Primary Health Care on the Road to Universal Health Coverage

2019 MONITORING REPORT

CONFERENCE EDITION

World Health Organization

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Foreword

This 2019 Global Monitoring Report comes out on the eve of the High-Level Meeting on Universal Health Coverage at the United Nations General Assembly. This level of political commitment is more welcome than ever because it is essential on three fronts. First, to accelerate progress in areas where we have seen improvements. Second, to remove the barriers that are slowing down access to health services in some countries and among certain populations. And finally, the message is clear – we must reverse the trend of increasing financial hardship on people when accessing essential health care.

On the upside, the report documents global progress in expanding access to essential health services. It shows that all regions and all income groups have made improvements, with lower income countries making the greatest gains. On the downside, poorer countries still lag behind, and the overall pace of progress is slowing.

The report also reveals that more people are incurring significant financial hardship to pay for essential health services. In countries with higher public expenditures on health, however, people are better protected.

For the first time, the report focuses on gender issues, shedding light on how gender norms and power influence access to health services. Having the right data, broken down in the right way, is giving us vital insights about who is being left behind and why, and highlighting where more investments are needed. We clearly must go beyond country averages that mask service delivery failures leaving those worst-off behind. The path to success starts with a solid commitment to focus on the most disadvantaged, beginning with women and girls.

As we celebrate the rising investments in health seen in the last few years, we must also emphasize the need to invest first and foremost in strong primary health care, with an emphasis on health promotion and disease prevention. Secondary and tertiary services are important parts of every health system, but no country can afford to rely on curative care. By promoting health and preventing disease, countries can prevent or delay the need for more expensive services. That increases the efficiency of health spending, saves lives and increases healthy life expectancy.

The report issues a clear call to action for governments in all countries to invest an additional 1% of their gross domestic product for primary health care, which can be achieved through additional investments or through efficiency and equity gains. Resources for health should be pooled, prepaid and managed efficiently. That is the surest way to move us closer to a world where everyone benefits from the human right to health. It is in our hands, and the hands of our political leaders, to make the right choices – economic, financial and social – to achieve universal health coverage by prioritizing investments in primary health care.

The goal of universal health coverage is ambitious. It is also achievable. Universal health coverage is first and foremost a political choice. That's why this year's High-Level Meeting is so important. Strong political commitment from world leaders is the essential ingredient for overcoming barriers and making progress on the road to a healthier, safer and fairer world.

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Executive summary

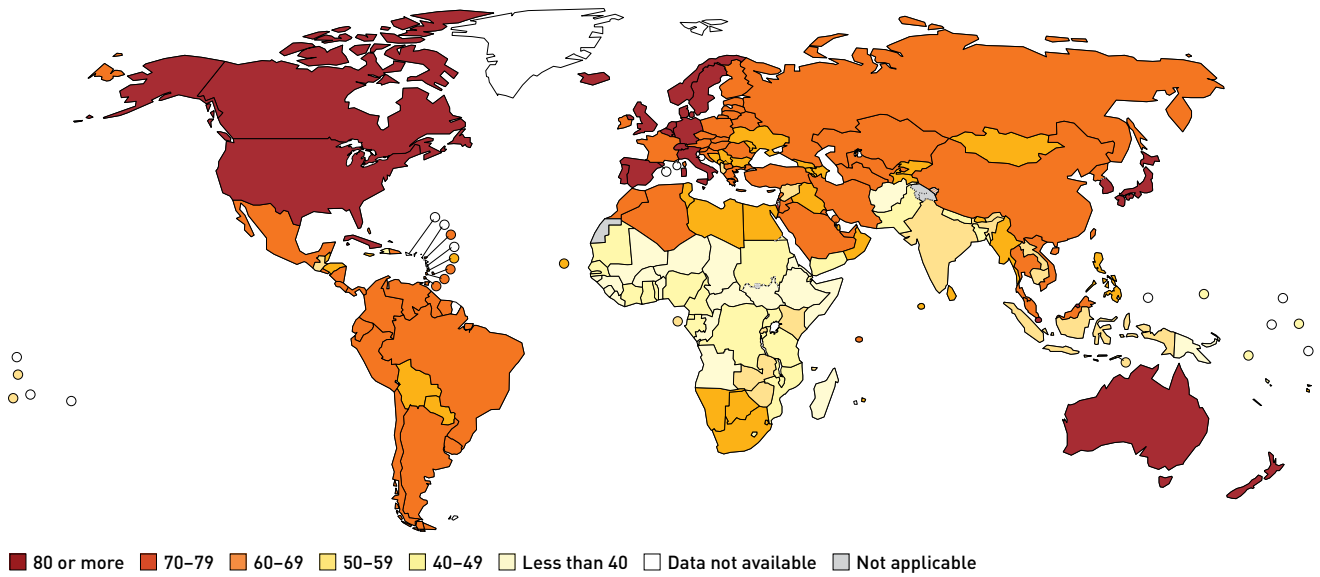
Assessing progress to set priorities

The 2030 Sustainable Development Goals emphasize having all people receive the quality health services they need without financial hardship. Critical to attaining universal health coverage (UHC) is a formal monitoring mechanism to assess progress. This report does just that. It highlights the global coverage of health services and financial protection. It also addresses gender and equity related challenges. And it identifies primary health care as the route to universal health coverage.

Service coverage improving – but not fast enough

The UHC service coverage index (SCI), measuring progress on SDG indicator 3.8.1, increased from a global average of 45 (of 100)

FIGURE 1 **Outside of high-income countries, country-level service coverage index (SCI) in 2017 varied within WHO regions**



Note: This map has been produced by the World Health Organization (WHO). The boundaries, colours or other designations or denominations used in this map and the publication do not imply, on the part of the World Bank or WHO, any opinion or judgement on the legal status of any country, territory, city or area or of its authorities, or any endorsement or acceptance of such boundaries or frontiers.
Source: WHO.

in 2000 to 66 in 2017. All regions and all income groups recorded gains (Figure 1). Progress has been greatest in lower income countries, starting from a lower base and mainly driven by interventions for infectious diseases and, to less extent, for reproductive, maternal, newborn and child health services. But the poorest countries and those affected by conflict generally lag far behind. In absolute numbers, middle income countries account for the largest population lacking coverage of essential health services in 2017.

The pace of progress needs to accelerate

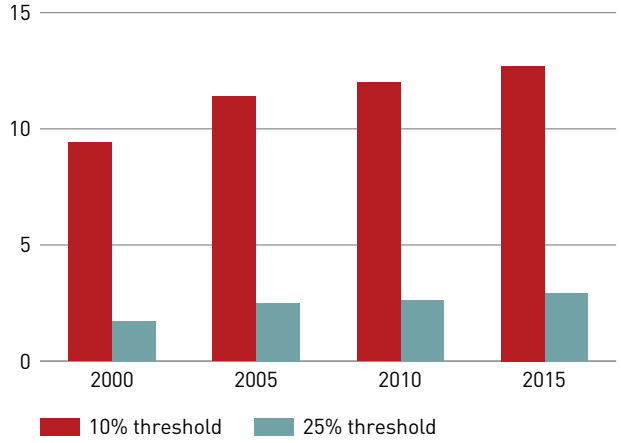
Globally and for many countries, the pace of progress has slowed since 2010. Progress requires considerable strengthening of health systems to provide UHC, particularly in lower income settings. Such improvements should also address slower gains related to noncommunicable disease services. In 2017, between one-third and half the world's population (33% to 49%) were covered by essential health services. The number of people covered during the SDG era (2015–2030) is projected to increase by 1.1 to 2.0 billion, but this trend is offset by population growth. So, the percentage of people covered could rise more slowly. If current trends continue to 2030, it is projected that 39% to 63% of the global population will be covered by essential health services. Therefore, progress must markedly accelerate – and coverage needs to double – to reach the SDG target of UHC for all by 2030.

Financial protection – going in the wrong direction

The gains in service coverage have come at a major cost to individuals and their families. The incidence of catastrophic health expenditure (SDG indicator 3.8.2), defined as large out-of-pocket spending in relation to household consumption or income, increased continuously between 2000 and 2015. The proportion of the population with out-of-pocket spending exceeding 10% of their household budget rose from 9.4% to 12.7%, and the proportion with out-of-pocket spending exceeding 25% rose from 1.7% to 2.9% (Figure 2). So about 930 million people spent more than 10% of their household income on health care in 2015, and about 210 million people spent more than 25%. Based on a relative poverty line, defined as 60% of median daily per capita consumption or income, the percentage of the population impoverished by out-of-pocket health spending increased from 1.8% in 2000 to 2.5% in 2015 (Figure 3). Overall, financial

FIGURE 2 **Globally, financial protection against out-of-pocket health spending decreased continuously between 2000 and 2015, as tracked by Sustainable Development Goal indicator 3.8.2 on catastrophic health spending**

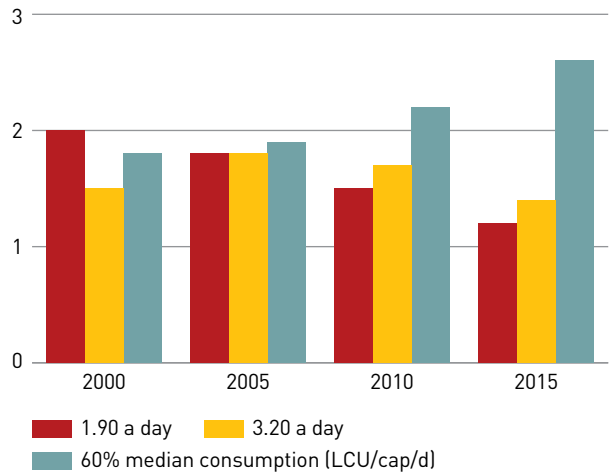
Percentage of the population (SDG indicator 3.8.2) with out-of-pocket health spending exceeding 10% or 25% of the household budget



Source: WHO, World Bank (2019). Global monitoring report on financial protection in health 2019. World Health Organization and International Bank for Reconstruction and Development/The World Bank; 2019. Licence: CC BY-NC-SA 3.0 IGO.

FIGURE 3 **Globally, the population impoverished by out-of-pocket health spending is increasing at the relative poverty line of 60% of median daily per capita consumption or income although decreasing at the $1.90 and $3.20 a day absolute poverty lines**

Percentage of the population



Source: WHO, World Bank (2019). Global monitoring report on financial protection in health 2019. World Health Organization and International Bank for Reconstruction and Development/The World Bank; 2019. Licence: CC BY-NC-SA 3.0 IGO.

protection is deteriorating not improving – although countries with more public investments in health tend to fare better.

Weak health systems combine with socioeconomic factors to impede coverage

Factors in and beyond the health system influence patterns of service use and often intersect. Inadequate basic infrastructure, human resource gaps, poor quality services, and low trust in health practitioners and medical authorities remain barriers to achieving UHC. In addition, socioeconomic factors exert a major influence over access to health services and ultimately health outcomes. Poor people have lower coverage even for basic services such as immunization, sanitation and antenatal care. For these basic services, rural areas generally have lower coverage than urban areas, but in some regions, such as the Western Pacific, the poorest quintile of the population now has lower coverage in urban areas than in rural areas.

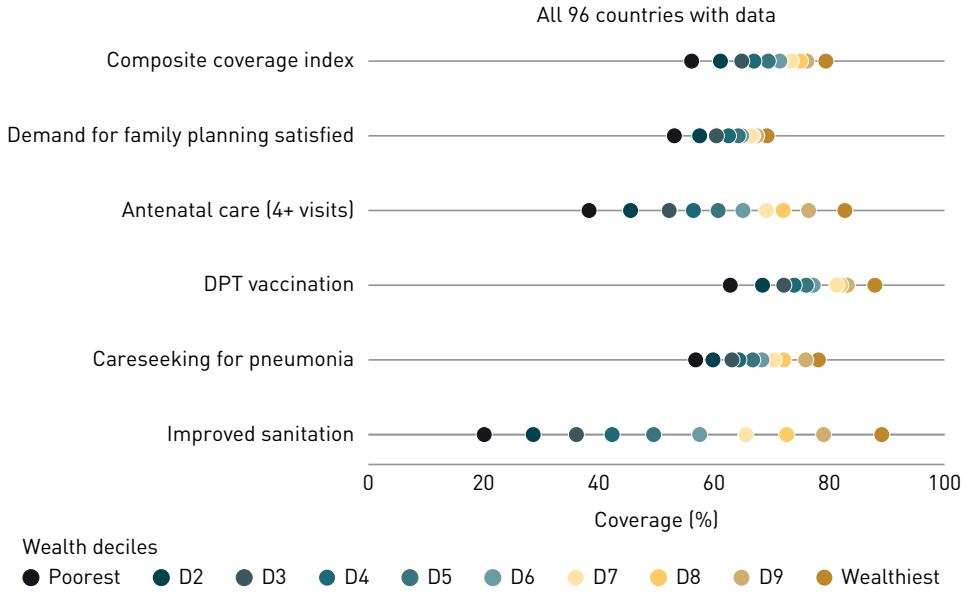
Gender drives health service access and health-seeking behaviour

Access to sexual, reproductive and child health care services is improving, but many women and children are still not being reached (Figure 4), especially in the African Region. Coverage is also lower among women living in poverty and in rural areas. Noncommunicable diseases are increasing for both men and women, accounting for over 70% of all deaths. Gender norms and power relations influence women's access to health services and timely diagnosis, while harmful notions of masculinity and aggressive marketing of tobacco and alcohol increase men's risk taking and reduce their willingness to use health services.

Close the data gaps to identify health investment priorities

The weakness of global and especially country health information systems leaves data gaps for most countries – on service coverage, on financial protection and on gender and equity markers. Indeed, the average coverage indicators mask substantial within-country variation across different socioeconomic groups. Stronger country data systems are thus needed to determine not only the percentage of people using a service but also the need and quality of those services. More data are needed on both service coverage and financial protection for

FIGURE 4 **Use of reproductive, maternal and child health services is worse in poorer households than in richer households**



Note: Includes 96 countries with a Demographic and Health Survey or Multiple Indicator Cluster Survey, latest survey for each country, 2010-2017. Estimates are averages of country values weighted by population.
Source: Demographic and Health Surveys and Multiple Indicator Cluster Surveys.

the peri-urban poor, for migrants and refugees and for other marginalized populations. And methods have to be devised to assess real-time improvements in health system performance.

Policy priorities for four country groups

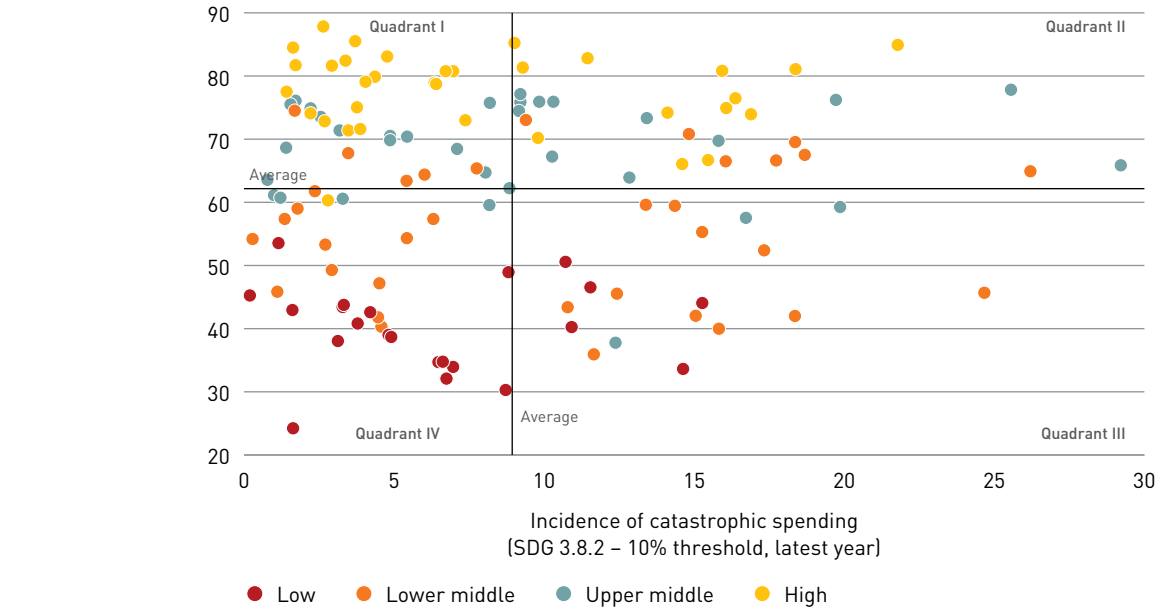
While detailed contextual and political economy analysis is required by country before making policy prescriptions, our analyses of service coverage and financial protection reveal four broad categories of countries, with distinct implications for policy (Figure 5).

- For high and upper middle-income countries, with high service coverage and low financial hardship, the major challenge is to continue to make efficiency, quality and equity gains.
- For lower middle-income countries, with high service coverage but high levels of financial hardship, ensuring inclusive, universal mechanisms to protect against high out-of-pocket spending will be the key challenge.
- Countries with low service coverage and high financial hardship need comprehensive reform of both their service delivery and health financing arrangements, giving priority to addressing inequities.
- Countries with low service coverage and low financial hardship, mainly highly vulnerable and conflict-affected states, need to build the foundations of their health systems, including human resources, supply chains and infrastructure.

Primary health care – the engine for UHC

Primary health care provides the programmatic engine for UHC in most contexts, if not all. It reflects the right priorities and is a critical milestone along the road to achieving UHC targets. Emphasizing community empowerment and social accountability, it is multisectoral with links to education, nutrition and water and sanitation. It provides a platform for integrating previously separate services for communicable diseases with those for women and children's health and noncommunicable diseases, for addressing both the demographic and epidemiological challenges facing most countries, and for innovations such as digital health. And it remains the most cost-effective way to address comprehensive health needs close to people's homes and communities.

FIGURE 5 **Countries are at different stages in service coverage and financial protection**



Note: SDG 3.8.1 values and income group classification for 2015. SDG 3.8.2 estimates for the most recent year available. Income-group classification of 2015.
Source: SDG 3.8.2 Global database on financial protection assembled by WHO and the World Bank: http://apps.who.int/gho/portal/uhc-financial-protection-v3.jsp SDG 3.81 September 2019 Global database on UHC service coverage assembled by WHO: http://apps.who.int/gho/portal/uhc-service-coverage-v3.jsp.

Funding from domestic resources and better targeted aid

To achieve the targets for primary health care requires an additional investment of around US$ 200 billion a year, and to achieve UHC requires another US$ 170 billion a year for a more comprehensive package. These amounts may appear significant, but they would represent only about a 5% increase beyond the US$ 7.5 trillion already spent on health globally each year. Scaling up primary health care interventions across low and middle-income countries could save 60 million lives and increase average life expectancy by 3.7 years by 2030; investing in broader health systems would save close to 100 million lives.

Most countries could reach the targets by raising domestic resources to increase public spending on health, by reallocating spending towards primary health care, or by doing both. The key is to improve domestic tax and revenue performance in line with the Addis Ababa Action Agenda, to increase government revenues. All countries should immediately allocate or re-allocate at least an additional 1% of GDP to primary health care. But for the poorest countries, including many affected by conflict, this may be neither feasible nor sufficient. To be avoided are approaches to health financing that may bring in additional resources but that further fragment systems and become obstacles to UHC rather than enablers. Instead, humanitarian and development assistance for health, as well as long-term technical assistance, must increasingly be focused on low income countries, developing, evaluating and expanding new and innovative models of service delivery and system strengthening.

UHC is, after all, a political choice

The UHC goals are ambitious but achievable. Progress must be urgently accelerated, and primary health care provides the means to do so. In addition, major global health actors are increasingly aligned, under initiatives such as the Global Action Plan to Reach SDG 3, to support countries in a more systematic and coherent way. To ensure that every person benefits from the human right to health, political leaders have to make the right choices, the rational economic, financial and social choices for UHC.

Introduction

Health is a long-term investment in human capital needed to fully realize human potential by contributing to the protection and empowerment of all people. The world has made major health gains over recent decades – with longer life expectancies, lower maternal and child mortality rates and successful campaigns against major diseases. This achievement stems from the efforts of individual countries and the international community to improve the quality of health care and to make it accessible to all.

The goal of universal health coverage (UHC) has become more attainable as the world has become richer, leading to greater access to health services and technologies, such as vaccines and antibiotics, and to the most dramatic decline in poverty ever achieved.

Health services provide benefits beyond health

Ensuring access to health services for all has many benefits beyond contributing to health. UHC means that all people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services they need without fear of financial hardship. UHC is a social contract – a pillar of social cohesion and solidarity between the healthy and the sick and between the rich and the poor. By offering financial protection, UHC is at the core of the social safety net. It also contributes to economic growth and employment – particularly for women – increasing the growth rate of low- and middle-income countries by up to 2 percentage points.[1]

Most countries now pursue universal coverage

Following the commitments agreed to at the United Nations Sustainable Development Summit in 2015, which included attaining UHC by 2030, most countries have pursued change. About 75 countries have enacted UHC legislation.[2] Since 2015, many countries – including Kenya, India, Indonesia and South Africa – have developed policy frameworks and committed new resources to expanding health services. And all Eastern Mediterranean countries have signed the Salalh declaration[3] signaling their firm commitment to UHC, committing to boost investment in institutions for UHC policy and implementation.[4]

Still, many poor people and poor countries are being left behind, and new threats are emerging

Despite all this movement, progress needs to be accelerated. On current trends, UHC will not be achieved by 2030, leaving poor people and poor countries behind. And new threats are emerging. The resurgence of diseases old and new, some linked to environmental degradation. The risk of pandemics and the health consequences of climate change. And the rising global burden of noncommunicable diseases, which account for more than 70% of deaths among people ages 30–70.

Progress requires understanding the barriers and gaps

To attain true UHC, we need not only to measure the gains in health service coverage but also to understand the barriers to access and the large gaps that remain. Only with this information can local and global decision-makers effectively target the resources and policies to advance towards UHC, ensuring access for all people, regardless of where they live.

More and better support is needed from the global community

The 2030 Sustainable Development Goals (SDGs) set targets for creating an enabling environment to support country paths to UHC. Meeting these targets by 2030 will require a fundamental shift from business-as-usual commitments towards impact-driven country actions. Monitoring trends and patterns in UHC service coverage across countries is critical to ensure equitable, affordable access to effective health services that leave no one behind. Global agendas – the WHO 13th General Programme of Work for 2019–2023,[5] the SDG Global Action Plan[6] and the UHC2030 coalition of countries – call for all stakeholders, including international agencies and civil society groups, to better coordinate and support country progress towards the SDG health targets.[7]

The 2019 global monitoring report on progress towards UHC

This monitoring report analyses advances and impediments to multiple dimensions of UHC. It is the product of a collaborative process led by WHO in collaboration with four partner agencies: United Nations Population Fund, United Nations Children's Fund, Organisation for Economic Co-operation and Development and the World Bank.

In their 2017 declaration, the G20 ministers of health invited the WHO to identify appropriate indicator frameworks and to monitor progress on health systems strengthening and UHC worldwide, working jointly with the World Bank, the OECD and other relevant stakeholders.

The framework used in this report builds on two SDG UHC indicators:

- 3.8.1 captures the population coverage dimension of UHC (that everyone – irrespective of their living standards – should receive the health services they need).
- 3.8.2 captures the financial protection dimension of UHC (use of health services should not lead to financial hardship) (Box 1).

Both indicators must be measured together to capture the complete picture.

WHO is the designated custodian agency for both SDG 3.8 indicators, with the United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA) and United Nations Department of Economic and Social Affairs (UN DESA) Population Division as partner agencies for 3.8.1, and with the World Bank for 3.8.2.

Progress towards UHC means that more people – especially the poor, who are currently at greatest risk of not receiving needed services – get the services they need. Implicit in the definition of UHC is that the services are high quality, ensuring that people are diagnosed correctly and receive the interventions currently agreed to as necessary. Progress towards UHC means lowering barriers to seeking and receiving needed care: such as distance,

BOX 1

Definitions of UHC, SDG target 3.8, and SDG indicators 3.8.1 and 3.8.2

Universal health coverage means that all people receive the health services they need, including public health services designed to promote better health (such as anti-tobacco information campaigns and taxes), prevent illness (such as vaccinations), and to provide treatment, rehabilitation and palliative care (such as end-of-life care) of sufficient quality to be effective, while at the same time ensuring that the use of these services does not expose the user to financial hardship.

SDG target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all.

SDG indicator 3.8.1: Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health; infectious diseases; noncommunicable diseases; and service capacity and access; among the general and the most disadvantaged population).

SDG indicator 3.8.2: Proportion of population with large household expenditures on health as a share of total household expenditure or income.

out-of-pocket payments, poorly equipped facilities and poorly trained health workers.

But UHC also means that getting needed health services is associated less and less with financial hardship. People receiving health services should still able to afford food and other necessities, and do not place their families at risk of poverty by getting the care they need.

Building on the 2015 and 2017 Global Monitoring Reports, this report highlights the advances towards UHC and the remaining impediments.[8] Chapter 1 analyses the progress in population coverage of health care services between 2000 and 2017 across regions and countries and establishes the SDG baseline of 2015. Chapter 2 analyses financial hardship through measurements of catastrophic spending and impoverishment. Chapter 3 drills down on the underlying equity and gender challenges hampering progress on UHC. And chapter 4 outlines a way forward for countries to accelerate progress by taking the primary health care route, examining health system barriers to effective coverage and concludes with a focus on the policy and financing implications.

Both good news and bad news

This 2019 Global Monitoring Report on progress on UHC offers both good news and bad news. On one hand, the world continues to make progress on access to health care particularly on population coverage with maternal and child health services and services preventing and responding to infectious diseases. On the other hand, however, progress is too slow to reach the SDG coverage target and will need to accelerate, particularly in Africa and in low income countries. Mixed improvements in protecting people from financial hardship. More people incur catastrophic health spending and relative impoverishment due to out-of-pocket health spending but fewer people are pushed into extreme poverty by out-of-pocket health spending. Financial hardship. This particularly affects Asia and middle income countries, signaling the importance of channeling any additional resources for health care through compulsory pooled prepayment mechanisms as countries become richer. In any case, UHC cannot be achieved by expanding service coverage at the expense of cost coverage. That makes it urgent to develop better policies for financial protection in health to ensure that people have access to the service they need without financial hardship.

Future directions of work

Countries need to invest more in their data systems and foster country-based and participatory processes to analyze barriers to access and better understand the cascade of bottlenecks that hamper progress. Stronger country data systems can determine not only the percentage of people using a service but also the quality and effectiveness of those services – without financial hardship. More and better data are especially needed on both service coverage and financial protection for the peri-urban poor, for migrants and refugees and for other marginalized populations – to ensure that no one is left behind. And methods have to be devised to assess real-time improvements in health system performance. Country monitoring should also be increasingly expanded to collect and analyze cascades of service coverage indicators and measuring effective coverage. At the same time health information systems and the broader information system need to be better integrated for routine monitoring of both dimensions of UHC, particularly strengthening expenditure tracking systems to better link money and results.

Realizing the right to health care is possible

All countries can achieve some level of health care universality by making better use of the resources they have and by increasing public spending on primary health care to gradually expand access to services and reduce out-of-pocket spending. The UHC goals are ambitious but achievable. Progress must be urgently accelerated, and primary health care provides the means to do so. Major global agencies stand ready to support initiatives such as the Global Action Plan to Reach SDG 3 and to support countries in a more systematic and coherent way. To ensure that every person benefits from the human right to health, political leaders have to make the right choices, the rational economic, financial and social choice of universal health coverage.

Notes

1. https://www.who.int/universal_health_coverage/road-to-uhc/en/.
2. Feigl AB, Ding EL. Evidenced Formal Coverage Index and universal healthcare enactment: A prospective longitudinal study of economic, social, and political predictors of 194 countries. Health Policy 2013; 113.

3. http://www.emro.who.int/health-topics/uhc/index.html.
4. https://www.uhc2030.org/our-mission/global-compact/.
5. https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf/.
6. https://www.who.int/sdg/global-action-plan.
7. WHO and World Bank. Healthy systems for universal health coverage: a joint vision for healthy lives. Geneva and Washington, DC: World Health Organization and World Bank, 2017. https://www.uhc2030.org/our-mission/joint-vision/.
8. WHO and World Bank. Tracking universal health coverage: 2017 Global Monitoring Report. Geneva and Washington, DC: World Health Organization and World Bank, 2017. WHO and World Bank. Tracking universal health coverage: first global monitoring report. Geneva and Washington, DC: World Health Organization and World Bank, 2015. http://www.who.int/healthinfo/universal_health_coverage/report/2015/en/.

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Monitoring population coverage with health services: SDG 3.8.1

Key messages and metrics

- The UHC service coverage index (SCI) improved from 2000 to 2017, but globally and for many countries, the pace of progress has slowed since 2010. Accelerating, or even maintaining, historical rates of progress will likely require substantially greater investments in broader health system capacities and scaling up current and new services aligned with health needs across the life course.
- Progress has been uneven both globally and by income group. Rapid improvements in coverage of infectious disease, particularly since 2005, were among the main contributors to increases in the UHC SCI. Relatively little change on noncommunicable disease and service capacity subcomponents is behind the stalling progress, particularly in low-income countries.
- To reach UHC (SDG target 3.8.1) progress must markedly accelerate. In 2017, nearly half the world's people (33% to 49%) were covered by essential health services. The number to be covered in the SDG era (2015–2030) is projected to increase, by 1.1 to 2.0 billion, but the trend is offset by population growth, so the percentage of people covered rises more slowly. If current trends continue to 2030, only 39% to 63% of the global population will be covered by essential health services. To reach the SDG target of UHC by 2030, coverage needs to at least double.
- Further progress requires a sharper focus on people left behind today. Low-income countries saw the lowest percentage of people fully covered by essential health services in 2017 (12% to 27%). Yet due to their population size, lower-middle-income countries had the most people who lacked full coverage (about 1.9 to 2.4 billion). Strengthening health systems to respond to health needs across the life course are crucial for ensuring that more people, in every country, can benefit from the health services they need.
- Data gaps on service coverage limit countries' ability to monitor progress on the ground. From 2013 to 2017, countries had data on only 40% of 14 tracer indicators, data on noncommunicable diseases among the main challenges. Data availability beyond national levels – disaggregated by geography, sex, age, race/ethnicity, migratory status, among others – is likely to be even more limited, further stressing the need to invest in disaggregated data collection.

The overarching aim of universal health coverage (UHC) is for all people who need health services to receive high-quality care without financial hardship. To make progress toward that goal, we have to understand where gains in service coverage have occurred and where gaps remain. Such information informs local and global decision-making and enables targeting resources and policies to ensure UHC.

This chapter summarizes updated results on the UHC service coverage index (SCI)

measuring progress towards SDG 3.8.1 and its component tracer indicators, based on the most recently available data and agreed upon methods *(1)*. The 14 UHC SCI tracer indicators, which span essential health service domains from reproductive and child health to noncommunicable diseases (NCDs) and service capacity, signal how health service coverage is improving or stalling throughout the world. Further, due to an expanded UHC SCI dataset since the *2017 Global Monitoring Report (1)*, trends from 2000 to 2017 are presented on the overall index and the health service subcomponents. Examining these past trends can identify possible drivers of success and areas that may hinder future progress.

The chapter also examines potential trajectories for UHC beyond 2017. Such projections suggest starting points for determining the progress needed to achieve UHC by 2030, against the WHO goal of 1 billion more people benefiting from UHC between 2018 and 2023 *(2)*, and the Sustainable Development Goal aim of achieving UHC for all by 2030 *(3)*.

Monitoring UHC progress in the SDG era: the service coverage index

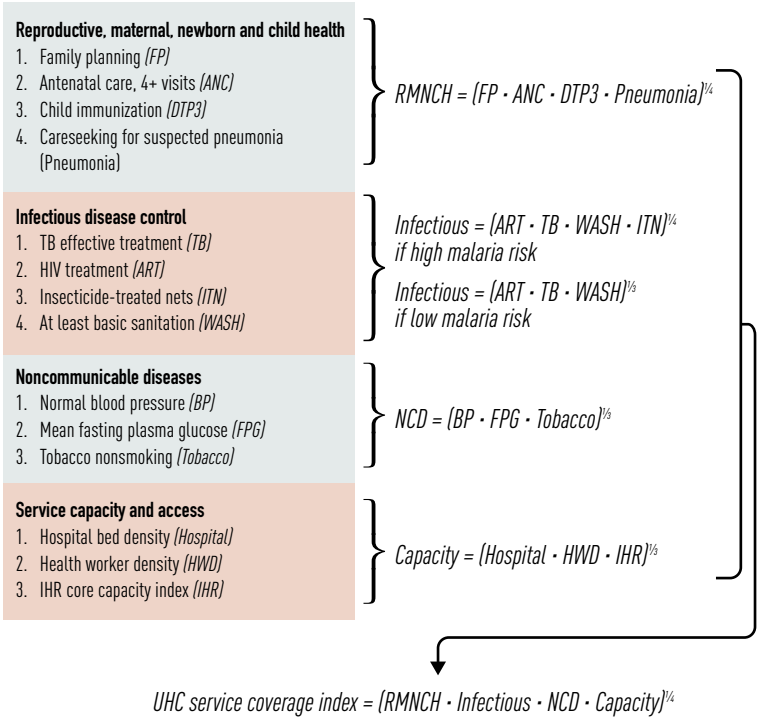
The UHC SCI, which is the official measure for SDG indicator 3.8.1 *(4)*, was developed as part of a multiyear process that included global reviews, country case studies, consultations with health officials, and a formal WHO country consultation with member states in 2017. A full description of the index's development and calculation is in Annex A1.2 and in the *2017 Global Monitoring Report (1, 5, 6)*. In April 2018, the Inter-Agency Expert Group on Sustainable Development Goal Indicators formally accepted the methods and the 14 tracer indicators for monitoring SDG 3.8.1 *(7)*.

The UHC SCI is the average coverage of tracer indicators in four essential health service areas: reproductive, maternal, newborn, and child health, infectious diseases, noncommunicable diseases, and service capacity and access (Figure 1.1). It is constructed from geometric means of the 14 tracer indicators – first within each of the four areas, and then across the four category-specific means to obtain the final summary index. The 14 indicators are not meant as a complete or exhaustive list of health services and interventions covered in a given country's UHC programmes, nor do they measure the health impact of these services. But they do provide a strong signal on the coverage of health services needed by most populations across sociodemographic settings.

Individual indicators have been proposed as alternative intervention measures for the UHC SCI *(1,6)*, such as coverage of measles-containing vaccine and second doses diphtheria, tetanus, pertussis, rather than three doses (DTP3). But in testing the effects of substituting for alternatives five UHC SCI indicators (Annex A1.1), the overarching results do not vary from the approved 14 indicator methodology *(8)*.

Calculated for 183 Member States (Annex A1.1), the UHC SCI is presented on a scale of 0 to 100, since service coverage is typically measured on a scale of 0 to 100%, with higher scores indicating better performance. So, nearing or reaching 100 on the index can be interpreted as meeting the SDG target. Geometric means are used rather than arithmetic means as they favour equal coverage across services as opposed to higher coverage for some services at the expense of others. Because the index is based on geometric means and involves scaling non-intervention coverage tracer indicators, reported values do not directly translate to the percentage of the population covered by UHC services (see Annex A1.2 for more detail). But they can be viewed as performance scores.

FIGURE 1.1 The UHC service coverage index (SCI): summary of tracer indicators and computation



Note: For more detail on UHC SCI calculation methods, see Annex A1.2.

Current data availability for monitoring UHC service coverage

From January to June 2019, WHO programmes, regions, and collaborating institutions were contacted about the latest available data or estimates for the 14 UHC SCI tracer indicators. National statistical offices and ministries of health were then asked to review indicator data and provide updates where possible. All such data can be found in the WHO Global Health Observatory: http://apps.who.int/gho/portal/uhc-overview.jsp.

From 2013 to 2017 – the most recent 5-year period for this analysis – countries had data for an average of only 40% of the 14 UHC SCI indicators (Figure 1.2). While many countries in the WHO Africa and Western Pacific Regions are categorized as having low data availability, several countries in these regions also had among the highest data availability in recent years. No country had recent data on more than 70% of UHC indicators (10 or more of the 14). Across the development spectrum, a lack of recent data on noncommunicable disease tracers was a major obstacle in increasing the data available in recent years.

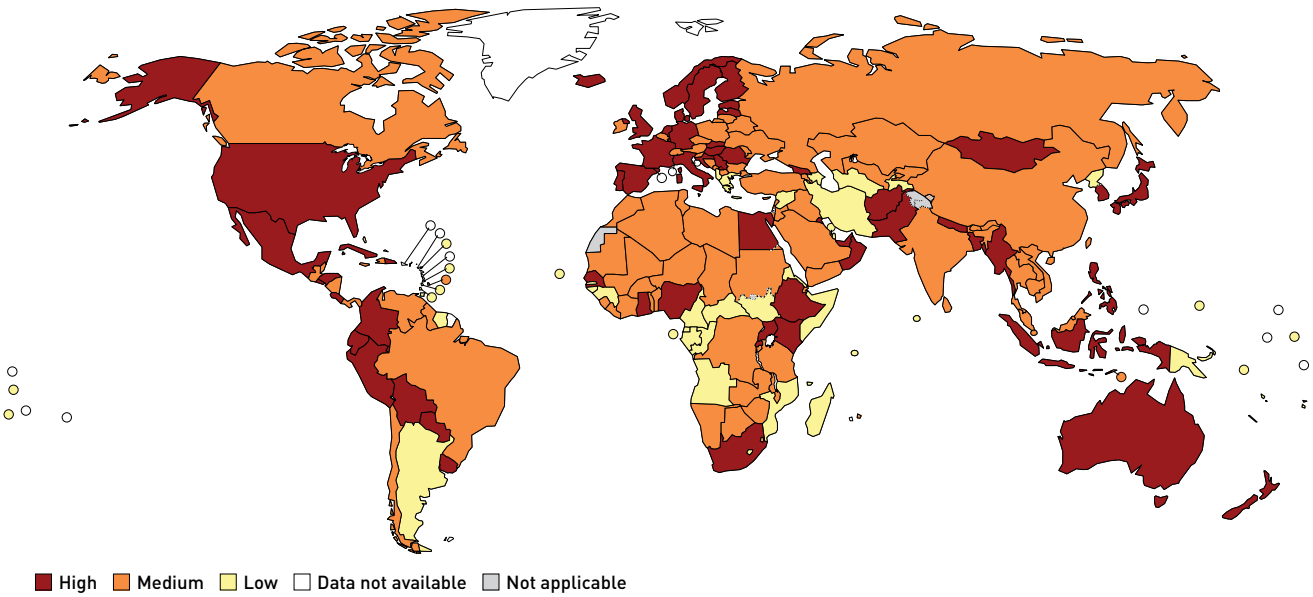
Due to varying data gaps across UHC SCI tracer indicators, it is necessary to use different imputation approaches to approximate indicator values for countries lacking primary data. Imputation is done in three ways. First, for some indicators, validated models to produce estimates for all country-years or for country-years with missing data. This approach was applicable for family planning *(9)*; DTP3 *(10)*; antiretroviral therapy (ART) coverage for people living with HIV *(11)*; tuberculosis case detection and treatment *(12)*; insecticide-treated net (ITN) use *(13)*; access to at least basic sanitation *(14)*; prevalence of nonelevated blood pressure *(15)*; mean fasting plasma glucose (FPG) *(16)*; and prevalence of tobacco non-use *(17)*. Second, for other indicators, values are linearly interpolated between available data points, and the latest reported value is applied to subsequent years when no newer data are available. This approach was used for antenatal care, at least four visits (ANC4); care-seeking for suspected pneumonia; hospital beds per 10,000; health worker density; and International Health Regulation scores. Third, if no data points exist for an indicator for a country, a value is imputed from countries with similar characteristics (WHO region or World Bank income group) (see Annex A1.2).

Trends in UHC service coverage

Globally, the UHC SCI improved from 2000 to 2017, rising from an average of 45 (of 100) in 2000 to 66 in 2017, for an average increase of 2.3% a year since 2000 (Figure

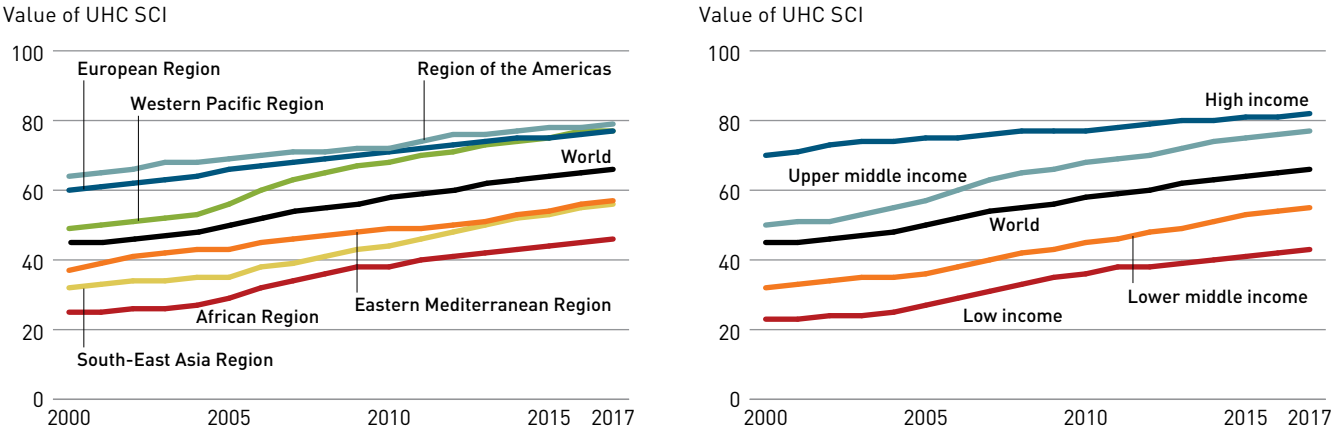
FIGURE 1.2 **From 2013 to 2017, countries had data for an average of 40% of the 14 UHC SCI indicators**

UHC data availability, 2013–2017



Note: This map has been produced by the World Health Organization (WHO). The boundaries, colours or other designations or denominations used in this map and the publication do not imply, on the part of the World Bank or WHO, any opinion or judgement on the legal status of any country, territory, city or area or of its authorities, or any endorsement or acceptance of such boundaries or frontiers. For the purpose of categorization, data availability is considered to be low if it is less than 35%, medium if it is 35%–44%, and high if it is more than 45%.

