2	52.1	55.8	47.9	10	10.8	17	35.3	0.5	0.4
Botswana [f]	4.7	5.2	62.2	61.6	37.8	38.4	7.3	8	0.5	10	…	…
Burkina Faso	5.1	6.4	39.6	49.5	60.4	50.5	8.8	12.4	13.9	25.7	0.8	0.2
Burundi [f,g]	6.3	9	30.6	63.3	69.4	36.7	7.3	13.6	18.7	46.4	29.5	12.4
Cabo Verde [h]	4.8	4	73.3	75.5	26.7	24.5	9.9	8.8	13	18	34.9	25.2
Cameroon f	4.4	5.4	21	34.7	79	65.3	6.1	8.5	4.2	4.4	3.9	2.6
Central African Republic [f]	4.3	3.9	50.2	51.4	49.8	48.6	12.9	12.5	19.1	35.8	…	…
Chad [f,g]	6.3	2.8	42.5	29.6	57.5	70.4	13.1	3.3	24.9	20.5	…	…
Comoros [f,g]	3.5	3.6	43.7	40.2	56.3	59.8	9.3	6.5	21.3	29.9	0	0
Congo	2.1	2.5	57.5	67.5	42.5	32.5	4.8	6.5	4.6	11.5	0	0
Côte d'Ivoire [f]	6.5	6.8	28.5	24.5	71.5	75.5	10	8.5	4.2	11.1	2	6.3
Democratic Republic of the Congo [f]	4.8	6.1	4.2	50.8	95.8	49.2	1.8	11.5	2.8	39.9	…	…
Equatorial Guinea [g,i]	2.4	4.5	77.4	54.2	22.6	45.8	8.7	7	7.2	2.1	0	0
Eritrea [g,i]	4.5	2.7	39.1	50.5	60.9	49.5	2.6	3.6	29.8	71.6	0	0
Ethiopia [f]	4.3	4.1	53.6	50	46.4	50	8.9	11.1	16.5	51.8	0	0
Gabon [f]	2.9	3.4	40.3	52.9	59.7	47.1	5.3	7.2	2.3	1	14.2	27.1
Gambia [f]	4.5	4.7	27.6	62.3	72.4	37.7	10	11.2	15.4	61.6	0	0
Ghana [f]	4.8	5.3	49.4	55.9	50.6	44.1	8	12.5	14.3	13.2	0	21.6
Guinea [f]	5.6	6	19.4	24.3	80.6	75.7	6.4	6.8	14	12.2	1.1	4.5
Guinea-Bissau [f,g,k]	4.9	6.3	10.5	26.8	89.5	73.2	2.3	7.8	30	47.3	5.4	1.5
Kenya [f]	4.7	4.4	46.3	39.4	53.7	60.6	10.6	5.9	8	40	10.9	13.1
Lesotho	6.9	11.7	50.2	77.5	49.8	22.5	6.3	14.5	3	26.5	0	0
Liberia [f,g]	5.9	15.6	24.5	29.7	75.5	70.3	6.7	19.1	9.2	54	0	0
Madagascar [f]	5	4.1	49.3	55.9	50.7	44.1	15.5	13.5	14.9	35.5	…	…
Malawi [f]	6.1	8.3	45.8	72.4	54.2	27.6	7.6	17.8	26.8	56.5	0	0
Mali [f]	6.3	6.8	32.9	43.8	67.1	56.2	8.9	12.3	7.8	25.4	1.5	0.7
Mauritania	6	5.9	66.5	65.2	33.5	34.8	12.9	10.1	11.2	9.7	8.7	11.1
Mauritius	3.7	4.9	52	48.2	48	51.8	8.7	9.7	1.4	4.5	…	…
Mozambique [f]	6.2	6.4	70	44	30	56	17	7.7	25.3	72.6	0.3	33.1
Namibia [f]	6.1	8.6	68.9	61.3	31.1	38.7	13.9	13.9	3.8	12	1.8	2.5
Niger [f]	6.4	6.8	23.6	33.2	76.4	66.8	8.4	10.3	21.4	21.8	3.3	1.7
Nigeria [f]	4.6	5.7	33.5	34	66.5	66	4.2	6.7	16.2	5.1	0	…
Rwanda	4.2	11	39.2	59.3	60.8	40.7	8.5	24	52	46.2	6.4	10.5
Sao Tome and Principe	8.9	7.6	43.2	34.2	56.8	65.8	9	5.6	34.8	25	0	0
Senegal [f]	4.6	5	40.9	55.8	59.1	44.2	10.1	9.6	16.2	16.8	7.4	4
Seychelles	4.8	3.6	82.7	94.8	17.3	5.2	7.3	9.5	4.3	8.7	5	5.2
Sierra Leone [f]	18.4	16.3	21.5	16.2	78.5	83.8	14.2	12.3	5.2	18.2	0	0
South Africa [f]	8.3	8.7	41.3	47.7	58.7	52.3	13.2	12.9	0.3	2.1	3.3	2.8
South Sudan	…	1.7	…	41.3	…	58.7	…	4	…	19.5	…	…
Swaziland	5.3	8.3	56.3	69.4	43.7	30.6	10.5	18.1	5.8	20	0	0
Togo [f]	5.3	8	28.5	52.2	71.5	47.8	8.5	15.4	5.9	17.4	11.7	6.5
Uganda [f]	6.6	9.3	26.8	25	73.2	75	7.3	10.1	28.3	27.6	0	0
United Republic of Tanzania [f]	3.4	7.4	43.4	37.4	56.6	62.6	9.4	10.2	27.8	40.2	0	…
Zambia [f]	5.6	6.2	51.3	63.6	48.7	36.4	12.2	16.4	17.8	27.8	0	0
Zimbabwe	…	…	…	…	…	…	…	…	…	…	…	…
African Region	**5.6**	**6.2**	**43.5**	**48.3**	**56.5**	**51.7**	**8.7**	**9.7**	**6.5**	**11.8**	**8.2**	**8.0**
Global	**8.2**	**9.1**	**56.3**	**58.8**	**43.7**	**41.1**	**13.6**	**15.2**	**0.3**	**0.4**	**58.8**	**60.6**

Endnotes appear after the summary tables.

Health expenditure ratios[a]				Per capita health expenditures[a]								Member State
Out-of-pocket expenditure as % of private expenditure on health		Private prepaid plans as % of private expenditure on health		Per capita total expenditure on health at average exchange rate[d] (US$)		Per capita total expenditure on health[e] (PPP int. $)		Per capita government expenditure on health at average exchange rate[d] (US$)		Per capita government expenditure on health[e] (PPP int. $)		
2000	2011	2000	2011	2000	2011	2000	2011	2000	2011	2000	2011	
96.7	94.7	3.1	5.1	60	233	181	366	44	191	133	300	Algeria[f]
71.4	70.1	0	0	22	178	74	198	11	111	37	124	Angola[f]
99.9	91.2	0.1	7.2	15	34	47	68	7	18	21	36	Benin[f]
36.7	12.7	4.1	79.9	152	404	401	814	95	249	249	502	Botswana[f]
94.3	76.1	1	2.2	12	39	41	82	5	19	16	41	Burkina Faso
73	69.7	0.2	1	7	21	22	47	2	13	7	30	Burundi[f,g]
95.2	93.7	2.6	3.1	59	153	92	165	43	116	68	125	Cabo Verde[h]
94.4	94.3	…	…	26	64	72	120	5	22	15	42	Cameroon f
92.9	90.5	1.2	1.8	11	19	29	32	5	10	15	16	Central African Republic[f]
96.2	96.7	0.4	0.2	10	25	41	41	4	7	18	12	Chad[f,g]
100	100	0	0	13	31	35	43	6	13	15	17	Comoros[f,g]
98.9	96	0.8	3.6	22	85	59	107	13	58	34	72	Congo
79.1	77	3.9	3.5	42	84	107	126	12	21	30	31	Côte d'Ivoire[f]
76.8	70	0	2.4	14	15	12	24	<1	8	<1	12	Democratic Republic of the Congo[f]
82.2	94.9	0	0	57	1051	181	1327	44	570	140	719	Equatorial Guinea[g,i]
100	100	0	0	7	12	22	15	3	6	8	8	Eritrea[g,i]
79.2	79.9	0.5	1.5	5	14	20	43	3	7	11	21	Ethiopia[f]
84.9	84.9	11.7	11.7	118	401	339	516	48	212	136	273	Gabon[f]
54.1	48.1	2.3	3.1	29	24	66	87	8	15	18	54	Gambia[f]
64.4	67.5	10.6	6.3	13	83	46	99	6	46	23	55	Ghana[f]
99.5	92.7	0	0.7	19	27	43	62	4	7	8	15	Guinea[f]
54.7	56.5	0	0	16	35	86	72	2	9	9	19	Guinea-Bissau[f,g,k]
80.4	76.7	6.6	9.3	19	35	53	73	9	14	25	29	Kenya[f]
71.1	69	…	…	29	146	72	219	14	113	36	169	Lesotho
50.3	30	…	0.7	11	59	18	92	3	18	4	27	Liberia[f,g]
76.9	82	5.3	8.9	12	19	39	39	6	10	19	22	Madagascar[f]
40.5	53.9	8.1	16	9	30	36	74	4	22	16	53	Malawi[f]
99.1	99.6	0.1	0.4	16	51	51	85	5	22	17	37	Mali[f]
94.5	94.5	0.6	0.6	24	51	76	107	16	33	51	70	Mauritania
74.6	91.5	8.3	1.7	146	450	308	767	76	217	160	370	Mauritius
40.6	9	…	…	15	33	27	61	10	14	19	27	Mozambique[f]
18.2	17.9	77.3	61.2	126	486	243	612	87	298	168	375	Namibia[f]
89.1	88.4	3.4	2.3	10	25	31	42	2	8	7	14	Niger[f]
92.7	95.6	5.1	3.1	17	85	60	143	6	29	20	49	Nigeria[f]
40.7	49.4	0.9	…	9	62	24	138	3	37	9	82	Rwanda
76.1	85.2	0	0	46	108	311	143	20	37	134	49	Sao Tome and Principe
91.6	77.4	7.1	21.1	22	54	60	94	9	30	25	53	Senegal[f]
99.1	88.2	…	5.4	371	413	813	877	307	392	672	832	Seychelles
95.2	91.4	0.6	0.2	28	82	121	192	6	13	26	31	Sierra Leone[f]
22.2	13.8	72.4	81.1	246	670	551	930	102	319	228	443	South Africa[f]
…	94.8	…	3.7	…	32	…	35	…	13	…	14	South Sudan
42.4	42.9	18.9	19.2	75	270	197	436	42	188	111	303	Swaziland
88.2	84.6	4.7	4.2	14	43	42	75	4	22	12	39	Togo[f]
56.7	64.8	0.1	0.2	16	41	45	123	4	10	12	31	Uganda[f]
83.5	52.6	4.5	1.5	10	38	25	108	4	14	11	40	United Republic of Tanzania[f]
80.4	66.4	0.9	3.6	18	87	52	99	9	55	27	63	Zambia[f]
…	…	…	…	…	…	…	…	…	…	…	…	Zimbabwe
56.2	**56.6**	**34.6**	**31.7**	**35**	**99**	**89**	**158**	**15**	**49**	**39**	**76**	**African Region**
49.5	**49.7**	**38.6**	**38.2**	**485**	**1007**	**568**	**1053**	**280**	**613**	**320**	**619**	**Global**

Member State	Source	MDG 5																	
		Contraceptive prevalence: modern methods[a] (%)						Antenatal care coverage: at least 4 visits[a,b] (%)						Births attended by skilled health personnel[a,c] (%)					
		Place of residence		Wealth quintile		Educational level of woman		Place of residence		Wealth quintile		Educational level of woman		Place of residence		Wealth quintile		Educational level of woman	
		Rural	Urban	Lowest	Highest	None	Secondary or higher	Rural	Urban	Lowest	Highest	None	Secondary or higher	Rural	Urban	Lowest	Highest	None	Secondary or higher
Algeria		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Angola		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Benin	DHS 2006	5	9	2	13	4	16	55	71	40	88	54	85	74	86	56	97	72	98
Botswana		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Burkina Faso	DHS 2010	11	31	7	34	11	44	31	45	24	47	31	57	62	94	47	93	63	97
Burundi	DHS 2010	17	29	15	26	14	34	33	39	34	37	32	46	58	88	51	81	52	91
Cabo Verde		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Cameroon	DHS 2011	9	21	2	26	3	25	50	77	33	86	35	82	47	87	19	97	23	93
Central African Republic	MICS 2006	3	18	1	23	2	29	…	…	…	…	…	…	35	83	27	89	34	88
Chad		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Comoros		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Congo		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Côte d'Ivoire	MICS 2006	6	15	4	19	6	22	…	…	…	…	…	…	40	84	29	95	47	87
Democratic Republic of the Congo	MICS 2010	4	10	1	14	2	10	39	57	38	62	33	56	67	94	60	96	60	88
Equatorial Guinea		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Eritrea		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Ethiopia	DHS 2011	23	50	13	48	22	55	14	46	8	46	12	65	5	52	2	46	5	74
Gabon		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Gambia	MICS 2005–2006	…	…	…	…	…	…	…	…	…	…	…	…	43	83	28	89	51	85
Ghana	DHS 2008	15	19	12	21	11	19	72	88	63	94	68	88	43	84	24	95	36	78
Guinea		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Guinea-Bissau	MICS 2006	2	15	1	19	3	26	…	…	…	…	…	…	27	69	19	79	28	80
Kenya	DHS 2008–2009	37	47	17	48	12	52	44	60	36	63	35	64	37	75	20	81	19	73
Lesotho	DHS 2009	41	57	29	61	28	55	66	83	58	85	68	79	54	88	35	90	40	80
Liberia	DHS 2007	7	16	3	17	7	18	61	76	55	78	62	77	32	79	26	81	36	76
Madagascar	DHS 2008–2009	28	36	18	36	18	34	46	71	35	75	37	67	39	82	22	90	23	76
Malawi	DHS 2010	41	50	35	48	37	49	45	49	41	51	44	52	69	84	63	89	62	88
Mali	DHS 2006	4	13	3	16	5	23	28	55	23	64	31	70	12	67	9	75	22	78
Mauritania	MICS 2007	3	14	1	16	4	19	…	…	…	…	…	…	39	90	21	95	45	92
Mauritius		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Mozambique	MICS 2008	8	22	5	30	6	33	…	…	…	…	…	…	46	78	37	89	41	90
Namibia	DHS 2006–2007	43	64	30	68	32	63	68	73	64	77	51	75	73	94	60	98	50	92
Niger	DHS 2006	3	18	2	16	3	29	11	35	9	35	12	54	8	71	5	59	13	81
Nigeria	DHS 2008	7	17	3	22	3	19	34	69	16	81	22	71	28	65	8	86	12	77
Rwanda	DHS 2010	45	47	39	50	37	52	35	40	34	43	33	43	67	82	61	86	57	88
Sao Tome and Principe	DHS 2008–2009	40	28	31	37	15	32	69	76	58	91	53	82	75	89	74	93	73	88
Senegal	DHS 2010–2011	7	20	4	23	8	26	42	62	32	69	45	67	49	90	30	95	58	88
Seychelles		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Sierra Leone	MICS 2010	8	16	5	21	7	23	74	78	68	84	72	82	59	72	44	85	57	79
South Africa		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
South Sudan		…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…
Swaziland	MICS 2010	61	69	55	68	49	68	76	80	72	85	81	80	80	89	65	94	61	88
Togo	MICS 2006	9	14	7	16	7	21	…	…	…	…	…	…	65	94	56	96	65	92
Uganda	DHS 2011	23	39	13	39	16	38	46	57	43	59	45	56	53	89	44	88	38	81
United Republic of Tanzania	DHS 2010	25	34	19	38	18	35	39	55	37	59	35	65	42	83	33	90	34	86
Zambia	DHS 2007	28	42	31	48	27	44	61	59	59	62	56	63	31	83	27	91	23	73
Zimbabwe	DHS 2010–2011	56	60	52	64	42	60	64	66	60	73	68	68	58	86	48	91	39	75

Endnotes appear after the summary tables.