FIGURE 1.3 **The UHC SCI improved from 2000 to 2017 in all WHO regions and World Bank income groups**



1.3). Improvements in the index were seen in all WHO regions (Figure 1.3a), with the WHO Western Pacific Region recording the largest absolute gain (49 in 2000 to 77 in 2017), and the WHO African Region had the fastest average increase per year (3.6%).

In 2017, the lowest average UHC SCI values were in the WHO African Region (46), and the highest in the Region of the Americas (79), and the European (77) and Western Pacific Regions (77). Even so, regional averages can conceal inequalities, with some regions with relatively high overall scores still having some countries with low values (Figure 1.4).

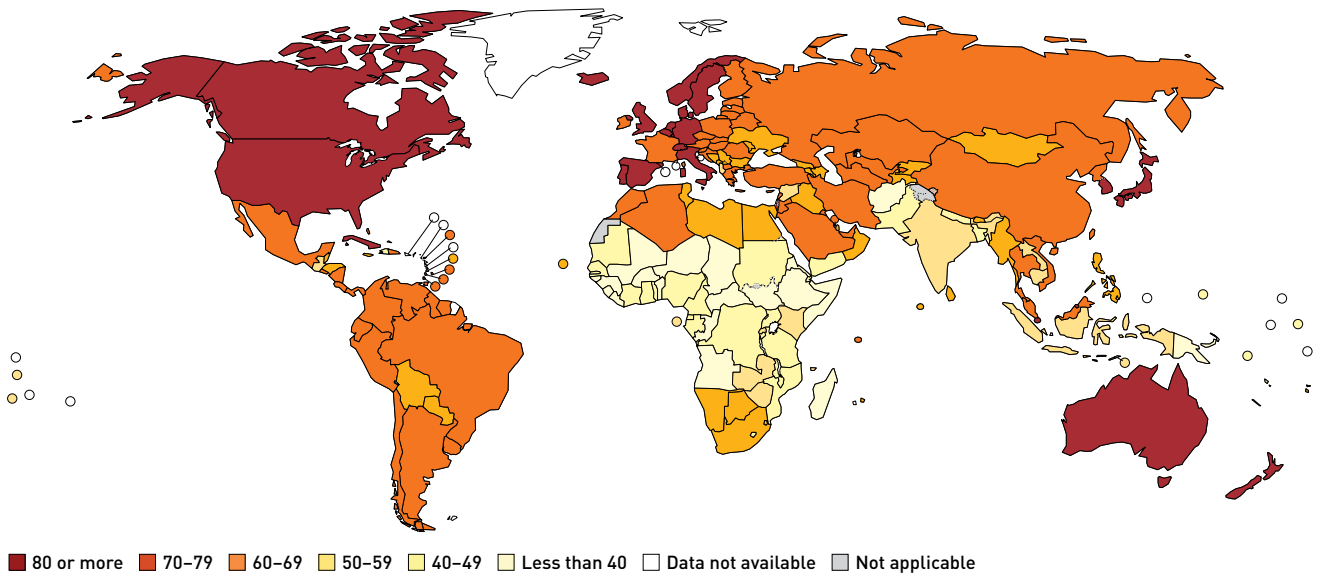
All World Bank income groups also demonstrated improvements on the UHC SCI since 2000 (Figure 1.3b). High-income countries had the slowest annual rate of improvement on the SCI from 2000 to 2017, an average of 0.9% a year, but they generally had the highest initial values of UHC SCI in 2000 and thus potentially less room for substantial increases. Low-income countries experienced the fastest progress during this time, with an average annual increase of 3.7% .

Trends across UHC service coverage domains

Globally, the infectious disease component of the UHC SCI improved the fastest, with a pronounced acceleration around 2005 (Figure 1.5). Among the indicators in the UHC SCI infectious disease component, faster

FIGURE 1.4 **Country-level UHC SCI values in 2017 varied – often substantially – within WHO regions**

UHC SCI, 2017



Note: This map has been produced by the World Health Organization (WHO). The boundaries, colours or other designations or denominations used in this map and the publication do not imply, on the part of the World Bank or WHO, any opinion or judgement on the legal status of any country, territory, city or area or of its authorities, or any endorsement or acceptance of such boundaries or frontiers.

improvements on insecticide-treated net use – and on antiretroviral therapy for people living with HIV – likely drove progress *(11, 13)*. The service capacity and access component appeared to have the slowest gains. However, persistent data gaps over time and the use of conservative methods of imputation may have affected the ability to measure changes in this component.

Low- and lower-middle-income countries had the lowest values of the reproductive, maternal, newborn, and child health (RMNCH) and infectious disease components of the UHC SCI from 2000 to 2017, while high-income countries had the highest (Figures 1.6a and 1.7a). But gaps between these income groups narrowed by 2017, as annual rates of progress on these subindices were much faster for low- and lower-middle income countries (Figures 1.6b and 1.7b). Expanding vaccination coverage, in addition to introducing and quickly scaling up ITN use and ART coverage in the mid-2000s *(10, 11, 13)*, likely contributed to such gains among lower income groups.

For the noncommunicable disease component, no income group demonstrated particularly pronounced progress since 2000 (Figure 1.8a), but high-income countries showed somewhat faster gains than the other income groups. The slightly higher scores for low-income countries during earlier years, especially relative to high-income countries, may at first glance seem counterintuitive. In addition to the scaling assumptions to translate NCD measures into proxy coverage indicators (Annex A1.2), this pattern may be at least partly driven by the use of prevalence-based metrics rather than more direct measures of service coverage (Box 1.1). For high-income countries, faster gains since 2000 may be related to advances in tobacco control *(17)* and sizable reductions in the population-level prevalence of elevated blood pressure *(15)*. Although several factors can affect blood pressure, it is likely higher rates of diagnosis, treatment, and control of hypertension, as found in higher income countries relative to lower income countries *(18, 19)*, played a role. Further, a number of countries – particularly at low and lower-middle incomes – experienced deteriorating performance on the NCD component over time. This pattern may reflect rising noncommunicable

FIGURE 1.5 Of the index's four components, infectious disease coverage improved the fastest globally

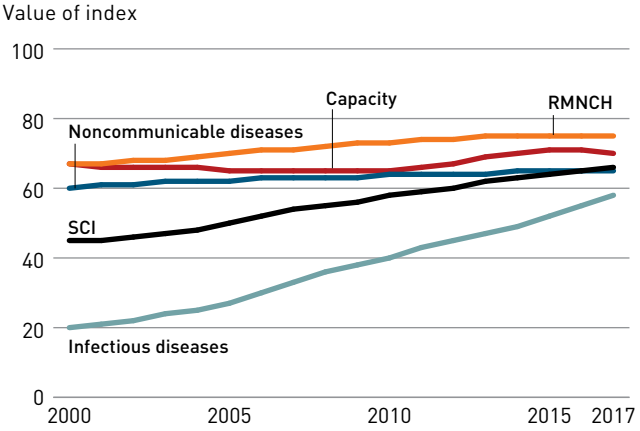
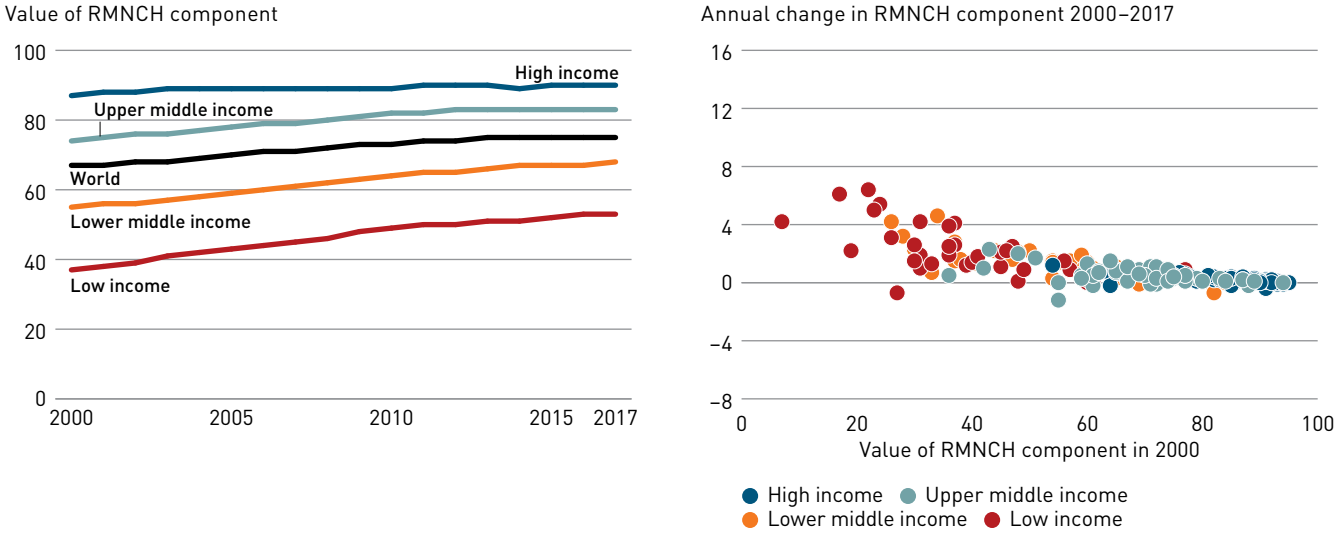
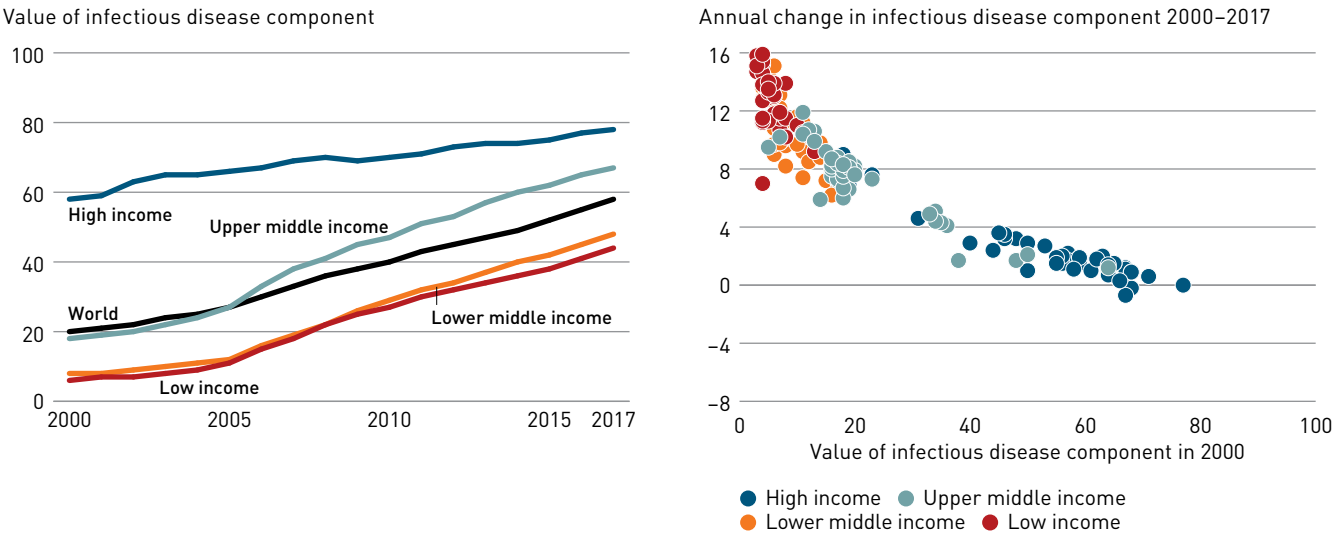


FIGURE 1.6 The reproductive, maternal, neonatal, and child health subcomponent of the UHC SCI improved the fastest in low-income countries



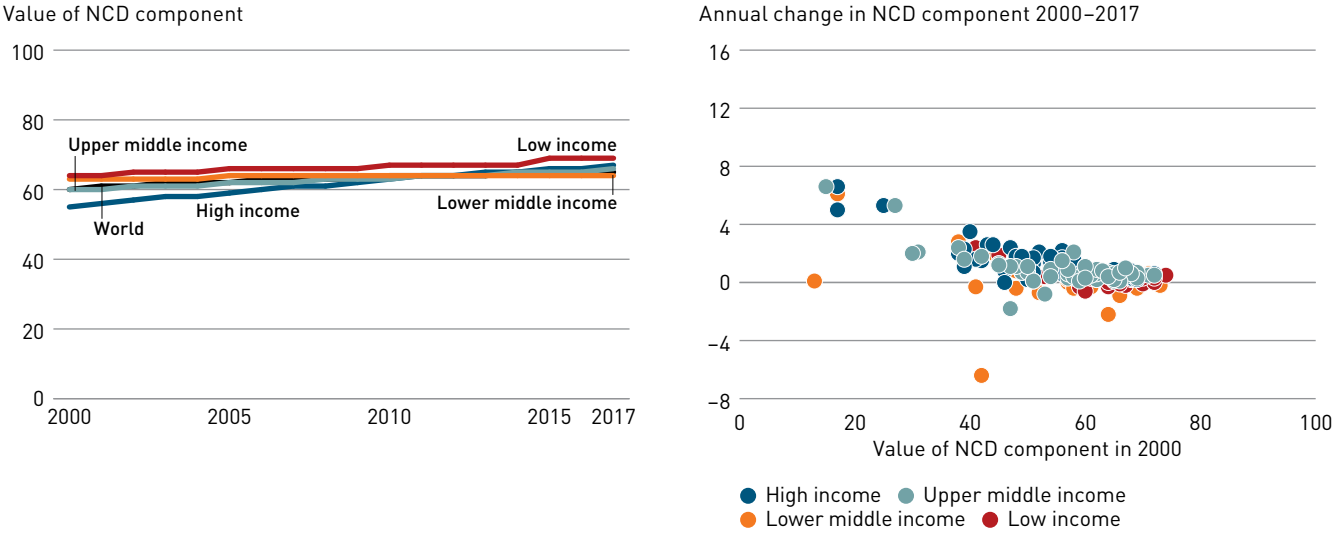
Note: Each circle represents a country and UHC SCI index values (x-axis) are for 2000.

FIGURE 1.7 Since 2000, the infectious disease component of the UHC SCI increased fastest in low- and low-middle income countries



Note: Each circle represents a country and UHC SCI index values (x-axis) are for 2000.

FIGURE 1.8 While absolute progress on the noncommunicable disease UHC SCI component was not large for any income group, high-income countries saw somewhat faster gains since 2000



Note: Each circle represents a country and UHC SCI index values (x-axis) are for 2000.

disease burdens and risks in many low- and lower-middle-income settings without many NCD health services substantially expanding or improving in tandem *(18, 20)*.

Rates of change in service capacity and access were generally slower than other index components, though persistent data gaps make it challenging to more precisely track how much this component has changed over time. Seemingly large gaps in service capacity and access remained between low-income and high-income countries (Figure 1.9a), as higher income countries posted consistently higher scores.

Country patterns in UHC service coverage

Benchmarking country progress on the UHC SCI should consider both initial SCI values – 2000 in this case – and how quickly gains subsequently occurred (Figure 1.10). Measuring the relationship between country baseline values and rates of change with a fitted

BOX 1.1

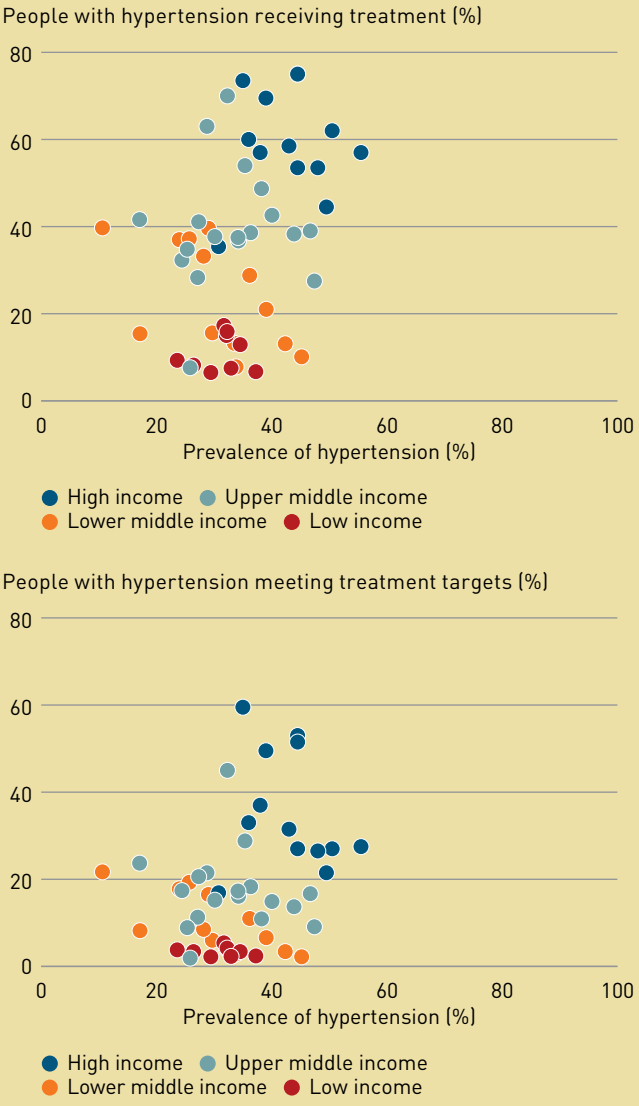
Challenges of measuring noncommunicable disease service coverage with tracer indicators

In line with the SDG 3.8.1 metadata *(4)*, age-standardized prevalence of current tobacco use, age-standardized prevalence of raised blood pressure, and mean FPG are used to construct tracer indicators and approximate NCD service coverage for the UHC SCI. Without information on treatment coverage, using such measures could provide some insights on NCD risk profiles and approximate overall responsiveness to related NCD burdens. But population-level risk estimates may not directly reflect patterns in treatment coverage or disease control – that is, whether people with hypertension or diabetes are receiving treatment *and* meeting clinical treatment targets for their condition. This difference has implications not only for how well the NCD component of the UHC SCI captures country performance on NCD service coverage, but also for how well progress on the overall UHC SCI may be monitored.

As highlighted in box figure 1, the relationships between hypertension prevalence and treatment coverage (defined as the percentage of people with hypertension who received antihypertensive medication) and the percentage of people who met treatment targets (also often referred to as disease 'control') varied, particularly by income group. Based on 53 country surveys with data on all three measures *(18, 19)*, overall correlations between levels of raised blood pressure and indicators of treatment coverage were moderately positive (ρ = 0.34 for hypertension prevalence and treatment coverage; ρ = 0.27 for prevalence and control).

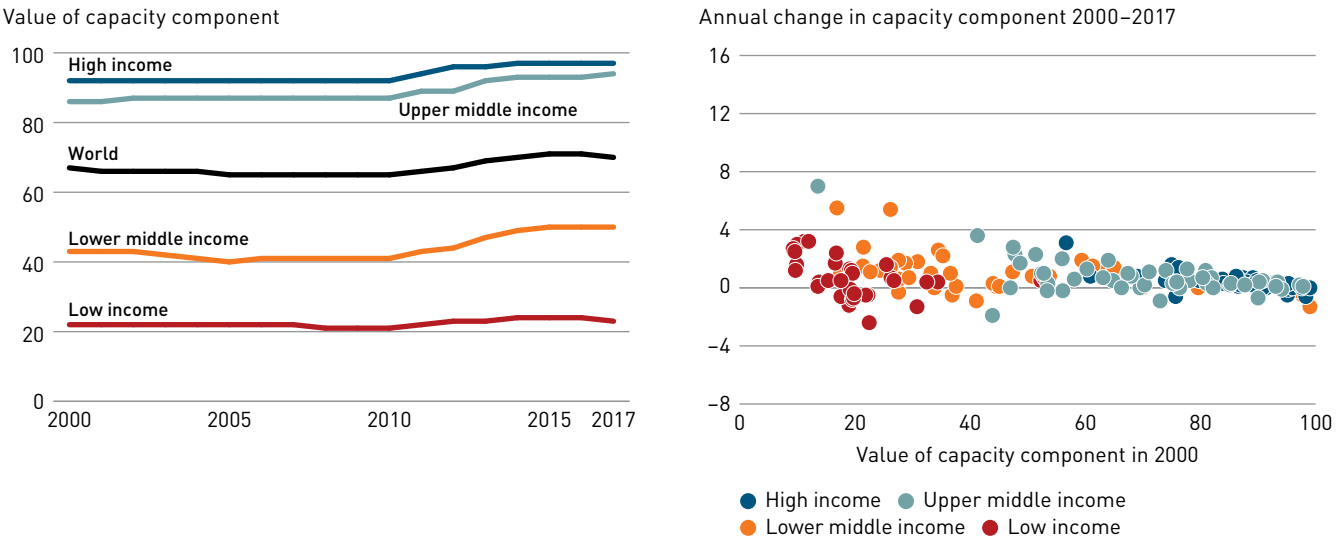
Yet when these results were grouped by World Bank income group, different patterns emerged. For instance, fairly minimal associations between hypertension prevalence and treatment coverage occurred for both high-income (ρ = 0.05) and low-income countries (ρ = 0.07), while the relationships between prevalence and rates of disease control were weakly negative for these income groups (ρ = −0.24 for high-income and ρ = −0.10 for low-income). Middle-income countries had even more heterogeneous levels of treatment or disease control for a given level of hypertension prevalence. These patterns suggest across sociodemographic settings that measures of hypertension prevalence may not be a consistent proxy for treatment coverage or disease control. Future iterations of service coverage monitoring may consider how much shifting from prevalence-based measures to effective treatment coverage estimates might affect NCD component performance, as well as overall UHC SCI levels and trends. Measuring effective treatment coverage is also a priority, particularly since linked individual-level data on disease prevalence, treatment status, and clinical control are increasingly available for people with hypertension and diabetes *(18, 20)*.

BOX FIGURE 1 Comparing prevalence of raised blood pressure with treatment coverage and rates of disease control among people with hypertension, by income group



Note: Each circle represents a country-survey data point on treatment coverage (Figure 1.10a) or disease control (Figure 1.10b) and corresponding measures of hypertension prevalence (both diagnosed and undiagnosed). Survey data points were extracted from Geldsetzer et al. 2019 and Zhou et al. 2019 *(18, 19)*. Where data were only reported by sex (i.e., male and female), a simple average was taken to represent both sexes. Where data were only reported disaggregated by age group, a simple average was taken to represent all ages.

FIGURE 1.9 Large gaps between high-income and low-income countries persisted over time on the service capacity and access component of the UHC SCI



Note: Each circle represents a country and UHC SCI index values (x-axis) are for 2000.

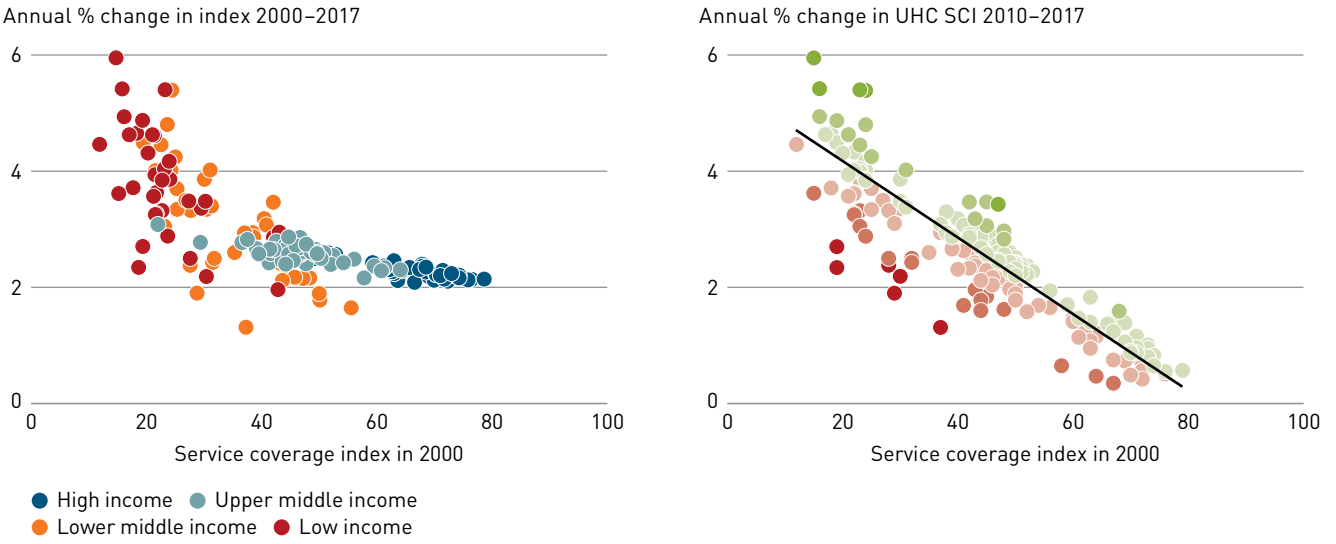
regression line can offer insights on how a country is progressing on UHC in relation to other countries with similar characteristics. Some countries showed much faster rates of progress relative to their peers, while some others experienced slower progress.

The analysis here does not further account for factors that could be related to faster or slower gains on UHC SCI, such as political stability, recovery from conflict, and patterns of public spending. Further examination of what contributes to accelerated gains on the UHC SCI is thus warranted, particularly relative to countries of similar economic status. Clearly, all countries, irrespective of their current UHC SCI values, can further improve the reach of health service coverage for all.

Pace of progress on service coverage and implications for achieving UHC

Globally, the UHC SCI improved on average by 1.9% a year between 2010 and 2017, slower than the average observed from 2000 to 2010 (2.5% a year). But since slower progress was observed when overall SCI values are higher (Figure 1.11), standardizing rates of change – relative to any given value of UHC SCI – can

FIGURE 1.10 The UHC SCI increased the fastest in countries with lower initial values in 2000, but rates of change varied substantially



Note: Countries in green have improved faster than other countries that had similar values of the SCI in 2000 and countries in red have improved more slowly.

better identify whether or where yearly progress deviates from the average over time (Figure 1.11). The median standardized annual rate of change was fastest between 2004 and 2006 – corresponding with the rapid scale-up of ITNs – while the slowest rates were from 2000 to 2003. Relative to earlier periods, overall rates of improvement were notably slower between 2010 and 2017.

These patterns varied by income group (Figure 1.11). From 2000 to 2017, high-income countries showed far less variation in standardized rates of change than low- and middle-income countries, which saw accelerated progress from approximately 2003 to 2006. Particularly since 2010, lower- and upper-middle-income countries had annual rates of change fall closer to average levels (as represented by 0, or standardized value) – or, as demonstrated by low-income countries, below average rates of change through 2017. The drivers behind these patterns are likely to vary across contexts, including overall health system resilience and reach; consistency and absolute levels of health financing; abrupt or ongoing conflict; and how quickly countries could introduce and scale up newer services or interventions (such as ITN use, ART coverage). Further examining what factors contribute to faster-than-expected gains, as well as slowed or reversed progress, across settings could better inform both country and global strategies for expanding UHC.

Assessing progress toward achieving UHC by 2030

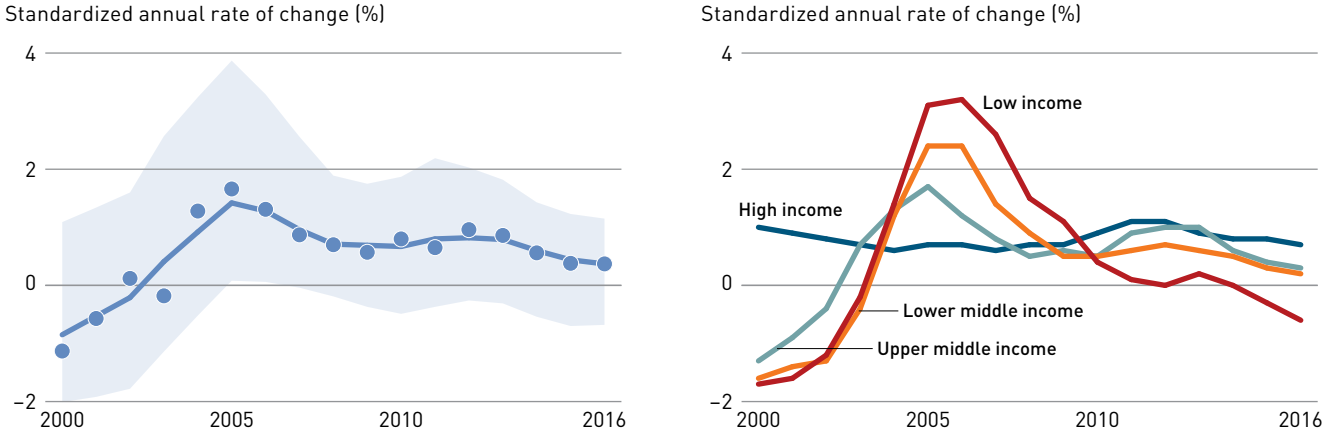
The *2017 Global Monitoring Report* introduced a method for approximating full coverage of essential health services and calculating the number of people covered with essential health services they need (also see Annex A1.3 for additional details) *(1, 6)*. This approach can be used for providing potential insights on global progress on UHC against the established targets for the future (see Box 1.2).

In 2017, an estimated 2.5 to 3.7 billion people were covered by essential health services – or approximately 33% to 49% of world's population that year (Table 1.1). Although this level of coverage represented progress since 2015, 3.8 to 5.0 billion people – or 51% to 67% of the world – still lacked coverage of needed health services by 2017.

A lower percentage of people in low-income countries had coverage of essential health services (12% to 27%) than those in high-income countries (59% to 72%). While lower-middle and upper-middle income countries still experienced lower coverage than high-income countries, the total number of people covered was similar – or exceeded – that of the high-income group. In absolute terms, however, the largest number of people lacking coverage in 2017 lived in lower-middle-income countries (1.9 to 2.4 billion).

In line with the SDG promise of reaching the farthest first and leaving no one behind *(2, 3, 21, 22)*, these results emphasize the importance of addressing coverage gaps in both the absolute counts of people covered *and* the percentages covered within countries. Beyond the potential effects of population growth on service delivery demand and volumes, changes in the types of care people need related to aging and shifting disease burden profiles – and thus what should be covered by essential health services – could

FIGURE 1.11 Since 2010, the pace of progress on the service coverage index has slowed or begun stalling, especially for low-income countries



BOX 1.2

Estimating people covered by essential health services through 2030: methods, limitations, and future directions

With ambitious UHC targets set for 2023 and 2030 – the WHO goal of 1 billion more people benefiting from health services from 2018 to 2023 *(2)* and the SDG aim of achieving UHC for all people by 2030 *(3)* – we need to better understand how close the world might be from reaching them. The Political Declaration of the High-level Meeting on Universal Health Coverage indicates that actions and investments to date likely are insufficient to achieve UHC by 2030 *(22)*.

Projections are inherently uncertain, since no model fully accounts for all possible future outcomes or trajectories. The approach here, further detailed in Annex A1.3, aims to provide an initial approximation of the number and percentage of people covered by essential health services from 2018 to 2030. Estimates through 2023 and 2030 should be viewed in light of the approach's limitations as well as those intrinsic to all numerical projections. Future analyses should test alternative approaches to both estimating coverage of health services and generating more reliable projections, particularly as data on UHC indicators are more regularly reported and available across countries.

Based on available global estimates of the percentage of people fully covered by essential health services (a method developed for the *2017 Global Monitoring Report (1, 6)*) between 2010 and 2017, linear extrapolations were then made for 2018 to 2030. These projected coverage values were then multiplied by corresponding population projections from the UN *World Population Prospects 2019* to calculate the number of people who could be covered by essential health services in the future *(23)*.

The current approach for assessing coverage of essential health services leads to relatively conservative estimates, as the probability of a person covered by multiple essential health services rises exponentially as the coverage of each individual service increases. Yet, due to limited time series of data, particularly for those with relatively high percentage of coverage of multiple services (more than 70%), the out-of-sample predictive validity of the current estimation method for projecting future trends has yet to be comprehensively assessed. Therefore, extrapolating the underlying exponential pattern according to the current method to future years could yield over-optimistic projections for relatively high level of coverage of essential health services as maintaining exponential growth becomes increasingly challenging. Using a linear extrapolation likely mitigates this issue while also providing a more likely prospect for business-as-usual scenarios and for resource-limited settings.

These projections offer some insights into the world's trajectory towards the UHC targets targets and assess whether it is on track. However, it is very possible, if not likely, that the global trends to 2023 and 2030 calculated today may be different from what the world experiences in 2023 and 2030. Heightened attention and investments in UHC could spur faster gains and expanded coverage of essential health services worldwide. Improving the data systems for UHC monitoring and evaluating alternative scenarios will be priorities going forward and will help identify places where the most acceleration is needed.

pose additional challenges to achieving UHC. Investing in health systems that can provide essential services across the life course could better position countries to respond effectively to people's health needs.

To meet the WHO target of 1 billion more people benefiting from UHC from 2018 to 2023 *(2)*, an additional 200 million people would need to be covered per year. At present rates of change, the world could be on pace to cover about 400 to 600 million more people with essential health services from 2018 to 2023 – though the rising incidence of catastrophic health spending might lead to less (Chapter 2).

By 2030, approximately 3.4 to 5.4 billion people could be covered by essential health services at the SDG era's conclusion, a possible gain of about 1.1 to 2.0 billion more people covered since 2015. But only 39% to 63% of the world's projected population in 2030 (8.5 billion) could potentially be covered, translating to approximately 3.1 to 5.2 billion, or 37 to 61% of people lacking coverage of essential health services. Achieving UHC by 2030 will always be a bold ambition. But to reach the SDG target, current rates of progress have to markedly accelerate – with coverage of essential services potentially needing to double (Figure 1.12). Measuring coverage of quality essential

services to monitor progress will be key (Box 1.3).

References

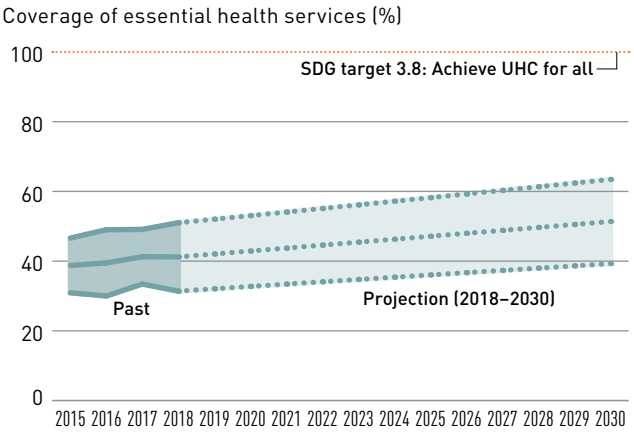
1. World Health Organization (WHO), World Bank. Tracking universal health coverage: 2017 Global Monitoring Report. Geneva, Switzerland; Washington, DC: WHO, World Bank, 2017 https://www.who.int/healthinfo/universal_health_coverage/report/2017/en/
2. World Health Organization (WHO). Thirteenth General Programme of Work, 2019-2023. Geneva, Switzerland: WHO, 2018 https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf.
3. United Nations (UN). Transforming our world: the 2030 Agenda for Sustainable Development. New York, NY: UN, 2015.
4. UN Statistical Commission. SDG indicator 3.8.1 metadata. 2018 https://unstats.un.org/sdgs/metadata/files/Metadata-03-08-01.pdf.

TABLE 1.1 In 2017, low-income countries had the lowest percentage of people covered by essential health services, while lower-middle-income countries had the most people who still lacked coverage

World Bank income group	% covered in 2017	Number of people (billions) in 2017		
		Covered	Not covered	Total population*
World	33–49%	2.5–3.7	3.8–5.0	7.5 billion
High-income	59–72%	0.7–0.9	0.3–0.5	1.2 billion
Upper-middle income	42–57%	1.1–1.5	1.1–1.5	2.6 billion
Lower-middle income	21–38%	0.6–1.1	1.9–2.4	3.0 billion
Low-income	12–27%	0.1–0.2	0.5–0.6	0.7 billion

* All population estimates are based on the UN World Population Prospects 2019 *(23)*.

FIGURE 1.12 If recent trends continue to 2030, the world is likely fall well below the SDG target of universal health coverage for all



BOX 1.3

Measuring UHC service coverage: current limitations and future directions

UHC is meant to ensure that people receive the essential health services they need, with adequate quality to be effective, and to do so without incurring financial hardship. The inclusionary nature of UHC and its emphasis on providing quality care across a wide set of services – promotive, preventive, curative, rehabilitative, and palliative health services across the life course – poses unique challenges for monitoring UHC progress in policy-relevant, actionable ways. No measure of UHC service coverage will be perfect, particularly in the absence of routine and representative data systems that simultaneously capture intervention need, receipt, and effectiveness across health service domains and for all populations. As a result, UHC monitoring must recognize the current limitations and identify approaches for continuous improvement in the future – all with the overarching goal of providing the best possible data and evidence base for achieving UHC worldwide.

Since its introduction in the 2017 Global Monitoring Report, the UHC SCI offers several improvements such as increasing country-year coverage of primary data and producing a time series for tracking trends over time. Many of its current limitations, particularly country-indicator coverage in the most recent years, stem from longstanding gaps in broader data systems and/or lags in primary data publication. Household surveys are vital components to a country's overarching health data ecosystem, alongside well-functioning civil registration and vital statistics systems and routine, representative administrative data platforms. And they are often the only available data sources to monitor trends in equity and provide more disaggregated data. However, especially due to the inherent periodicity of household surveys, they provide valuable complementary information to civil registration and vital statistics and other data sources within national health information systems,

BOX 1.3 (CONTINUED)

such as disease registries, vaccination records, and health facility surveys.

The SDGs explicitly call for investing in and strengthening national data systems, which directly support UHC monitoring and can thus foster greater accountability and action for improving service coverage. Other limitations, such as the use of health system inputs (such as the density of hospital beds) and prevalence-based measures like non-tobacco use to approximate service availability, also stem from a global paucity of data on more direct measures of different types of service coverage. Although the use of proxy measures is often necessary, it is important to continually revisit how well various proxy indicators can actually capture progress on health service coverage across settings – and whether they may inadvertently reflect factors outside health services.

Achieving UHC not only involves ensuring access and receipt of essential health services needed by people – it also requires that those services are of sufficient quality to be effective and thus provide the health gains associated with them. Understanding whether and how much people are actually benefiting from the interventions they receive is critical for addressing any gaps in service provision – and more broadly, overall accountability of health systems to the populations they serve. From vaccination and HIV treatment to hypertension, numerous studies show that focusing on coverage alone risks painting an overly positive picture of intervention impact and program success; for instance, while about 30% of people in 44 low- and middle-income countries received treatment for hypertension, only 10% achieved control *(18)*. To truly deliver on the promise of UHC – to improve health outcomes throughout the life course – tracking health service effectiveness alongside the receipt of needed services must be prioritized.

We need to understand whether the interventions that the health system delivers have their desired effect in improving the health of the population. For some conditions such as hypertension and diabetes, measuring treatment and control to assess effective coverage is relatively straightforward. For other conditions proxy measures are frequently required. The premise of such proxy measures, that capture outcomes, is that if effective interventions of sufficient quality are received in a timely manner, some negative outcomes should not occur. Moving from measures of service coverage to an overarching measure of effective coverage that captures interventions across levels of care (primary, secondary and tertiary) and range of services (promotive, preventive, curative, rehabilitative and palliative) is a priority.

Evaluating how well different indicators of effective service coverage, both direct and proxy measures, represent health needs across the life course is an important next step for monitoring UHC at both national and global levels. Globally, technical groups and collaborations such as the Countdown to 2030 for Women's Children's and Adolescent's Health are considering ways to address long-standing challenges in measuring effective coverage and applications for measuring progress on UHC (28, 30, 31). Member States endorse this priority and WHO aims to support country efforts to strengthen data systems and improve methods for monitoring effective coverage (28, 29). Building on this information by tracking the full cascade of care, health systems could then be able to track where changes are needed, identify bottlenecks, implement solutions, and measure progress on an ongoing basis (see Chapter 4).

5. Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. *The Lancet Global Health* 2018; 6: e152–68.
6. Stevens G, Hogan D. Service coverage within universal health coverage: how large is the gap? Technical note. Geneva, Switzerland: World Health Organization (WHO), 2017 https://www.who.int/healthinfo/universal_health_coverage/report/uhc_report_2017_technical_note.pdf?ua=1.
7. Strategic Advisory Group of Experts (SAGE) on Immunization. Sustainable Development Goals (SDGs) Immunization indicator selection. Geneva, Switzerland: SAGE, 2017. https://www.who.int/immunization/sage/meetings/2017/october/2_Arora_GVAP_SAGEOct2017_Modified_18th.pdf?ua=1
8. UN Statistics Division, Department of Economic and Social Affairs (DESA). Report of the Seventh Meeting of the Inter-Agency and Expert Group on the Sustainable Development Goal Indicators. Vienna, Austria: UN DESA, 2018 https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-07/Meeting%20Report%207th%20IAEG%20Meeting%2018-06-18%20final.pdf.
9. UN Population Division (UNPD). World Contraceptive Use 2019. New York, NY: UNDP, 2019 https://www.un.org/en/development/desa/population/publications/dataset/contraception/wcu2019.asp.
10. World Health Organization (WHO). WHO/UNICEF Joint Reporting Process. http://www.who.int/

immunization/monitoring_surveillance/routine/reporting/en/ (accessed Aug 6, 2019).
11. UNAIDS. Methods for deriving UNAIDS estimates. Geneva, Switzerland: UNAIDS, 2016 https://www.unaids.org/sites/default/files/media_asset/2016_methods-for-deriving-UNAIDS-estimates_en.pdf.
12. World Health Organization (WHO). Global Tuberculosis Report 2018. Geneva, Switzerland: WHO, 2018 https://www.who.int/tb/publications/global_report/en/.
13. World Health Organization (WHO). World Malaria Report 2018. Geneva, Switzerland: WHO, 2018 http://www.who.int/malaria/publications/world-malaria-report-2018/en/ (accessed June 2, 2019).
14. WHO/UNICEF Joint Monitoring Programme. Progress on household drinking water, sanitation, and hygiene 2000-2017. Geneva, Switzerland; New York, NY: WHO; UNICEF, 2019 https://washdata.org/.
15. NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in blood pressure from 1975 to 2015: a pooled analysis of 1479 population-based measurement studies with 19.1 million participants. *The Lancet* 2017; 389: 37–55.
16. NCD Risk Factor Collaboration (NCD-RisC). Worldwide trends in diabetes since 1980: a pooled analysis of 751 population-based studies with 4.4 million participants. *The Lancet* 2016; 387: 1513–30.
17. World Health Organization (WHO). WHO Report on the Global Tobacco Epidemic, 2019: Offer to help to quit tobacco use. Geneva, Switzerland: WHO, 2019. https://apps.who.int/iris/bitstream/handle/10665/326043/9789241516204-eng.pdf?ua=1.
18. Geldsetzer P, Manne-Goehler J, Marcus M-E, et al. The state of hypertension care in 44 low-income and middle-income countries: a cross-sectional study of nationally representative individual-level data from 1.1 million adults. *The Lancet* 2019; 0. DOI:10.1016/S0140-6736(19)30955-9.
19. Zhou B, Danaei G, Stevens GA, et al. Long-term and recent trends in hypertension awareness, treatment, and control in 12 high-income countries: an analysis of 123 nationally representative surveys. *The Lancet* 2019; 0. DOI:10.1016/S0140-6736(19)31145-6.
20. Manne-Goehler J, Geldsetzer P, Agoudavi K, et al. Health system performance for people with diabetes in 28 low- and middle-income countries: A cross-sectional study of nationally representative surveys. *PLOS Medicine* 2019; 16: e1002751.
21. World Health Organization (WHO). Global Action Plan: for healthy lives and well-being for all. Geneva, Switzerland: WHO, 2018 https://www.who.int/sdg/global-action-plan.
22. Political Declaration of the High-level Meeting on Universal Health Coverage. "Universal health coverage: Moving Together to Build a Healthier World. Draft v4. 2019 https://www.healthpolicy-watch.org/wp-content/uploads/2019/07/UHC-Political-Declaration-Co-facilitators-revised-draft-REV.4.pdf.
23. United Nations, Department of Economic and Social Affairs, Population Division (UN DESA/PD). World Population Prospects 2019. New York, NY: UN DESA/PD https://population.un.org/wpp/.
24. Shengelia B, Tandon A, Adams OB, Murray CJL. Access, utilization, quality, and effective coverage: an integrated conceptual framework and measurement strategy. Soc Sci Med 2005; 61: 97–109.
25. Sunkara V, Hébert JR. The colorectal cancer mortality-to-incidence ratio as an indicator of global cancer screening and care. *Cancer* 2015; 121: 1563–9.
26. Choi E, Lee S, Nhung BC, et al. Cancer mortality-to-incidence ratio as an indicator of cancer management outcomes in Organization for Economic Cooperation and Development countries. *Epidemiol Health* 2017; 39. DOI:10.4178/epih.e2017006.
27. Nolte E, McKee M. Does healthcare save lives? Avoidable mortality revisited. London, UK: London School of Hygiene & Tropical Medicine, 2004 https://researchonline.lshtm.ac.uk/15535/1/does-healthcare-save-lives-mar04.pdf.
28. World Health Organization (WHO). World Health Assembly 72, Resolution A72/5. 9 May 2019 https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_5-en.pdf
29. World Health Organization (WHO). Thirteenth General Programme of Work, 2019-2023 – Results framework. Geneva, Switzerland: WHO, 2019.
30. Boerma T, Eozenou P, Evans D, et al. Monitoring Progress towards Universal Health Coverage at Country and Global Levels. *PLOS Med* 2014; 11(9): e1001731
31. Marchant T, Bhutta ZA, Black R, et al. Advancing measurement and monitoring of reproductive, maternal, newborn and child health and nutrition: global and country perspectives. *BMJ Global Health* 2019; 4:e001512.

2

Global and regional trends in financial protection

Key messages

Between 2000 and 2015 there have been mixed improvements in protecting people from incurring financial hardship when spending out of pocket on health.

- A growing number of people and share of the population incurred catastrophic health spending, as tracked by SDG indicator 3.8.2 – and impoverishment due to out-of-pocket health spending increased as measured by a relative poverty line. On the other hand, the number of people and share of population impoverished by out-of-pocket health spending at the $1.90 and $3.20 per person per day fell at different paces.
- Previous global analysis has shown that these indicators are correlated with GDP per capita, suggesting that, as countries become richer, people may face greater financial hardship due to greater exposure to out-of-pocket payments.
- The challenge for policy is to ensure that any additional resources for health care are channelled through compulsory pooled prepayment mechanisms rather than through out-of-pocket spending.
- Global analysis has shown that greater reliance on public spending on health (defined as the share of total health spending channelled through social security funds and other government agencies) tends to be negatively correlated with the incidence of catastrophic and impoverishing health spending. It has found no significant association between the indicators of financial protection and the share of total health spending channelled through private voluntary insurance.
- Increases in public spending on health or reductions in out-of-pocket spending are not sufficient to improve financial protection in all contexts, however. For instance, evidence from the WHO European Region shows that coverage policy – the way coverage is designed, implemented and governed – plays a key role in determining financial hardship, not just patterns of health spending.

Key metrics

- In 2015, the year the Sustainable Development Goals (SDGs) were adopted, about 930 million people incurred catastrophic health spending, defined as out-of-pocket health spending exceeding 10% of the household budget (total consumption or income). For about 210 million people, out-of-pocket health spending exceeded 25% of the household budget.
- Globally, catastrophic health spending increased continuously between 2000 and 2015, as tracked by SDG indicator 3.8.2. The share of the world's population with out-of-pocket health spending exceeding 10% of the household budget went from 9.4% in 2000 to 12.7% in 2015, and the share with out-of-pocket health spending exceeding 25% of the household budget from 1.7% in 2000 to 2.9% in 2015.
- Between 2000 and 2015, the largest concentration of the world population with out-of-pocket health spending exceeding 10% and 25% of their household budget shifted from low-income countries to middle-income countries. The gap in the incidence of catastrophic health spending, as tracked by SDG indicator 3.8.2, narrowed between high- and low-income countries.
- In 2015, out-of-pocket health spending contributed to pushing more people below the poverty line: 89.7 million people globally (1.2%) were pushed into extreme poverty (below $1.90 per person per day in 2011 PPP terms), 98.8 million (1.4%) were pushed below $3.20 per person per day and 183.2 million were pushed into poverty defined in relative terms (below 60% of median daily per capita consumption or income in their country). Under all poverty definitions, the largest part of the population impoverished by out-of-pocket health spending was concentrated in Asia and in middle-income countries.
- Between 2000 and 2015, out-of-pocket health spending contributed to increase global poverty, at a varying pace depending on the poverty line:
  - The decline in impoverishment due to out-of-pocket health spending at the $1.90 a day poverty line from 2% to 1.2% of world population is in line with the major drop in the world's population living in extreme poverty
  - At the $3.20 a day international poverty line, the proportion rose from 1.5% in 2000 to 1.8% in 2005 but fell to 1.7% in 2010 and to 1.4% in 2015. This slower reduction in impoverishment at the $3.20 a day poverty line is consistent with the estimated slower decrease in the global population living on less than $3.20 per person per day over the same period.
  - While it is not possible to eliminate impoverishment due to out-of-pocket health spending using a relative poverty line, it is possible to reduce it. To this end, out-of-pocket health expenditures should not be a major driver of economic disadvantage relative to others in the society. The increasing rate of impoverishment at the relative poverty line from 1.8% in 2000 to 2.5% in 2015 suggests that this did not happen. On the contrary, out-of-pocket health spending contributed to the deteriorating welfare of the less well-off in every country.
- Between 2000 and 2015, the largest concentration of the world population impoverished by out-of-pocket health spending shifted from low-income to lower-middle-income countries at both the $1.90 and $3.20 a day poverty lines and to upper-middle-income countries at the relative poverty line of 60% of median per capita consumption. The gap between low- and high-income countries in the population impoverished by out-of-pocket health spending at the relative poverty line narrowed, with both having a similar percentage of the population impoverished by out-of-pocket health spending and high-income countries having almost twice as many people (17 million versus 9 million).
- Rural–urban gaps in the percentage of the population with out-of-pocket health spending exceeding 10% of household consumption or income are widest in low- and high-income countries, while gaps in the percentage of the population with out-of-pocket health spending exceeding 25% of household consumption or income are widest in low- and lower-middle-income countries. At the $1.90 a day and $3.20 a day absolute poverty lines, rural–urban gaps in impoverishing health spending are greatest in lower-middle-income countries.

Monitoring financial protection in the SDG era

Financial protection is a key health system objective and an important dimension of universal health coverage (UHC). Financial protection means that everyone can obtain the health services they need without experiencing financial hardship.

This chapter reports on levels of and trends in SDG and SDG-related indicators of financial protection – specifically, SDG 3.8.2 (catastrophic health spending) and indicators of impoverishing health spending *(1–3)*. It draws on a joint global report on financial protection prepared by WHO and the World Bank *(4)*. Global analysis enables a country to compare its performance to that of its peers but is insufficient to guide policy actions. All WHO regions are fully committed to and engaged in monitoring linked to policies. This chapter also draws on key findings from regional monitoring *(5–7)*.

SDG indicator 3.8.2 defines catastrophic health spending as out-of-pocket health spending exceeding 10% and 25% of the household budget (total consumption or income) *(8)*.

The SDG-related indicators of financial protection link UHC directly to SDG 1 – to end poverty in all its forms everywhere. They focus on the incidence of impoverishment due to out-of-pocket health spending and the poverty gap due to out-of-pocket health spending. The incidence is measured as the change in the poverty headcount ratio due to out-of-pocket health spending being included or excluded from the measure of household welfare, which can be either consumption or income (consumption is the preferred measure) *(1, 8–10)*. The gap is the change in the depth of poverty due to out-of-pocket health spending being included or excluded from the measure of household welfare *(1, 11–12)*. It captures the impact of out-of-pocket health spending on poor people (that is, people below the poverty line whether or not out-of-pocket health spending is included in the measure of household welfare). For global monitoring, three poverty lines are used to demonstrate the interdependency between the eradication of poverty and universal health coverage: an absolute poverty line of extreme poverty, defined as $1.90 a day (in 2011 PPP terms[1]), which corresponds to the median national poverty line of low income countries; a higher poverty line of $3.20 a day (in 2011 PPP terms), which corresponds to the standard typically used to assess national poverty levels by lower-middle-income countries *(13)*; and the relative poverty line of 60% of median daily per capita consumption or income, which comes closest to the relative poverty line used by Eurostat to monitor poverty in the European Union.

There are other ways to monitor catastrophic health spending (Box 2.1) *(5, 14–16)*, to capture the impact of out-of-pocket spending on poor people *(5, 17)* and to define poverty lines at the global, regional and country levels (Box 2.2) *(5, 18, 19)*. The Annex shows results based on regional indicators where available, and a detailed discussion is available in related regional reports *(5–7)*.

To ensure cross-country comparability and because consumption is the preferred welfare measure, this report uses income as a measure of household welfare only where WHO and the World Bank do not have access to consumption data for global monitoring (mostly for high-income countries).[2]

Out-of-pocket health spending (out-of-pocket payments) is defined as household spending on medicines, health products, outpatient and inpatient care services (including dental care) and other health services (such as medical laboratory services) that are not reimbursed by a third party (such as the government, a health insurance fund or a private insurance company).[3] It excludes household spending on health insurance premiums *(21)*.

AT THE REGIONAL LEVEL, MONITORING FINANCIAL PROTECTION AIMS TO PROVIDE EVIDENCE-BASED CONTEXT-SPECIFIC RECOMMENDATIONS FOR POLICY DIALOGUE

Across WHO regions, efforts are undertaken to provide up-to-date information on financial protection and clear policy recommendations. For instance, in 2015, the Pan American Health Organization (PAHO) published a report on UHC in the WHO Region of the Americas to provide insights into selected countries' approaches to increasing population coverage, service coverage and financial protection, with a particular focus on health inequalities *(22)*. Since then, PAHO has continued to work closely with Member States in the Region of the Americas to monitor financial protection, because eliminating out-of-pocket health spending is a pillar of the Regional Strategy for Universal Health. In 2017, a regional report on financial protection that included 11 Member States used several methodological approaches to catastrophic and impoverishing health spending and discussed the implications of different methods *(6)*. In 2018, PAHO focused on gender inequalities as a starting point for considering progress in UHC in relation to leaving no one

BOX 2.1

Ways to measure catastrophic health spending

Some studies define out-of-pocket health spending as catastrophic when they exceed a given percentage (for example, 10% or 25%) of consumption or income. This 'budget share' approach is adopted in SDG 3.8.2 *(8)*. Empirically, catastrophic spending is usually less concentrated among 'poor' people (or more concentrated among 'rich' people) when the budget share approach is used. Some households may appear to be richer than they are because they have borrowed money to finance spending on health (or other items), but it can be safely assumed that households in the poorest quintile are genuinely poor *(1,14,27)*.

Other studies relate health spending to consumption or income minus a deduction for necessities, rather than to total consumption or income. The argument is that everyone needs to spend at least some minimum amount on basic needs such as food and housing, and these absorb a larger share of a poor household's consumption or income than of a rich household's. As a result, a poor household may not be able to spend much, if anything, on health care. By contrast, a rich household may spend 10% or 25% of its budget on health care and still have enough resources left over to meet its basic needs.

There are different approaches to deducting expenditures for basic needs *(11, 14–18)*. The main differences between them include: the amount deducted (actual spending or a standard amount), the item or items included as basic needs, the method used to derive the standard amount and the treatment of households whose actual spending is below the standard amount.

Some studies deduct all of a household's actual spending on food *(11)*. Although poor households often devote a higher share of their budget to food, the share may not be a sufficient proxy for nondiscretionary consumption. Also, spending on food reflects preferences as well as factors linked to health spending: for example, households that spend less on food because they need to spend on health care will appear to have greater capacity to pay than households that spend more on food.

To address the role of preferences in food spending, other studies deduct a standard amount from a household's total resources to represent basic spending on food *(16, 18)*. In practice, this second approach is a partial adjustment to the actual food spending approach because the standard amount is used only for households whose actual food expenditure exceeds the standard amount. For all other households, actual food spending is deducted instead of the higher, standard amount. Both approaches therefore treat households whose actual food spending is below the standard amount in the same way. Nevertheless, with the standard food approach, catastrophic spending may be less concentrated among rich households than with the actual food spending approach.

Still other studies deduct the prevailing poverty line, essentially an allowance for all basic needs *(17)*. Depending on the poverty line used, this third approach is likely to result in greater concentration of catastrophic spending among poor households than among rich ones, compared with the budget share approach. It also links catastrophic health spending and impoverishment: those with a negative capacity to pay start off below the poverty line, even before paying for health care, and are pushed even further into poverty by any health spending. By contrast, those with out-of-pocket health spending exceeding the gap between the poverty line and their household total consumption are pushed into poverty by their health spending.

Building on the second and third approaches, in the WHO European Region an amount representing spending on three basic needs (food, housing [rent] and utilities) is deducted consistently for all households *(15)*. As a result, catastrophic expenditure is more likely to be concentrated among poor households with this approach than with the budget share approach. It also links catastrophic health spending and impoverishment.

Source: Adapted from box 2.2 in the 2017 Global monitoring report on universal health care *(1)*.

behind. To this end, a report on gender differences in both out-of-pocket health spending itself and its impact on a household's ability to spend on other basic needs and living standards was prepared for four Member States with data available to differentiate individual versus household spending levels *(23)*. The main findings are included in the section on "who experiences financial hardship" of this chapter. In 2019, PAHO plans to update and extend the 2017 regional report on financial protection to all Member States in the region.

BOX 2.2

Leaving no one behind in the World Health Organization European Region: how you measure matters

The WHO Regional Office for Europe has developed new metrics to measure financial protection in response to concerns that SDG indicator 3.8.2 and other global metrics are of limited relevance for policy in Europe, particularly for policy concerned with leaving no one behind *(25)*.

Global and regional metrics for catastrophic health spending are underpinned by different assumptions reflecting different normative principles. These differences have important implications:

- SDG indicator 3.8.2 assumes that all of a household's resources are available to pay for health care. It applies the same effective threshold (10% or 25%) to rich and poor households alike. This means that poor households – even those living in extreme poverty – must spend at least 10% (or 25%) of their budget on health in order to be counted as experiencing financial hardship. As a result, catastrophic health spending based on SDG Indicator 3.8.2 is typically more concentrated among rich households than poor ones, posing a challenge for equity analysis and pro-poor policy action in the region *(1, 15)*.
- Regional Office for Europe approach assumes that households need to meet basic needs such as food, housing and utilities before they can pay for health care. It measures out-of-pocket payments relative to household capacity to pay, resulting in an effective threshold that is lower for poorer households and higher for richer households. Catastrophic health spending based on this measure is consistently concentrated among poor people (Figure 2.10), providing a clear signal for policy action in the region *(5)*.

The Regional Office for Europe's measurement of impoverishing health spending differs from global metrics in two main ways:

- It uses a relative poverty line – a basic needs line – that is typically lower than the relative poverty line (60% of median income) used in the European Union but better reflects national poverty rates than the very low absolute poverty lines used globally of $1.90 a day and $3.20 a day because it is derived from household spending patterns observed in each country.
- The incidence of impoverishing health spending, as measured for global monitoring purposes, counts only impoverished households (people who fall below the poverty line when out-of-pocket health spending is extracted from total household consumption). The Regional Office for Europe metric also counts further impoverished households (people who are already poor and whose poverty is made worse by having to pay out of pocket for health services) (see Box 2.3).

The Regional Office for Europe's metrics, by being more sensitive to financial hardship among poor households and counting people who are further impoverished as well as people who become impoverished, draw attention to those who are less visible in global metrics and thereby enable policy responses that are more likely to protect poor people and other groups who are vulnerable to financial hardship caused by out-of-pocket payments, in line with resolutions by regional institutions.

The rate of financial hardship due to out-pocket health spending in the WHO South-East Asia Region is one of the highest in the world, with 60% of those globally impoverished by out-of-pocket health spending at the $1.90 a day poverty line coming from this region and little improvement over time. The Regional Office for South-East Asia is committed to supporting health financing reforms conducive to better service coverage and financial protection, especially among poor households, by regularly tracking health expenditures, enhancing capacity to engage in health financing policy making and advising ongoing health financing reforms. A 2018 study by the regional office identified medicines as the overwhelmingly dominant driver of household out-of-pocket health spending *(7)*, a finding discussed further in the section "Which health services drive financial hardship?" of this chapter. The regional office has since been analysing the types of medicines that households pay for out of their own pocket, the socioeconomic inequalities in medicine spending patterns and the effectiveness of related policies. This requires complementing household survey data typically used to monitor financial protection with private sales data. The results will shed light on directions and priorities for future health financing reforms in the region.

MONITORING FINANCIAL PROTECTION IN THE WORLD HEALTH ORGANIZATION EUROPEAN REGION

WHO uses global and regional metrics to monitor financial protection in the European Region *(1, 4, 5)*. Global metrics allow countries in Europe to be compared with countries in the rest of the world. The WHO Regional Office for Europe has developed new metrics to monitor financial protection to meet demand from Member States for performance measures that are more suited to middle- and high-income countries and that have a stronger focus on pro-poor policies, in line with Regional Committee resolutions *(15)*. Building on established methods *(16, 17, 24)*, the new metrics aim to monitor financial protection in a way that is relevant to all countries in the region, produces actionable evidence for policy and promotes policies to break the link between ill health and poverty (Box 2.2).

In 2019, the WHO Regional Office for Europe published a comparative analysis of financial protection in 24 countries in the region, including 18 European Union (EU) Member States *(5)*. The analysis is grounded on country-level reviews of financial protection produced in collaboration with national experts. Each review, in addition to measuring financial protection, assesses health coverage policy and access to health care, discusses patterns and trends in public and private spending on health, identifies the factors that strengthen and undermine financial protection, highlights examples of good practice and makes carefully tailored policy recommendations.

A limitation common to analyses of financial protection is that they measures financial hardship only among households that use health services and do not capture barriers to access that result in unmet needs for health care. For this reason, the WHO Regional Office for Europe country reviews systematically draw on evidence of unmet need, where available, to complement the analyses of financial protection. Key findings from analyses of financial protection in the European Region are included throughout this chapter.

What data are available to monitor financial protection?

Financial protection monitoring relies on household budget surveys, household income and expenditure surveys, household living standard surveys or socioeconomic surveys that are typically conducted every two to five years *(1, 20)*. There is some variation in frequency across country income groups and regions: countries in the WHO European Region *(26)* and upper-middle- and high-income countries often conduct annual surveys. Availability of data to produce global and regional estimates may not align with availability of data at the national and regional levels. For more information on how estimates in the global database are assembled, screened and selected, see chapter 2 of the 2017 Global Monitoring Report on universal health care *(1)*. A country consultation conducted by WHO between June and July 2019 led to a revision of some country estimates used to produce global and regional estimates.

SDG and SDG-related financial protection estimates in this chapter are based on data available to WHO and the World Bank by the end of July 2019. They include estimates of catastrophic health spending for 156 countries or territories, with a total of 742 data points, and estimates of impoverishing health spending and poverty gap due to out-of-pocket health spending for 150 countries or territories, with a total of 713 data points. Overall, the global dataset has financial protection estimates for 95% of the world's population in 2015. Some 33 countries have estimates available for only one year (representing 8.3% of the world's population in 2015), and 43 countries have no estimate available for 2010 or later (representing 14% of the world's population).

The vast majority of countries have data for both 2000–2009 and 2010–2018. Countries with data for only 2000–2009 are generally in Africa. Data tend to be unavailable for most fragile states or countries in conflict (Figure 2.1).

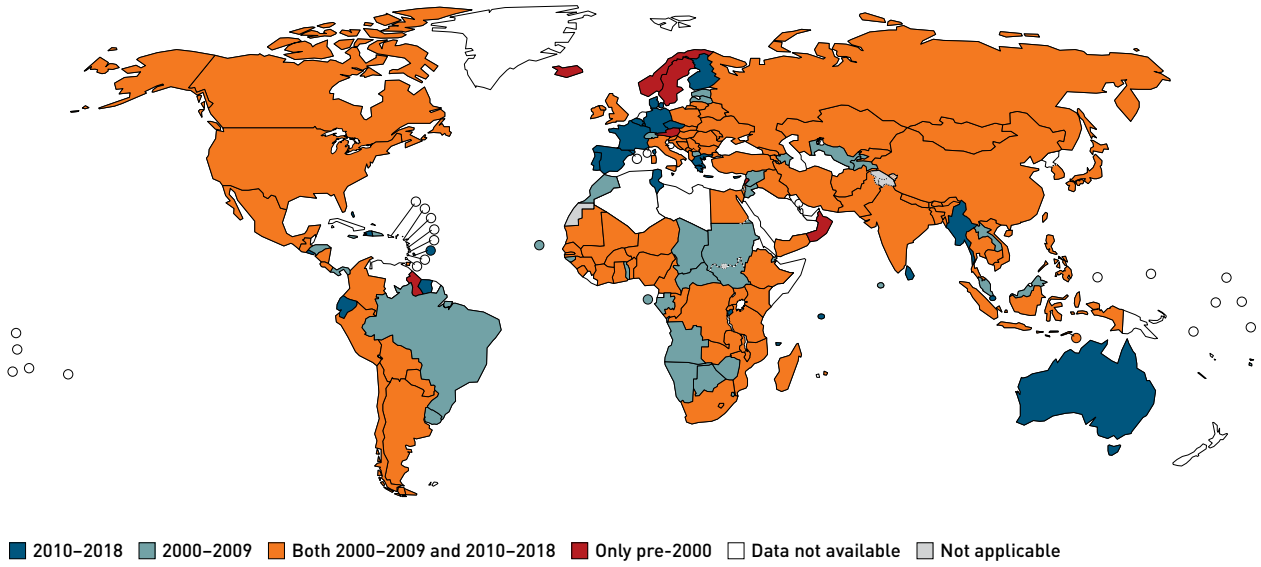
This chapter builds on methods used in previous analysis to recalculate global and regional estimates for 2000, 2005, 2010 and 2015, since more data are available for more countries and for more years *(1)*. Reference estimates are not produced for more recent years because 2014 is the median most recent year in the 2011–2018 period for which it has been possible to produce an indicator of financial protection at the country level for global monitoring.[4]

How has financial protection changed globally and geographically?

PROGRESS ON CATASTROPHIC HEALTH SPENDING

In 2015, the year the SDGs were adopted, 926.6 million people incurred out-of-pocket health spending exceeding 10% of the household budget, and 208.7 million people incurred out-of-pocket health spending exceeding 25% of the household budget. The WHO South-East Asia Region and Western Pacific Region and middle-income countries

FIGURE 2.1 The availability of Sustainable Development Goal and SDG-related estimates of financial protection in the global database assembled by the World Health Organization and the World Bank varies by country, but a majority of countries have estimates for both 2000–2009 and 2020–2018



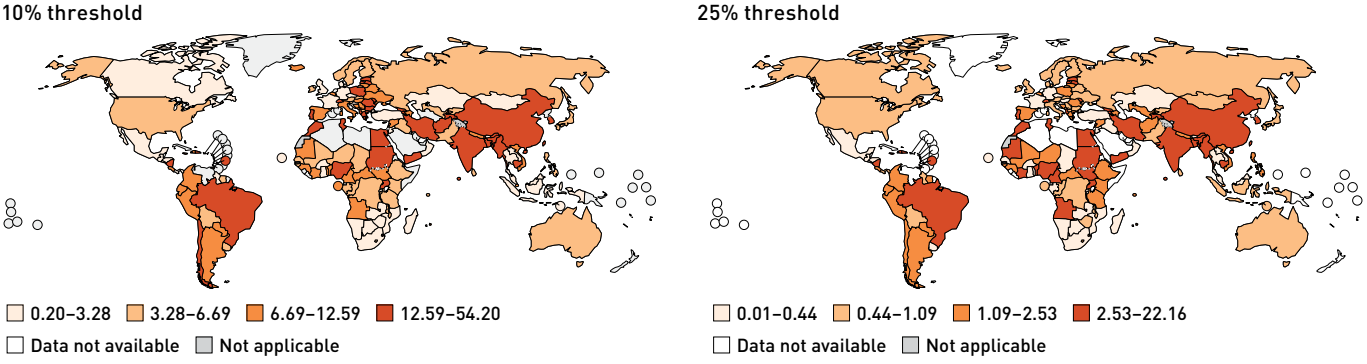
Note: This map has been produced by the World Health Organization (WHO). The boundaries, colours or other designations or denominations used in this map and the publication do not imply, on the part of WHO or the World Bank, any opinion or judgement on the legal status of any country, territory, city or area or of its authorities, or any endorsement or acceptance of such boundaries or frontiers.
Source: WHO, World Bank (2019). Global monitoring report on financial protection in health 2019 *(4)*.

had the highest number of people and percentage of the population with out-of-pocket expenditures exceeding both 10% and 25% of their household budget. The African Region and the European Region had the lowest number of people and percentage of the population incurring catastrophic health spending (Annex 2.5). But within all regions, there are large variations across countries in the percentage of the population spending more than 10% or 25% of the household budget on health out of pocket (Figure 2.2). In the African Region and the Eastern Mediterranean Region, the percentage in the most recent year ranged from less than 1% to more than 40%, and in all other regions from less than 2% to more than 20%.

Globally, financial protection against catastrophic health spending decreased continuously between 2000 and 2015, as tracked by SDG indicator 3.8.2. The percentage of the world's population with out-of-pocket health

FIGURE 2.2 Within world regions, there is wide variation in the percentage of people with catastrophic health spending, as tracked by Sustainable Development Goal indicator 3.8.2

Percentage of the population with out-of-pocket health spending exceeding 10% or 25% of the household budget, most recent year available



Note: These maps have been produced by the World Health Organization (WHO). The boundaries, colours or other designations or denominations used in these maps and the publication do not imply, on the part of WHO or the World Bank, any opinion or judgement on the legal status of any country, territory, city or area or of its authorities, or any endorsement or acceptance of such boundaries or frontiers.
Source: Global monitoring report on financial protection in health 2019 *(4)*.

spending exceeding 10% of the household budget increased from 9.4% in 2000 to 12.7% in 2015, and the percentage with out-of-pocket health spending exceeding 25% of the household budget increased from 1.7% to 2.9% (Figure 2.3).

All WHO regions saw increases in the number of people and percentage of population with catastrophic health spending between 2000 and 2015 (Figure 2.4). The highest average increase in number of people was in the Eastern Mediterranean Region[5] and the highest average increase in percentage of the population was in the South-East Asia Region and the Western Pacific Region.[6]

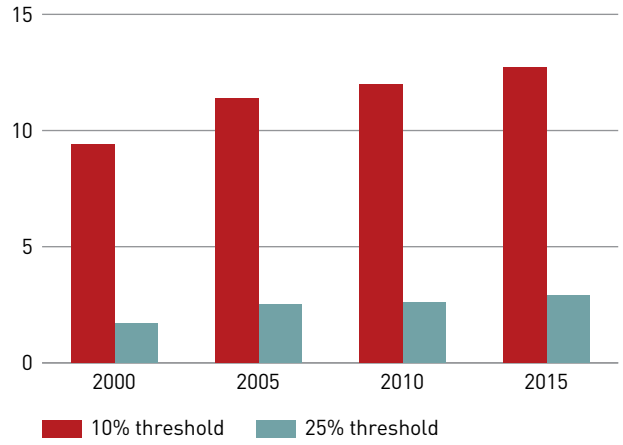
In the South-East Asia Region and the European Region, the rate of increase between 2010 and 2015 in the number of people and percentage of the population with catastrophic health spending as tracked by SDG indicator 3.8.2 was worse than that between 2005 and 2010.[7] In the African Region and the Western Pacific Region, there was a marginal decline in the percentage of the population with catastrophic health spending between 2010 and 2015 but not in the number of people.[8] The Region of the Americas was the only region where the number of people and percentage of the population with catastrophic health spending at both thresholds fell between 2010 and 2015 (Annex 2.1).[9]

High-income countries had the lowest number and percentage of people with catastrophic health spending exceeding both thresholds of the SDG indicator 3.8.2 in 2000. But between 2000 and 2015, they experienced a steady increase in the number of people and percentage of the population spending more than 10% or 25% of the household budget on health out of pocket[10] (Figure 2.5).

Low-income countries had the highest number and percentage of people with out-of-pocket health spending exceeding the 10% and 25% thresholds in 2000,[11] but after an initial

FIGURE 2.3 Globally, financial protection against out-of-pocket health spending decreased continuously between 2000 and 2015, as tracked by Sustainable Development Goal indicator 3.8.2

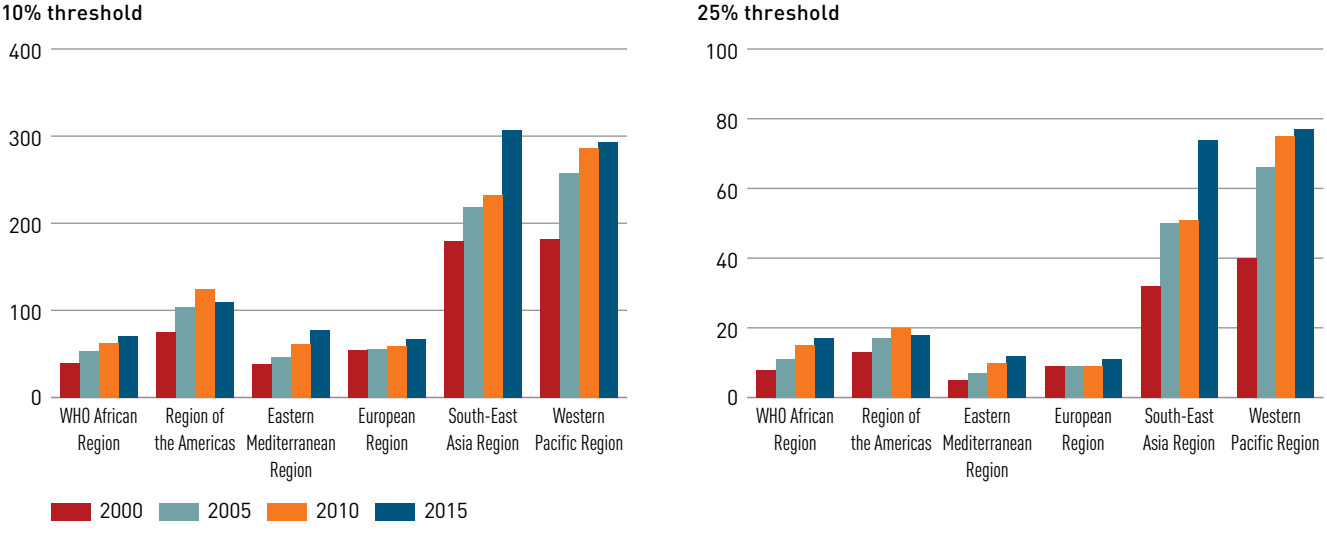
Percentage of the population with out-of-pocket health spending exceeding 10% or 25% of the household budget



Source: Global monitoring report on financial protection in health 2019 *(4)*.

FIGURE 2.4 Across World Health Organization regions, financial protection against out-of-pocket health spending decreased, but at different paces, 2000–2015, as tracked by Sustainable Development Goal indicator 3.8.2

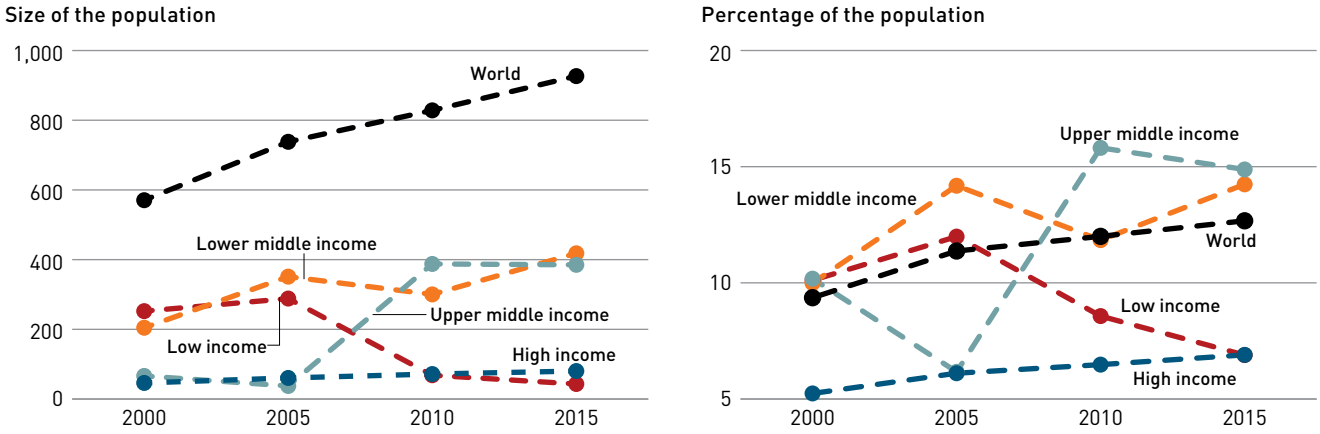
Number of people (millions) with out-of-pocket health spending exceeding 10% or 25% of the household budget



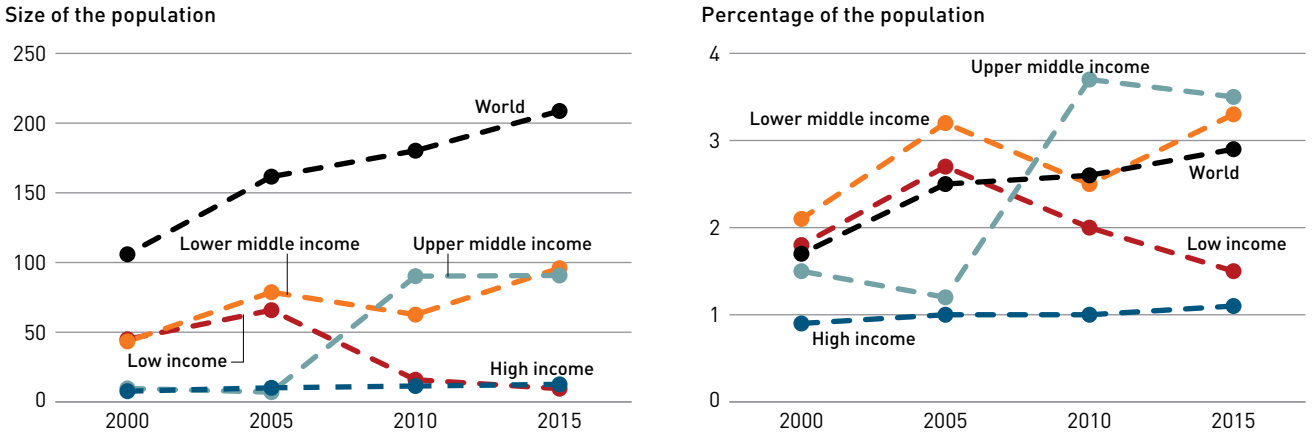
Note: See Annex 2.5 for exact numbers per region.
Source: Based on Global monitoring report on financial protection in health 2019 *(4)*.

FIGURE 2.5 Progress on financial protection, as tracked by Sustainable Development Goal indicator 3.8.2, varies across country income groups

Population with out-of-pocket health spending exceeding 10% of the household budget



Population with out-of-pocket health spending exceeding 25% of the household budget



Source: Global monitoring report on financial protection in health 2019 *(4)*.

increase between 2000 and 2005, they saw a steady decline between 2005 and 2015[12] (see Figure 2.5). So by 2015, the gap between high- and low-income countries narrowed, with high-income countries having almost twice as many people with catastrophic health spending exceeding the 10% threshold (80 million) as low-income countries (43 million), but a similar percentage of the population (6.9%).[13]

In upper-middle-income countries, the sharpest increase in the number of people and percentage of the population with out-of-pocket health spending exceeding both the 10% and 25% thresholds occurred between 2005 and 2010. In lower-middle-income countries, the sharpest increase at both thresholds was between 2010 and 2015. By 2015, about 45% of the world's population with catastrophic health expenditures at both thresholds were living in lower-middle-income countries, and 41%–43% were living in upper-middle-income countries.

PROGRESS ON IMPOVERISHMENT DUE TO OUT-OF-POCKET HEALTH SPENDING

Globally in 2015, out-of-pocket health spending increased the number of people and percentage of the population in poverty. The size of increase varies depending on the poverty line: 89.7 million people were impoverished by out-of-pocket health spending at the $1.90 a day poverty line, 98.8 million people at the $3.20 a day line and 183.2 million people at the relative poverty line of 60% of median daily per capita consumption or income in their country (Table 2.1).