DTP3 immunization coverage among 1-year-olds[a] (%)								Children aged < 5 years who are stunted[a] (%)								MDG 4 Under-five mortality rate[a,d] (probability of dying by age 5 per 1000 live births)								Member State
Sex		Place of residence		Wealth quintile		Educational level of mother		Sex		Place of residence		Wealth quintile		Educational level of mother		Sex		Place of residence		Wealth quintile		Educational level of mother		
Male	Female	Rural	Urban	Lowest	Highest	None	Secondary or higher	Male	Female	Rural	Urban	Lowest	Highest	None	Secondary or higher	Male	Female	Rural	Urban	Lowest	Highest	None	Secondary or higher	
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Algeria
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Angola
66	69	62	77	50	87	62	91	46	40	47	36	50	29	47	27	139	132	145	115	151	83	143	79	Benin
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Botswana
90	89	89	92	83	93	89	92	37	32	37	21	42	18	37	11	153	141	155	104	174	95	155	61	Burkina Faso
96	96	96	91	94	94	96	93	63	53	60	38	70	42	62	31	134	116	129	79	148	80	138	44	Burundi
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Cabo Verde
69	69	61	80	45	88	46	84	35	29	40	21	49	12	46	19	135	121	153	93	184	72	175	76	Cameroon
39	39	29	55	22	63	24	63	46	40	47	38	49	31	47	36	…	…	…	…	…	…	…	…	Central African Republic
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Chad
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Comoros
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Congo
78	77	71	89	60	96	73	87	44	37	46	32	47	27	43	31	…	…	…	…	…	…	…	…	Côte d'Ivoire
63	61	57	77	48	80	54	73	47	40	47	34	47	26	50	35	…	…	…	…	…	…	…	…	Democratic Republic of the Congo
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Equatorial Guinea
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Eritrea
35	39	33	62	26	64	32	73	46	43	46	31	49	29	47	20	121	97	114	82	136	84	120	36	Ethiopia
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Gabon
84	88	86	86	89	89	86	87	29	27	32	19	37	15	29	19	…	…	…	…	…	…	…	…	Gambia
89	89	91	87	89	93	85	91	29	26	32	20	33	14	30	24	93	75	90	75	102	60	102	67	Ghana
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Guinea
65	64	62	71	57	78	61	77	48	48	51	41	49	37	51	36	…	…	…	…	…	…	…	…	Guinea-Bissau
83	90	86	88	78	90	82	92	37	33	37	27	44	25	39	25	90	77	85	75	97	69	86	58	Kenya
84	84	82	91	73	88	…[e]	88	41	35	40	29	45	28	41[g]	31	123	87	111	89	107	81	…[f]	89	Lesotho
49	52	41	70	30	72	47	70	41	35	42	29	43	25	40	28	147	131	144	129	137	115	149	116	Liberia
73	73	71	89	54	93	50	89	53	48	51	43	48	43	49	46	85	78	84	63	106	48	97	54	Madagascar
93	94	93	94	91	94	89	97	51	43	48	40	56	35	53	38	137	116	128	113	131	105	136	94	Malawi
71	65	65	77	65	78	66	86	40	35	42	27	44	22	40	19	222	206	234	156	233	123	223	102	Mali
56	56	58	52	52	60	50	63	30	27	32	24	34	20	31	18	…	…	…	…	…	…	…	…	Mauritania
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Mauritius
73	73	69	85	59	88	66	91	47	41	47	35	51	26	49	25	…	…	…	…	…	…	…	…	Mozambique
84	83	82	86	75	94	62	89	31	26	31	24	38	12	38	23	80	58	75	60	90	30	78	55	Namibia
39	41	35	63	31	63	36	66	58	52	58	35	57	40	56	24	220	213	229	139	204	154	221	91	Niger
36	36	27	55	9	77	11	69	43	38	45	31	52	24	51	27	175	166	190	122	217	88	209	107	Nigeria
97	97	97	96	96	99	96	98	48	40	46	28	54	26	52	23	104	96	103	80	115	75	123	63	Rwanda
88	87	86	89	87	91	…[e]	88	29	30	28	30	37	19	27	25	86	55	67	74	86	28	…[f]	46	Sao Tome and Principe
84	81	82	84	75	88	81	95	28	25	31	20	35	15	30	12	90	82	101	61	118	54	96	37	Senegal
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	Seychelles
77	75	75	78	77	80	74	84	47	42	46	41	47	33	47	37	…	…	…	…	…	…	…	…	Sierra Leone
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	South Africa
…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	…	South Sudan
91	90	91	89	90	84	90	90	34	28	33	23	42	14	40	25	…	…	…	…	…	…	…	…	Swaziland
64	62	59	70	58	75	50	79	32	27	35	22	37	19	34	22	…	…	…	…	…	…	…	…	Togo
73	72	72	76	75	75	71	79	37	29	36	18	36	22	40	25	114	97	110	76	124	71	133	79	Uganda
88	88	86	97	84	97	79	96	45	38	44	31	48	27	45	22	97	88	92	95	104	84	97	74	United Republic of Tanzania
82	80	77	90	78	95	70	90	48	42	48	39	48	34	45	37	151	122	138	131	124	108	146	104	Zambia
72	75	73	76	67	81	…[e]	78	35	27	32	28	35	24	38	30	88	68	78	77	86	57	…[f]	71	Zimbabwe

Endnotes

1. Demographic and socioeconomic statistics

a. World Population Prospects: the 2012 Revision. New York: Population Division, Department of Economic and Social Affairs, United Nations Secretariat; 2013.
b. UNICEF Global Databases 2014. Based on DHS, MICS, other nationally representative surveys, censuses and vital registration systems, 2005–2012. First published in: Every Child's Birth Right. Inequities and trends in birth registration. New York: UNICEF; 2013. The standard definition includes the percentage of children under 5 years of age who were registered at the moment of the survey. The numerator of this indicator includes children whose birth certificate was seen by the interviewer, or whose mother or carer said that the birth had been registered.
c. Mortality data [online database]. Geneva: World Health Organization; 2014 (http://www.who.int/healthinfo/statistics/mortality/en/).
d. 2013 Update for the MDG Database: Adolescent Birth Rate. New York: United Nations, Department of Economic and Social Affairs, Population Division; 2013 (http://www.un.org/en/development/desa/population/publications/dataset/fertility/data/2013_Update_MDG(5.4)_ABR.xls). WHO regional, income-group and global figures refer to 2010. If country-level data were not available for 2010, linear interpolation between the closest data points on both sides of the year was used. In other cases, the closest data point was used.
e. Data centre. Montreal: UNESCO Institute for Statistics; February 2014 update (http://www.uis.unesco.org/Pages/DataCentre.aspx). WHO regional and income averages are estimated using different techniques based upon the type of data most recently available. For an explanation of methods see: http://www.uis.unesco.org/Education/Pages/FAQ.aspx#theme3.
f. PPP int. $ = Purchasing Power Parity at international dollar rate. World development indicators database [online database]. Washington, DC: World Bank; 2014 (http://data.worldbank.org/, accessed 10 January 2014). The income-group aggregates relate only to WHO Member States and therefore may differ from those reported in the World development indicators database.
g. World development indicators database [online database]. Washington, DC: World Bank; 2014 (http://data.worldbank.org/, accessed 10 January 2014). These figures reflect the World Bank default poverty line.
h. World telecommunication/ICT indicators database 2013 [online database]. Geneva: International Telecommunication Union; 18th Edition (http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx, accessed 10 January 2014).
i. Literacy rates are estimates for current decade based on survey or census data from previous decade.
j. Data differ from the standard definition or refer to only part of a country.
k. Figure estimated by UNESCO Institute for Statistics (UIS).
l. Data based on a reading test in a national household survey. A reading test typically yields lower literacy rates than the self- or household declaration used in most censuses and surveys. Care should be taken when analysing trends over time and in interpreting the results.

2. Life expectancy and mortality

a. Mortality Data [online database]. Geneva: World Health Organization; 2014 (http://www.who.int/gho/mortality_burden_disease/life_tables/en/index.html).
b. Levels & Trends in Child Mortality. Report 2013. Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation. New York: UNICEF; 2013 (http://www.childinfo.org/files/Child_Mortality_Report_2013.pdf, accessed 14 March 2014).

3. Cause-specific mortality and morbidity

a. Mortality Data [online database]. Geneva: World Health Organization; 2014 (http://www.who.int/gho/mortality_burden_disease/life_tables/en/index.html). The column in Table 2 labelled "Communicable" shows the rates for communicable diseases, maternal causes, conditions arising during the neonatal period and nutritional deficiencies. Rates are age-standardized to WHO's world standard population. Ahmad OB, Boschi-Pinto C, Lopez AD, Murray CJL, Lozano R, Inoue M. Age standardization of rates: a new WHO standard. Geneva: World Health Organization; 2001 (GPE Discussion Paper Series No. 31) (http://www.who.int/healthinfo/paper31.pdf, accessed 14 March 2014). WHO regional, income-group and global aggregates include country figures not shown. For regional groupings refer to WHO methods and data sources for global causes of death 2000-2012 (Global Health Estimates Technical Paper WHO/HIS/HSI/GHE/2014.7).
b. Individual percentages may not add up to 100% due to rounding.
c. WHO, UNICEF, UNFPA, United Nations Population Division and The World Bank. Trends in Maternal Mortality: 1990–2013. Geneva: World Health Organization; 2014. In preparation at the time of printing of this report. See report for the regional groupings used.
d. Global Report. UNAIDS report on the global AIDS epidemic 2013. Geneva: UNAIDS; 2013 (http://www.unaids.org/en/media/unaids/contentassets/documents/epidemiology/2013/gr2013/UNAIDS_Global_Report_2013_en.pdf, accessed 14 March 2014). WHO regional, income-group and global aggregates may include country estimates not available for reporting. For uncertainty ranges see the report.
e. World Malaria Report 2013. Geneva: World Health Organization; 2013 (http://www.who.int/malaria/publications/world_malaria_report_2013/en/).
f. These are classified as deaths from tuberculosis (A15–A19, B90) according to the International Statistical Classification of Diseases and Related Health Problems, 10th Revision. Geneva: World Health Organization; 2008 (http://apps.who.int/classifications/icd10/browse/2010/en). Global Tuberculosis Report 2013. Geneva: World Health Organization; 2013 (http://www.who.int/tb/publications/global_report/). WHO regional, income-group and global aggregates include territories. For uncertainty ranges see the full report.

g. Data are for all forms of tuberculosis including tuberculosis in people with HIV infection. Global Tuberculosis Report 2013. Geneva: World Health Organization; 2013 (http://www.who.int/tb/publications/global_report/). WHO regional, income-group and global aggregates include territories. For uncertainty ranges see the full report.

4. Selected infectious diseases

a. Cholera, 2012. Weekly Epidemiological Record. 2013;88(31):321–36 (www.who.int/wer).
b. Data provided by Member States through WHO/UNICEF Joint Reporting Form and WHO regional offices. Geneva: World Health Organization; 2013 (www.who.int/immunization_monitoring/data/en/, October 2013 update).
c. Neglected tropical diseases on the Global Health Observatory [online database]. Geneva: World Health Organization (http://apps.who.int/gho/data/node.main.A1629).
d. Global leprosy: update on the 2012 situation. Weekly Epidemiological Record. 2013;88(35):365–80 (www.who.int/wer).
e. World Malaria Report 2013. Annex 6A Reported malaria cases and deaths, 2012, . Geneva: World Health Organization; 2013 (http://www.who.int/malaria/publications/world_malaria_report_2013/en/).
f. Suspected meningitis cases reported to WHO Global Alert and Response (GAR) in African countries under enhanced surveillance up to 29 December 2013.
g. Data from World Health Organization, Polio Eradication Initiative, as of 15 January 2014. (Updated information can be found at: http://www.who.int/immunization/monitoring_surveillance/data/en/). Confirmed polio cases refer to any circulating polioviruses from AFP (Wild poliovirus and circulating Vaccine Derived Poliovirus – cVDPV). Afghanistan, Nigeria and Pakistan are currently endemic countries. For non-endemic countries, cases are the result of importation.
h. The number of new and relapsed tuberculosis cases diagnosed and treated in national tuberculosis control programmes and notified to WHO. Global Tuberculosis Report 2013. Geneva: World Health Organization; 2013 (www.who.int/tb/publications/global_report/). WHO regional and global figures include territories.
i. Figures include 4 cVDPV in Cameroon; 4 cVDPV in Chad; 1 cVDPV in Niger; 3 cVDPV in Nigeria.
j. Number of cases reported up to 1 December 2013.
k. Number of cases reported up to 24 November 2013.
l. Number of cases reported up to 8 December 2013.
m. Number of cases reported up to 13 October 2013.

5. Health service coverage

a. 2013 Update for the MDG Database. New York: United Nations, Department of Economic and Social Affairs, Population Division; 2013 (http://www.un.org/en/development/desa/population/publications/dataset/fertility/). WHO regional and income-group aggregates are population-weighted averages of model-based country estimates for the reference year (2011) from Model-based Estimates and Projections of Family Planning Indicators: 2013 Revision (http://www.un.org/en/development/desa/population/theme/family-planning/cp_model.shtml)
b. WHO global database on maternal health indicators, 2014 update. Geneva: World Health Organization (http://www.who.int/gho). Antenatal care coverage only includes visits to a skilled provider (doctor, nurse and/or midwife). Contraceptive prevalence refers to any method. Births attended by skilled health personnel refer to doctor, nurse and/or midwife. Postnatal care was surveyed only for the mother.
c. Proportion of neonates protected at birth against neonatal tetanus through maternal immunization with tetanus toxoid, based on a mathematical model taking into account the mother's immunization in infancy, during pregnancy and in tetanus campaigns. WHO/UNICEF estimates of national immunization coverage. Geneva: World Health Organization; 2013 (http://www.who.int/immunization_monitoring/routine/immunization_coverage/en/index4.html). Estimates based on data available up to July 2013. This indicator applies only to countries where tetanus is recommended for girls and women and therefore WHO regional, income-group and global aggregates relate only to these same Member States.
d. Measles = measles-containing vaccine (MCV); DTP3 = 3 doses of diphtheria-tetanus pertussis vaccine; HepB3 = 3 doses of hepatitis B vaccine; Hib3 = 3 doses of *Haemophilus influenzae* type B vaccine. WHO/UNICEF estimates of national immunization coverage. Geneva: World Health Organization; 2013 (http://www.who.int/immunization_monitoring/routine/immunization_coverage/en/index4.html). Estimates based on data available up to July 2013. For countries recommending the first dose of measles vaccine in children older than 12 months of age, the indicator is calculated as the proportion of children less than 24 months of age receiving one dose of measles-containing vaccine. Complete coverage estimates available online at the above website.
e. Data compiled by WHO from Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), January 2014 (http://dhsprogram.com and http://www.unicef.org/statistics/index_24302.html). ORT, oral rehydration therapy. Vitamin A supplementation data refer to the six months preceding the survey; data on children receiving oral rehydration salts (ORS) and/or recommended home fluids (RHF) refer to the two weeks preceding the survey; and data on children who were ill with a cough accompanied by rapid breathing (ARI symptoms) and who were taken to a health facility and/or received antibiotics refer to the two weeks preceding the survey. The WHO regional, income-group and global aggregates are population and prevalence weighted from available survey data and may differ from previously reported aggregates.
f. World Malaria Report 2013. Annex 5: Household surveys, 2008–2012. Geneva: World Health Organization; 2013 (http://www.who.int/malaria/publications/world_malaria_report_2013/en/).
g. The State of the World's Children. 2014 in Numbers: Every Child Counts. New York: UNICEF; 2014. See Table 3: Health (http://www.unicef.org/sowc2014/numbers/).
h. MTCT, mother-to-child transmission. Global Aids response progress reporting 2013. Geneva: UNAIDS, 2013 (http://apps.who.int/iris/bitstream/10665/78126/1/9789292530068_eng.pdf?ua=1,

accessed 14 March 2014). WHO regional and global aggregates include low- and middle-income countries only. Income groups were derived using the 2012 World Bank list of economies. For uncertainty ranges see the report or visit http://www.who.int/gho/hiv/en/.