Impoverishment due to out-of-pocket health spending affected all regions. In 2015, the WHO South-East Asia Region had the highest percentage of the population and number of people impoverished by out-of-pocket health spending at the international poverty lines of $1.90 a day (2.8% and 53 million people) and $3.20 a day (3.3% and 63.6 million people) (see Table 2.1). Together with the Western Pacific Region and African Region, they accounted for

TABLE 2.1 Population impoverished by out-of-pocket health spending, by World Health Organization region, 2015

Region	$1.90 a day poverty line		$3.20 a day poverty line		Relative poverty line of 60% of median per capita consumption or income	
	Percentage of the population	Number of people (millions)	Percentage of the population	Number of people (millions)	Percentage of the population	Number of people (millions)
World	1.23	89.7	1.4	98.8	2.5	183.2
African Region	1.51	14.8	1.4	13.3	1.6	15.8
Region of the Americas	0.15	1.5	0.4	4.2	1.5	14.6
Eastern Mediterranean Region	0.39	2.6	1.2	8.2	2.2	14.2
European Region	0.05	0.4	0.1	1.1	1.6	14.3
South-East Asia Region	2.76	53.0	3.3	63.6	3.1	59.7
Western Pacific Region	0.94	17.4	0.4	8.2	3.5	64.5

Source: Based on the Global monitoring report on financial protection in health 2019 *(4)*.

95% of the global population impoverished by out-of-pocket health spending at the $1.90 a day poverty line, 77% of the global population pushed below the $3.20 a day poverty line by out-of-pocket health spending and over three quarters of those pushed below the relative poverty line of 60% of median daily per capita consumption or income. In the Region of the Americas and the European Region, impoverishing health spending was marginal at the absolute poverty lines of $1.90 and $3.20 a day, but at the relative poverty line of 60% of median daily per capita consumption or income, it affected 1.5% in Region of the Americas and 1.6% in the European Region. Out-of-pocket health spending pushes people into poverty or makes them even poorer, even in Europe's richest countries (Box 2.3).

Globally, between 2000 and 2015, out-of-pocket health spending continuously increased global poverty, at varying paces depending on the poverty line. At the $1.90 a day poverty line, congruent with progress towards the eradication of extreme poverty, the percentage of the population impoverished by out-of-pocket health spending decreased continuously by –0.05 percentage point a year on average, from 2%, or 124 million people, to 1.2%, or about 90 million people (Figure 2.6). But progress has been uneven across WHO regions (Figure 2.7):

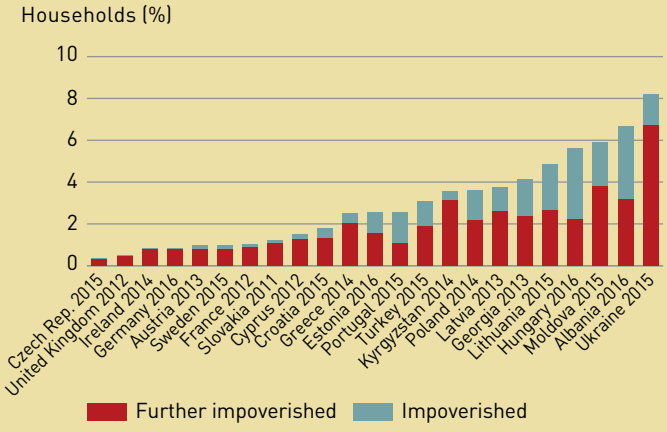
BOX 2.3

Impoverishing health spending in the World Health Organization European Region

The World Health Organization's Regional Office for Europe uses a regionally defined relative poverty line to measure impoverishing health spending. The line reflects the average amount spent on meeting basic needs (food, housing and utilities) by households between the 25th and 35th percentiles of the household consumption distribution. These households are selected to determine the poverty line on the assumption that their spending is able to meet, but not necessarily exceed, basic needs.

Based on this poverty line, the incidence of impoverishing health spending ranges from 0.3% to 9.0% of households (Box figure 1). There is wide variation across EU countries (from 0.3% to 5.9%) and across non-EU countries (from 3.6% to 9.0%).

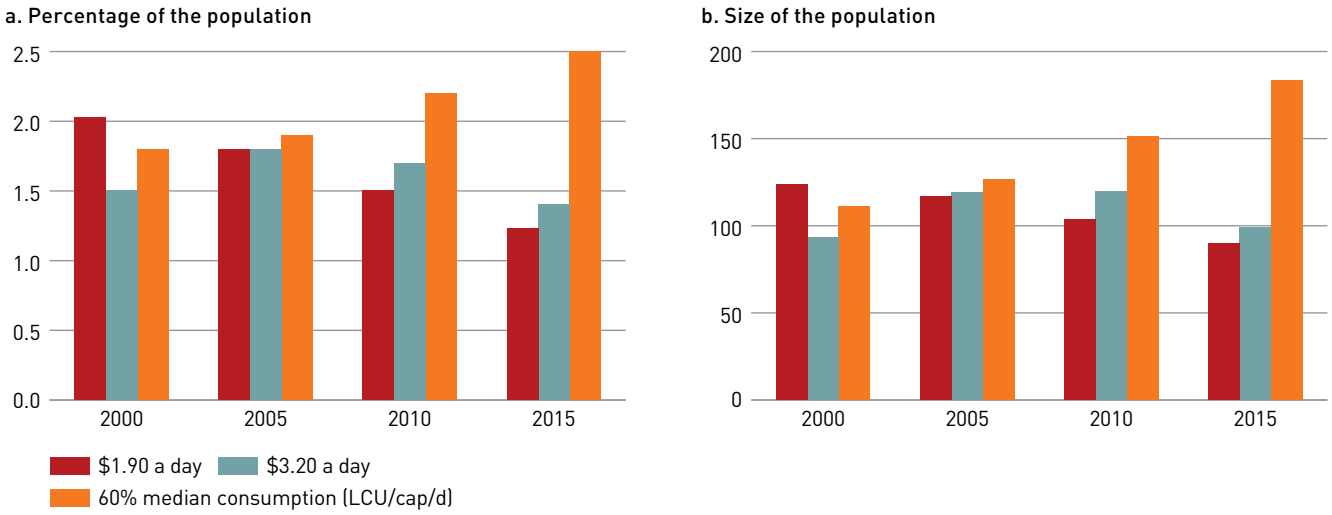
BOX FIGURE 1 Share of households in the World Health Organization European Region with impoverishing health spending, based on a regionally defined relative poverty line



Note: Data are for the most recent year available. A household is impoverished if its total consumption is below the poverty line after out-of-pocket health spending – that is, it is no longer able to afford to meet basic needs. A household is further impoverished if its total consumption is below the poverty line – that is, it is already unable to meet basic needs – and it incurs out-of-pocket health spending (see Box 2.2).
Source: WHO Regional Office for Europe (2019). Can people afford to pay for health care? New evidence on financial protection in Europe *(5)*.

FIGURE 2.6 Globally, the population impoverished by out-of-pocket health spending is decreasing at the absolute poverty lines of $1.90 and $3.20 a day but increasing at the relative poverty line of 60% of median daily per capita consumption or income

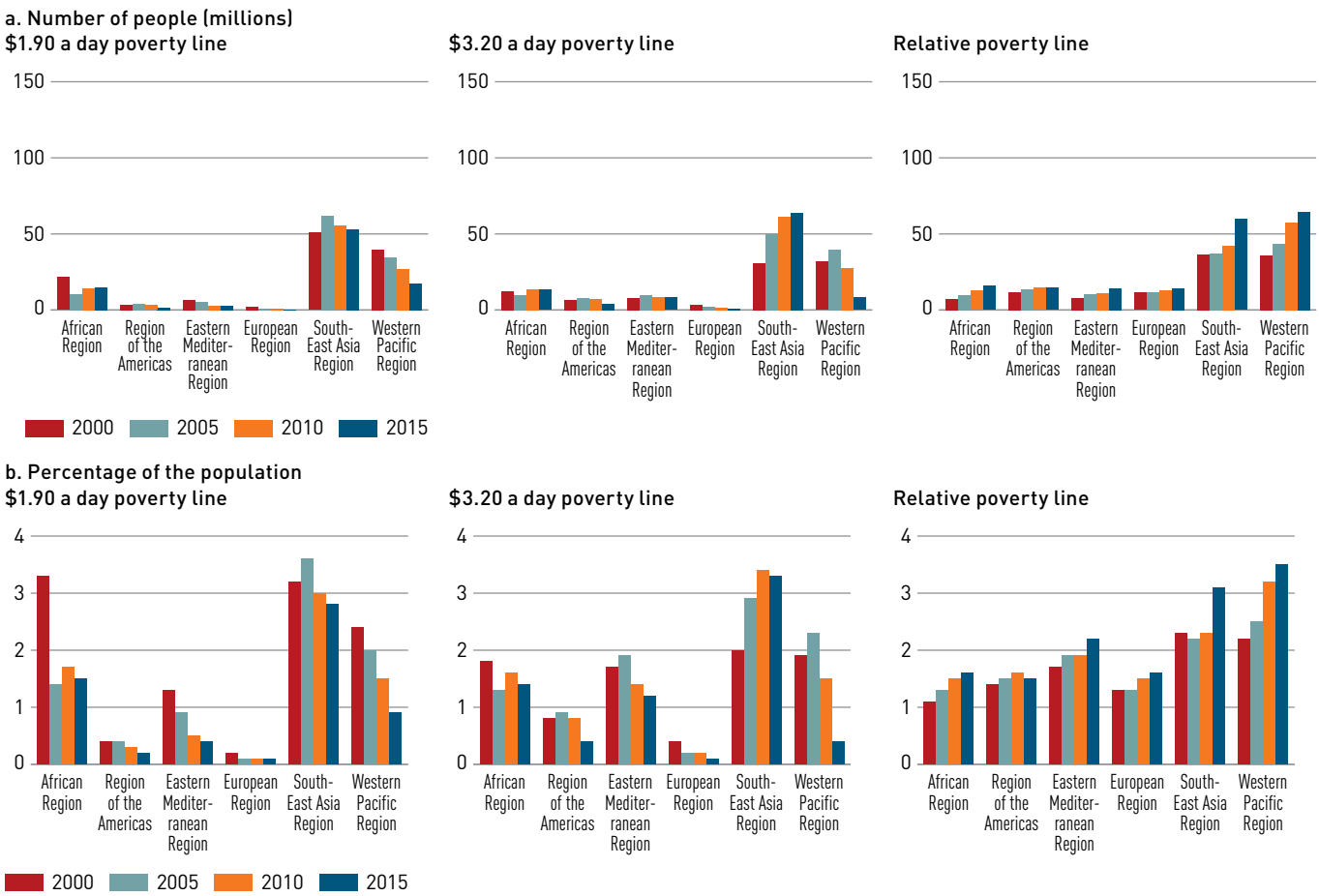
Impoverishment due to out-of-pocket health spending at various international poverty lines



Note: See Annexes 2.6 and 2.7 for exact numbers per reference years.
Source: Global monitoring report on financial protection in health 2019 *(4)*.

FIGURE 2.7 Across World Health Organization regions, progress has been uneven in reducing the incidence of impoverishing health spending at the $1.90 and $3.20 a day absolute poverty lines and the 60% of median daily per capita consumption or income relative poverty line

Incidence of impoverishing health spending at various international poverty lines



Note: See Annexes 2.6 and 2.7 for exact numbers per reference years.
Source: Based on Global monitoring report on financial protection in health 2019 *(4)*.

It decreased steadily only in the WHO Eastern Mediterranean Region and Western Pacific Region in both the number and the percentage of the population pushed below the $1.90 a day poverty line by out-of-pocket health expenditures. In the South-East Asia Region, on the other hand, the number increased by 0.5% a year and the percentage increased by 0.09 percentage point a year. In the African Region, an overall reduction between 2000 and 2015 was driven by a sharp decrease between 2000 and 2005, which was followed by an increase from 2005 to 2015, though at a lower rate than the preceding decrease.

At the $3.20 a day poverty line, the percentage of the population impoverished by out-of-pocket health spending increased from 1.5% in 2000 to 1.8% in 2005 but decreased subsequently until 2015 to reach 1.4%, with the fastest reduction after 2010[14] (see Figure 2.6). Again there are important differences across regions, with a steady increase in the WHO South-East Asia Region, where the number and percentage both increased (see Figure 2.7). In the African Region and the Eastern Mediterranean Region, the number of people pushed below the $3.20 a day poverty line fluctuated around 12–13 million and 8–10 million people, respectively, while the percentage of the population fell in both regions due to overall population increases. The percentage fell sharply in the WHO Western Pacific Region from about 2% of the population in 2000 to less than 0.5% in 2015.

Based on the relative poverty line defined as 60% of median daily per capita consumption or income, the percentage of the global population impoverished by out-of-pocket health spending increased continuously – from 1.8% in 2000 to 2.5% in 2015, or from about 111 million people to 183 million people, with the fastest increase, 0.06 percentage point a year, between 2010 and 2015 (see Figure 2.6a). That increasing pattern was consistent across all regions except the Region of the Americas, where the number of people and the percentage of the population impoverished by out-of-pocket health spending at the relative poverty line of 60% did not change or decline between 2010 and 2015.[15]

At any given point in time, within regions, there are large variations in the percentage of the population with impoverishing health spending. In the most recent year for which surveys are available for global monitoring, at all poverty lines there are countries with the incidence of impoverishing health spending below 1% (Figure 2.8a). But there are also countries with incidence above 3% in the Region of the Americas at all poverty lines, above 10% in the African Region at the $1.90 a day line and the 60% of median per capita consumption or income line and between 5% and 7% in all other regions at all poverty lines.

The incidence of impoverishment due to out-of-pocket health spending does not indicate how poor those pushed into poverty by out-of-pocket health spending are. Nor does it capture the impact of out-of-pocket health spending on households that are already below the poverty line even in the absence of out-of-pocket health spending. But the amount by which out-of-pocket health spending pushes people below the poverty line does capture that impact, shown in the change in the poverty gap due to out-of-pocket health spending. For households already below the poverty line, the change in the poverty gap corresponds to the total out-of-pocket health payment. For households that are impoverished by out-of-pocket health spending, the gap corresponds to the amount that exceeds the shortfall between the poverty line and total consumption. And for households whose consumption is above the poverty line after accounting for out-of-pocket health spending, the gap is zero. These amounts can be expressed as a percentage of the poverty line or in 2011 PPP terms for cross-country comparability.

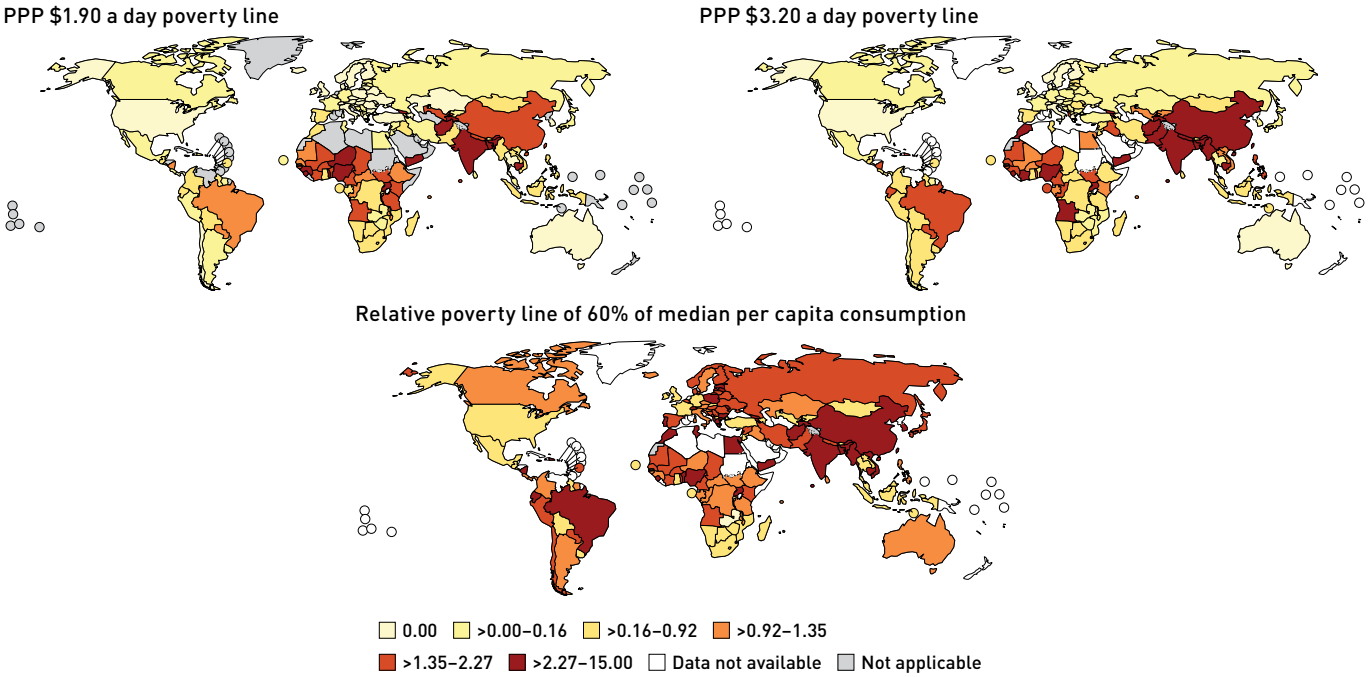
There is important variation in the poverty gap increase due to out-of-pocket health spending in the most recent year for which estimates are available for global monitoring (Figure 2.8b). In all regions and at all poverty lines, there are countries where out-of-pocket health spending contributes only marginally (by less than 0.01 percentage point) to the increase in the poverty gap. The countries in the 90th percentile, by contrast, saw marked changes, ranging, at the $1.90 a day poverty line of extreme poverty, from at least a 1.4 percentage point increase in the poverty gap due to out-of-pocket health spending in the African Region and a 1.5 percentage point increase in the Eastern Mediterranean Region, or 3 cents per capita per day in 2011 PPP terms, to at least 2.7 percentage points or 5 cents per capita per day in the WHO South-East Asia Region.

At the $3.20 a day poverty line, the increase in the poverty gap due to out-of-pocket health spending ranged in the top decile from at least 1.6 percentage point or 5 cents per capita per day in 2011 PPP terms in the African Region to at least 3.5 percentage points or 11 cents per capita per day in the South-Asia Region.[16]

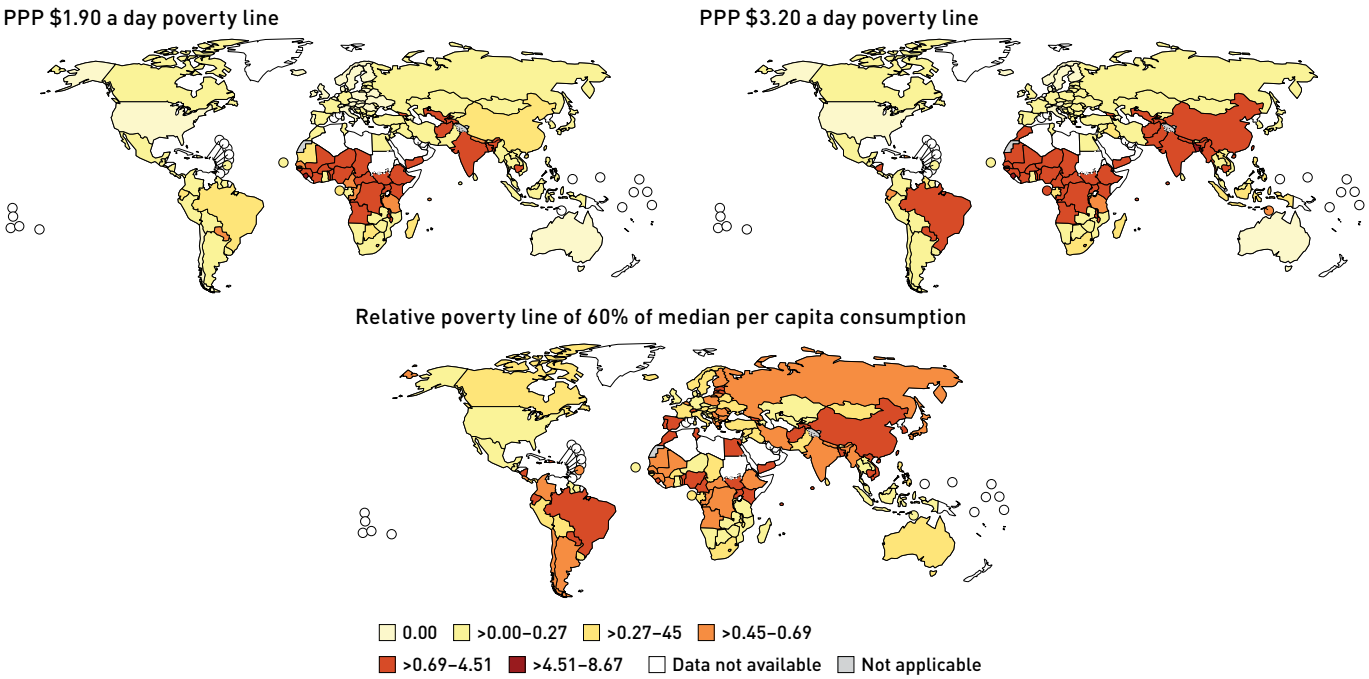
At the relative poverty line of 60% of median daily per capita consumption or

FIGURE 2.8 Within regions, there are large variations in the proportion of people impoverished by out-of-pocket health spending, and in most cases, the countries with the highest incidence also have the largest poverty gap increase attributable to out-of-pocket health spending

a. Percentage of population with impoverishing health spending at various international poverty lines, most recent year available



b. Poverty gap due to out-of-pocket health spending at various international poverty lines, most recent year available



Note: Data are for the most recent year available. The median year is 2012. Cutoff values are kept constant across poverty lines. These maps have been produced by the World Health Organization (WHO). The boundaries, colours or other designations or denominations used in these maps and the publication do not imply, on the part of WHO or the World Bank, any opinion or judgement on the legal status of any country, territory, city or area or of its authorities, or any endorsement or acceptance of such boundaries or frontiers.
Source: Based on Global monitoring report on financial protection in health 2019 *(4)*.

income, the increase in the poverty gap due to out-of-pocket health in the top decile of the Region of the Americas was at least 1.2 percentage point, and in the top decile of European Region, at least 0.84 percentage point.[17]

In most cases, the countries with the highest incidence of impoverishment due to out-of-pocket health spending are also the countries with the highest increase in the poverty gap due to out-of-pocket health spending (see Figures 2.8a and 2.8b). This means that out-of-pocket health spending was adding considerably to the number of poor people and the depth of poverty in those countries.

In 2000, the world population impoverished by out-of-pocket health spending lived primarily in low-income countries. Those in low-income countries accounted for 66% of those pushed below the $1.90 a day poverty line by out-of-pocket health spending, or 46% of the global population pushed below the relative poverty line of 60% of median per capita consumption or income (see Annexes 2.6 and 2.7).

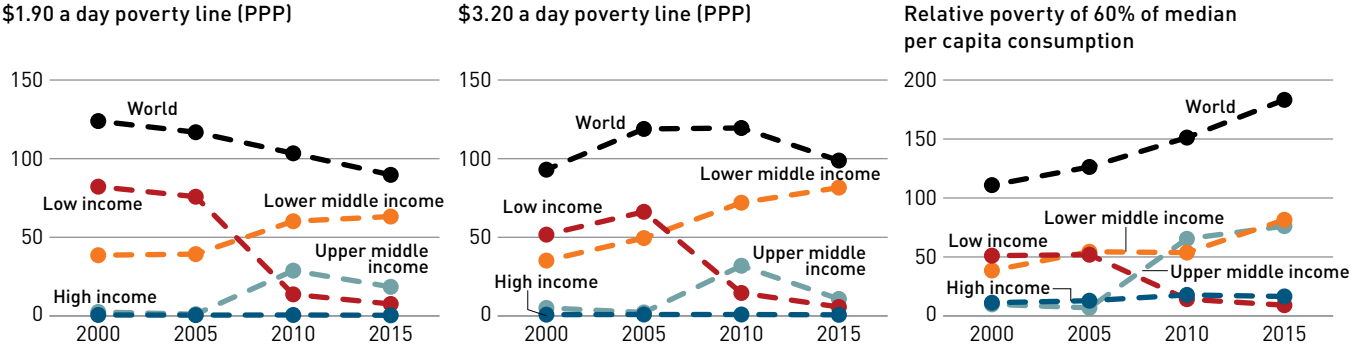
Between 2000 and 2015, the concentration of the world population impoverished by out-of-pocket health spending shifted to lower-middle-income countries at the $1.90 and $3.20 a day poverty lines and to upper middle-income countries at the relative poverty line.[18] By 2015, the low-income country share had fallen to less than 5% at the relative poverty line of 60% of median daily per capita consumption or income, or less than 8.5% at the $1.90 a day poverty line. In high-income countries, the number of people impoverished by out-of-pocket spending at the relative poverty line of 60% of median daily per capita consumption or income increased by an average of 3% a year, with the fastest increase, 7.5% a year, occurring over 2005–2010, followed by a deceleration to 1.4% a year over 2010–2015 (Figure 2.9).

For the 56 low- or lower-middle-income countries for which surveys are available for two or more years, the population-weighted median annual changes in the poverty gap increase attributable to out-of-pocket health spending were –0.03 percentage point at both the $1.90 and $3.20 a day poverty lines in 2011 PPP, or –0.05 cent at the $1.90 a day poverty line and –0.1 cent a year at the $3.20 a day poverty line. At the 60% relative poverty line, for the 90 countries for which surveys are available for two or more years, the population-weighted median annual change in the poverty gap increase was –0.005 percentage point. Thus, the increase in the depth of poverty due to out-of-pocket health spending has been falling at all poverty lines, though only marginally at the relative poverty line.

In summary, indicators of financial protection point to mixed improvements between 2000 and 2015 at the global and regional levels and across income groups in protecting people from incurring financial hardship when spending out of pocket on health. The number of people and percentage of the population impoverished by out-of-pocket health spending at the $1.90 and $3.20 per person per day poverty line has been decreasing at different paces, with progress uneven across regions. Over the same period, the number of people and percentage of the population who incurred catastrophic health spending as tracked by SDG indicator 3.8.2 grew along an increase in impoverishment due to out-of-pocket health spending assessed by a relative poverty line.

FIGURE 2.9 Sharp decreases in the number and percentage of people impoverished by out-of-pocket health spending occurred only in low-income countries, 2000–2015

Number of people incurring impoverishment due to out-of-pocket health spending at various international poverty lines



Source: Based on Global monitoring report on financial protection in health 2019 *(4)*.

Who experiences financial hardship?

SOCIOECONOMIC INEQUALITIES

Disaggregating SDG indicator 3.8.2 on catastrophic health spending by socioeconomic status poses challenges for two main reasons: the indicator is sensitive to the welfare variable used (consumption, consumption net of out-of-pocket spending or income) *(1, 27)*, and it does not account for the fact that poor households spend most of their budget on basic needs such as food, housing and utilities, which means they have limited capacity to spend on health (see Boxes 2.1 and 2.2) *(14)*.

Evidence from the WHO European Region based on a measure of catastrophic health spending that accounts for differences in household capacity to pay for health care developed for the region (Box 2.1) shows that the percentage of households with catastrophic health spending varies widely across countries (including EU countries), ranging from 1% to 17%, but is consistently highest among countries in the poorest consumption quintile of all countries (Figure 2.10).

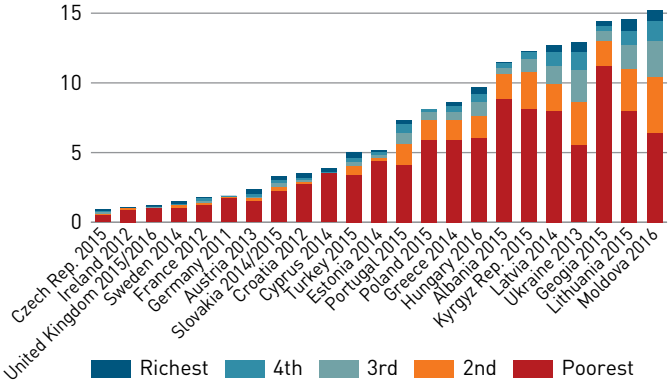
RURAL–URBAN INEQUALITIES

Rural populations tend to be poorer and less healthy, and health systems in rural areas tend to be weaker. Geographic distance and less developed transport services in rural areas pose additional challenges in access to services. The combination of increased poverty, more health needs and greater barriers to access means that, based on SDG and SDG-related indicators, although people in rural areas do not necessarily experience a higher incidence of catastrophic health spending, they tend to experience a higher incidence of impoverishing health spending. Across countries, for the most recent year for which estimates are available for global monitoring, the median share of the population spending more than 10% of the household budget on health is marginally higher in urban areas, while the median share of the population spending more than 25% of the household budget on health is marginally higher in rural areas (Table 2.2). The population-weighted median using the share of the rural population in each country confirms this gap. On average, the incidence of impoverishing health spending (weighted and unweighted) is higher in rural areas at both absolute poverty lines of $1.90 and $3.20 a day.

Across country income groups, rural–urban inequalities in the percentage of the population with out-of-pocket health spending exceeding 10% of household consumption or income are the greatest in low- and high-income countries but with different patterns of inequality. In high income countries, the incidence of catastrophic health spending is higher in rural areas than in urban ones, while in low-income countries the opposite is observed. When comparing the percentage of the population with out-of-pocket health spending exceeding

FIGURE 2.10 Out-of-pocket spending is most likely to lead to catastrophic health spending for the poorest households in the WHO European Region

Proportion of households with catastrophic health spending (out-of-pocket payments greater than 40% of household capacity to pay for health care) by consumption quintile, latest year available



Note: Consumption quintiles are based on per person consumption using Organisation for Economic Co-operation and Development equivalence scales. Some households may appear to be richer than they are because they have borrowed money to finance spending on health (or other items), but it can be safely assumed that households in the poorest quintile are genuinely poor. For the definition of capacity to pay, see Box 2.1.
Source: WHO Regional Office for Europe (2019). Can people afford to pay for health care? New evidence on financial protection in Europe *(5)*.

TABLE 2.2 Rural and urban incidence of catastrophic and impoverishing health spending, as tracked by Sustainable Development Goal and Sustainable Development Goal–related indicators, most recent year available

Catastrophic health spending (SDG 3.8.2, median incidence)	10% of household budget		25% of household budget	
	Rural	Urban	Rural	Urban
Unweighted	7.2	7.6	1.2	1.0
Population weighted	6.6	7.7	1.3	1.0
Impoverishment due to out-of-pocket health spending (average incidence)	**International poverty line (in PPP)**			
	$1.90 poverty line		$3.20 poverty line	
	Rural	Urban	Rural	Urban
Unweighted	1.0	0.6	1.1	1.0
Population weighted	1.3	0.9	1.4	1.3

Note: Weighted by the share of the rural population in each country.
Source: Global monitoring report on financial protection in health 2019 *(4)*.

25% of household consumption or income, the greatest inequalities are in low- and lower-middle-income countries, with the rural populations systematically more likely than urban populations to experience catastrophic health spending (Figure 2.11).

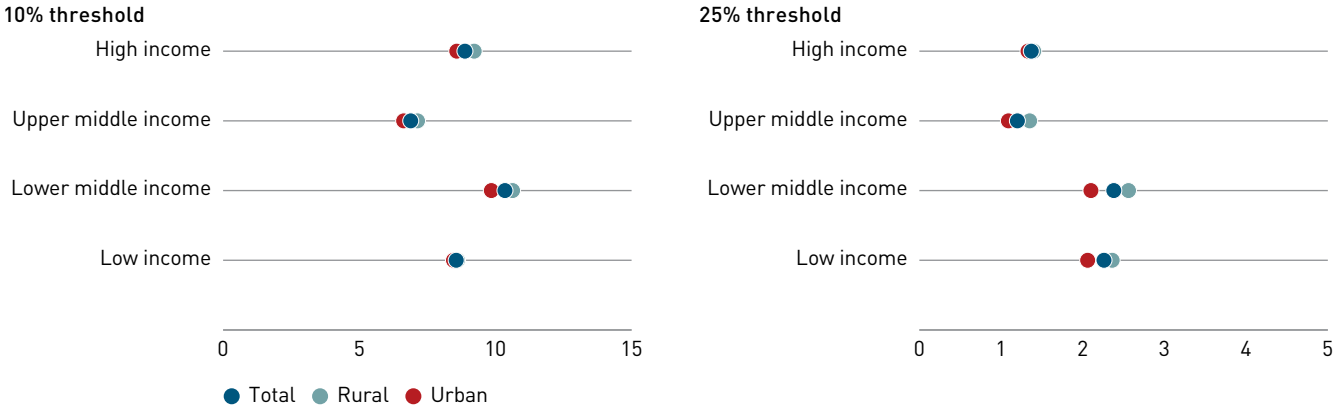
In low-income countries, the rural population is also more likely to experience impoverishing health spending at the $1.90 a day absolute poverty line (the rural median incidence is 0.2 percentage point higher than the urban median incidence of 1.45%), but at the $3.20 a day poverty line, the urban percentage of the population impoverished by out-of-pocket health spending is twice the median rural rate of 0.8%. This difference in the direction of the rural–urban inequality in low-income countries is consistent with the fact that the $3.20 a day poverty line is a higher standard for those countries more likely to capture the impact of out-of-pocket health spending among the richer population, which is likely to live in urban areas. Rural–urban inequalities in the population pushed below an absolute global poverty line are the greatest in lower-middle-income countries, with an additional 0.2 percentage point increase in the median proportion of the rural population impoverished by out-of-pocket health spending above the urban population's 0.3% at the $1.90 a day poverty line and additional 0.4 percentage point at the $3.20 a day poverty line (Figure 2.11).

GENDER INEQUALITIES

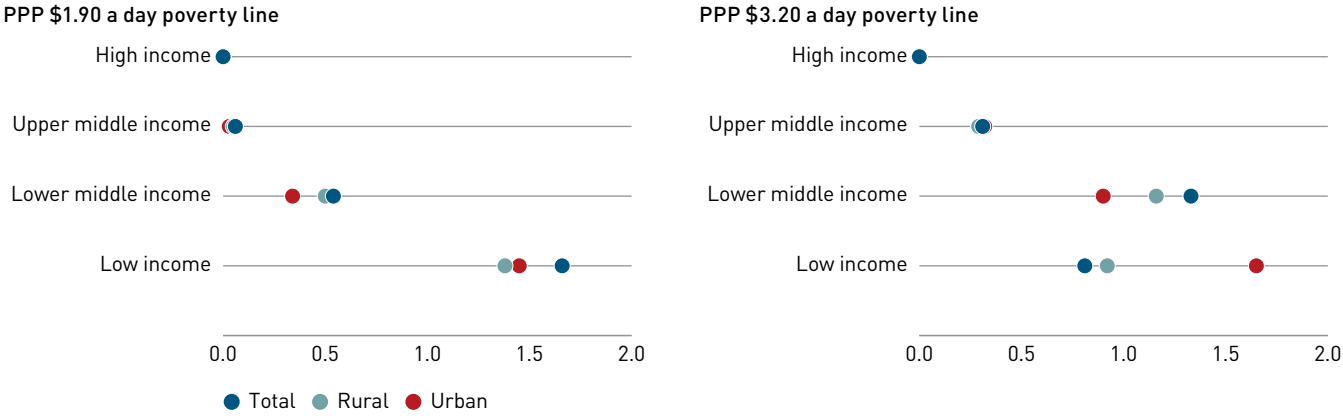
Financial protection is typically measured at the household level, a practice that presumes

FIGURE 2.11 Rural–urban inequalities in the percentage of the population with catastrophic and impoverishing health spending, as tracked by Sustainable Development Goal and Sustainable Development Goal–related indicators by country income group

a. Rural–urban inequalities in the percentage of the population with out-of-pocket health spending exceeding 10% of household consumption or income are greatest in low- and high-income countries, while inequalities in the percentage of the population with out-of-pocket health spending exceeding 25% of household consumption or income are greatest in low- and lower-middle-income countries



b. At the $1.90 a day and $3.20 a day absolute poverty lines, rural–urban inequalities in impoverishing health spending are greatest in lower-middle-income countries. Median percentage of the population impoverishing health spending at the $1.90 and $3.20 a day absolute poverty lines, most recent year available (median is 2014)



Note: Median incidence rates across countries by country income group use the rural share of the population as weights to obtain population-weighted values.
Source: Global monitoring report on financial protection in health 2019 *(4)*.

that a household pools its economic resources to cover the health needs of all its members. Households differ in the age and gender profile of their members. Gender differences in health needs across the life span influence the need for health services. So an analysis of gender inequalities in financial protection should consider the gender mix and the age structure of the household.

In addition, if the analysis's objective is to understand individuals' spending patterns and health-seeking behaviour as well as how economic autonomy influences resource allocation decisions for out-of-pocket health spending, out-of-pocket health spending at the household should ideally be the aggregate of all individuals' expenditures, and the measure of household consumption or income used to capture the household living standard should correspond to the sum of all individuals' resources. Creating these aggregated figures is difficult because health-focused surveys with a wealth of information at the individual level on health-seeking behaviour and related spending patterns generally do not have sufficient information on household consumption or income. Surveys with good information on household consumption or income, on the other hand, often have limited information on health spending at the individual level.

A gender approach to out-of-pocket spending and financial protection in the World Health Organization Region of the Americas

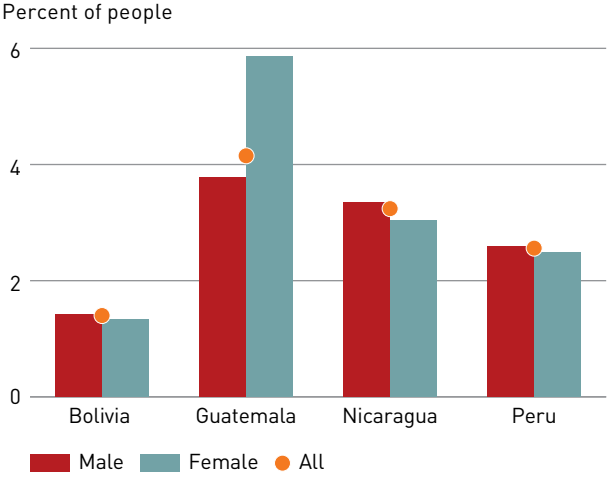
To examine gender inequalities in out-of-pocket health spending and financial protection in the Region of the Americas, PAHO studied whether women individually or female-headed households were at greater risk of experiencing financial hardship *(23)*. The study used household surveys from Bolivia (2014), Guatemala (2014), Nicaragua (2014) and Peru (2015) that provided information on individual-level health spending and the gender of the household head as well as information on household consumption. Among people aged 15 years and older, average individual out-of-pocket health spending (in monetary terms) was always higher among women than among men. The difference ranged from 1.3 times in Bolivia and Peru to 2.2 times in Guatemala. Moreover, the difference increased during child-bearing ages, except in Bolivia, reaching 3.8 in Guatemala for ages 15–44. This shows an expected 'maternity penalty' in those countries. In Guatemala and Nicaragua, differences in out-of-pocket health spending between women and men were even greater among those with social health insurance coverage, suggesting this type of insurance mechanism's failure to protect, especially to protect women.

At the household level, all four countries showed greater out-of-pocket health spending in absolute terms among female-headed households. The greatest difference was in Bolivia, where total out-of-pocket health spending was almost twice that in male-headed households.

But results are mixed when differences in the incidence of catastrophic health spending at the 10% threshold are examined without controlling for any other characteristic: differences are only significant in Guatemala, where the incidence is 5.9% among female-headed households, compared with 3.8% among male-headed households (Figure 2.12).

These preliminary results show that despite specific efforts directed at protecting women and children from health-related financial hardship such as the Bono Juana Azurduy in Bolivia and the Healthy Maternity Law in Guatemala, out-of-pocket health spending remains higher among women individually and among female-headed households. This suggests a need for innovative approaches to target women with policies that eliminate direct payments. The mixed results in

FIGURE 2.12 Female-headed households are not necessarily more likely than male-headed households to incur catastrophic health spending, as tracked by Sustainable Development Goal indicator 3.8.2 at the 10% threshold, when other characteristics are not controlled for in selected countries in the WHO Region of the Americas



Source: Pan American Health Organization/World Health Organization database on financial protection.

financial protection using SDG indicator 3.8.2 between female- and male-headed households in selected countries in the Region of the Americas call for further analysis to consider the age–gender profile of households to better understand how a household's composition influences the extent to which it incurs catastrophic and impoverishing health spending.