i. The case-detection rate for all forms of tuberculosis is the estimated number of new and relapsed tuberculosis cases diagnosed and treated in national tuberculosis control programmes and notified to WHO, divided by WHO's estimate of the number of incident tuberculosis cases for the same year, expressed as a percentage. Global Tuberculosis Report 2013. Geneva: World Health Organization; 2013 (http://www.who.int/tb/publications/global_report/). For uncertainty ranges see the full report. WHO regional, income-group and global aggregates include territories.

j. The treatment-success rate for new pulmonary smear-positive tuberculosis cases is the proportion of new smear-positive tuberculosis cases registered under a national tuberculosis control programme in a given year that successfully completed treatment – with or without bacteriological evidence of success ("cured" and "treatment completed" respectively). Global Tuberculosis Report 2013. Geneva: World Health Organization; 2013 (http://www.who.int/tb/publications/global_report/). WHO regional, income-group and global aggregates include territories.

k. Definition of skilled personnel differs from standard definition.

l. Skilled personnel not defined.

m. Institutional births.

n. Only women who gave birth outside of a health facility.

o. ORT and/or RHF and/or increased fluids.

p. No timing of postnatal visit was provided.

q. The figure includes data from government and private hospitals.

r. Continued feeding.)

6. Risk factors

a. Progress on sanitation and drinking-water: 2014 Update. Joint Monitoring Programme for Water Supply and Sanitation. New York: UNICEF and Geneva: World Health Organization; 2014. In preparation.

b. These estimates are modelled according to Bonjour S, Adair-Rohani H, Wolf J, Bruce NG, Mehta S, Prüss-Ustün A et al. Solid Fuel Use for Household Cooking: Country and Regional Estimates for 1980–2010. Environ Health Perspect. 2013;121(7):784–90. doi:10.1289/ehp.1205987 based on the WHO Household Energy database (available at: http://apps.who.int/ghodata/). This database contains compiled information on cooking-fuel use and cooking practices from about 716 nationally representative data sources, including all Demographic and Health Surveys (Macro International), Multiple Indicator Cluster Surveys (UNICEF), World Health Surveys (WHO) and Living Standards Measurement Studies (World Bank) as well as national censuses/surveys and national energy statistics.

c. Blencowe H, Cousens S, Oestergaard MZ, Chou D, Moller A-B, Narwal R et al. National, regional, and worldwide estimates of preterm birth rates in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications. Lancet. 9 June 2012;379(9832):2162–72. doi:10.1016/S0140-6736(12)60820-4. See the paper for income groupings used.

d. WHO Global Data Bank on Infant and Young Child Feeding [online database]. Geneva: World Health Organization; 2014 (http://www.who.int/nutrition/databases/infantfeeding).

e. WHO Global Database on Child Growth and Malnutrition [online database]. Geneva: World Health Organization; 2012 (http://www.who.int/nutgrowthdb/database/en, accessed 15 January 2014). 2012 Joint child malnutrition estimates – Levels and trends. New York: UNICEF, Geneva: WHO and Washington, DC: The World Bank (http://www.who.int/nutgrowthdb/estimates2012). For the reference period 1990–1995, figures refer to the first available survey year in the period. For the reference period 2006–2012, figures refer to the latest available survey year in the period. Wasted is calculated as the prevalence of low weight-for-height less than –2 standard deviations; underweight is the prevalence of weight-for-age less than –2 standard deviations; stunting is the prevalence of height-for-age less than –2 standard deviations; and overweight is the prevalence of weight-for-height above +2 standard deviations (using the WHO Child Growth Standards median). Global estimates refer to 2012 for wasted, stunting and overweight, and 1990 and 2012 for underweight. For more information, see the above databases.

f. Percentage of population aged 25 years and over with fasting glucose ≥ 126 mg/dl (7.0 mmol/l) or on medication for raised blood glucose. Global status report on noncommunicable diseases 2010. Geneva: World Health Organization; 2011 (http://www.who.int/nmh/publications/ncd_report2010). See Annex 4: Country estimates of NCD mortality and selected risk factors, 2008. Figures reported are age-standardized point estimates, and uncertainty ranges are available at the Global Health Observatory website (http://www.who.int/gho). Income-group aggregates are based on the 2008 World Bank list of economies.

g. Percentage of population aged 25 years and over with raised blood pressure (systolic blood pressure ≥ 140 or diastolic blood pressure ≥ 90). Global Health Observatory. Geneva: World Health Organization; 2011. Figures reported are age-standardized point estimates, and uncertainty ranges are available at the Global Health Observatory website (http://www.who.int/gho). Income-group aggregates are based on the 2008 World Bank list of economies.

h. Percentage of population aged 20 years and over with a body mass index ≥ 30.00 kg/m^2. Global status report on noncommunicable diseases 2010. Geneva: World Health Organization; 2011 (http://www.who.int/nmh/publications/ncd_report2010). See Annex 4: Country estimates of NCD mortality and selected risk factors, 2008. Figures reported are age-standardized point estimates, and uncertainty ranges are available at the Global Health Observatory website (http://www.who.int/gho). Income-group aggregates are based on the 2008 World Bank list of economies.

i. WHO Global Information System on Alcohol and Health [online database]. Geneva: World Health Organization; 2012 (http://apps.who.int/gho/data/node.main.GISAH?showonly=GISAH). Definition of indicator: total (sum of three year average recorded and unrecorded) amount of alcohol consumed per adult (15+ years) over a calendar year, in litres of pure alcohol. Recorded alcohol consumption refers to official statistics (production, import, export, and sales or taxation data), while the unrecorded alcohol

consumption refers to alcohol which is not taxed and is outside the usual system of governmental control.

j. WHO Report on the Global Tobacco Epidemic, 2013. Geneva: World Health Organization; 2013 (http://www.who.int/tobacco/global_report/2013/en/). See Technical Note II: Smoking prevalence in WHO Member States Definition of indicator: smoking at the time of the survey any form of tobacco, including cigarettes, cigars, pipes, bidis, etc. Note: these estimates cannot be used to form a time series with previously published estimates for past years because the quality and quantity of source data increase significantly each year.

k. WHO report on the Global Tobacco Epidemic, 2013. Geneva: World Health Organization; 2013 (http://www.who.int/tobacco/global_report/2013/en/). Global Youth Tobacco Survey data relate to most-recent survey for each country between 2006 and 2012 on tobacco use in any form in the past 30 days.

l. Percentage of women and men aged 15–49 years who had more than one sexual partner in the past 12 months reporting the use of a condom during their last sexual intercourse. AIDSinfo [online database]. Geneva: UNAIDS (http://aidsinfoonline.org/devinfo/libraries/aspx/Home.aspx, accessed 1 February 2014).

m. Percentage of women and men aged 15–24 years who both correctly identify ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission. AIDSinfo [online database]. Geneva: UNAIDS (http://aidsinfoonline.org/devinfo/libraries/aspx/Home.aspx, accessed 1 February 2014).

n. No country data available. Estimate modelled using data from other countries and specific country characteristics.