Inequalities in catastrophic health spending (SDG indicator 3.8.2) by gender of the head of the household, controlling for poverty and rurality

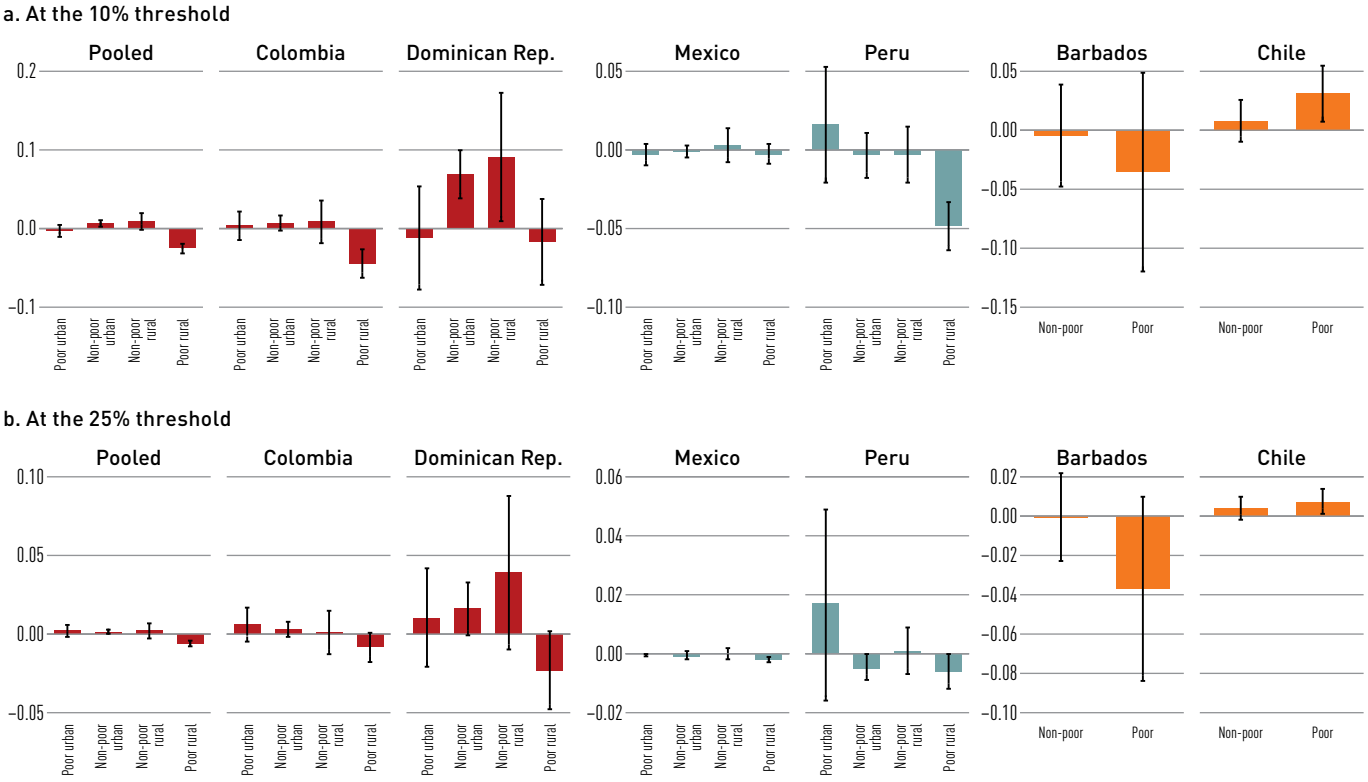
To further explore gender inequalities, while controlling for other socioeconomic determinants available in most surveys used to monitor financial protection, a case study examined six countries in the WHO Region of the Americas (Annex 2.2).

When the study controlled for the household size, geographic location (rural or urban, except in Barbados and Chile), poverty status (identified by the relative poverty line of 60% of median daily per capita consumption), the poverty gap and, where available, the age of the household head (only in Barbados, Chile and Mexico), inequalities by gender of the household head in the incidence of catastrophic health spending became significant. The difference in the probability of incurring catastrophic health spending associated with a female-headed household was most often positive among non-poor urban households and negative among rural poor households. This means that among rural poor households, male-headed households were more likely to spend more than 10% or 25% of the budget on out-of-pocket health spending (Figure 2.13).

However, there were differences across countries. In the Dominican Republic, everything else being equal, female-headed households in non-poor rural and urban populations were more likely to experience financial hardship at the 10% threshold, as defined

FIGURE 2.13 The incidence of catastrophic health spending as tracked by SDG indicator 3.8.2 can show significant inequalities by gender of the household head when controlling for poverty status and rurality, in selected countries of the World Health Organization Region of the Americas

Marginal effect of the gender of the head of the household on the probability of spending out-of-pocket more than 10% or 25% of household's total consumption on health, by rural vs. urban and poverty status, latest available year



Note: Average marginal effect is estimated from a logit regression controlling for the gender of the household head, rural–urban location (except in Barbados and Chile), poverty status (if consumption is below 60% of median per capita consumption in each country), poverty gap, household size and age of the household head (only in Barbados, Chile and Mexico) and, in the pooled regression, including country fixed effects. Data are for 2007 for Dominican Republic, 2015 for Bolivia, 2018 for Peru, and 2016 for all other countries. Interaction effects between gender, poverty status and rural–urban location (where available) are included in all specification and are taken into account in marginal effects calculations.

Source: Pan American Health Organization/World Health Organization database on financial protection.

by SDG indicator 8.3.2, with the association stronger in urban areas. At the 25% threshold, marginal effects were not significant. Gender inequalities among non-poor populations were not significant in any other country but are significant in some cases among poor or rural poor populations (see Figure 2.13). In Colombia and Peru, everything else being equal, rural poor female-headed households were less likely than rural poor male-headed households to have out-of-pocket health spending exceeding the 10% threshold but were equally to have out-of-pocket health spending exceeding the 25% threshold. In Mexico, rural poor female-headed households were also less likely to experience financial hardship, but with a significant difference only at the 25% threshold (–0.2 percentage point). In Chile, where the survey was representative of only the urban population, poor female-headed households were on average more likely than poor male-headed households to have out-of-pocket health spending exceed 10% or 25% of the household budget, with an expected increase in the probability of 3.1 percentage points at the 10% level and 0.7 percentage point at the 25% level. Further analysis is needed to better understand these differences and also link them to the age composition of the household. More detailed data are needed to understand gender differences in the type of out-of-pocket health spending incurred by the household. This in turn will shed light on the relevance of SDG FP measures to the impact of policies targeting specific individuals within the household.

Which health services drive financial hardship?

More analysis is needed to understand the types of health care that drive financial hardship at the global level. Evidence from the South-East Asia Region, the European Region and selected countries mostly in Africa suggests that medicine accounts for the largest share of out-of-pocket health spending among people incurring any out-of-pocket health spending (in South-East Asia) and among households with catastrophic health spending (in the European Region), particularly the poorest households in both regions.

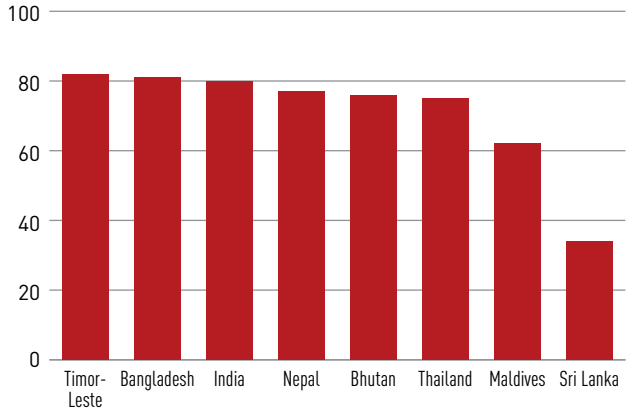
MEDICINES ARE THE MAIN DRIVER OF OUT-OF-POCKET SPENDING ON HEALTH IN THE WORLD HEALTH ORGANIZATION SOUTH-EAST ASIA REGION

The WHO South-East Asia Region consists of 11 Member States and almost 2 billion people living in low- and lower-middle-income countries. Except in Maldives and Thailand, government spending on health ranges from 0.4% to 2.5% of GDP, less than the amount estimated necessary to achieve UHC *(28)*. The financing burden on households is heavy. On average, 47% of current health spending in the region in 2016 was out of pocket. People in Bangladesh and Myanmar pay for more than 70% of health care costs out of pocket *(29)*. With the resources at their disposal already constrained, about 60% of the global population pushed under the $1.90 a day poverty line by out-of-pocket health spending in 2015 were from the South-East Asia Region.

The most recent data analysed show that the dominant contributor to out-of-pocket health spending in eight of the South-East Asia Region's countries is spending on medicines (Figure 2.14) *(7)*. In six of those countries, spending on medicines accounts for more than 75% of total out-of-pocket health spending among households incurring any out-of-pocket health spending. Sri Lanka is the only country where the share of spending

FIGURE 2.14 In six of eight countries in the World Health Organization South-East Asia Region, spending on medicines accounted for more than 75% of total out-of-pocket health spending among households incurring any out-of-pocket health spending

Average out-of-pocket spending on medicines as a share of household total out-of-pocket health spending, among households spending on health out of pocket, WHO South-East Asia region, latest year available



Note: For a definition of out-of-pocket health spending on medicines, see Catastrophic health expenditure and financial protection in eight countries in the WHO South-East Asia Region, table 2 (7). The average share of out-of-pocket spending on medicine is the ratio of household total out-of-pocket spending on medicines to household total out-of-pocket spending on health, averaged across households that incurred any out-of-pocket health spending. Data are for 2009 for the Maldives, 2010 for Bangladesh, 2011 for India, 2012 for Bhutan and Sri Lanka, 2014 for Nepal and Timor-Leste and 2015 for Thailand.
Source: Catastrophic health expenditure and financial protection in eight countries in the WHO South-East Asia Region *(7)*.

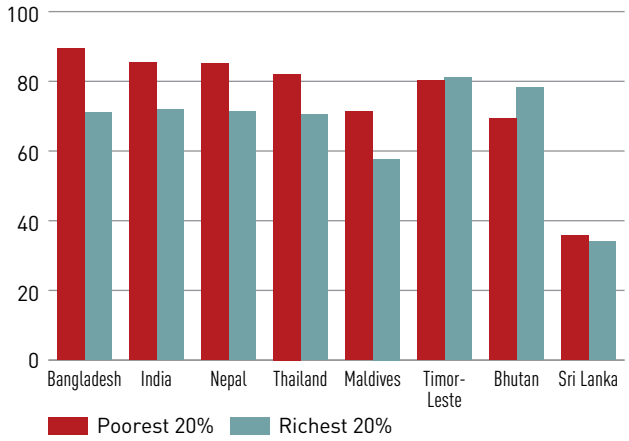
on medicines among those incurring any out-of-pocket health spending averages less than 50%.

Moreover, poorer households usually spend disproportionally more on medicines than richer households (Figure 2.15). In five countries in South-East Asia, the average difference in the share of out-of-pocket health spending on medicines between the richest and the poorest consumption quintiles exceeded 10 percentage points, and in Bangladesh the difference was close to 20 percentage points.

Countries in the South-East Asia Region have tried several policies to tackle disproportionate spending on medicines. They can be classified into three models: Supply-side interventions involve free (or highly subsidized) medicines provided at public facilities, usually following a regularly updated essential medicines list and acquired through central procurement or distribution arrangement. Demand-side policies involve directly reimbursing spending on medicines to providers or patients. And market-based solutions involve final consumer price regulation that aims to make medicines more affordable.

FIGURE 2.15 Poorer households usually spent disproportionally more on medicines than richer households in the WHO South-East Asia Region

Average out-of-pocket spending on medicines as a share of household total out-of-pocket health spending, for the bottom and top consumption quintiles, latest year available



Note: Consumption quintiles are based on daily per capita consumption. The bottom quintile is labelled 'poorest' and the top quintile 'richest'. Some households may appear to be richer than they are because they have borrowed money to finance spending on health (or other items), but it can be safely assumed that households in the poorest quintile are genuinely poor. Data are for 2009 for Maldives, 2010 for Bangladesh, 2011 for India, 2012 for Bhutan and Sri Lanka, 2014 for Nepal and Timor-Leste and 2015 for Thailand.

Source: Catastrophic health expenditure and financial protection in eight countries in the WHO South-East Asia Region *(7)*.

While many countries have had some combination of these policies in place, the persistence of high out-of-pocket health spending on medicines suggests that they have been ineffective *(30)*.

Tackling the medicine issue is critical to ensuring progress in financial protection – and in UHC – in the region. More research needs to be done to inform the design of pharmaceutical policies to improve access to and affordability of medicines. Special attention needs to be paid to their potential impact on the poor.

THE VAST MAJORITY OF OUT-OF-POCKET HEALTH SPENDING IS MADE FOR MEDICINES AND OUTPATIENT CARE RATHER THAN HUGE HOSPITAL BILLS IN SELECTED AFRICAN COUNTRIES

A recent analysis focusing on service coverage[19] and financial protection outcomes within selected countries mostly in Africa (Global Financing Facility countries) looks at the nature, distribution and determinants of out-of-pocket spending for health *(31)*. Many of these countries are still heavily reliant on out-of-pocket health spending as a way of funding health services, leading to problems of foregone care and catastrophic and impoverishing health spending. In recent years, the share of out-of-pocket health spending in total health spending has fallen in only about half of the countries. On the other hand, financial protection, as measured by the incidence of catastrophic and impoverishing payments using SDG and SDG-related indicators, has improved in a few, and where it has, it usually coincided with substantial improvements in the coverage of reproductive, maternal, newborn, child and adolescent health and nutrition services.

The analysis shows that the incidence of catastrophic health expenditures (SDG indicator 3.8.2) or impoverishment due to out-of-pocket health expenditures (using global poverty lines), is negatively correlated across these countries with the share of compulsory prepaid and pooled expenditure (government spending) in total current health spending, and hence positively correlated with the share of out-of-pocket health spending in total health expenditure.

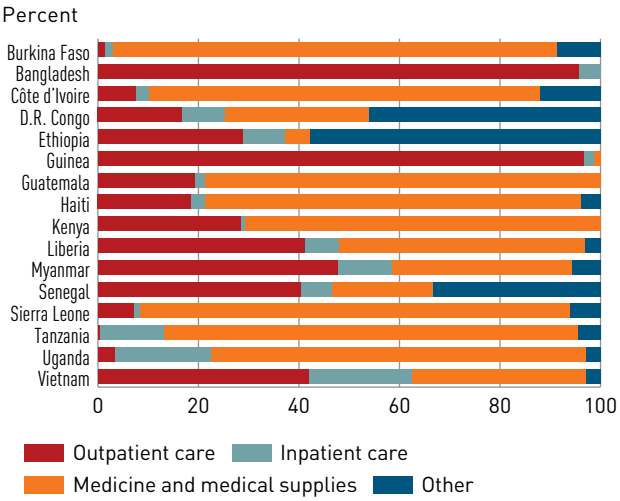
The study also finds that the majority of household out-of-pocket health spending is related to medicines and outpatient care, and not necessarily to huge hospital bills (Figure 2.16). Moreover, the structure of out-of-pocket health spending is similar if the focus is put on those households experiencing catastrophic payments at the 10% of household

budget threshold, which suggests that is it not so much one specific type of expenditure that becomes catastrophic, but rather the accumulation of spending.

OUTPATIENT MEDICINES ARE THE MAIN DRIVER OF FINANCIAL HARDSHIP IN THE WORLD HEALTH ORGANIZATION EUROPEAN REGION

Households with catastrophic health spending (defined in the WHO European Region as out-of-pocket health spending exceeding 40% of household capacity to pay for health care using a food, housing and utilities approach – see Box 2.1) are spending mostly on outpatient medicines, followed by inpatient care and dental care (Figure 2.17). The outpatient medicine share of out-of-pocket health spending tends to be higher in countries where the overall incidence of catastrophic health spending is higher. It is consistently higher than average for the poorest quintile of the population, even in countries where the overall incidence of catastrophic health spending is relatively low. Dental care is a greater source of financial hardship than outpatient medicines in countries where the overall incidence of catastrophic health spending is relatively low; it does not seem to be a major source of financial hardship for the poorest households in most countries because poor households tend to forgo dental care (see Box 2.5).

FIGURE 2.16 Drivers of out-of-pocket expenditures in selected countries, mostly in Africa



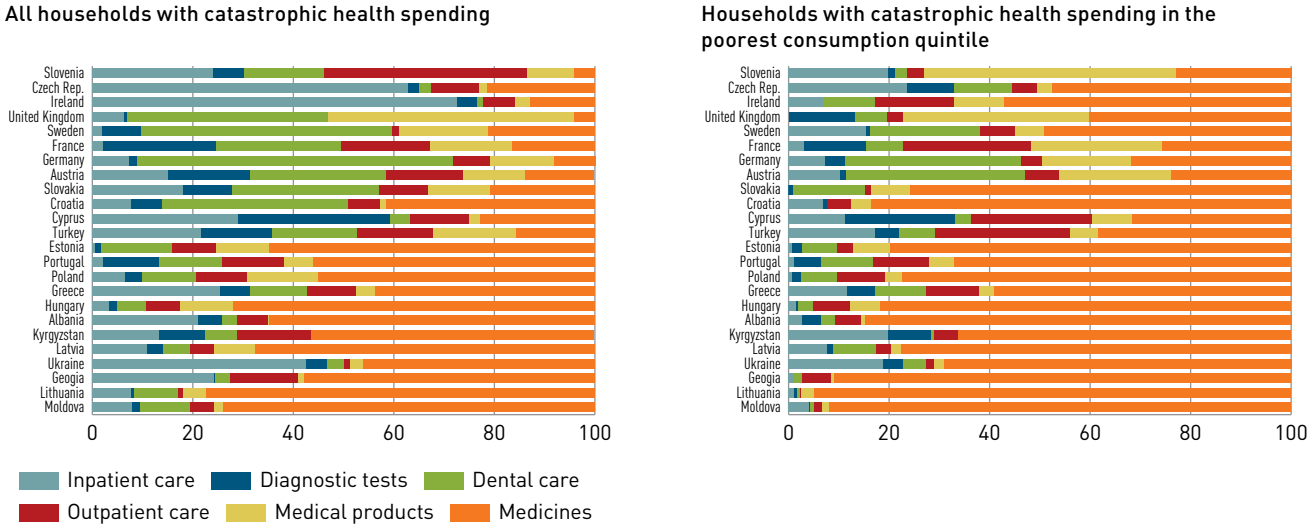
Source: HEFPI dataset: https://datacatalog.worldbank.org/dataset/hefpi. and (31)

Health system factors that influence financial protection

The only way to improve financial protection is to reduce households' out-of-pocket health spending. Out-of-pocket health spending is part of the health financing landscape in all countries at all income levels, and the

FIGURE 2.17 In the World Health Organization European Region, households with catastrophic health spending are spending mostly on outpatient medicines, followed by inpatient care and dental care

Breakdown of out-of-pocket payments by health service among households with out-of-pocket payments greater than 40% of household capacity to pay for health care, latest year available



Note: Median most recent year is 2015. Countries are ranked by incidence of catastrophic health spending from lowest to highest. Consumption quintiles are based on daily per capita consumption using Organisation for Economic Co-operation and Development equivalence scales. See Boxes 2.1 and 2.2 for the definition of catastrophic health spending used in the region.

Source: WHO Regional Office for Europe. Can people afford to pay for health care? New evidence on financial protection in Europe *(5)*.

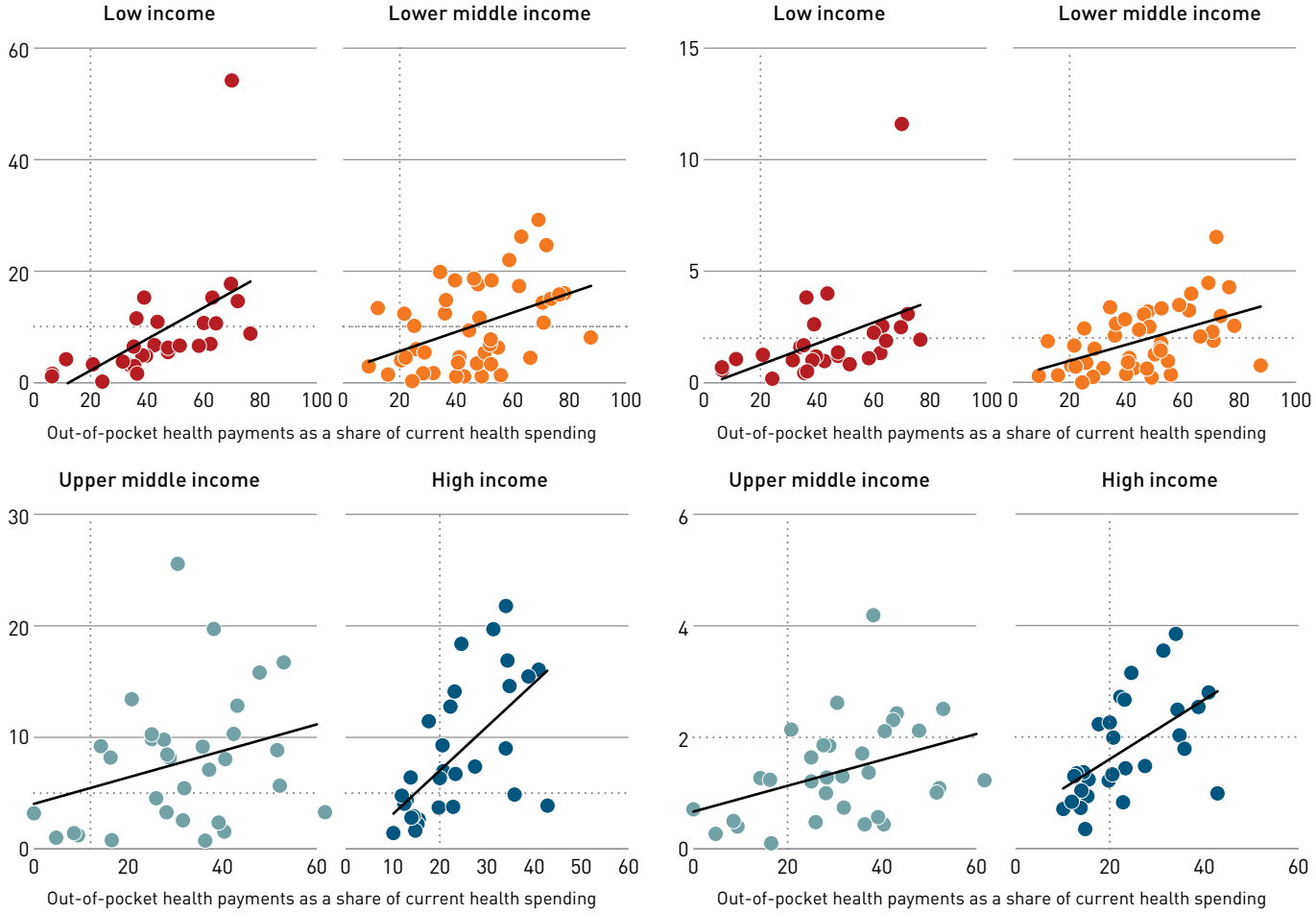
incidence of catastrophic and impoverishing health spending, as measured by SDG and SDG-related indicators, tends to increase with the share of out-of-pocket health spending in current health spending (Figure 2.18). However, variation in the share of out-of-pocket spending in current health spending only partially explains variations across countries in the percentage of the population with health spending exceeding 10% of household consumption or income: the coefficient of determination ranges from 8% in low-income countries to 37% in high-income countries. The share of out-of-pocket health spending in current health spending also only partially explains impoverishment due to out-of-pocket health spending. For instance, at the relative poverty line of 60% of median daily per capita consumption or income, the coefficient of determination ranges from 15% in lower-middle-income countries to 32% in high-income countries. Countries with the same share of out-of-pocket health spending, even if it is below 20% of current health spending, can have very different levels of catastrophic and impoverishing health spending, as measured with SDG and SDG-related indicators.

In the WHO European Region, there is a strong association between the incidence of catastrophic health spending (defined as out-of-pocket health spending exceeding 40% of household capacity to pay for health care) and the share of out-of-pocket spending in current health spending (Figure 2.19).

FIGURE 2.18 The incidence of catastrophic and impoverishing health spending, as tracked by Sustainable Development Goal and Sustainable Development Goal–related indicators, varies across countries with similar shares of out-of-pocket health spending in current health spending

a. Percentage of the population with out-of-pocket health spending exceeding 10% of the household total consumption or income (Sustainable Development Goal 3.8.2)

b. Percentage of the population with impoverishing health spending at the relative poverty line of 60% of median per capita consumption



Source: SDG indicator 3.8.2 and SDG-related indicators of financial protection from the global database on financial protection assembled by WHO and the World Bank, 2019 update. Out-of-pocket health payments as a share of current health spending from the WHO global health expenditure database.

Global analysis has shown that greater reliance on public spending on health (defined as the share of total health spending channelled through social security funds and other government agencies) tends to be negatively correlated with the incidence of catastrophic and impoverishing health spending (measured using SDG and SDG-related indicators) and has found no significant association between financial protection indicators and the share of total health spending channelled through private voluntary insurance *(2,3)*.

Increases in public spending on health or reductions in out-of-pocket spending are not enough to improve financial protection in all contexts, however. To guide policy at the regional and national levels, WHO regions are fostering approaches to monitoring financial protection that combine statistical analysis with policy analysis. These approaches lead to a better understanding of the factors that influence financial protection and enable tailored guidance for policy.

Evidence from the WHO European Region shows that coverage policy – the way in which coverage is designed, implemented and governed – plays a key role in determining financial hardship, not just patterns of health spending *(5)*.

Gaps in health coverage in the European Region arise from weaknesses in the design of three policy areas: The basis for population entitlement leaves some people without access to publicly financed health services. The range of services that is publicly financed – the benefits package – is narrow, or there are issues relating to the availability, quality and timeliness of services. Or there are user charges (copayments) in place for services in the benefits package (Box 2.4).

Weaknesses in coverage policy undermine equity and efficiency by creating financial barriers to access, shifting the financial burden of paying for health care onto those who can least afford it – poor people and regular users of health services – and encouraging inefficient patterns of use.

Financial protection needs to be linked to evidence on service coverage, access to health services and unmet need for health care

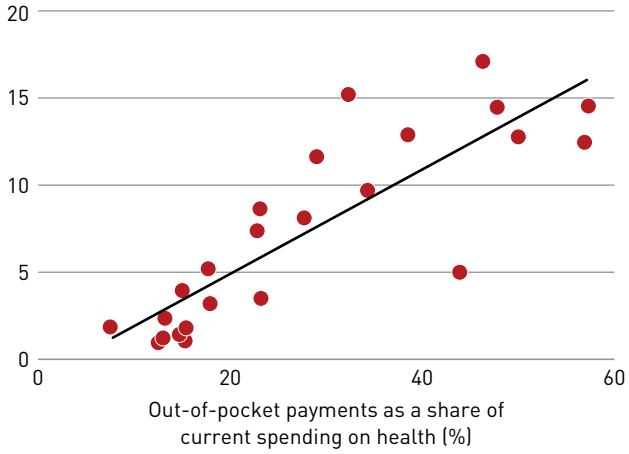
Financial protection is just one dimension of UHC. Its focus has been on the impact of out-of-pocket health spending for people using health services. But when health services are unaffordable to the extent that people simply forgo care, those people will not face catastrophic or impoverishing health spending. Linking financial protection to use of services or unmet needs is one way to identify whether low SDG and SDG-related indicators are driven by poor access to services rather than protection against out-of-pocket health spending. Such information is not usually available in the household surveys used to monitor financial protection.

In the WHO European Region, however, analysis of financial protection draws on evidence of self-reported unmet need from surveys carried out in the European Union (Box 2.5). It finds that health systems with strong financial protection and low unmet need for health care share several features *(5)*:

- There are no major gaps in health coverage, and coverage policy – the way in which health coverage is designed, implemented and governed – is carefully designed to minimize access barriers and out-of-pocket payments, particularly for poor people and regular users of health services.
- Public spending on health is high enough to ensure relatively timely access to a broad range of health services without informal payments.

FIGURE 2.19 In the World Health Organization European Region, the share of out-of-pocket payment in current health spending can be used as a proxy for financial protection when data on financial protection are lacking

Incidence of catastrophic health spending (out-of-pocket health spending exceeding 40% of household capacity to pay for health care) and the share of out-of-pocket spending in current health spending, most recent year available



Note: R^2=0.71. R^2 is the coefficient of determination. Data on out-of-pocket spending are for the same year as data on catastrophic incidence. Median most recent year is 2015. For the definition of catastrophic incidence see Boxes 2.1 and 2.2.
Source: WHO Regional Office for Europe. Can people afford to pay for health care? New evidence on financial protection in Europe *(5)*.

BOX 2.4

Acting on the evidence: better copayment policy is key in the World Health Organization European Region

Evidence from the World Health Organization European Region shows that the first step to strengthening financial protection in a given context is to identify gaps in coverage. The next step is to address them by carefully redesigning coverage policy.

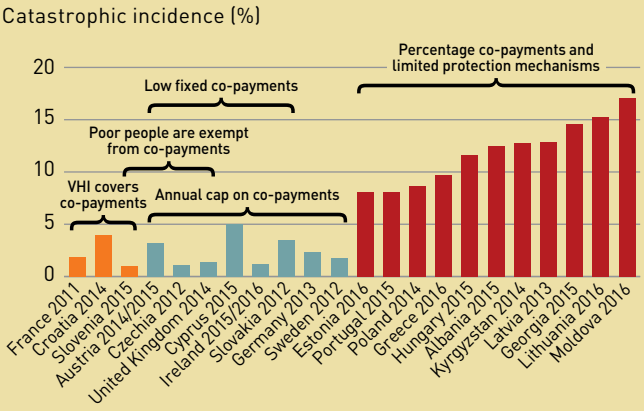
Copayment policy is a key determinant of financial protection in health systems in the region (Box figure 1). It is the most important factor in countries where financial hardship is driven by outpatient medicines and the scope of the publicly financed benefits package is adequate. Countries can improve copayment design by introducing exemptions for poor people, applying annual caps to all copayments and replacing percentage copayments with low fixed copayments.

There is a wealth of good practice in Europe. Lessons can be learned from countries with strong financial protection and from countries where financial protection is weak overall but steps have been taken to protect poor people *(5)*.

Taking steps to benefit the most disadvantaged people first – known as 'progressive universalism' *(32)* – is vital in contexts where public resources are severely limited. It also offers advantages in countries that do not face a severe budget constraint, enabling them to meet the challenge of leaving no one behind by ensuring that poor people gain at least as much as those who are better off at every step on the path to universal health coverage.

Progressive universalism rests on the ability to identify the health services most likely to lead to financial hardship, the people most likely to be affected and the root causes of gaps in coverage. This in turn requires indicators and metrics amenable to equity analysis, such as those developed and used by the WHO Regional Office for Europe (see Box 2.2).

BOX FIGURE 1 Copayment policy is a key determinant of financial protection in health systems



Note: Catastrophic health spending is defined in the World Health Organization European Region as out-of-pocket health spending exceeding 40% of household capacity to pay for health care. VHI is voluntary health insurance. In most countries, VHI exacerbates inequalities in access to health care and financial protection because it is consistently more likely to be taken up by richer households *(33)*. VHI is shown to be protective only at the health system level, where it covers copayments for publicly financed health services and covers most of the population, including most poor people. Only three countries meet these conditions: Croatia, France and Slovenia *(33, 34)*.
Source: WHO Regional Office for Europe, *Can people afford to pay for health care? New evidence on financial protection in Europe (5).*

- Out-of-pocket payments are low, accounting for less than or close to 15% of current spending on health.

Within the SDG monitoring framework, financial protection monitoring is complemented by an analysis of service coverage through the composite index of essential services (SDG indicator 3.8.1). Combining findings on service coverage and financial protection, in 2017, an estimated 3.8–5.0 billion people did not have access to services (see Table 1.1 in chapter 1), and in 2015 almost 930 million people had out-of-pocket health spending exceeding 10% of the household budget, with about 210 million of them having out-of-pocket health spending exceeding 25% of the household budget (see Annex 2.5). But these staggering numbers result from different trends.

While service coverage, as tracked by the SDG UHC service coverage index, has been increasing since 2000 at 2.3% a year, financial protection has not improved – the number of people with catastrophic expenditures, as tracked by SDG indicator 3.8.2, has risen on average by 3.6% a year.[20] Continued efforts will be needed to further improve service coverage and reduce the incidence of catastrophic health spending experienced by people using needed health services (Figure 2.20). Between 2010 and 2015, the WHO Region of the Americas was the only region that saw improvements in both service coverage and financial protection (Figure 2.21).

BOX 2.5

Unmet needs are part of financial protection analysis in the World Health Organization European Region

Financial protection indicators capture financial hardship arising from the use of health services but do not indicate whether out-of-pocket payments create a barrier to access, resulting in unmet need. Bringing together data on financial hardship and unmet need reveals the following findings for the World Health Organization European Region.

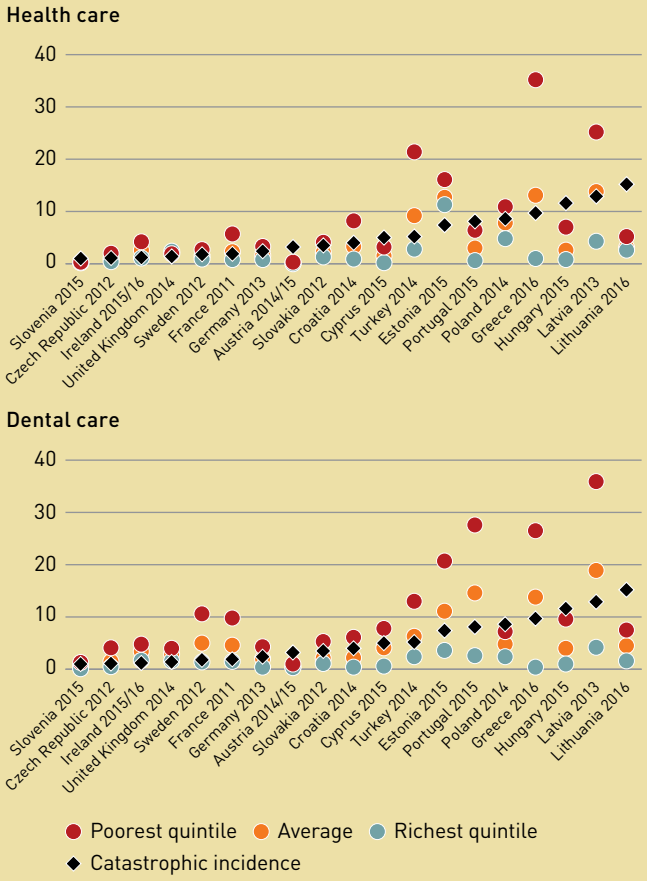
In countries where the share of households with catastrophic health spending (out-of-pocket spending exceeding 40% of household capacity to pay for health care) is very low, unmet need also tends to be low and without significant income inequality (Box figure 1). In countries where the share of households with catastrophic health spending is high, levels of unmet need are also relatively high, and income inequality between households with and without unmet need tends to be significant.

Data on unmet need help to explain the differences in the composition of out-of-pocket health spending among households with catastrophic health spending (see Box figure 1). Dental care is not a source of financial hardship for poor households because poor households are more likely to experience unmet need for dental care.

Faced with financial barriers to access, poor people may forgo the use of health services that they do not consider essential, such as dental care, and prioritize the use of outpatient medicines. Households that prioritize out-of-pocket spending on outpatient medicines can still experience unmet need. Unmet need for prescribed medicines is generally higher in countries with a higher incidence of catastrophic spending (data not shown) *(5)*.

BOX FIGURE 1 **In countries in the WHO European Region where the incidence of catastrophic health spending is very low, unmet need also tends to be low and without significant income inequality**

Percent of population, latest year available

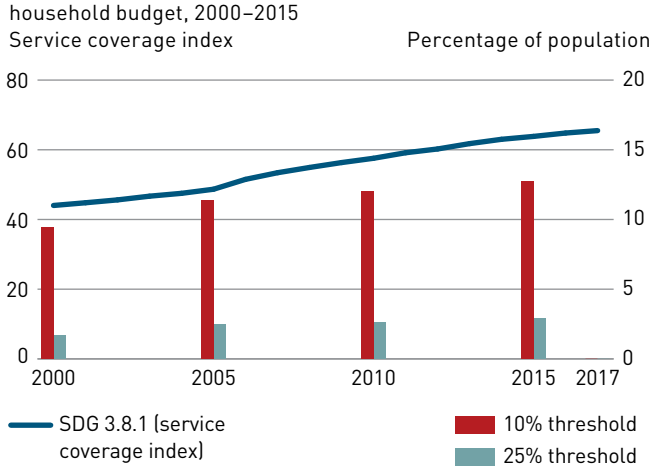


Note: Catastrophic health spending is defined in the World Health Organization European Region as out-of-pocket health spending exceeding 40% of household capacity to pay for health care and unmet need for health and dental care due to cost, distance or waiting time. Population refers to people aged 16 years and older. Quintiles are based on income. Data on catastrophic incidence and unmet need are for the same year.
Source: WHO Regional Office for Europe, *Can people afford to pay for health care? New evidence on financial protection in Europe (5).*

Between 2000 and 2015, service coverage and impoverishing health spending were on divergent paths (see Figure 2.22). The African Region is the only region that has experienced a sharp improvement in service coverage since 2000, which was initially, between 2000 and 2005, concurrent with a reduction in impoverishment due to out-of-pocket health spending at both the $1.90 and $3.20 a day global poverty lines; but after 2005, impoverishment increased again at 4.1% a year (Figure 2.23). The increase in service coverage continued after 2005, but the increase in financial protection did not. In the Western Pacific Region, improvements in service coverage were followed by a sharp decline in

FIGURE 2.20 **A global challenge on the path to universal health care arises in diverging trends on health service coverage and catastrophic health spending, as tracked by Sustainable Development Goal indicators 3.8.1 and 3.8.2**

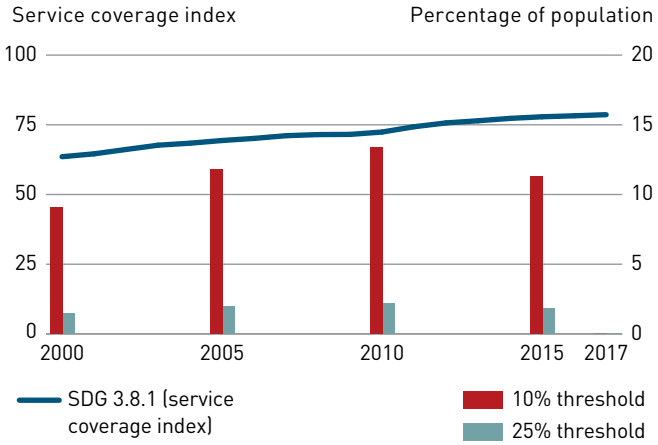
Service coverage index and percentage of the global population with out-of-pocket health spending exceeding 10% or 25% of the household budget, 2000–2015



Source: Service coverage indicator (SDG indicator 3.8.1) based on Chapter 1 of this report. SDG indicator 3.8.2 adapted from Global monitoring report on financial protection in health 2019 *(4)*.

FIGURE 2.21 **Between 2010 and 2015, the World Health Organization Region of the Americas is the only region that saw an increase in health service coverage as tracked by Sustainable Development Goal indicator 3.8.1 and a decrease in the incidence of catastrophic health spending as tracked by Sustainable Development Goal indicator 3.8**

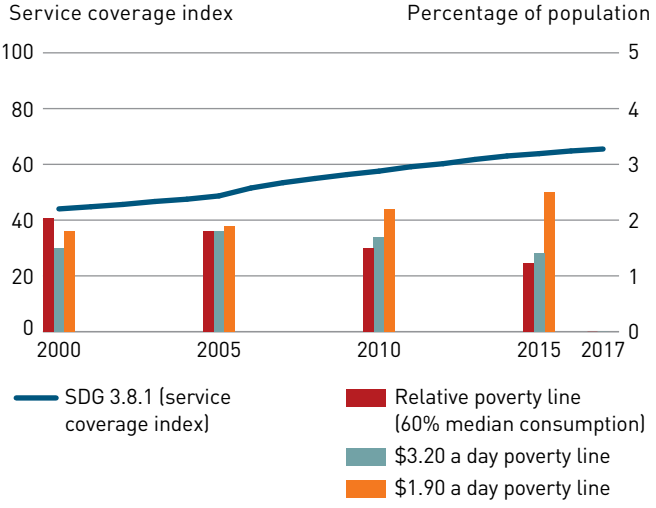
Service coverage index and percentage of the global population with out-of-pocket health spending exceeding 10% or 25% of the household budget



Source: Service coverage indicator (SDG indicator 3.8.1) based on Chapter 1 of this report. SDG indicator 3.8.2 adapted from Global monitoring report on financial protection in health 2019 *(4)*.

FIGURE 2.22 **Between 2000 and 2015, the steady increase in global health service coverage, as tracked by Sustainable Development Goal 3.8.1, was followed by reductions in the percentage of the population pushed into extreme poverty by out-of-pocket health spending but an increasing incidence of impoverishing health spending at the relative poverty line of 60% of median consumption**

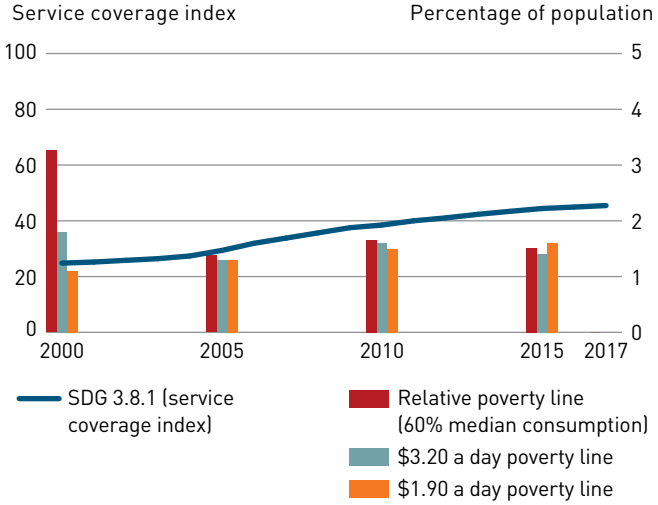
Service coverage index and percentage of the global population with impoverishing health spending at various poverty lines



Source: Service coverage indicator (SDG indicator 3.8.1) based on Chapter 1 of this report. SDG indicator 3.8.2 adapted from Global monitoring report on financial protection in health 2019 *(4)*.