7. Health systems

a. WHO Global Health Workforce Statistics (http://who.int/hrh/statistics/hwfstats/en/). See this source for the latest updates, disaggregated health workforce statistics and metadata descriptors. Due to variability of data sources and national occupation titles, the figures provided may not always be comparable with regards to coverage and quality. In general, the denominator data for health workforce density (i.e. national population estimates) were obtained from the World Population Prospects database of the United Nations Population Division. In some cases the official report provided only workforce density indicators, from which estimates of the stock were calculated.

b. Figures include nursing personnel and midwifery personnel, whenever available. In many countries, nurses trained with midwifery skills are counted and reported as nurses. This makes the distinction between nursing personnel and midwifery personnel difficult to draw.

c. Figures include dentists, dental technicians/assistants and related occupations. Due to variability of data sources, the professional-level and associate-level occupations may not always be distinguishable.

d. Figures include pharmacists, pharmaceutical technicians/assistants and related occupations. Due to variability of data sources, the professional-level and associate-level occupations may not always be distinguishable.

e. Mental health atlas 2011. Geneva: World Health Organization; 2011 (http://www.who.int/mental_health/publications/mental_health_atlas_2011/). Income-group aggregates are based on the 2011 World Bank list of economies.

f. Data are derived from the WHO Baseline country survey on medical devices 2013 conducted in 2013. Geneva: World Health Organization; 2013. Densities were computed by adding both public-sector and private-sector data unless otherwise noted. Hospitals include district, rural, provincial, specialized, teaching and research hospitals. Radiotherapy units include Linear Accelerators and Cobalt-60 units.

g. PAHO/WHO Country Representative and National Authorities. Data provided by Member States on basic indicators via an online data-entry tool. Washington, DC; 2014. As of January 2014; European health for all database (HFA-DB). Copenhagen: WHO Regional Office for Europe; 2014 (http://data.euro.who.int/hfadb/); Western Pacific Country Health Information Profiles 2014 Revision. Manila: WHO Regional Office for the Western Pacific; 2014 (http://hiip.wpro.who.int/portal/default.aspx); Regional Health Observatory. Cairo: WHO Regional Office for the Eastern Mediterranean; 2014 (http://rho.emro.who.int/rhodata/); additional data compiled by the WHO Regional Office for Africa (as of January 2011) and the WHO Regional Office for South-East Asia (as of January 2014). Depending on the source and means of monitoring, data may not be exactly comparable across countries. See above sources for country-specific details.

h. Surveys of medicine prices and availability using WHO/HAI standard methodology conducted between 2001 and 2012 (available at: http://www.haiweb.org/medicineprices/). In individual surveys, availability is reported as the percentage of medicine outlets in which a medicine was found on the day of data collection. As baskets of medicines differ by individual country, results are not exactly comparable across countries. Median availability is determined for the specific list of medicines in each survey, and does not account for alternate dosage forms or strengths of these products or for therapeutic alternatives. Public-sector data may be limited by the fact that the list of survey medicines may not correspond to national essential medicines lists (EMLs) where these exist, and some public-sector facilities may not be expected to stock all of the survey medicines. This has been addressed in the revised edition of the survey tool, which allows public-sector data to be analysed by EML status and level of care.

i. Surveys of medicine prices and availability using WHO/HAI standard methodology conducted between 2001 and 2012 (available at: http://www.haiweb.org/medicineprices/). Consumer price ratio = ratio of median local unit price to the Management Sciences for Health (MSH) international reference price of selected generic medicines. Data are unadjusted for differences in the MSH reference price year used, exchange-rate fluctuations, national inflation rates, variations in purchasing power parities, levels of development or other factors. In each survey, median consumer price ratios are obtained for the basket of medicines surveyed and found in at least four medicine outlets. As baskets of medicines differ by individual country, results are not exactly comparable across countries. However, data on specific medicines are

publicly available at the above HAI website, and matched basket comparisons on a subset of medicines can be made.

j. Separate figures were not reported for associate-level professionals and hence may not be comparable with previous publications.
k. Refers to public sector only.
l. Data derived from the Directory of Radiotherapy Centres (DIRAC) from the International Atomic Energy Agency (IAEA) – http://www-naweb.iaea.org/nahu/dirac/query3.asp. This source does not specify if data are derived from the public or private sector, and was only taken into account if a country participating in the WHO Baseline country survey on medical devices did not provide such data.
m. Medicines are provided free to patients in the public sector.
n. Refers to the private sector only.
o. Based on a survey of medicine prices and availability in Gauteng province, South Africa.

8. Health expenditure

a. Health expenditure series. Geneva: World Health Organization (latest updates and more information on countries are available at: http://apps.who.int/nha/database/DataExplorerRegime.aspx). All the indicators refer to expenditures by financing agent except external resources which is a financing source. WHO regional, income-group and global aggregates are calculated using absolute amounts in national currency units converted to Purchasing Power Parity (PPP) equivalents unless otherwise noted. For health expenditure ratios, values smaller than 0.05% may appear as zero. For per capita indicators, when the value is less than 0.5 it is represented as < 1. In countries where the fiscal year begins in July, expenditure data have been allocated to the later calendar year (for example, 2011 data will cover the fiscal year 2010–11), unless otherwise stated for the country. Absolute values of expenditures are expressed in nominal terms (current prices).
b. In some cases, the sum of general government and private expenditures on health may not add up to 100% because of rounding.
c. Care needs to be taken in interpreting external resource figures. Most are taken from the OECD DAC/CRS database except where a reliable full NHA study has been done. These are disbursements to recipient countries as reported by donors, lagged one year to account for the delay between disbursement and expenditure. Disbursement data are not available prior to 2002 and commitments are used instead.
d. National currency unit per US$ are calculated using the average exchange rates for the year. WHO regional, income-group and global aggregates are calculated using constant US$.
e. PPP series resulting from the 2005 International comparison project (ICP) estimated by the World Bank has been used. In countries where this is not available, PPPs are estimated by WHO.
f. A new basis for these estimates was provided by new NHA reports, surveys, National Accounts series, accessed information and/or country consultations.
g. Estimates should be viewed with caution as these are derived from scarce data.
h. The national accounts data have been revised from 2002 onward. The new data are obtained through a new computation methodology that uses an updated input–output table (International Monetary Fund, World Economic Outlook).
i. Increases in government expenditure on health are due to investment in capital expenditures.
j. The change in the trend of out-of-pocket expenditure in 2008 was driven by a large decrease in total private consumption in 2008 and a large increase in 2009.
k. Government expenditures show fluctuations due to variations in capital investment.

9. Health inequities

a. Data are derived from the re-analysis of publicly available Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) micro-data, using the standard indicator definitions as published in DHS or UNICEF documentation. The analysis was carried out by the International Center for Analysis and Monitoring of Equity in Health and Nutrition based in the Federal University of Pelotas, Brazil, and updated in December 2013. In some cases there may be slight differences between these results and those reported in DHS or MICS country reports due to differences in the calculation of indicator numerators and/or denominators.
b. Data derived from DHS relate to the most recent live births occurring in the five years preceding the survey.
c. Data derived from DHS relate to births occurring in the five years preceding the survey. Data derived from MICS relate to births occurring in the two years preceding the survey.
d. The under-five mortality rate relates to the decade preceding the survey.
e. The figure is not reported as it is based on fewer than 25 cases.
f. The figure is not reported as it is based on fewer than 250 unweighted person-years of exposure to the risk of death.
g. The figure is based on a small number of cases (25–49 unweighted cases).

Glossary

Artemisinin-based combination therapies (ACTs): drugs used for the treatment of malaria, one of the active ingredients of which is extracted from the plant *Artemesia annua* (also known as sweet wormwood or Qinghao).

Bacille Calmette–Guérin vaccination: a suspension of a weakened strain of *Mycobacterium tuberculosis*, which is inoculated into the skin to prevent tuberculosis.

Blinding trachoma: the leading cause of infectious blindness in the world. It is caused by an obligate intracellular microorganism, *Chlamydia trachomatis*. The disease is transmitted through contact with eye and nose discharge of infected people, particularly young children who form the reservoir of infection. It is also spread by flies that have been in contact with the eyes and nose of infected people.

Buruli ulcer: one of 17 NTDs listed by WHO worldwide. It is caused by infection with *Mycobacterium ulcerans*, an organism that belongs to the family of bacteria that causes tuberculosis and leprosy. Named after the Buruli district in Uganda where it was first described.

Cancer: a general term for any of various types of malignant growths, most of which invade surrounding tissues, metastasize to distant sites in the body, recur after attempted removal, and cause death of the patient unless adequately treated.

Cardiovascular diseases: diseases of the heart and blood vessels that include strokes, hypertension, heart attacks, etc.

Cervical cancer: a malignant disease of the neck of the uterus.

Compacts: negotiated and signed time-bound agreements in which partners commit to implement and uphold the defined priorities outlined in a country's health strategy.