FIGURE 2.23 **The World Health Organization African Region is the only region that saw a sharp increase in health service coverage initially concurrent with a decrease in the incidence of impoverishing health spending at both global poverty lines of $1.90 and $3.20 a day, but since 2005, improvement has been sustained only in service coverage**

Service coverage index and percentage of the global population with impoverishing health spending at various absolute global poverty lines



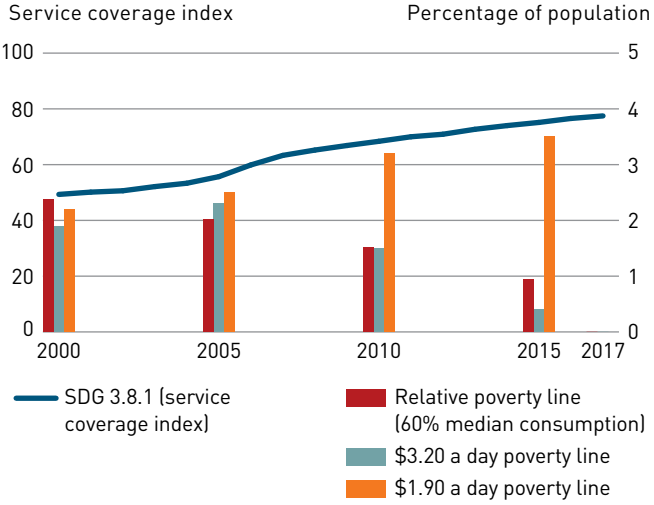
Source: Service coverage indicator (SDG indicator 3.8.1) based on Chapter 1 of this report. SDG indicator 3.8.2 adapted from Global monitoring report on financial protection in health 2019 *(4)*.

impoverishing health spending at the $1.90 a day poverty line but a similarly sharp increase in impoverishment due to out-of-pocket health spending at the $3.20 a day poverty line (Figure 2.24). Within all regions, progress towards UHC might differ across countries, with service coverage and financial protection following different trajectories and countries facing different corresponding challenges to sustain improvements or increase coverage in both dimensions (Figure 4.10 in Chapter 4).

Previous global analysis has shown that SDG and SDG-related indicators of financial protection are positively correlated with GDP per capita *(2, 3)*, suggesting that as countries become richer, people may face greater financial hardship due to increased exposure to out-of-pocket payments. The challenge for policy is to ensure that any additional resources for health care are channelled through compulsory pooled prepayment mechanisms rather than through out-of-pocket spending, so that improvements in service coverage are also accompanied by improvements in financial protection.

FIGURE 2.24 The World Health Organization Western Pacific Region has seen increases in health service coverage followed by a sharp decrease in the incidence of impoverishing out-of-pocket health spending at the $1.90 a day poverty line but a sharp increase at the $3.20 a day poverty line

Service coverage index and percentage of the global population with impoverishing health spending at various absolute global poverty lines



Source: Service coverage indicator (SDG indicator 3.8.1) based on Chapter 1 of this report. SDG indicator 3.8.2 adapted from Global monitoring report on financial protection in health 2019 *(4)*.

Notes

1. Both international poverty lines of $1.90 and $3.20 a day are expressed in 2011 PPP terms. In the rest of the chapter, dollars refer to international dollars in 2011 PPP terms.
2. For a more detailed discussion about the sensitivity of financial protection estimates to the choice of welfare measure, see the 2017 Global monitoring report on universal health care *(1)* and "Out-of-Pocket Expenditures on Health," by Wagstaff, Eozenou and Smitz *(20)*. This report typically uses consumption inclusive of out-of-pocket health spending as the measure of household welfare.
3. For a definition of all health services and products included in the definition of out-of-pocket health spending, see division 06 of the classification of household consumption according to purpose (2018) https://unstats.un.org/unsd/class/revisions/coicop_revision.asp.
4. For a detailed discussion of categories of data points and methods used to construct global and regional estimates and to update the global database on financial protection, see Global monitoring report on financial protection in health 2019 *(4)*.
5. 5.3% a year at the 10% threshold and 7.1% a year at the 25% threshold.
6. Roughly 0.3 percentage point a year at the 10% threshold and 0.12 percentage point a year at the 25% threshold in both regions.
7. In the South-East Asia Region the population with out-of-pocket health spending exceeding the 10% threshold increased on average by 6.4% a year between 2010 and 2015, five times the 1.3% average per year in 2005–2010; at the 25% threshold, the increase was even sharper – from 0.2% to 9%. In the European Region the number of people with out-of-pocket expenditures exceeding the 10% threshold increased on average by 2.9% a year between 2005 and 2010, almost three times faster than the 1% a year average in 2005–2010; at the 25% threshold the population increased on average by 2.5% a year between 2010 and 2015, up from 0.7% a year between 2005 and 2010.
8. In the African region the marginal reduction in the percentage of the population incurring catastrophic health spending occurred only at the 10% threshold; in the Western Pacific region, at both thresholds.
9. In the Region of the Americas, the number of people with out-of-pocket health spending exceeding the 10% threshold fell on average by 2.4% a year and the percentage of the population fell on average by 0.4 percentage point a year; the number of people with out-of-pocket health spending exceeding the 25% threshold fell on average by 2% a year while the percentage fell on average by 0.06 percentage point a year.
10. The number increased from 46 million to 80 million and from 5.2% to 6.9% at the 10% threshold and at the 25% threshold from 8 million to 13 million and 0.9% to 1.1%.
11. At the 10% threshold in 2000, 252 million people and 10.1% of the population; and at the 25% threshold, 45 million people and 1.8% of the population.
12. In LICs, at the 10% threshold, the population with catastrophic spending increased on average by 2.9% a year between 2000 and 2005 and decreased on average by 11.3% a year between 2005 and 2015; and at the 25% threshold, the population spending more than a quarter of the household budget increased on average by 9.3% a year between 2000 and 2005 and then decreased on average by 11.6% after 2005.
13. High-income countries also had more people than low-income countries with catastrophic health spending exceeding the 25% threshold (13 million versus 9 million) but a slightly lower percentage of the population (1.1% versus 1.5%).
14. Between 2005 and 2010, the percentage of the population pushed below the $3.20 a day poverty line fell by 0.02 percentage point a year, and between 2010 and 2015, by 0.08 percentage points a year.
15. The African Region experienced the sharpest average increase in number of people impoverished by out-of-pocket health spending at the relative poverty line of 60% of median consumption or income (5.9% a year), followed by the Eastern Mediterranean Region and the Western Pacific Region (4.4% a year). The Western Pacific Region saw the highest increase in the share of the population impoverished by health spending (growing by 0.09 percentage point a year), along with the South-East Asia Region (0.05 percentage point).
16. The countries in the top decile in the Western Pacific Region experienced an increase in the poverty gap due to out-of-pocket health spending of at least 2.8 percentage points, or 8 cents per capita per day in 2011 PPP terms, those in the Eastern Mediterranean Region experienced an increase of at least 2.5 percentage points, or about 8 cents per capita per day in 2011 PPP terms.
17. The 10% of countries in the Eastern Mediterranean Region with the highest increase in the poverty gap due to out-of-pocket health spending experienced an increase of at least 2.1 percentage points. The countries in the top decile in the Western Pacific Region experienced an increase of at least 1.8 percentage point. Those in the South-East Asia Region experienced an increase of at least 1.6 percentage point.
18. In lower-middle-income countries, the fastest increase in the incidence of impoverishment at both international poverty lines occurred over 2005–2010 and the fastest increase at the relative poverty line occurred over 2010–2015. In upper-middle-income countries, the fastest increase in the incidence of impoverishment due to out-of-pocket health spending in both number of people and percentage of the population occurred over 2005–2010 at all poverty lines

19. A higher value of the service coverage index signals better coverage while a higher value of any indicator of catastrophic health spending points to a worse outcome.
20. An index of service coverage was produced as the average of the following 4 actual coverage indicators from 2000 to 2015: (1) completion of four antenatal care visits, (2) in-facility delivery, (3) met need for contraceptives, (4) DTP3 vaccination coverage. Data used from DHS/MICS.

References

1. WHO, World Bank. *Tracking universal health coverage: 2017 global monitoring report.* World Health Organization and International Bank for Reconstruction and Development/The World Bank; 2017. Licence: CC BY-NC-SA 3.0 IGO.
2. Wagstaff A, Flores G, Hsu J, Smitz M-F, Chepynoga K, Buisman LR et al. *Progress on catastrophic health spending: results for 133 countries. A retrospective observational study.* Lancet Global Health. 2017.
3. Wagstaff A, Flores G, Smitz M-F, Hsu J, Chepynoga K, Eozenou P. *Progress on impoverishing health spending: results for 122 countries. A retrospective observational study.* 2017.
4. WHO, World Bank. *Global monitoring report on financial protection in health 2019.* World Health Organization and International Bank for Reconstruction and Development / The World Bank; 2019. Licence: CC BY-NC-SA 3.0 IGO.
5. WHO Regional Office for Europe. *Can people afford to pay for health care? New evidence on financial protection in Europe.* Copenhagen: WHO Regional Office for Europe. 2019.
6. WHO/PAHO. Health Financing and Financial Protection in the Americas. 2017. http://www.who.int/health_financing/events/who_paho_uhc_day_2017_report_web.pdf?ua=1
7. Wang H, Vinals Torresa L, Travisa P. "Catastrophic health expenditure and financial protection in eight countries in the WHO South-East Asia Region." Bulletin of the World Health Organization. 2018.
8. SDG indicator 3.8.2: Proportion of population with large household expenditures on health as a share of total household expenditure or income, metadata (SDG382). https://unstats.un.org/sdgs/metadata/files/Metadata-03-08-02.pdf
9. Deaton, Angus; Zaidi, Salman. *Guidelines for Constructing Consumption Aggregates for Welfare Analysis.* LSMS Working Paper;No. 135. World Bank. 2002.
10. Stoyanova S, Tonking R. *An Expenditure-based Approach to Poverty in the UK*. Working Paper, UK Office for National Statistics. 2018.
11. Wagstaff A, van Doorslaer E. *Catastrophe and impoverishment in paying for health care: with applications to Vietnam 1993–1998*. Health Econ 12: 921–934. 2003.
12. Foster JE, Greer J, Thorbecke E. "A Class of Decomposable Poverty Measures." Econometrica 52 (3): 761–66. 1984.
13. Jolliffe, D, Beer Prydz E. "Estimating International Poverty Lines from Comparable National Thresholds." *The Journal of Economic Inequality* 14 (2): 185–98. 2016.
14. Wagstaff A. Measuring catastrophic medical expenditures: Reflections on three issues. *Health Economics.* 2019; 28: 765– 781.
15. Cylus J, Thomson S, Evetovits T. Catastrophic health spending in Europe: equity and policy implications of different calculation methods. *Bull World Health Organ.* 96: 589–664. 2018.
16. Xu K, Evans D, Kawabata K, Zeramdini R, Klavus J, Murray C. Household catastrophic health expenditure: a multicountry analysis. *Lancet* 362:111–7. 2003.
17. Wagstaff A, Eozenou P. *CATA meets IMPOV: a unified approach to measuring financial protection in health*. Washington (DC): World Bank (Policy Research Working Paper No. 6861). 2014.
18. K Xu, et al. Distribution of health payments and catastrophic expenditures-Methodology. Discussion paper No. 2. HSF, World Health Organization. 2005.
19. World Bank. *Monitoring Global Poverty: Report of the Commission on Global Poverty.* Washington, DC: World Bank. 2017.
20. Wagstaff A, Eozenou P, Hoang V, Smitz, MF. "Out-of-Pocket Expenditures on Health : A Global Stocktake," Policy Research Working Paper Series 8808, The World Bank. 2019.
21. Chapters 7 and 8 in OECD/WHO/Eurostat (2011), A System of Health Accounts: 2011 Edition, OECD Publishing, Paris http://www.who.int/health-accounts/methodology/en/
22. Dmytraczenko T, Almeida G, eds. 2015. *Toward Universal Health Coverage and Equity in Latin America and the Caribbean: Evidence from Selected Countries.*
23. Organización Panamericana de la Salud. OPS/OMS. Gasto catastrófico y empobrecedor en Salud en la región de las Américas. Washington DC: OPS; 2019. In press.
24. O'Donnell O, van Doorslaer E, Wagstaff A, Lindelow M. *Analyzing health equity using household survey data: a guide to techniques and their implementation*. Washington (DC): World Bank Publications. 2008.
25. United Nations. *Leaving no one behind: the imperative of inclusive development. Report on the World Social Situation 2016.* New York (NY): United Nations. 2016.
26. Yerramilli P, Fernández Ó, Thomson. "Financial protection in Europe: a systematic review of the literature and mapping of data availability," *Health Policy,* Elsevier, vol. 122(5), pages 493–508. 2018.
27. Flores G, Krishnakumar J, O'Donnell O, van Doorslaer E. Coping with health-care costs: implications for the measurement of catastrophic expenditures and poverty. *Health Econ* 2008; 17: 1393–412.R1 WHO, World Bank (2015). *Tracking universal health*

coverage: first global monitoring report. Geneva: World Health Organization.

28. Mcintyre D, Meheus F, Røttingen JA. What level of domestic government health expenditure should we aspire to for universal health coverage?. *Health Economics, Policy and Law*. 2017 Apr;12(2):125–37.
29. World Health Organization. Global Health Expenditure Database, http://apps.who.int/nha/database/Select/Indicators/en.
30. Financial protection in the South-East Asia region: determinants and policy implications. Working Paper prepared by the WHO Regional Office for South-East Asia. https://www.who.int/health_financing/events/who_searo_uhc_day_report_web.pdf?ua=1.
31. https://www.globalfinancingfacility.org/sites/gff_new/files/documents/GFF-IG7–4-%20Revised%20July%202018.pdf
32. Gwatkin D, Ergo, A. Universal health coverage: friend or foe of health equity. *Lancet* 377:P2160–1. 2011.
33. Sagan A, Thomson S. *Voluntary health insurance in Europe: role and regulation*. Copenhagen: WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies. 2016.
34. Thomson S, Sagan A, Mossialos E, eds. *International experience with private health insurance: history, politics, performance*. Cambridge: Cambridge University Press. Forthcoming.

3

Breaking barriers

TOWARDS MORE GENDER-RESPONSIVE AND EQUITABLE HEALTH SYSTEMS

Key messages

- Gender norms, roles, power relations and socioeconomic factors influence health outcomes and access to services and must be at the fore when designing, implementing and monitoring universal health coverage.
- Women have distinct needs for health services throughout their life because of the need to access sexual, reproductive and maternal health care. They are also typically the primary caregivers for children and others, which affects their health needs and access to health services, including for noncommunicable diseases. However, gender inequalities and discrimination often impede access to appropriate care for women as well as for their children.
- Men are more predisposed to certain health risks, often have poor access to health services and may be less willing to seek health care than women because of rigid gender norms and harmful notions of masculinity. Global and national policies often fail to consider these gender-related health risks for men.
- Socioeconomic, geographic and cultural factors influence health care needs and access to services. In many countries, people living in poverty, in rural areas and in informal urban settlements have limited access to health services, and their health outcomes are poor.

Key metrics

- An estimated 40% of women of reproductive age (ages 15–49) did not have four antenatal care visits during pregnancy, and 38% of sexually active women were not using modern contraceptives.
- For antenatal care: 44% of women with low social independence had at least four antenatal care visits compared with 73% of women with higher social independence, a 29 percentage point difference.
- Noncommunicable diseases are the leading cause of death, accounting for 73% of all deaths in women.
- Women also make up 70% of health and social workers but are paid less than men and have fewer leadership and decision-making roles in the health sector.
- Noncommunicable diseases account for 70% of all deaths in men globally, with cardiovascular disease and cancers accounting for 67% of the deaths. In 2016 among people over 15 years, 54% men and 32% women reported being current drinkers and 34% men and 6% women reported smoking tobacco daily.

- In eastern and southern Africa in 2018 women accounted for 83% of new HIV infections among 10–19 year olds. An alarming 7 in 10 young women (ages 15–19) in sub-Saharan Africa do not have comprehensive knowledge about HIV.
- Men accounted for 70% of the new adult HIV infections in 2018 in all regions except sub-Saharan Africa, where they accounted for 41%. They also accounted for 64% of all tuberculosis cases in 2017.

This chapter draws attention to gender as a powerful determinant of health care access and outcomes. By analysing universal health coverage (UHC) indicators from a gender perspective, including indicators disaggregated by sex, the chapter exposes how people's gender intersects with their socioeconomic backgrounds and other aspects of their identities and circumstances to produce health inequities. It applies gender and equity perspectives to service coverage and financial protection, two key dimensions of UHC. It concentrates on the policies and services of health systems, while acknowledging that breaking gender- and equity-related barriers requires a multisectoral approach. It shows how health systems and UHC policies, by increasing gender responsiveness, can improve equity. And it recommends ways to incorporate gender in the UHC framework for monitoring country progress (see the glossary for definitions of key gender-related terms).

Most countries have improved coverage of services for reproductive, maternal, newborn, and child health since 2000 but gains in coverage for noncommunicable disease have been far less pronounced (see Chapter 1). Coverage of reproductive, maternal, newborn and child health services is lower among disadvantaged children and women.

Social, cultural, financial and legal barriers and structural gender inequalities create critical challenges for meeting women's health needs, especially their sexual and reproductive health needs. In many settings women have limited autonomy and decision-making power, even over their health care needs – and limited time to seek services because of their caring responsibilities *(1)*. Furthermore, the opening times and location of services and how women are treated when receiving health services affect their and their children's use of health services *(2)*.

Gender is an important determinant of health for men as well. Restrictive gender norms and harmful notions of masculinity, combined with aggressive marketing of harmful products and practices to men, can increase men's risk-taking and decrease their willingness to use health services. Addressing masculinities and the social determinants of men's health is relatively neglected in global and national health policies and hence, services and programmes fail to identify how best to reach men for their health needs, which further reduces their access.

Socioeconomic, geographic and cultural factors influence health care needs and access to services. In many countries people living in poverty, in rural areas and in informal urban settlements have limited access to health services, and their health outcomes are poor *(1, 3)*. Transport costs are high because public transport is underdeveloped in rural areas and health facilities are distant *(3)*. People with low incomes are more likely to be in informal seasonal and temporary employment without social health protection. They thus face higher direct and indirect costs when using health services, including loss of income that can lead to debt and impoverishment. Services in disadvantaged neighbourhoods, in rural areas and conflict settings are also more likely to be poorly resourced and poorly staffed and thus poor in quality *(3)*.

Gender inequalities and gender norms and relations intersect with socioeconomic, geographic and cultural factors to magnify these barriers. Age, wealth, marital status, ethnicity, religion, caste, disability, education level and migration status can lead to stigma and discrimination and influence access to and use of health services.

People's health cannot be addressed in isolation – they are inextricably linked. For example, premature mortality among men causes loss and grief for the family while also increasing the burden of care for family members – particularly women – and reduce household income, increasing the risk of impoverishment, especially for the vast majority of households not covered by social protection schemes.

Women's and children's distinct needs

Women have distinct needs for health services throughout their life and gender inequalities and discrimination often impede access to appropriate care for themselves and as well as for their children

Health policies need to consider the great variation in women and girls' health needs over

their lives. Women of reproductive age may need short-term or acute interventions that could be provided in a primary health care setting, while older women are likely to suffer from multiple chronic conditions that may need more specialized and costly care.

Among women who do participate in the labour force, a large proportion of women work in the informal sector – in low-paid informal activities or domestic work or in unpaid family work. More than 740 million women work in informal employment *(4)*. In Africa 90% of employed women work in informal employment *(4)*. They are not covered by social health protection schemes and thus risk impoverishment from catastrophic health spending. Single or widowed women, women with unemployed husbands and women whose husbands' health insurance does not cover dependants also face greater financial barriers to accessing health services. Moreover, even where women are employed or earn an income, gender norms and power relations in the household can dictate that they have less control over how to spend the household income. This affects not only their own access to health care but often also their children's.

Health systems need to respond to these realities and to recognize the major role of women in delivering care and how this plays out in the health system. As well as typically being the primary – usually unpaid – caregivers in their household, women also make up 70% of health and social workers but are paid less than men *(5)*. They also have fewer leadership roles, decreasing the likelihood that these realities will be taken into account in health system decision-making *(5)*.

REPRODUCTIVE, MATERNAL, NEWBORN AND CHILD HEALTH

Access to reproductive, maternal and child health care services is improving, but many women and children are still not being reached

Sustainable Development Goal (SDG) target 3.7 calls for ensuring universal access to sexual and reproductive health care services, including family planning information and education, and the integration of reproductive health care into national strategies and programmes by 2030. Limited access to sexual and reproductive care is one reason for persistently high maternal mortality, particularly in sub-Saharan Africa, where 66% of maternal deaths occurred in 2017 *(6)*.

Coverage estimates for reproductive, maternal and child health indicators are based on national health surveys conducted mainly in low- and middle-income countries between 2010 and 2017 (See Annex 3.1 for the list of countries). The analysis includes four reproductive, maternal, newborn and child health indicators in the UHC Index (Chapter 1) and improved sanitation. Improved sanitation is included as it is closely connected to women's gender roles and access to health care, as well as to child health outcomes *(1, 7)*.

In 98 countries with data, 40% of women of reproductive age (ages 15–49) did not have four or more antenatal care visits during pregnancy, and 38% of sexually active women in need of contraceptives were not using modern methods (Figure 3.1). Africa had the lowest of all regions.

The composite coverage index (CCI) – a proxy for universal reproductive, maternal, newborn and child health services that summarizes eight interventions along the continuum of care (see Annex 3.1 for how the measure is calculated) – shows that coverage of key interventions is increasing in all World Health Organization (WHO) regions, based on 63 countries with data (see Figure 3.1).

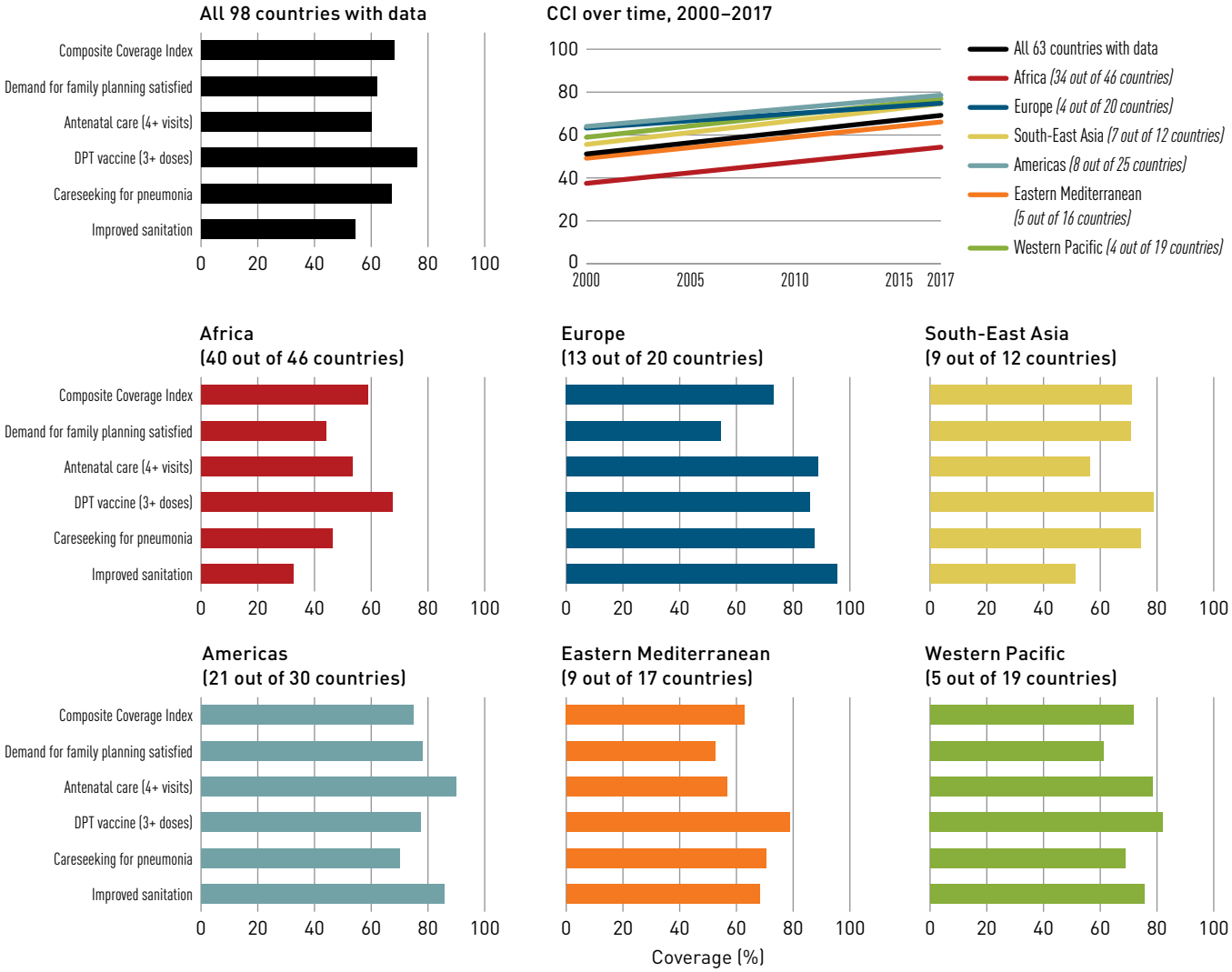
Women and children living in poverty and in rural areas have low access to health services

Uptake of reproductive, maternal and child health services is higher in richer households than in poorer ones, based on 96 countries with data. Differences in coverage by household wealth are largest for antenatal care and improved sanitation (Figure 3.2). Rural areas have lower coverage for all services, and as with wealth, the difference is largest for antenatal care and improved sanitation.

For antenatal care and DTP (diphtheria, pertussis and tetanus) vaccination, there are marked differences across wealth quintiles in both rural and urban settings. In 5 countries in the Western Pacific Region the poorest fifth of the population in urban areas have lower demand for family planning satisfied by modern methods than the poorest fifth in rural areas (Figure 3.3). Similarly, rural–urban differences are observed in improved sanitation, while differences are smallest for family planning satisfied with modern methods.

Transport costs and the loss of income involved in accessing health services are higher in rural areas, where fewer health facilities are available and transport infrastructure is poor. Rural and poorer areas are associated with greater supply-side constraints, such as shortages of health staff and medical supplies.

FIGURE 3.1 Africa has the lowest coverage of key reproductive, maternal and child health services of World Health Organization regions, and while coverage is increasing in all regions, Africa continues to lag



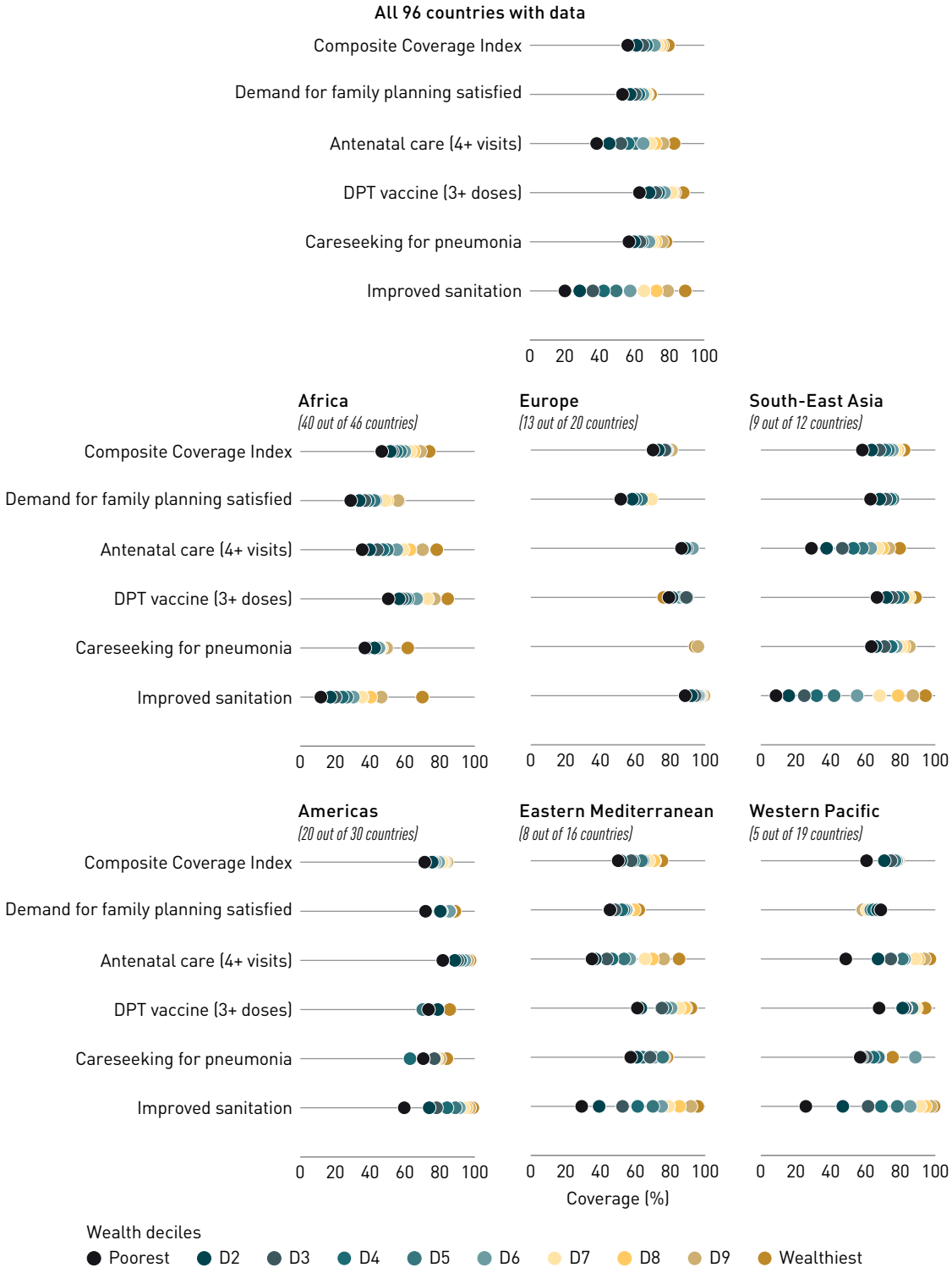
Note: The coverage analysis includes 98 countries with a Demographic and Health Survey or Multiple Indicator Cluster Survey, latest survey for each country, 2010–2017. Coverage is calculated as the averages of country values weighted by population. The trend analysis includes 203 surveys from 63 countries with at least two surveys with information on the composite coverage index from 2000 to 2017 Few countries are not part of WHO regions; they are included in the all country analysis but not in the regional analyses. Europe and Western Pacific are represented by only four countries and Americas by only eight countries in the trend analysis; these results need to be interpreted with caution.
Source: Demographic and Health Surveys or Multiple Indicator Cluster Surveys.

Wealth and education are highly correlated *(9)*: people living in poverty or in rural areas are also more likely to be less formally educated, compounding barriers to accessing services. Having more formal education is associated with better health outcomes and access to health services, while having less formal education is associated with greater disease burden and lower access to services. In all regions access to maternal and child health services shows significant differences in coverage by women's education level. Women with no formal education have lower health service uptake than women with primary education and higher (Figure 3.4).

Women living in poverty and in rural areas are more likely to work in informal and irregular employment and to have limited or no social health protection

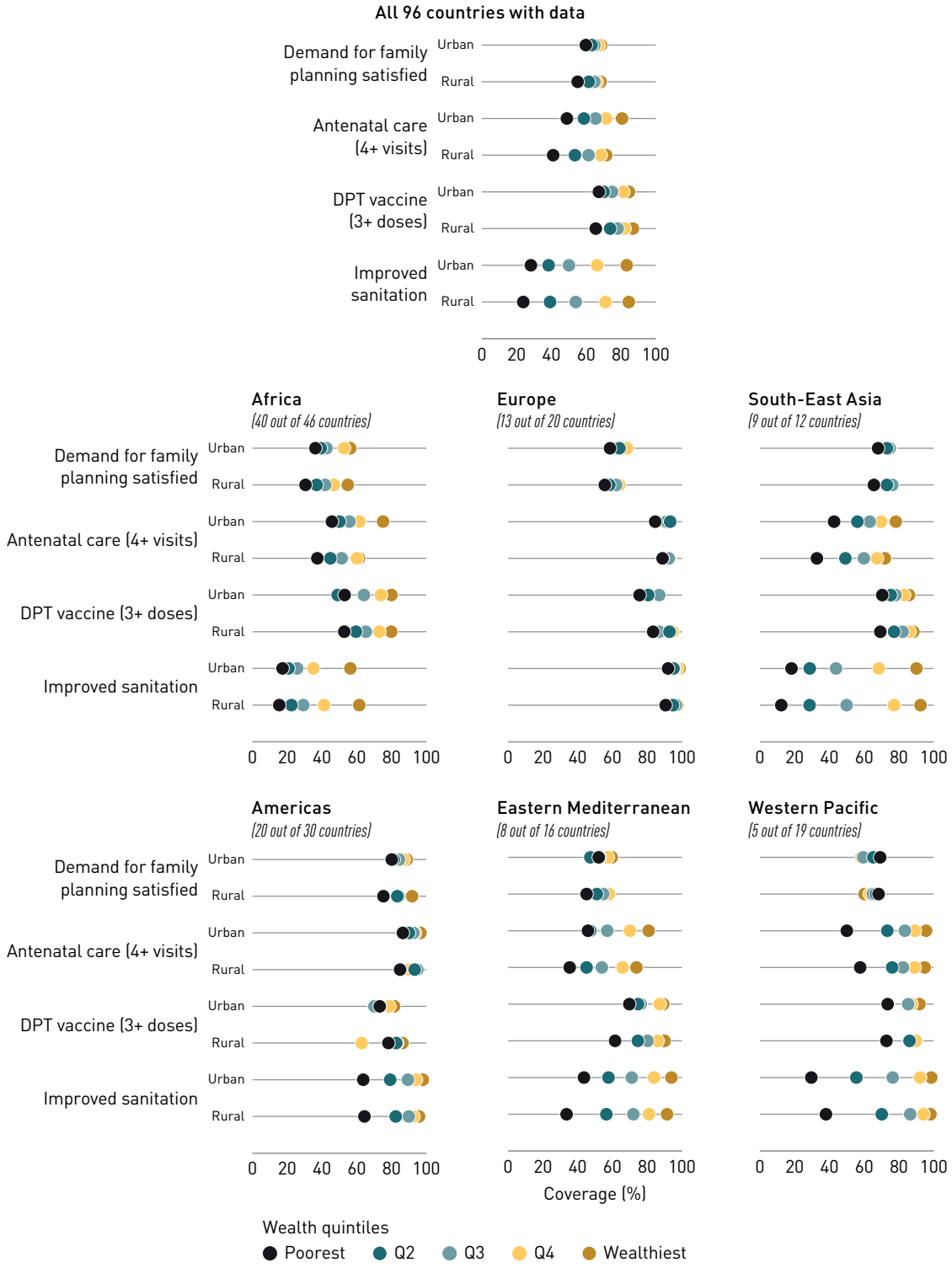
Because women living in poverty and working in informal employment have limited if any access to social health protection schemes, they may avoid accessing health services because of concerns that it will result in debt and impoverishment *(2, 10)*. In many countries people with low incomes work largely in the informal sector – in subsistence farming, as small sellers or as daily wage earners and in seasonal employment, with no recourse to sick leave or paid leave to seek health care. Some 2 billion people – more than 60% of the

FIGURE 3.2 **Use of reproductive, maternal and child health services is worse in poorer households than richer ones**



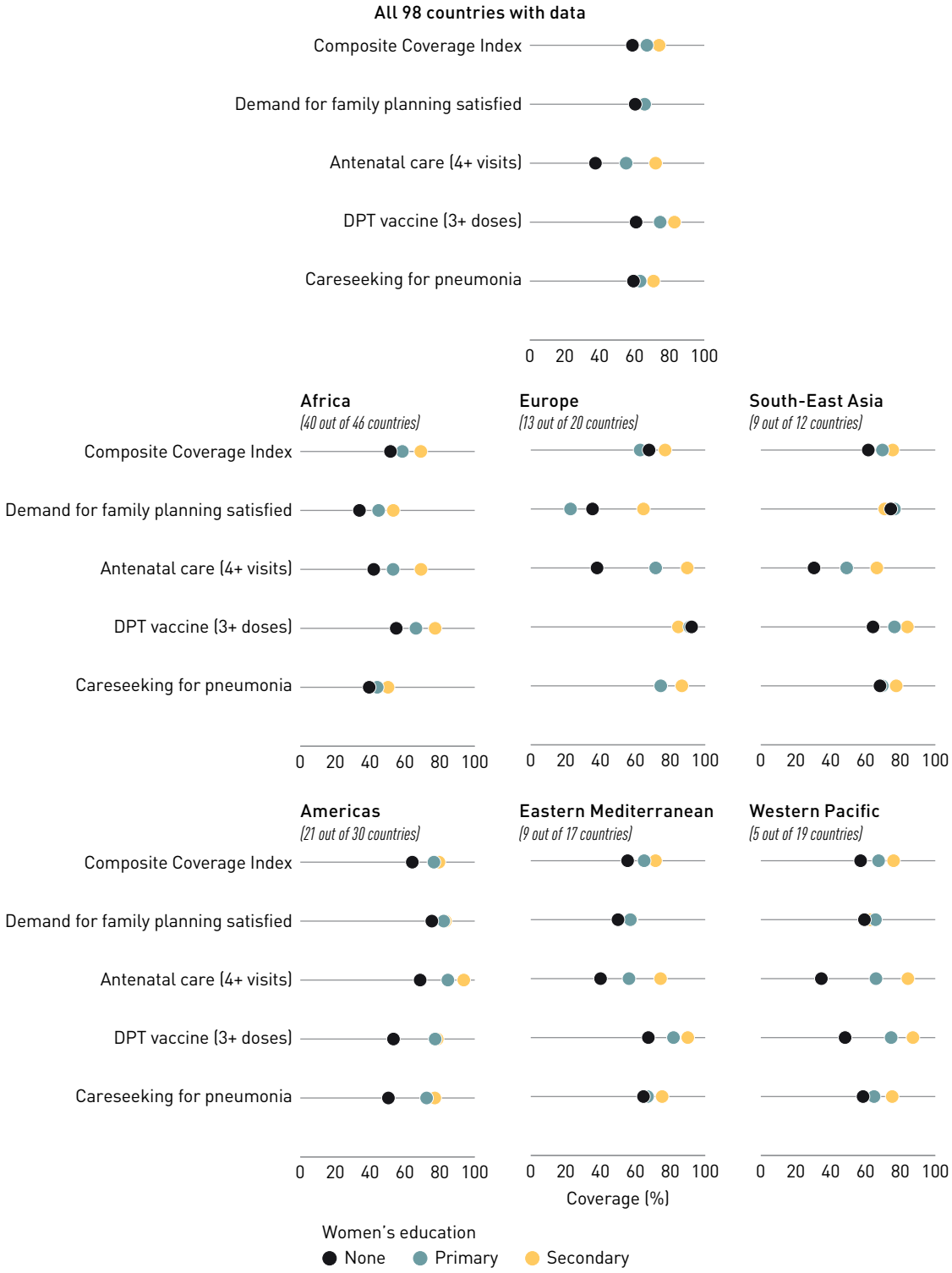
Note: Includes 96 countries with a Demographic and Health Survey or Multiple Indicator Cluster Survey, latest survey for each country, 2010–2017, that included data on wealth. Coverage is calculated as the averages of country values weighted by population. Few countries are not part of WHO regions; they are included in the all country analysis but not in the regional analyses.
Source: Demographic and Health Surveys and Multiple Indicator Cluster Surveys.

FIGURE 3.3 There are marked differences in use of reproductive, maternal and child health services across wealth quintiles in both rural and urban settings



Note: Includes 96 countries with a Demographic and Health Survey or Multiple Indicator Cluster Survey, latest survey for each country, 2010–2017, that included data on wealth and geographic location. Coverage is calculated as the averages of country values weighted by population. Few countries are not part of WHO regions; they are included in the all country analysis but not in the regional analyses. Rural and urban categorization follows Rutstein *(8)*.
Source: Demographic and Health Surveys and Multiple Indicator Cluster Surveys.

FIGURE 3.4 Use of reproductive, maternal and child health services is lower for women with no formal education than for those with primary or higher education



Note: Includes 98 countries with a Demographic and Health Survey or Multiple Indicator Cluster Survey, latest survey for each country, 2010–2017. Coverage is calculated as the averages of country values weighted by population. Few countries are not part of WHO regions; they are included in the all country analysis but not in the regional analyses.
Source: Demographic and Health Surveys and Multiple Indicator Cluster Surveys.

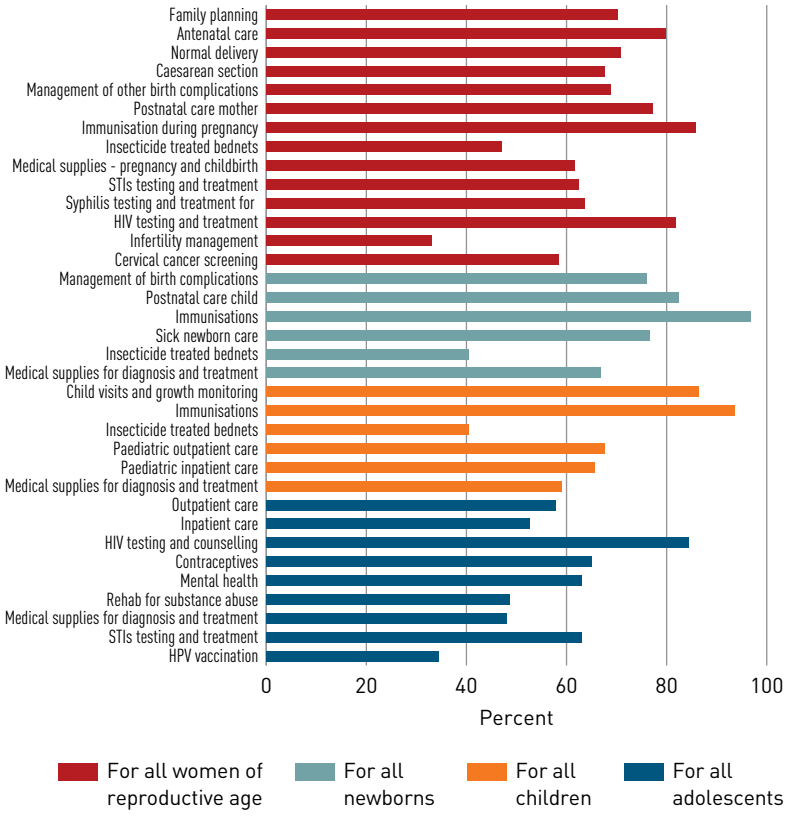
world's employed – work in the informal sector, and 80% of them live in rural areas. Africa has the highest share of informal workers among all workers (86%), followed by Asia and the Pacific (68%) and the Arab States (68%) *(4)*.

User fee exemptions for maternal and child health services have reduced financial barriers to some extent, but women and children continue to face other barriers

Many countries have abolished user fees for maternal and child health services, reducing some of the financial barriers to accessing health care. As seen in Figure 3.5, of 155 reporting countries, most have no user fees for maternal and child immunizations (97%), HIV testing and treatment (82%), antenatal care (80%), normal deliveries (71%), family planning (70%), caesarean sections (68%) or contraceptives for adolescents (65%;). Fewer countries have exemptions for inpatient and outpatient care (66%–68%), HPV vaccinations (34%) or infertility management (33%).

Although user fee exemptions have reduced the cost of care for users, women and children in many settings still face other barriers.

FIGURE 3.5 Many countries offer user fee exemptions for maternal, child and adolescent health services at public facilities



Source: WHO Global Sexual, Reproductive, Maternal, Newborn, Child and Adolescent Health Policy Survey 2018–2019.

Women in many low-income settings – especially adolescents (Box 3.1), migrants, and those from poorer households or of a minority ethnic group – cite fear of mistreatment, disrespect and abuse as reasons for avoiding health facilities *(11)*. Women's agency and social independence can influence access to care (Box 3.2). Many women and girls in resource-constrained settings have limited access to safe and private washing facilities and culturally appropriate menstrual hygiene products for dignified menstrual management *(12)*. Lack of enough information about menstrual heath and the stigma and discrimination associated with menstruation can result in many women and girls not receiving care for disorders related to menstruation, leaving them to suffer in silence *(13)*. And women have limited time to seek services. On average, they do three times as much unpaid care and domestic work as men do, and when paid and unpaid work are combined, women work longer hours overall than men do *(10, 14)*.

Legal and political factors may also affect women's access to health services. Many countries legally restrict access to abortion services: of 158 countries analysed, 18% do not allow or permit abortions to save the women's life, and only 32% of countries that permit abortions – most of them in Europe – do not require a justification *(15)*. Even where abortions are legal, access depends on the availability of services, including aftercare, and on the views and attitudes of health care providers and families. Women who face barriers to accessing safe abortion services may resort to illegal, unsafe abortions. An estimated 8%–11% of maternal deaths worldwide are related to unsafe abortions *(16)*, most of them in low- and middle-income countries, where 97% of unsafe abortions occur *(17)*.

Lack of social health protection schemes, such as maternity benefits, create additional health risks and financial barriers for women

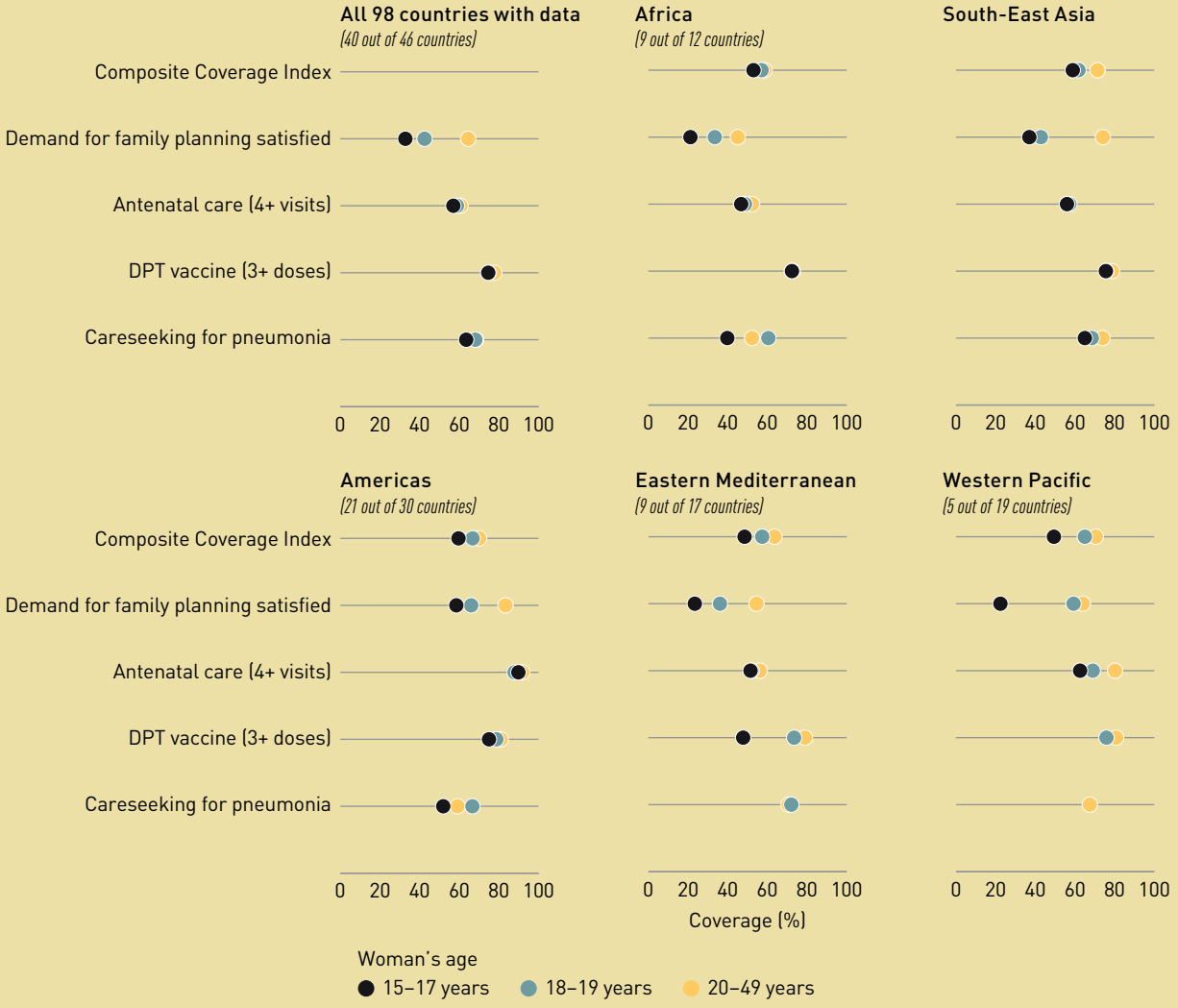
Maternity protection benefits provide working mothers with income security and access to health care. Globally, 41% of childbearing women received maternity benefits, and but only 16% did in Africa *(19)*. Even in countries with maternity protection policies, only 52% met the standard set by the International Labour Organization of having at least 14 weeks of paid leave *(19)*. The lack of maternity benefits, especially among women in the informal sector, compels them to continue work very late into pregnancy and to return to work prematurely, exposing themselves and

BOX 3.1

Adolescent girls may face considerable gender-related barriers to comprehensive sexual and reproductive health services

Adolescent girls (ages 15–19) have lower demand for family planning satisfied by modern contraceptives than do adult women (ages 20–49; box figure 1), with younger adolescents (ages 15–17) having the lowest coverage. In nine countries in the Eastern Mediterranean Region, children of adolescent mothers have lower DTP coverage than do children of adult mothers. Family planning demand is estimated only for women in union because many countries do not collect information on contraceptive use by unpartnered women. Coverage is expected to be even lower among unmarried adolescents because they face additional barriers to access. Comprehensive sexuality and reproductive health services can enable adolescents to protect their health and advance gender equality *(18)*.

BOX FIGURE 1 **Young women have lower use of reproductive, maternal and child health services**



Note: Includes 98 countries with a Demographic and Health Survey or Multiple Indicator Cluster Survey, latest survey for each country, 2010–2017. Coverage is calculated as the averages of country values weighted by population. Few countries are not part of WHO regions; they are included in the all country analysis but not in the regional analyses. Europe is excluded because of the small sample of women under age 20 who were asked about contraceptive use.
Source: Demographic and Health Surveys and Multiple Indicator Cluster Surveys.

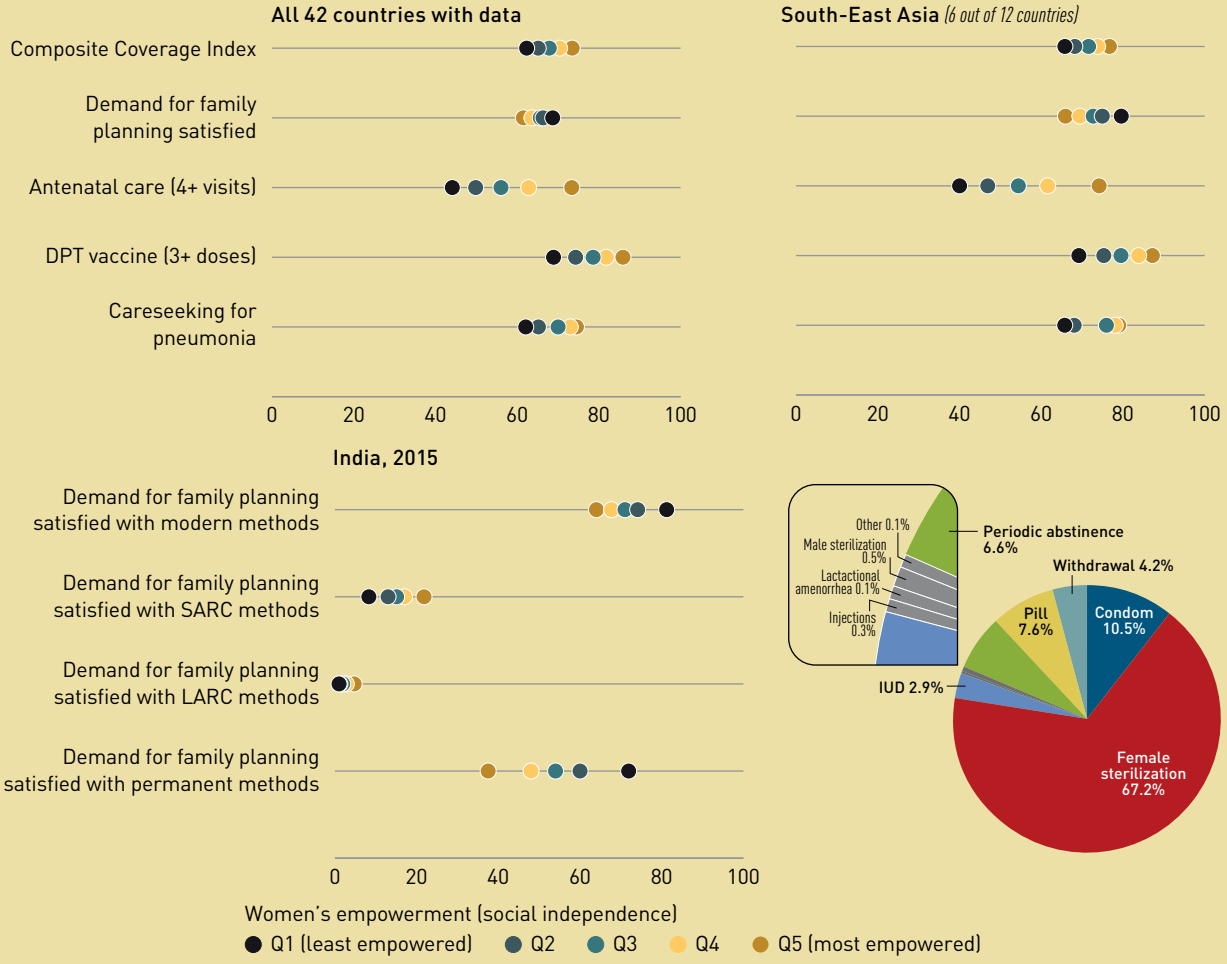
BOX 3.2

Women's social independence is strongly associated with their use of sexual, reproductive and child health care services

Gender equality and women's empowerment influence women's access to and use of reproductive and maternal health services for themselves and for child health services. Women with greater agency and social independence, including in relation to their male partners, are more likely to be informed about health services and have greater decision-making power and control over household resources than women with lower agency and independence. Data from 42 Demographic and Health Surveys, latest survey for each country between 2010 and 2017, reveal that women's greater social independence within the household is associated with higher coverage of maternal and child health services (box figure 1). The difference is largest for antenatal care (at least four visits): 44% of women with low social independence had antenatal care coverage compared with 73% of women with higher social independence, a 29 percentage point difference (see Appendix 3.1 for social independence methodology)

In relation to women's own bodily and reproductive autonomy, results were mixed for demand for family planning satisfied by modern methods (DFPSm). Women's higher social independence was associated with lower DFPSm. India, Bangladesh, Indonesia, Cambodia and the Philippines primarily drove the results. In India, female sterilization was the most common DFPSm (67%) and the main method among the least socially independent women (71%) in 2015. This could be due to a historical legacy of government policy that promotes female sterilization to control population growth and to patriarchal norms that view vasectomy as a threat to masculinity *(22)*.

BOX FIGURE 1 **Women's social independence is strongly associated with uptake of reproductive, maternal and child health services**



Note: SARC is short-acting reversible contraception. LARC is long-acting reversible contraception. This analysis is based on the Survey-based Women's Empowerment Index (SWPER) *(23)*. It uses data on women of reproductive age (ages 15–49) from 42 countries. The sub-index for social independence, one of the three SWPER domains, is constructed using six variables – frequency of reading newspapers and magazines, women's education (number of years completed), age at first childbirth, age at first cohabitation, age difference with partner (wife's age minus husband's age) and education difference (wife's years of schooling minus husband's). The index is categorized into quintiles of empowerment, where Q1 is the 20% least empowered women and Q5 the 20% most empowered.
Source: Demographic and Health Surveys.

their children to increased health risks. Lack of maternity protection or short maternity leave can be a barrier to initiating and continuing breastfeeding exclusively for six months *(20, 21)*. A lack of transferable paternity leave compounds this problem, worsening women's access to employment and decreasing women's pay relative to men, while also leaving women with disproportionate and unfair child care responsibilities.

NONCOMMUNICABLE DISEASES

Cardiovascular diseases are a major cause of death among women, and women are less likely than men to be diagnosed and receive appropriate treatment

While reproductive and maternal health are important causes of morbidity and ill health affecting the quality of life for women in the reproductive age group, as women get older, noncommunicable diseases become the leading cause of death in women, accounting for 73% of all deaths *(24)*. Cardiovascular diseases (CVDs) and cancers account for most deaths from noncommunicable diseases in women – 45% and 20%, respectively. In the past, CVDs have been considered a male disease, but CVDs affect as many women as men, though the disease develops 7–10 years later in women *(25)*. Among older people, deaths from CVDs are more prevalent among women than men – 7.7 million women ages 60 and over died from CVDs in 2016 compared with 7.1 million men ages 60 and over. Women's longer life expectancy also contributes to their higher number of CVD deaths in older age. Women's mortality from CVDs is 1.7 times as high in low- and middle-income countries as in high-income countries *(26)*.

Women manifest different, "atypical" symptoms for CVDs than the established symptoms experienced by men *(27)*. The gender bias in clinical guidelines stems from the historic gender bias in CVD research. Women are under-represented in research on CVD, and sex- and gender-based analysis is seldom conducted. As such, clinical guidelines for women have been based on studies enrolling primarily men. This results in lack of evidence on CVD symptoms in women, lower awareness by female patients and poorer recognition by care providers, and thus delayed diagnosis, hospitalization and treatment – several studies in high-income countries show that women who present with cardiac arrest are less likely to undergo recommended treatment at hospitals, leading to higher in-hospital mortality rates for women with myocardial infarction *(28, 29)*. A prospective study for selected high-, low- and middle-income countries shows that among people with previous CVDs (coronary heart disease or stroke), use of secondary preventive medications is lower among women than among men in all settings *(30)*.

Large regional differences in cancer mortality reflect disparities in access to preventive services, early diagnosis and treatment

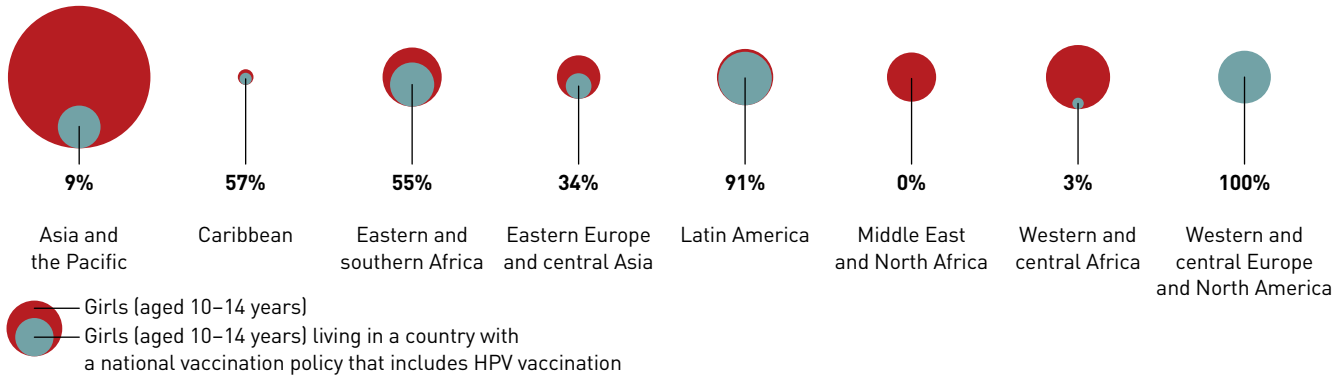
Breast cancer is the most commonly diagnosed cancer and the leading cause of cancer death in women *(31)*. It is also the most common cancer for women in low-income countries, followed by cervical cancer. Asia and Africa accounted for 76% of new cervical cancer cases and 80% of deaths from cervical cancer in 2018 *(32)*. Access to early diagnosis and treatment affects the burden of cancer. For breast cancer the five-year survival rate is close to 90% in North America and below 60% in many low-income countries, reflecting differential access to diagnostic and therapeutic services *(33)*. Within-country differences are also important and reveal the intersection of gender and other structural inequalities and discrimination. For example, in Australia indigenous women have a lower breast cancer survival rate than nonindigenous women *(34)*. Similar data are lacking on cancer incidence, mortality and survival among indigenous women in low-income countries.

Both the incidence of and deaths from cervical cancer have decreased in high-income countries because of a series of interventions across the life course. These include vaccinating adolescents (ages 9–14) for human papillomavirus (HPV) before they are sexually active, screening and treating pre-cancer cervical lesions and managing invasive cervical cancer. There are three vaccines which can protect against HPV types 16 and 18 that cause 70% of cervical cancers and pre-cancerous cervical lesions *(35)*. Most high-income countries have introduced the HPV vaccine in their routine immunization programmes for adolescent girls, but many low- and middle-income countries do not offer HPV vaccinations to adolescent girls (figure 3.6). Providing HPV vaccinations and screening in low- and middle-income countries can reduce the incidence of and mortality from cervical cancer.

Gender affects the epidemiology and risk and protective factors for mental health conditions.

Women have a higher lifetime prevalence of mood and anxiety disorders than do men and

FIGURE 3.6 Percentage of countries that include HPV vaccination in routine immunization plans to reduce the incidence of cervical cancer, by region



Source: UNAIDS Miles to go Report, 2018, p. 106 (36).
Note: Figure shows the percentage of girls (ages 10–14 years) living in a country with a national policy that includes HPV vaccination, by region, 2018.

a later onset of schizophrenia psychoses. Depression is more common and persistent in women *(37)* and is correlated with both, women's biology as well their stereotypical gender roles and lower status or power in relationships, higher burden of care work, as well as being subjected to violence *(38)*. Globally in 2015, 5.1% of women have depression and 7.7% have anxiety disorders. The prevalence of depression is higher among older women ages 55–74 (7.5%), whereas the prevalence of anxiety disorders does not vary substantially by age *(37)*. Similarly, women subjected to intimate partner violence and sexual violence also suffer from higher likelihood of depression, PTSD, anxiety and attempted suicide *(41)*. While suicide deaths are higher in men, a nine-country study found that suicide attempts were consistently higher in women *(39)*. In many settings women with mental health disorders and intellectual disabilities face mistreatment, abuse and coercion by health providers, including forced sterilizations, involuntary abortions and forced institutionalisation *(40, 41)*.

Gender can influence the prevalence of physical inactivity, obesity and chronic stress among women, the risk factors of noncommunicable diseases.

Physical inactivity and obesity are among the risk factors for noncommunicable diseases. Starting in childhood girls are more sedentary than boys – a gap that persists through life. Among adolescents, 84% of girls and 78% of boys did not meet the WHO minimum requirements for physical activity *(42)*. Among adults the prevalence rate is twice as high in high-income countries as in low-income countries *(42)*. Physical inactivity is higher among women than men in all WHO regions except the Western Pacific Region and in nearly all countries, with 32% of women and 24% of men, 18 years and older, globally classified as insufficiently physically active in 2016 *(42)*. Physical inactivity is associated with the increasing prevalence of obesity and overweight.

Lower levels of physical activity in women can be attributed partly to gender norms and are influenced by gender inequality. In childhood, boys are encouraged to be physically active more than girls are. In some settings discriminatory gender norms may restrict the mobility of girls and women or discourage them from playing some or even all sports. Gender inequality also results in limited time, resources and support for the physical activity of girls and women. Physical and sexual threats to the safety of girls and women also discourage them from exercising *(43)*.

Other gender-related factors, such as social acceptance, gender norms and relations, other cultural characteristics, education status and the country's economic status play important roles *(44)*. For example, the greater burden of care responsibilities among women and the long hours and high-intensity of caregiving also increase the risk of chronic stress and mental ill-health, such as depression and anxiety, both associated with poor heart health. Gender-based violence and intersectional factors, such as ethnicity, religion, sexual orientation and gender identity, which amplify the experience of violence, discrimination and harassment, further increase the risk of noncommunicable diseases. Intimate partner violence or repeated exposure to sexual harassment, such as at the workplace, can result in chronic stress *(45)* (Box 3.3).

BOX 3.3

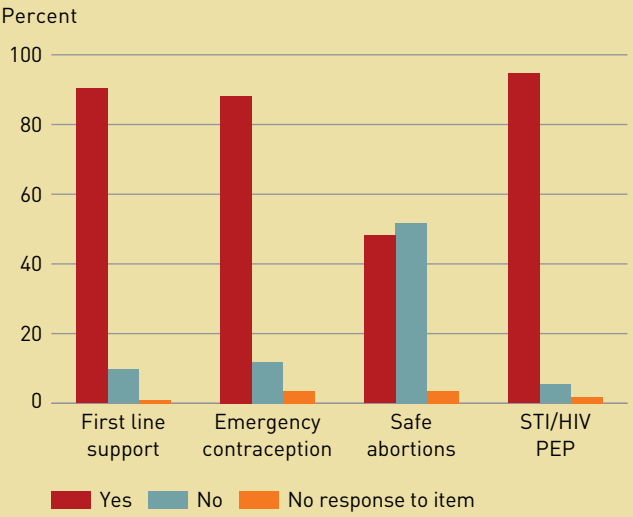
Violence against women is a risk factor that affects a range of sexual and reproductive health, cardiovascular disease, HIV and mental health outcomes for women and girls

An estimated one in three women and adolescent girls experience physical or sexual violence by an intimate partner or non-partner sexual violence *(52)*. Such violence starts early in the lives of women and girls, with 29% of adolescent girls (ages 15–19) experiencing intimate partner violence *(52)*. Women who experience such violence are 4.5 times more likely to attempt suicide than other women; twice as likely to experience induced abortions, depression and alcohol use disorders; and 1.5 times more likely to get a sexually transmitted infection and, in some regions 1.5 times more likely to get HIV *(52)*. They are also 16% more likely to have low birthweight babies and 43% more likely to suffer preterm births than women who do not experience intimate partner violence *(52)*.

Most women who experience violence and female genital mutilation/cutting, do not report it and delay seeking care because of stigma, blame, fear and other barriers to seeking care. Even when they seek health services, they do not disclose violence as the underlying condition for which they are seeking care. However, since all women are likely to seek care at some point in their lives, especially sexual and reproductive health services, health services are a key entry point for identifying cases of violence and female genital mutilation/cutting and providing appropriate care.

Data are limited on service coverage including first-line/psychological support, treatment for presenting health conditions, basic psychosocial and mental health support and referrals for other services. However, some data are available for post-rape care (Box figure 1). WHO recommendations for post-rape care call for comprehensive care that includes first-line/psychological support, post-exposure prophylaxis for HIV and sexually transmitted infections, emergency contraception and safe abortion to the full extent of the law. Of the 144 reporting countries, a large majority offer first-line support (90%), post-exposure prophylaxis (94.6%) and emergency contraceptives (88.2%). Safe abortion has the lowest coverage (48.2%). Although evidence on quality of care is limited, a few studies on female genital mutilation/cutting have found that health care providers receive little or no training on how to recognize and manage complications from the procedure or how to communicate effectively with patients and prevent female genital mutilation/cutting in the next generation *(53–55)*.

BOX FIGURE 1 **Proportion of countries reporting to have at least one service-delivery point that provides one or more elements of post-rape care (*n* = 114)**



Source: UNAIDS National Composite Policy Index data 2016

Socioeconomic position also influences the risk of noncommunicable diseases. In some settings women with low income and women from ethnic minorities are at a greater risk of exposure to second-hand smoke, with limited capacity to manage their exposure or to "live smoke free" *(46)*. Women are also exposed to higher levels of household air pollution from the use of solid fuels in heating and cooking in low-income countries, increasing women's risk of stroke, heart disease and lung cancer *(47)*.

Risk factors for CVD and cancers can affect women and men differently, also because of biological sex differences, which lead to differences in onset, symptoms, prognosis and outcomes. Women smokers with diabetes are twice as likely to develop coronary heart disease as men smokers with diabetes *(48)*. Women with hypertension have a higher risk of heart attacks than men with hypertension *(49)*. Women's lifetime risk for developing high blood pressure is also increased by pregnancy and hormonal contraceptives *(50, 51)*.

Gender inequality and discriminatory laws and policies continue to impede access to sexual health and HIV services

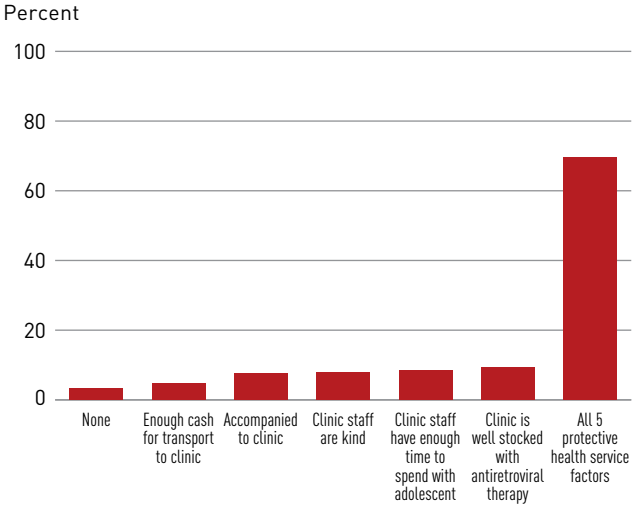
HIV is the leading cause of death for women ages 30–49 worldwide and is among the top 10 causes of death among women ages 15–29 *(26)* . In eastern and southern Africa in 2018 women and girls accounted for 83% of new HIV infections among 10–19 year olds *(56)*. An alarming 7 in 10 young women (ages 15–19) in sub-Saharan Africa do not have comprehensive knowledge about HIV *(57)*, and condom use is lowest among women from poorer households and those without formal education *(36)*.

While women, especially adolescents, have a greater biological susceptibility to HIV than men, gender inequality, violence, stigma, discrimination and poor access to HIV information and services fuel the HIV epidemic among women. These factors can result in women having inadequate knowledge about HIV, engaging in transactional sex or being unable to negotiate safe sex.

Restrictive laws and policies, including criminalization of sex work and age of consent laws, discourage HIV health service uptake by women. The risk of acquiring HIV is 13 times higher for female sex workers than for other adult women *(36)*. In 2017, 78 of 110 reporting countries had laws requiring people under age 18 to have parental consent to access HIV testing, 61 of 109 had laws requiring parental consent for HIV treatment and 68 of 108 had laws requiring parental consent to access sexual and reproductive health services. Many countries prohibit condom promotion and distribution in schools and other venues where adolescents socialize. Of the 100 countries that reported a national plan or strategy related to condoms in 2017, only 26 reported that it included condom promotion in secondary schools *(36)*. As a further consequence, women may fail to pursue the preventive care that they might have sought if their partners had known their HIV status or were being treated for it. Women living with HIV who have experienced intimate partner violence are also significantly less likely to start or adhere to antiretroviral therapy and have worse clinical outcomes than other women living with HIV *(52)*.

FIGURE 3.7 Supporting adolescents improves retention in HIV care

Predicted probabilities of full retention in care among adolescents (10–19 years old), Eastern Cape, South Africa, 2014–2015



Source: Cluver et al. 2018 *(58)*.

Comprehensive interventions addressing both demand- and supply-side barriers, including financial and social support, can dramatically improve access to HIV-related health care in adolescents

Adolescents whose medical and nonmedical care needs are well supported have better HIV treatment outcomes. A study in South Africa *(58)* found that adherence to antiretroviral therapy treatment dramatically improved among adolescents who received comprehensive support: providing them cash to travel safely to clinics, going with them to clinics, ensuring that clinics are stocked with medications and ensuring that staff devote sufficient time to consultations and show kindness and concern towards their adolescent clients. Treatment adherence ranged from 3.3% when none of these support services were provided to 70% when all were provided. Unfortunately, this study did not present results by sex or gender, but it provides a good illustration of the importance of providing comprehensive medical and nonmedical support services, including supply- and demand-side improvements (Figure 3.7).

Men's greater health risks

Men are more predisposed to certain health risks, often have poor access to health services and may be less willing to seek health care than women because of rigid gender norms and harmful notions of masculinity; global and national policies often fail to consider these gender-related health risks for men

While men continue to benefit from a greater degree of socio-economic power and privilege

than women by virtue of their gender, men have higher mortality than women for 33 of the 40 leading causes of death *(24)*. Some of this has to do with sex-based factors. However, in addition, restrictive gender norms including harmful notions of masculinity, combined with aggressive marketing of harmful products and practices to men, can increase men's risk-taking and decrease their willingness to engage with health services *(59–61)*. The orientation of health systems towards maternal and child health services and gender stereotypes exclusively associating women with these services means that men have fewer entry points to health services, reducing their overall access.

Men have higher rates of e mortality across the life course than women, resulting in a lower life expectancy *(24)*. Men's health needs vary over their lifetime and are influenced by socioeconomic and behavioural factors. Young boys are more likely to be affected by infectious diseases such as malaria, HIV and TB, and the burden increases with age, while older men may suffer more from multiple chronic conditions *(24)*. Segregation in the labour market exposes men to different and at times greater occupational health risks.

Modes of delivery of services are important to improving men's access to services. Combining services to reduce stigmatization or setting up clinics that serve only men can improve health access, utilization and outcomes. Men's participation in their partner's antenatal care can potentially familiarize men with health facilities, increase their entry points to health care and encourage them to use health care.

Gender norms related to masculinity interacts with social stratifiers to shape men and boy's health care needs and access to services. Men in rural areas with lower income and education and men who experience discrimination based on ethnicity, migrant status, sexual orientation or gender identity face greater difficulties in accessing health services. Men who work in the informal sector or who have temporary and irregular jobs have limited access to social health protection schemes and can face financial hardship because of high out-of-pocket health expenditures.

NONCOMMUNICABLE DISEASES

Tobacco and alcohol consumption are important risk factors in men, contributing to premature death and excessive illness

Tobacco and alcohol use are major risk factors for early death and disability among men *(62)*. The alcohol and tobacco industries have historically targeted men, spending billions of dollars fostering the notion that smoking and drinking are markers of manliness *(63, 64)* – though they have also targeted women to increase their sales. Between 2000 and 2015 the number of smokers fell by 28.6 million globally. While the number of women who are current smokers fell in all regions, the decline among men occurred almost exclusively in the Region of the Americas and the European Region, which have stronger tobacco control policies. This is reflected in the trends in deaths attributed to tobacco use – falling in the Americas and Europe, increasing in South-East Asia and the Eastern Mediterranean, and remaining low in Africa *(65)*.

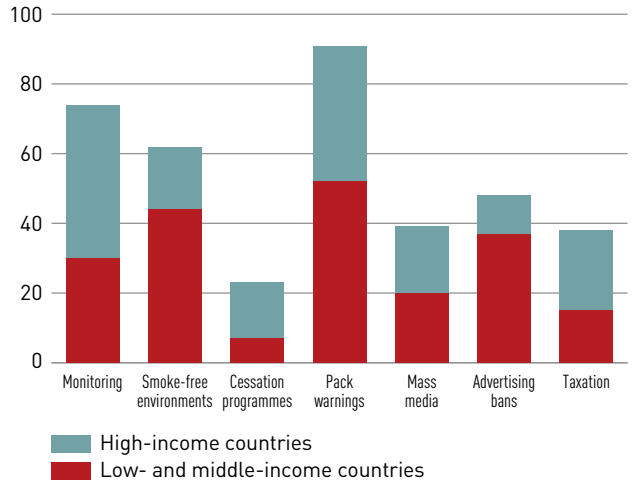
Alcohol consumption follows comparable patterns. More men drink alcohol than women. Globally, 54% men and 32% women reported being current drinkers in 2016 *(66)*. Similarly, in all countries men drink more alcohol than women, both on heavier-drinking occasions and in the total volume of alcohol consumed. Women drink less than men in countries where the population drinking prevalence is low, while the difference between men and women is lowest in countries where the overall drinking prevalence is high *(66)*. Alcohol consumption by men is also a risk factor for women's physical and mental health *(67)*.

WHO has recommended several interventions to reduce consumption of tobacco and alcohol. Implementation has been slow but has been rising in many low- and middle-income countries. For example, 3.9 billion people in low- and middle-income countries – 61% of those living there – are now covered by at least one tobacco control programme (Figure 3.8) *(68)*. Fewer countries have adopted recommendations to offer tobacco cessation services, conduct mass media campaigns and increase the price of tobacco, while more countries are implementing smoke-free public spaces, bans on tobacco advertisements and warning messages on tobacco packages.

For the most cost-effective interventions for alcohol, the greatest progress has been made in pricing policies, while progress in advertising and availability of alcohol has been mixed *(66)*. Although many of these interventions are at the population level, they can have different effects on men and women. A systematic review found that young men are more price sensitive than young women and therefore that price increases are more likely to reduce smoking uptake and the quantity of cigarettes consumed by young men *(69)*.

FIGURE 3.8 Nearly two-thirds of countries – with 63% of the world's population – are implementing at least one WHO-recommended measure to control tobacco consumption

Number of countries implementing selected tobacco control policies at the highest level of achievement, 2018



Source: Cluver et al. 2018 *(58)*.

Adolescent boys are particularly vulnerable to initiating unhealthy behaviours, increasing their risk of developing noncommunicable diseases later in life

Many unhealthy behaviours such as tobacco and alcohol consumption are adopted in adolescence. Smoking prevalence among boys ages 13–15 is 9%–10% in all countries except in the Eastern Mediterranean Region, where it is 7% *(65)*. School surveys show that alcohol use starts early, before the age of 15: 50%–70% of 15-year-old boys had consumed alcohol in the last 30 days before the survey in many countries in the European Region and the Region of the Americas. Prevalence was lower in many African countries that implemented the school surveys (10%–30%). Heavy-drinking occasions also peak during ages 15–24 *(66)*. While smoking is prevalent mainly among boys, drinking is similarly prevalent among boys and girls, though girls tend to have fewer heavy-drinking occasions.

Noncommunicable diseases are a leading cause of death in men

Noncommunicable diseases account for 70% of all deaths in men globally, CVD and cancers accounting for 67% of the deaths *(26)*. Nearly 24% of men over age 15 had high blood pressure in 2015, and 8.8% had high fasting blood glucose levels in 2014 *(70, 71)*. Lung cancer is the most commonly diagnosed cancer and the leading cause of cancer death in men. It is followed by prostate cancer and colorectal cancer for incidence and liver cancer and stomach cancer for mortality *(31)*.

Rigid gender norms and harmful ideals of masculinity increase the risk of CVD and cancers in men. Risk factors such as smoking and excessive drinking have been associated with masculine identities *(60, 72)*. Men also experience more stress in settings where they are expected to be the sole breadwinner and in the workplace because of high demands or low control over their job *(73)*. Unemployment or fear of unemployment may affect stress levels that in turn influence high blood pressure. As among girls, physical, sexual and emotional abuse among boys can elevate the risk of CVD when they become men *(43)*. Access to diagnosis and treatment, along with exposure to risk factors, is affected by socioeconomic factors, including ethnicity and race *(74)*. For example, Black men in the United States of America have one of the highest mortality rates from cancer *(75)*.

Men's need for mental health services has been increasing, but men are less likely to access care, be diagnosed and receive treatment

The global age-standardized suicide rate in 2016 was estimated at 10.5 per 100,000 people. It was almost twice as high among men as among women *(26)*, even though women are two to four times more likely to attempt suicide than men *(76)*. Suicides rates are higher for men in all regions and particularly high in Europe (21.2 per 100,000), South-East Asia (15.4) and Africa (16.6) *(26)*. Several studies have found that despite having high rates of suicides, men are less likely to be diagnosed with internalizing disorders such as depression, in part because these conditions do not conform to traditional gender role stereotypes about men's emotionality *(77)*. Gender bias in diagnosis and treatment for mental health conditions also influences men's access to appropriate services *(78, 79)*.

INFECTIOUS DISEASES/HIV AND TUBERCULOSIS

Men with HIV tend to have fewer entry points into health services and to access care later, resulting in late diagnosis and poor health outcomes

Globally, the incidence of HIV infection declined from 0.38 per 1,000 uninfected population in 2005 to 0.24 in 2018 *(36)*. Among the 1.6 million new HIV infections among adults in 2018, there were slightly more men (53%) than women. Men accounted for 70% of the

new adult HIV infections in 2018 in all regions except in sub-Saharan Africa, where they accounted for 41%. Coverage of antiretroviral therapy among men ages 15 and older was low: 55% in 2018, compared with 68% among women. As a result, men are more likely than women to die of AIDS-related causes, and globally, they accounted for about 60% of the estimated 670,000 AIDS-related deaths among adults in 2018. The gender disparity in antiretroviral therapy coverage was greatest in western and central Africa, at 40% of men and 59% of women living with HIV. In the Middle East, North America and Latin America, antiretroviral therapy coverage was similar among men and women.