Disability-adjusted life-years (DALYs): a measure of overall disease burden expressed as the number of years lost due to premature mortality and disability.

Delivering as One: the name of a United Nations report issued in 2006 and an initiative launched in 2007 to improve the coordination of development assistance within the United Nations family of organizations.

DOTS: the tuberculosis control strategy recommended by WHO as the most cost–effective to stop the spread of tuberculosis in communities with a high incidence.

Dracunculiasis: dracunculiasis (more commonly known as guinea-worm disease) is a crippling parasitic disease caused by *Dracunculus medinensis*, a long thread-like worm. It is transmitted exclusively when people drink water contaminated with parasite-infected water fleas. Dracunculiasis is rarely fatal but infected people become nonfunctional for months. It affects people in rural, deprived and isolated communities who depend mainly on open surface water sources such as ponds for drinking water. Human infection can be prevented by filtering drinking water, preventing infected people from wading in the water, or vector control by using insecticides to kill the water fleas.

Essential medicines: drugs that are determined by the WHO Expert Committee on the Selection and Use of Essential Medicines to be required for the basic health needs of a population.

Gross domestic product: the market value of all officially recognized final goods and services produced within a country in a year, or over a given period of time.

Governance: the exercise of political, economic and administrative authority in the management of a country's affairs at all levels. The complex mechanisms, processes, relationships and institutions through which citizens articulate their interests, exercise their rights and obligations and mediate their differences.

Guinea-worm disease: see Dracunculiasis.

***Haemophilus influenzae* type b:** a type of *Haemophilus influenza* bacteria, responsible for a wide range of infections. In infants and young children, *H. influenzae* type b (Hib) causes bacteraemia, pneumonia, epiglottitis and acute bacterial meningitis.

Health systems: the people, institutions and resources that serve to improve the health of the population, by helping people to avoid ill health and treating disease.

Health workers: people with specific training and a recognized role in the provision of health care.

Heart disease: commonly used term that encompasses diseases of the muscle, blood vessels, or envelopes of the heart, including ischaemia, myocardial infarction, angina pectoris, arrhythmias, hypertension and heart failure.

Hepatitis: inflammation of the liver, usually caused by a viral infection, or toxic agents, including alcohol and drugs. There are five know hepatitis viruses: A, B, C, D and E. The most common forms of the disease are hepatitis A, hepatitis B and hepatitis C.

Hepatitis A virus is spread by contact with faeces or blood, most often through the ingestion of contaminated food. Hepatitis A infection is estimated to be high in all Member States of the Region. A safe effective hepatitis A vaccine has been available for nearly two decades.

Hepatitis B virus is spread through blood, semen, vaginal secretions and saliva. Symptoms can develop after an incubation period that may be as long as 6 months. People may remain asymptomatic carriers. A leading cause of chronic liver disease, cirrhosis and liver cancer. Hepatitis B is highly endemic in western Africa with a prevalence of 8%, the highest in the world. Hepatitis B is preventable with a safe and effective vaccine, but there are 240 million people living with hepatitis B virus infection worldwide.

Hepatitis C virus is spread mainly through blood transfusion and can cause cirrhosis, liver failure and liver cancer. It is estimated that 2% of the population in the Region are chronically infected with hepatitis C. While hepatitis C is not preventable by vaccination, current treatment regimens offer high cure rates that are expected to further improve with upcoming new treatments.

Effective and safe antiviral agents against hepatitis B and hepatitis C exist. However, the high price of these medicines remains a major challenge.

Although not well documented, hepatitis D is endemic in the Region, especially in central and western Africa.

The hepatitis E virus exists worldwide. Recent outbreaks were reported in Chad, the Sudan and Uganda. Hepatitis E vaccine candidates have been developed but are not yet certified by WHO.

HIV/AIDS: a disease that includes a constellation of relatively specific infections and cancers that result from the selective destruction of part of the human immune system by HIV.

Hookworm: common name for bloodsucking round worms of the family Ancylostomatidae, and the infection that it causes in humans, with anaemia as its main consequence.

Human African trypanosomiasis: African trypanosomiasis or sleeping sickness is a parasitic disease of humans and other animals. It is caused by protozoa of the species *Trypanosoma brucei*. There are two types that infect humans: *Trypanosoma brucei gambiense* (T.b.g) and *Trypanosoma brucei rhodesiense* (T.b.r.). T.b.g causes over 98% of reported cases. Both are usually transmitted by the bite of an infected tsetse fly and are most common in rural areas.

Human immunodeficiency virus (HIV): HIV causes the acquired immunodeficiency syndrome (AIDS). Infection with HIV occurs by the transfer of bodily fluids.

Human papillomavirus (HPV): a DNA virus from the papillomavirus family. Certain types of this virus cause cutaneous and genital warts in humans, including verruca vulgaris and condyloma acuminatum. Other types cause cervical intraepithelial neoplasia, accounting for about 80% of cervical cancer and anogenital and laryngeal carcinomas.

HPV vaccine: HPV vaccine prevents infection with certain species of HPV associated with the development of cervical cancer, genital warts and other cancers. WHO recommends vaccination of young women against HPV to prevent cervical cancer and to reduce the number of treatments for cervical cancer precursors.

Hypertension: blood pressure consistently exceeding 160 mmHg (systolic) and 95 mmHg (diastolic).

Insecticide-treated nets (ITNs): a mesh fabric soaked in a solution of chemicals designed to kill the insects that land on them. Usually intended to protect from night-biting mosquitoes that carry malaria.

Integrated community case management (iCCM): iCCM is used for pneumonia, diarrhoea and malaria. This approach centres around the idea that the most common childhood killers can be readily diagnosed and treated by people within the community, including those with limited education and medical training.

Integrated Disease Surveillance and Response (IDSR): IDSR was adopted in 1998 by Member States of the Region to improve the availability and use of data for more timely detection, confirmation, and response to the leading causes of illness, death, and disability. In 2006, Member States recommended that the International Health Regulations (2005) be implemented using the IDSR framework, especially for strengthening core capacities for surveillance and response.

Integrated management of childhood illness (IMCI): a systematic approach to children's health that focuses not only on curative care, but also on prevention of disease. Developed in 1992 by UNICEF and WHO.

Inter-agency Group for Child Mortality Estimation (IGME): IGME was formed in 2004 to share data on child mortality and harmonize estimates within the United Nations system. Led by UNICEF and WHO, IGME also includes the World Bank and the United Nations Population Division of the Department of Economic and Social Affairs.

International Health Regulations (2005): legally binding regulations to prevent, protect against, control and provide a public health response to the international spread of disease.

Ivermectin: ivermectin is a broad-spectrum antiparasitic agent, traditionally used against parasitic worms. Mainly used in the treatment of onchocerciasis, but also effective against other worm infestations and some epidermal parasitic skin diseases, including scabies. Ivermectin is on WHO's list of essential medicines.

Kangaroo mother care (KMC): a technique where infants are held skin-to-skin with an adult. Initially developed to care for preterm infants in areas where incubators are either unavailable or unreliable, and named for the similarity to how certain marsupials carry their young.

Leishmaniasis: caused by a protozoa parasite from over 20 *Leishmania* species and transmitted to humans by the bite of infected female phlebotomine sandflies. There are three main forms of the disease: visceral (often known as kala-azar and the most serious form of the disease), cutaneous (the most common) and mucocutaneous.

Leprosy: a chronic infectious disease caused by *Mycobacterium leprae*, an acid-fast, rod-shaped bacillus. Mainly affects the skin, the peripheral nerves, mucosa of the upper respiratory tract and the eyes. Leprosy is curable and treatment provided in the early stages averts disability.

Lymphatic filariasis: an NTD commonly known as elephantiasis. Infection occurs when filarial parasites are transmitted to humans through mosquitoes. Infection is usually acquired in childhood causing hidden damage to the lymphatic system. The painful and profoundly disfiguring visible manifestations of the disease, lymphoedema, elephantiasis and scrotal swelling, occur later in life and lead to permanent disability. These patients are not only physically disabled, but suffer mental, social and financial losses contributing to stigma and poverty.

Malaria: a parasitic disease caused by *Plasmodium* species, transmitted to humans by the bite of the female *Anopheles* mosquito. Fever and anaemia are its main signs.

Measles: a contagious eruptive fever with coryza and catarrhal symptoms. Caused by a virus, with about a 2-week incubation period. An effective vaccine exists.

Meningitis Vaccine Project: the Meningitis Vaccine Project, which began in 2001, is an effort to eliminate the meningitis epidemic in sub-Saharan Africa by developing a meningococcal vaccine. It led to the release in 2010 of MenAfriVac®, an inexpensive, safe and highly effective vaccine against meningitis A. The project marked the first time that medical research had developed a vaccine to combat a disease that is endemic to, and only a problem for, Africa.

***Meningococcal meningitis/meningitis A/ meningococcus group A*/Neisseria meningitidis *group A*:** bacterial form of meningitis. A serious infection of the thin lining that surrounds the brain and spinal cord. Group A meningococcus is the main cause of meningitis epidemics in the African meningitis belt, and accounts for an estimated 80–85% of all cases.

Morbidity: the condition of being diseased or sick. Also the amount of sickness and disease caused by a particular agent or condition.

Mortality rate: ratio of the number of people dying in a year to the total mid-year population in which the deaths occurred.

Neglected tropical diseases (NTDs): NTDs in the Region include lymphatic filariasis, schistosomiasis, soil-transmitted helminthiasis, leprosy, buruli ulcer, yaws and other treponematoses, onchocerciasis, dracunculiasis, blinding trachoma and human African trypanosomiasis. Although medically diverse, NTDs share features that allow them to persist in conditions of poverty, overlapping and thriving in the heat and humidity of tropical climates. Of the 14 NTDs occurring in the Region, most are parasitic, spread by insects while others multiply through contaminated water and soil infested with the eggs of worms. Poor sanitation and limited access to basic health care play a role in the heavy burden of these diseases in poor communities.

Noma (cancrum oris): a severe infection causing gangrene of the oral and facial tissues, usually occurring in debilitated patients or malnourished children.

Noncommunicable disease (NCD): a disease that is not transmitted to or between people, and does not have an infectious cause.

Obesity: the condition of being overweight to an unhealthy extent. For adults, a body mass index equal to, or greater than, 30.

Onchocerciasis: infection with filarial worms that live and breed in the nodules under the patient's skin and can cause blindness. Also known as river blindness, it is transmitted by biting blackflies that breed on rocks in turbulent river water.

Oral rehydration therapy: a water, salt and sugar mixture used for treating dehydration.

Overweight: a body mass index equal to, or great than, 25 in adults.

Pandemic: a widespread epidemic disease.

Parasite: a plant or animal that lives upon or within another living organism at whose expense it obtains some advantage without compensation.

Pneumococcal conjugate vaccine: a pneumococcal vaccine used to protect infants and young children against disease caused

by the bacteria *Streptococcus pneumoniae* (pneumococcus).

Poliomyelitis (polio): an acute viral disease characterized clinically by fever, sore throat, headache and vomiting, often with stiffness of the head and back, that may lead to involvement of the central nervous system with meningitis, destruction of the anterior horn cells of the spinal cord, and paralysis. An effective vaccine exists.

Prevalence: the number of cases of a disease in existence at a certain time in a designated area.

Roundworm: members of the phylum Nematoda. *Ascaris* is the species that causes the most infections in humans and is acquired by ingesting eggs of the parasite in contaminated soil. The infection causes damage to the lungs when the larvae migrate through the body and intestinal colic due to large masses of adult worms in the intestines. These masses can also cause complications such as volvulus, intestinal obstruction or intussusception.

Schistosomiasis: a variety of infections caused by blood flukes (schistosomes), which are transmitted to humans by exposure to infested water. The three main forms of infection – urinary, intestinal or hepatosplenic – vary with the species of schistosome but result mostly from reactions to the eggs deposited in tissues.

Sector-wide approach: an approach to international development that brings together governments, donors and other stakeholders within any sector. It is characterized by a set of operating principles rather than a specific package of policies or activities.

Sickle cell disease: a hereditary blood disorder characterized by red blood cells that assume an abnormal, rigid, sickle shape.

Skilled birth attendance: the practice of having a specifically trained health worker (doctor, nurse or midwife) to assist during labour and delivery, irrespective of where the birth actually occurs.

Soil-transmitted helminthiasis: refers to a group of parasitic diseases in humans caused by intestinal roundworms such as hookworms, ascaris and whipworm transmitted through contaminated soil. It has become the most common parasitic infection of humans worldwide and is regarded as one of the world's most important causes of intellectual and physical retardation.

Streptococcus pneumonia: Streptococcus pneumonia (*Streptococcus pneumoniae* or pneumococcus) is one of the most common causes of bacterial meningitis in adults and young adults, along with *Neisseria meningitides*.

Stroke: a sudden and severe attack caused by acute vascular lesions of the brain, such as haemorrhage, thrombosis or embolism, with functional consequences depending on the location and the extent of the lesion.

Stunted: not having gained full growth or development. Used to describe a child that is less than two standard deviations from the mean height for his or her age, due to chronic malnutrition.

Sub-Saharan Africa: geographically, the area of the continent of Africa that lies south of the Sahara Desert.

Tapeworm: a parasitic intestinal cestode worm. Most human infections are caused by eating undercooked pork or beef. Only the former can cause cysticercosis in humans, which may result in cysts in the brain.

Tetanus: caused by the bacterium *Clostridium tetani*, the spores of which are widespread in the environment. The disease is caused by the action of a neurotoxin, produced by the bacteria when they grow in the absence of oxygen (e.g. in dirty wounds or in the umbilical cord if it is cut with a non-sterile instrument). Tetanus is characterized by muscle spasms, initially in the jaw muscles. As the disease progresses, mild stimuli may trigger generalized tetanic seizure-like activity, which contributes to serious complications and eventually death unless supportive treatment is given.

Trypanosomiasis: a fatal infection caused by *Trypanosoma brucei gambiense* (or *T. brucei rhodesiense*) that is transmitted by the bite of tsetse flies. Also called sleeping sickness.

Tuberculosis: a widespread, and in many cases fatal, infectious disease caused by various strains of mycobacteria. Tuberculosis typically attacks the lungs but can also affect other parts of the body. It is spread when people with an active infection cough, sneeze, or otherwise transmit respiratory fluids through the air.

Vaccine: any preparation whose administration is intended for the prevention, improvement or treatment of infectious diseases by stimulating the formation of antibodies to specific pathogens or toxins.

Vector-borne disease: a disease that is transmitted by an animal, such as an insect, that transfers the pathogen from one organism to another (e.g. from animal to humans), usually without itself contracting the disease.

Vector control: control of the carrier, especially an animal (usually an arthropod: mosquito, flea, fly, tick), which transfers an infective agent from one host to another.

Virus: a minute infectious agent that can only replicate within living host cells.

Wasted: having lost flesh or strength, emaciated; abnormally thin from extreme loss of flesh; particularly a child who is less than two standard deviations from the mean weight for height.

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This is a report on the health of the people living in the African Region of the World Health Organization. It reflects a world that has undergone dramatic changes, with Africa as a continent becoming an increasingly important demographic and economic driver of global growth. Rapid economic growth, coupled with a young, growing population, wide uptake of technology, particularly mobile phone technology, and a burgeoning middle class, has led to a new view of the Region.

This report uses a wide range of data to show that the overall health of the people living in the Region has improved considerably in the past decade. Some of this has been due to demographic and economic change and to improved political stability. But much has also been due to sustained efforts to prevent illness and maintain good health, improve access to treatment when illness does occur, and find ways to deliver a better level of health care in the African context.

Achieving health is all about understanding context: applying the right approach in the right place at the right time for the right problem in the right people. By showing what works, this report reveals the shifting paradigm from reactive, disease alleviation strategies to proactive health and development promotion approaches. Common to all these changes is the underpinning idea that health is an outcome of all policies.

But much remains to be done in the Region. While the HIV epidemic is gradually getting under control, the recent and ongoing Ebola virus disease outbreak comes as a stark reminder that there is no place for complacency.

ISBN 978 929 023 261 2