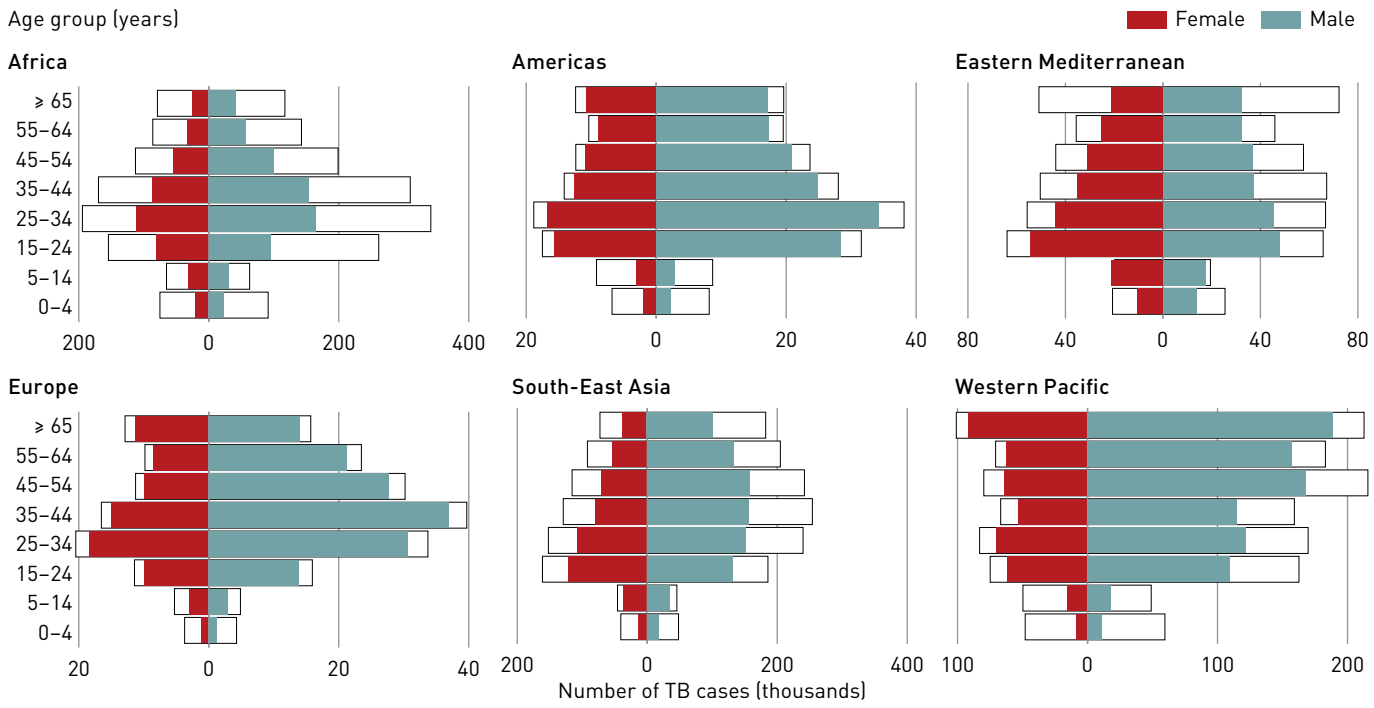
Although the percentages of people living with HIV who report being denied health-care services due to their HIV status are small, high levels of stigma and misconceptions about HIV persist in many countries. In Congo and Liberia, for example, a substantial proportion of people living with HIV say that a health-care professional has disclosed their HIV status to others without their consent, a breach of confidentiality that undermines confidence in HIV services. Key populations appear to face additional difficulties. In Côte d'Ivoire, for example, 22% of gay men and other men who have sex with men reported avoiding health-care services due to stigma and discrimination *(36)*. In many settings self-testing for HIV has been found to overcome some barriers associated with diagnosis because of convenience, ease of use and increased privacy *(80)*. Self-testing could potentially improve testing rates among vulnerable populations and in settings where HIV is highly stigmatized. However, caution is required as there may be unintended consequences as a result of weaker linkages to care, including to pre- and post-test counselling.

Men are less likely than women to access health services for tuberculosis and more likely to delay seeking care and to have lower treatment completion rates and worse health outcomes

Globally, the tuberculosis (TB) burden is higher among men than women – men and boys accounted for 64% of TB cases in 2017 *(81)*. In some countries the higher risk of TB among men is strongly associated with increased exposure to documented TB risk factors, such as cigarette smoking and alcohol use. Although men have higher prevalence rates, detection and reporting are lower for men in all WHO regions except Europe and the Americas (figure 3.9) *(81)*.

FIGURE 3.9 Although TB prevalence is higher among men than women, men have lower detection and reporting rates in all WHO regions except Europe and the Americas

Regional estimates of TB incidence and case disaggregated by age and sex, 2017



Source: WHO Global Tuberculosis Report 2018 *(81)*.

Men are less likely than women to access health services. Once they seek care and are diagnosed with TB, men have lower treatment completion rates and worse health outcomes in some settings *(82, 83)*. Men account for almost two-thirds of deaths among HIV-negative individuals with TB and for half of deaths among HIV-positive individuals with TB *(84)*. Given the high burden of TB among men, decreasing the incidence of TB requires that programmes reach out to men with routine diagnostic and screening services and address the high prevalence of TB risk factors such as smoking and alcohol use.

Making health systems gender-responsive and equitable

In the 2030 Sustainable Development Agenda, UN Member States pledged to "leave no one behind." For health systems that means that countries should prepare inclusive and gender-responsive national health strategies that consider wider dimensions of inequality, such as wealth, ethnicity, education, geographic location and sociocultural factors and implement them within a human rights framework *(85)*. Countries must consider the inequities and disparities within and across groups and geographic areas in accessing health care, learn how gender norms and unequal power relations impede access and identify the key barriers to access for women, men, and lesbian, gay, bisexual, transgender and intersex populations (box 3.4).

It is also important to consider how the health system is gender-equitable. A first step is to assess the central role of the health workforce in an equitable health system – not only in the supply and distribution of health workers, which influences access and equity, but also the gender composition of the health workforce, which can influence acceptability (box 3.5). Transformative gender action in the health workforce is direct action towards making health systems more equitable.

Several factors contribute to the gender pay gap among health workers: different occupations for men and women (9.9%), different working hours for men and women (6.9%) and a remaining unexplainable gap of 11.2% for men and women in similar occupations with similar working hours.

DECENT WORK GAP

Men on average work more hours per week than women for most health sector occupations and regions. This likely reflects more part-time work for women. On average, women work 4.2 fewer hours per week than men among physicians, 3.5 fewer hours for nursing and midwifery, 3.7 fewer hours for dentists, 4.6 fewer hours for pharmacists and 3 fewer hours for personal care workers. In addition, for highly paid occupations, such as physicians, men are more frequently employed in the private sector (49%) than women are (39%). The opposite is true for low-paid jobs, such as personal care workers, where women are more frequently employed in the private sector (82%) than men (53%).

WHO's approach to ensure that no one is left behind calls for health policies that are built on fair laws that respect human rights and promote accountability (Box 3.6). Engaging civil society organizations and the public in decision-making and feedback can help to craft policies and services that are appropriate and reach the people most in need. Multisectoral support is essential for reducing health inequities since some factors influencing disease burdens and barriers to access lie outside the reach of the health sector. Multisectoral involvement and coordination should be integrated in national health plans and policies.

Health care delivery should be based on evidence that brings to light how gender and other socio-economic inequalities affect health and health inequities and should be tailored first to equitably reach those left behind. Services should promote gender equality and be culturally and age appropriate. The opening times, staff composition and location of health facilities should be considered from an equity perspective. Everyone, including women, men and LGBTI populations, at every age including adolescence and old age, should feel welcome and be treated with respect and without discrimination. The impact on women of their role in providing paid and unpaid care needs to be recognized, and gender-transformative policies are needed to promote gender equality in health care provision.

A gender and equity perspective in developing social health protection schemes is needed to address the differential risks experienced by people across the life course and to assist people in avoiding or coping with the financial costs of treating illnesses. Social health protection schemes should consider the health care needs of marginalized groups and incorporate mechanisms to remove the access barriers they face, for example by covering the costs of care for these groups and by including informal sector workers in

BOX 3.4

Health care needs and service coverage of lesbian, gay, bisexual, transgender and intersex persons

Restrictive norms regarding sexuality and gender identities profoundly affect lesbian, gay, bisexual, transgender and intersex (LGBTI) populations, who face significant barriers to health services and discrimination and stigma.

There is little research and data on the health status, health needs and barriers faced by specific population groups because of sexual orientation and gender identity, including LGBTI persons. But limited evidence, mostly from the HIV field, reveals important health disparities between LGBTI populations and the heterosexual cis-gender populations. LGBTI individuals face multiple and unique barriers to health care, with degree and severity varying across subgroups. Health disparities are likely caused by marginalization, stigma and discrimination in society and health care systems, resulting in chronic stress, poorer mental and physical health, and reluctance to seek health services for fear of disrespect and discrimination or refusal of services *(86, 87)*.

Most research on LGBTI populations has focused on sexual health and mainly on the transmission risks for HIV and other sexually transmitted illnesses (STI) among men who have sex with men and transgender women, who consistently report high HIV rates and problems of late diagnosis and treatment *(88, 89)*. Men who have sex with men have 28 times greater risk of acquiring HIV than heterosexual men but have much less access to HIV services *(36)*.

Lesbian women's sexual and reproductive health concerns and access to HIV/STI testing and prevention services have often been neglected due to the perception that they are a low risk group, even though women-to-women transmission of several STIs has been documented *(90)*. Studies show a higher prevalence of mental health disorders, substance abuse, violence, self-harm and suicide ideation among lesbian, bisexual and gay persons compared with the heterosexual population *(91)*. One aspect particularly critical for UHC is the non-recognition and, in many settings, criminalization of same-sex partnerships, which affect health insurance coverage. Currently, over one-third of UN member states criminalize private consensual sex between two adults of the same sex, with only 23 countries having marriage equality *(92)*.

Transgender persons – those whose assigned sex at birth differs from their current gender identity or expression – often are socially marginalized and face stigma, discrimination, exclusion and violence. They experience poorer health outcomes than cis-gender populations, including a high rate of mental health disorders, STIs and substance abuse *(93)*. Transgender women are also 13 times more likely to acquire HIV than adults of reproductive age *(36)*. Because of social exclusion and lack of employment and housing, many transgender people resort to sex work, which in turns increases their HIV risk. Moreover, criminalization and punitive laws against transgender people and sex workers violate their human rights and create further roadblocks and disincentives for them to access health care. Another reported human rights violation of transgender persons is forced sterilization *(94)*. Transgender individuals suffer higher rates of myocardial infarction, partly as a result of elevated social stressors, health disparity and lower socioeconomic status as compared with the cis-gender population *(95)*.

Intersex people include at least 40 different traits, most of which are genetically determined *(96)*. They face distinct health challenges and human rights violation, including stigma, discrimination and abuse. One of the serious human rights violations is sex assignment interventions of infants at birth, most of which are considered medically unjustified and based on limited evidence of a positive impact *(96, 97)*.

There is an urgent need for research to identify the true prevalence and incidence of health problems of sexual and gender diverse people. Research should not be limited to sexual health but should investigate the broader health needs and experiences of LGBTI populations. At the same time research must consider the safety and ethical concerns of sexual and gender diverse people, especially in countries where LGBTI populations are criminalized or highly stigmatized. Furthermore, the design and delivery of health services must ensure meaningful and respectful engagement with local LGBTI communities to respond effectively in a manner that is acceptable to the groups being served.

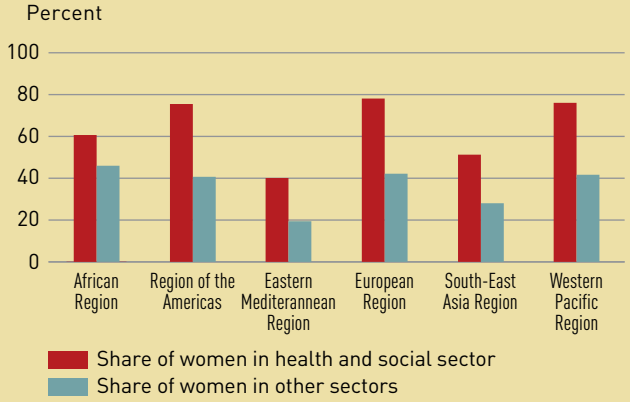
BOX 3.5

Gender equity in the health workforce

The health and social sector, with its 234 million workers, is one of the biggest and fastest growing employers of women. Women make up 70% of health and social care workers and contribute US$3 trillion annually to global health, half in the form of unpaid care work *(98)*.

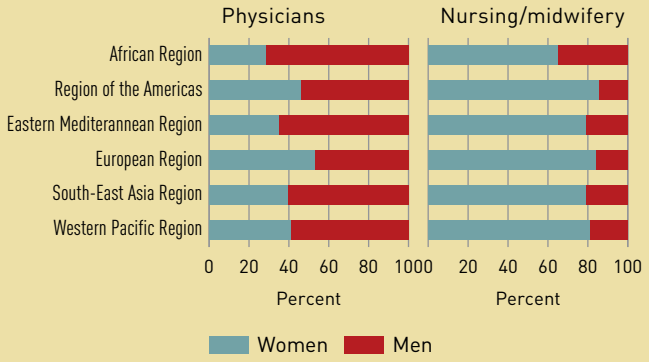
A recent review of gender and equity in the health workforce highlighted four key areas that weaken health systems and slow progress towards UHC: occupational segregation and gender gaps in leadership, pay and decent work (Box figures 1–5) *(5)*. Transformative gender policies can help address gender inequities in health systems and eliminate gender-based discrimination in earnings, remove barriers to access to full-time employment (such as lack of child care) and support access to professional development and leadership roles *(99–101)*. Including women in leadership and decision-making roles will also support gender-responsive health systems that consider women's realities and contributions to the health systems.

BOX FIGURE 1 **Across all regions, women are more represented in employment in the health sector than other sectors**



Source: ILOSTAT 2019, International Labour Organization. Analysis of the latest year available for 163 countries from 2001 to 2018.

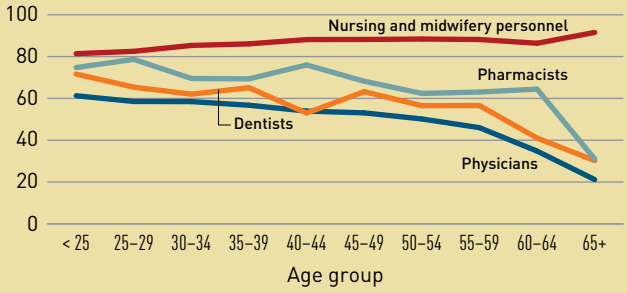
BOX FIGURE 2 **In most countries, there is a higher proportion of male physicians , while the nursing and midwifery workforces are much more highly represented by women**



Source: Boniol et al 2019. Analysis of latest year of data from National Health Workforce Accounts for 91 countries for physicians' data and 61 countries for nursing data.

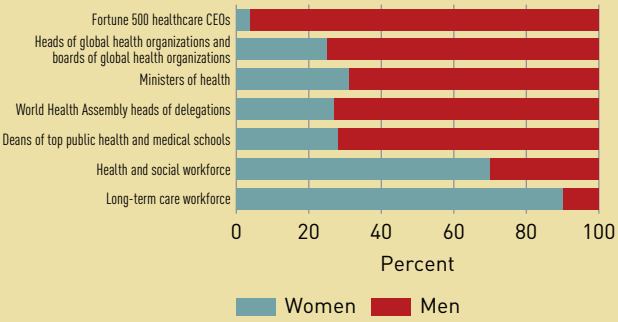
BOX FIGURE 3 **For younger health workers, there are more women in the higher wage health occupations and slightly more males in nursing and midwifery**

Share of women health workers by age and occupation (%)



Source: Boniol et al 2019. Analysis based on 57 countries from ILO Labour Force Surveys micro data.

BOX FIGURE 4 **Men hold more senior roles in health care**



Source: Women in Global Health, 2018 *(102)*.

BOX FIGURE 5 **The overall gender pay gap for health workers is 28%**

Gender pay gap for:

Source: Boniol et al 2019. Analysis based on Labour Force Survey data for 21 countries.

BOX 3.6

WHO's guidance on "Leaving No One Behind"

WHO's support to national authorities and their partners acknowledges that some population groups are more exposed to risk factors for ill-health but may have less access and benefit less from health services and financial protection, and therefore suffer greater rates of illness and death *(103)*.

WHO has produced guidance on the pledge to leave no one behind that underscores its commitment to addressing health inequities and the social determinants of health, including gender inequality. Its four-component "Gender, Equity and Rights Programme Support Package" includes tools and methods for working with national health authorities and strengthening their capacities *(104, 105)*

The first component of the package focuses on tools to support equity analysis and to understand which groups are being left behind and why. The Health Equity Assessment Toolkit (HEAT) *(106)* supports countries in health inequality monitoring (http://who.int/gho/health_equity/). It includes a handbook and a manual on how to incorporate health inequality monitoring into health information systems and a software application to assess inequalities using existing database. This application also allows users to upload and work with their own data (HEAT Plus). Another tool is a guide to conducting barriers assessments, using quantitative and qualitative methods. It helps users identify demand- and supply-side barriers to health services for different population groups, such as adolescents) *(107)*.

The second component refers to strengthening national health policies, strategies and plans, system governance and health systems functions for leaving no one behind. This means improving governance mechanisms in health sector planning to close coverage gaps, enhance financial protection, tackle health determinants, provide people-centred services and improve responsiveness to people's expressed needs. A checklist guides health policy makers review subnational health system strengthening in multiyear plans *(108)*.

The third component focuses on strengthening health programmes. Innov8 uses inequality data to guide changes in health systems based on identifying subpopulations being missed, recognizing barriers, defining potential drivers of the barriers and prioritizing health system actions including intersectoral approaches and social participation *(109, 110)*.

The fourth component concerns supporting WHO Country Offices and national authorities as leaders in leaving no one behind through comprehensive capacity building on gender, equity and human rights and guidance on normative tools and standards *(111)*.

Additionally, WHO is contributing to operationalizing the pledge to leave no one behind through a step-by-step approach laid out in the forthcoming resource: "Leaving No One Behind: A UNSDG Operational Guide for UN Country Teams" *(112)*. The handbook, currently being piloted, will feed into UN programming and policy support for Member States.

national social health protection schemes. A life-course perspective should be considered when designing essential service packages, especially services that have a higher risk of causing financial hardship and impoverishment.

Effective, equitable and cost-efficient services can be delivered only when based on evidence. Further research using mixed methods – household surveys and qualitative data – is needed to understand the mechanisms behind gender and equity barriers, which can vary by setting and population group. More research is needed to understand how gender norms influence men's risk behaviour and health seeking, and how discrimination affect the LGBTI population's risk behaviours and access to health services. Additionally, research is needed to understand how different social health protection schemes influence gender inequalities, norms and power relations and intra-household resource allocation.

Indicators for monitoring progress towards UHC should enable monitoring progress for particular groups. As a minimum, indicators should be disaggregated by sex and age. Further disaggregation by ethnicity, migration status, wealth, education and geographic location is essential to identify and tailor interventions to reach groups living in situations of greatest vulnerability. Indicators that are not disaggregated because of lack of data or methodology should be considered with caution. For example, a financial protection indicator that is not properly disaggregated can be misinterpreted if it fails to distinguish the case of individuals living in poverty who report no or very low health care spending because they

have forgone health care from those whose spending is low because they are covered by social health protection. Further, monitoring indicators should be routinely collected by the health systems, ideally as part of the health management and information systems.

Figure 3.10 depicts a UHC monitoring framework that can help in unpacking inequities in health that are driven by gender inequality. It builds on SDG indicators included for monitoring service coverage (SDG 3.8.1) and financial protection (SDG 3.8.2) and suggests additional indicators that are important from a gender perspective. To monitor gender equality and the impact of gender-transformative policies, other SDG indicators, especially SDG 5 on gender equality and empowerment of women and girls, need to be considered in conjunction with SDG 3.8.1 and SDG 3.8.2, as shown in the figure *(113, 114)*.

While global monitoring of UHC is useful for comparing progress across regions and identifying lessons, gender and equity analyses require a more in-depth understanding of the country-specific context. To identify and monitor progress among the groups facing the most severe vulnerabilities, countries need to develop and analyse country-specific indicators.

Glossary

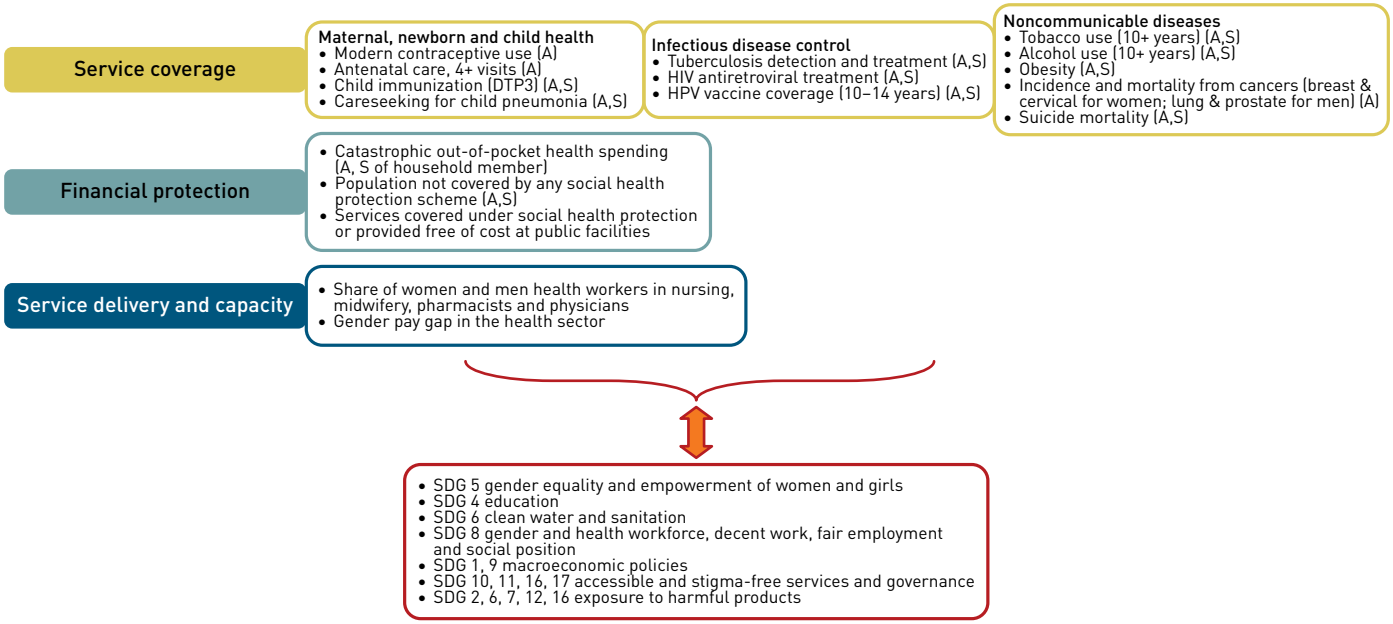
Sex refers to the biological and physiological characteristics, such as chromosomes, hormones, and anatomy, that distinguish males and females. While sex is often referred to as a binary category – male or female – there are other categories that do not fall under either of these categories, such as intersex.

Gender encompasses socially constructed norms, roles, behaviours, activities and attributes that a given society considers appropriate for individuals based on the sex assigned to them at birth. Individuals are socialized into a gender and are taught behaviours considered appropriate for women and men, including how to interact with others of the same or opposite sex. Gender roles are also affected by age, class, race, ethnicity and religion, as well as by geographic, economic, and political environments.

Gender identity is a person's deeply felt internal and individual experience of gender (as male, female, a blend of both or neither), which may or may not correspond with the sex assigned at birth or the gender attributed to them by society. Gender identity includes the personal sense of the body (which may involve, if freely chosen, modification of appearance or function by medical, surgical or other means) and expressions of gender, including dress, speech and mannerisms.

Gender equality means equal opportunities for women and men to access and control social, economic and political resources,

FIGURE 3.10 **Integrating gender in the universal health coverage monitoring framework**



Note: A is age-disaggregated; S is sex-disaggregated.

including equal and fair protection under the law. It means that the different behaviours, aspirations and needs of women and men are considered, valued and favoured equally and that there is no discrimination on the grounds of gender in the allocation of resources or benefits or in access to services.

Gender equity means fair treatment of men, women and gender-diverse individuals according to their respective needs so that they can benefit equally from rights and opportunities. This may require equal treatment or different treatment. Equity is often the means to ensure equality. **Gender equity in health** refers to a process of being fair to women, men and gender-diverse individuals with the objective of reducing unjust and avoidable inequality between women and men in health status, access to health services and their contributions to the health workforce.

Intersectionality is an approach to understanding and responding to the multiple social factors that intersect in dynamic ways to privilege or disadvantage (oppress) different people, depending on their characteristics and contexts. It is used as a framework in health to improve health equity by identifying and addressing the social determinants, power relations and structural factors that drive health inequity.

Harmful masculinities refer to a set of descriptive, prescriptive and proscriptive notions associated with men and boys that often include anti-femininity, achievement, adventure, risk, violence, and avoidance of the appearance of weakness. These cultural norms continuously connect men to the power and economic achievements that shape the hegemonic position of men. Harmful masculinities have been described as adverse to equality and inclusion, but also as harmful to men's health and well-being.

Note

1. For some countries, the reference period might change according to their immunization schedule.

References

1. United Nations, *The Sustainable Development Goals Report 2019*. 2019, United Nations: New York.
2. Bohren MA et al. *Facilitators and barriers to facility-based delivery in low-and middle-income countries: a qualitative evidence synthesis.* Reproductive health, 2014. 11(1): p. 71.
3. United Nations Secretary-General, *Report on rural poverty 2019*. Forthcoming, United Nations: New York.
4. ILO, *Women and men in the informal economy: a statistical picture (third edition)*. 2018, International Labour Office: Geneva.
5. WHO, *Delivered by women, led by men: a gender and equity analysis of the global health and social workforce*, in *Human Resources for Health Observer Series No. 24*. 2019, World Health Organization: Geneva.
6. WHO et al. *Trends in maternal mortality: 2000 to 2017. Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division*. 2017, World Health Organization: Geneva.
7. Larsen DA et al. *An individual-level meta-analysis assessing the impact of community-level sanitation access on child stunting, anemia, and diarrhea: Evidence from DHS and MICS surveys.* PLOS Neglected Tropical Diseases, 2017. 11(6): p. e0005591.
8. Rutstein SO. *The DHS Wealth Index: Approaches for rural and urban areas*. 2008.
9. Mirowsky J, Ross CE, *Education, social status, and health*. 2nd ed. 2017, New York: Routledge.
10. UN Women, *Progress of the world's women 2019–2020: families in a changing world*. 2019, UN Women.
11. Bohren MA et al. *The Mistreatment of Women during Childbirth in Health Facilities Globally: A Mixed-Methods Systematic Review.* PLOS Medicine, 2015. 12(6): p. e1001847.
12. Kaur R, Kaur K, Kaur R. *Menstrual Hygiene, Management, and Waste Disposal: Practices and Challenges Faced by Girls/Women of Developing Countries.* Journal of Environmental and Public Health, 2018. 2018: p. 9.
13. UNFPA. *Menstruation and human rights - Frequently asked questions*. 2019 (cited 2019 17/07/2019); Available from: https://www.unfpa.org/menstruationfaq#What%20is%20UNFPA%20doing.
14. Knijn T, Kremer M. *Gender and the caring dimension of welfare states: toward inclusive citizenship.* Social Politics: International Studies in Gender, State & Society, 1997. 4(3): p. 328–361.
15. Lavelanet AF et al. *Global Abortion Policies Database: a descriptive analysis of the legal categories of lawful abortion.* BMC international health and human rights, 2018. 18(1): p. 44.
16. Singh S et al. *Abortion worldwide 2017: uneven progress and unequal access*. 2018, Guttmacher Institute: New York.
17. Ganatra B et al. *Global, regional, and subregional classification of abortions by safety, 2010–14: estimates from a Bayesian hierarchical model.* The Lancet, 2017. 390(10110): p. 2372–2381.
18. United Nations Educational Scientific Cultural Organization, *Emerging Evidence, Lessons and Practice in Comprehensive Sexuality Education, a Global Review 2015*. 2015, UNESCO: Paris.
19. ILO, *World Social Protection Report 2017–19: Universal social protection to achieve the Sustainable Development Goals*. 2017, International Labour Office: Geneva.
20. Chai Y, Nandi A, Heymann J. *Does extending the duration of legislated paid maternity leave improve breastfeeding practices? Evidence from 38 low-income and middle-income countries.* BMJ Global Health, 2018. 3(5): p. e001032.
21. Parmar D, Banerjee A. *Impact of an employment guarantee scheme on utilisation of maternal healthcare services: Results from a natural experiment in India.* Soc Sci Med, 2019. 222: p. 285–293.
22. Singh SK et al. *Women's empowerment and use of contraception in India: Macro and micro perspectives emerging from NFHS-4 (2015–16).* Sexual & Reproductive Healthcare, 2019. 19: p. 15–23.
23. Ewerling F et al. *The SWPER index for women's empowerment in Africa: development and validation of an index based on survey data.* The Lancet Global Health, 2017. 5(9): p. e916-e923.
24. WHO, *World Health Statistics 2019: monitoring health for the SDGs sustainable development goals*. 2019: World Health Organization.
25. Worrall-Carter L et al. *Systematic review of cardiovascular disease in women: assessing the risk.* Nursing & health sciences, 2011. 13(4): p. 529–535.
26. WHO, *Global Health Estimates 2016: Deaths by Cause, Age, Sex by Country and by Region, 2000–2016*. 2016, World Health Organization: Geneva.
27. Mehta LS et al. *Acute myocardial infarction in women: a scientific statement from the American Heart Association.* Circulation, 2016. 133(9): p. 916–947.
28. Wilkinson C et al. *Sex differences in quality indicator attainment for myocardial infarction: a nationwide cohort study.* Heart, 2019. 105(7): p. 516–523.
29. Quinn T et al. *Effects of prehospital 12-lead ECG on processes of care and mortality in acute coronary syndrome: a linked cohort study from the Myocardial Ischaemia National Audit Project.* Heart, 2014. 100(12): p. 944–950.
30. Yusuf S et al. *Use of secondary prevention drugs for cardiovascular disease in the community in high-income, middle-income, and low-income countries (the PURE Study): a prospective epidemiological survey.* The Lancet, 2011. 378(9798): p. 1231–1243.
31. Ferlay J et al. *Estimating the global cancer incidence and mortality in 2018: GLOBOCAN sources and*

methods. International Journal of Cancer, 2019. 144(8): p. 1941–1953.
32. Ferlay J et al. *Global Cancer Observatory: Cancer Today*. 2018, International Agency for Research on Cancer. Available from: https://gco.iarc.fr/today. Accessed 23 May 2019: Lyon, France.
33. Ginsburg O et al. *The global burden of women's cancers: a grand challenge in global health.* Lancet, 2017. 389(10071): p. 847–860.
34. Chong A, Roder D. *Exploring differences in survival from cancer among Indigenous and non-Indigenous Australians: implications for health service delivery and research.* Asian Pac J Cancer Prev, 2010. 11(4): p. 953–961.
35. WHO. *Human papillomavirus (HPV) and cervical cancer*. 2019.
36. UNAIDS, *Miles to go: closing gaps, breaking barriers, righting injustices*, in *Global AIDS update 2018*. 2018, Joint United Nations Programme on HIV/AIDS (UNAIDS): Geneva.
37. WHO, *Depression and other common mental disorders: global health estimates*. 2017, World Health Organization.
38. Seedat S et al. *Cross-national associations between gender and mental disorders in the World Health Organization World Mental Health Surveys.* Archives of general psychiatry, 2009. 66(7): p. 785–795.
39. Weissman MM et al. *Prevalence of suicide ideation and suicide attempts in nine countries.* Psychological medicine, 1999. 29(1): p. 9–17.
40. WHO, *Eliminating forced, coercive and otherwise involuntary sterilization: An interagency statement, OHCHR, UN Women, UNAIDS, UNDP, UNFPA, UNICEF and WHO.* 2014.
41. Drew N et al. *Human rights violations of people with mental and psychosocial disabilities: an unresolved global crisis.* The Lancet, 2011. 378(9803): p. 1664–1675.
42. Guthold R et al. *Worldwide trends in insufficient physical activity from 2001 to 2016: a pooled analysis of 358 population-based surveys with 1.9 million participants.* The Lancet Global Health, 2018. 6(10): p. e1077-e1086.
43. O'Neil A et al. *Gender/sex as a social determinant of cardiovascular risk*. Circulation, 2018. 137(8): p. 854–864.
44. Havranek EP et al. *Social Determinants of Risk and Outcomes for Cardiovascular Disease.* Circulation, 2015. 132(9): p. 873–898.
45. O'Neil A, Scovelle A J. *Intimate Partner Violence perpetration and cardiovascular risk: A systematic review.* Preventive Medicine Reports, 2018. 10: p. 15–19.
46. Greaves LJ, Hemsing NJ. *Sex, gender, and secondhand smoke policies: implications for disadvantaged women.* American journal of preventive medicine, 2009. 37(2): p. S131-S137.
47. Mannucci PM et al. *Effects on health of air pollution: a narrative review.* Internal and emergency medicine, 2015. 10(6): p. 657–662.
48. Millett ERC, Peters SAE, Woodward M. *Sex differences in risk factors for myocardial infarction: cohort study of UK Biobank participants.* BMJ, 2018. 363: p. k4247.
49. Wilson BJ et al. *Hypertensive diseases of pregnancy and risk of hypertension and stroke in later life: results from cohort study.* Bmj, 2003. 326(7394): p. 845.
50. Behrens I et al. *Risk of post-pregnancy hypertension in women with a history of hypertensive disorders of pregnancy: nationwide cohort study.* BMJ, 2017. 358: p. j3078.
51. Bushnell C et al., *Guidelines for the prevention of stroke in women: a statement for healthcare professionals from the American Heart Association/American Stroke Association.* Stroke, 2014. 45(5): p. 1545–1588.
52. WHO, *Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence*. 2013: World Health Organization.
53. Abdulcadir J, Rodriguez M, Say L, *Research gaps in the care of women with female genital mutilation: an analysis.* BJOG: An International Journal of Obstetrics & Gynaecology, 2015. 122(3): p. 294–303.
54. Evans C et al. *Crossing cultural divides: A qualitative systematic review of factors influencing the provision of healthcare related to female genital mutilation from the perspective of health professionals.* PLOS ONE, 2019. 14(3): p. e0211829.
55. Khosla R et al. *Gender equality and human rights approaches to female genital mutilation: a review of international human rights norms and standards.* Reproductive Health, 2017. 14(1): p. 59.
56. UNAIDS, *UNAIDS Data 2019*. 2019: Available https://aidsinfo.unaids.org (accessed 19/07/2019).
57. UNICEF, *Towards an AIDS-free generation: children and AIDS: sixth stocktaking report, 2013*. 2013: United Nations Children's Fund, UNICEF.
58. Cluver L et al. *STACKing the odds for adolescent survival: health service factors associated with full retention in care and adherence amongst adolescents living with HIV in South Africa.* Journal of the International AIDS Society, 2018. 21(9): p. e25176-e25176.
59. Heise L et al. *Gender inequality and restrictive gender norms: framing the challenges to health.* Lancet, 2019. 393(10189): p. 2440–2454.
60. Mahalik JR, Burns SM, Syzdek M. *Masculinity and perceived normative health behaviors as predictors of men's health behaviors.* Social Science & Medicine, 2007. 64(11): p. 2201–2209.
61. WHO, *The health and well-being of men in the WHO European Region: better health through a gender approach*. 2018, WHO Regional Office for Europe Copenhagen.
62. Health Metrics and Evaluation (IHME), *Findings from the Global Burden of Disease Study Seattle*. 2018, IHME: Seattle, WA.
63. Wessel-P BW, *Brown & Williamson Tobacco Corporation Internal Correspondence*, in *Bates Number*

621709305/9309. 1987: http://legacy.library.ucsf.edu/tid/kff70f00.
64. Jung, AR, Hovland R. *Targeting gender: A content analysis of alcohol advertising in magazines.* Health Marketing Quarterly, 2016. 33(3): p. 221–238.
65. WHO, *Global report on trends in prevalence of tobacco smoking 2000–2025*. 2018.
66. WHO, *Global status report on alcohol and health*. 2018, Geneva:: World Health Organization.
67. Crane CA et al. *The Proximal Effects of Acute Alcohol Consumption on Male-to-Female Aggression: A Meta-Analytic Review of the Experimental Literature*. Trauma, violence & abuse, 2016. 17(5): p. 520–531.
68. WHO, *Report on the Global Tobacco Epidemic*. 2019, WHO: Geneva.
69. Rice N et al. *A systematic review of the effects of price on the smoking behaviour of young people.* York: Public Health Research Consortium, 2010.
70. Zhou B et al. *Worldwide trends in blood pressure from 1975 to 2015: a pooled analysis of 1479 population-based measurement studies with 19.1 million participants.* The Lancet, 2017. 389(10064): p. 37–55.
71. Collaboration NRF. *Worldwide trends in diabetes since 1980: a pooled analysis of 751 population-based studies with 4.4 million participants.* The Lancet, 2016. 387(10027): p. 1513–1530.
72. de Visser R et al. *Sociodemographic correlates of smoking, drinking, injecting drug use, and sexual risk behaviour in a representative sample of Australian young people.* International Journal of Behavioral Medicine, 2006. 13: p. 153–162.
73. McGuire MB. *Health, illness, and the social body: a critical sociology*. 1991: Prentice Hall.
74. International Agency for Research on Cancer, *Reducing Social Inequalities in Cancer: Evidence and Priorities for Research,* Edited by S. Vaccarella, et al., Editors. 2019, International Agency for Research on Cancer: Lyon Cedex, France.
75. Siegel RL, Miller KD, Jemal A. *Cancer statistics, 2018.* CA: A Cancer Journal for Clinicians, 2018. 68(1): p. 7–30.
76. Ellis L et al. *Sex differences: Summarizing more than a century of scientific research*. 2013: Psychology Press.
77. Oliffe JL, Phillips MJ. *Men, depression and masculinities: A review and recommendations.* Journal of Men's Health, 2008. 5(3): p. 194–202.
78. Cochran, S and F Rabinowitz, *Practical resources for the mental health professional. Men and depression: Clinical and empirical perspectives.* 2000, Academic Press: San Diego, CA, US.
79. Addis ME, Mahalik JR, *Men, masculinity, and the contexts of help seeking.* American Psychologist, 2003. 58(1): p. 5–14.
80. Stevens DR et al. *A global review of HIV self-testing: themes and implications.* AIDS and Behavior, 2018. 22(2): p. 497–512.
81. WHO, *Global tuberculosis report 2018*. 2018, Geneva: World Health Organization.
82. van den Hof S et al. *A systematic review on the role of gender in tuberculosis control.* Report prepared for Tuberculosis Control Programme (TB CAP). September, 2010.
83. MacPherson P et al. *Pre-treatment loss to follow-up in tuberculosis patients in low-and lower-middle-income countries and high-burden countries: a systematic review and meta-analysis.* Bulletin of the World Health Organization, 2013. 92: p. 126–138.
84. GBD Tuberculosis Collaborators, *The global burden of tuberculosis: results from the Global Burden of Disease Study 2015.* Lancet Infect Dis, 2018. 18(3): p. 261–284.
85. Thomas K, Magar V. *Mainstreaming Human Rights across WHO*, in *Human Rights in Global Health: Rights-Based Governance for a Globalizing World*, Meier BM and Gostin LO, Editors. 2018, Oxford University Press: Oxford. p. 133–55.
86. Gahagan J, Colpitts E. *Understanding and Measuring LGBTQ Pathways to Health: A Scoping Review of Strengths-Based Health Promotion Approaches in LGBTQ Health Research.* Journal of Homosexuality, 2017. 64(1): p. 95–121.
87. Blondeel K et al. *Evidence and knowledge gaps on the disease burden in sexual and gender minorities: a review of systematic reviews.* International Journal for Equity in Health, 2016. 15(1): p. 16.
88. Hu H et al. *Trends in late HIV diagnosis among men who have sex with men in Jiangsu province, China: Results from four consecutive community-based surveys, 2011–2014.* PLOS ONE, 2017. 12(3): p. e0172664.
89. Op de Coul ELM et al. *Factors associated with presenting late or with advanced HIV disease in the Netherlands, 1996–2014: results from a national observational cohort.* BMJ Open, 2016. 6(1): p. e009688.
90. Baptiste-Roberts K et al. *Addressing health care disparities among sexual minorities.* Obstetrics and Gynecology Clinics, 2017. 44(1): p. 71–80.
91. King M et al. *A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and bisexual people.* BMC psychiatry, 2008. 8: p. 70–70.
92. International Lesbian, Gay, Bisexual, Trans and Intersex Association, *Lucas Ramon Mendos, State-Sponsored Homophobia*. 2019, ILGA: Geneva.
93. Winter S et al. *Transgender people: health at the margins of society.* The Lancet, 2016. 388(10042): p. 390–400.
94. Lancet, *Coercive sterilisation of transgender people in Japan.* The Lancet, 2019. 393(10178): p. 1262.
95. Alzahrani T et al. *Cardiovascular Disease Risk Factors and Myocardial Infarction in the Transgender Population.* Circulation: Cardiovascular Quality and Outcomes, 2019. 12(4): p. e005597.
96. Carpenter M. *The human rights of intersex people: addressing harmful practices and rhetoric of change.* Reproductive Health Matters, 2016. 24(47): p. 74–84.
97. Minto CL et al. *The effect of clitoral surgery on sexual outcome in individuals who have intersex conditions*

with ambiguous genitalia: a cross-sectional study. The Lancet, 2003. 361(9365): p. 1252–1257.

98. Langer A et al. *Women and health: the key for sustainable development.* The Lancet, 2015. 386(9999): p. 1165–1210.
99. Hay K et al. *Disrupting gender norms in health systems: making the case for change.* The Lancet, 2019. 393(10190): p. 2535–2549.
100. Magar V, Gerecke M, Dhillon IS. *Women's contribution to sustainable development through work in health*, in *Health Employment and Economic Growth: An Evidence Base*, J Buchan, I S Dhillon, and J Campbell, Editors. 2017, World Health Organization: Geneva.
101. WHO, *Women's health and well-being in Europe: beyond the mortality advantage*. 2016, WHO Regional Office for Europe: Copenhagen.
102. Women in Global Health, data unpublished, 2018.
103. World Health Assembly, *Draft thirteen general programme of work 2019–2030: report by the Director-General*, in *Seventy-first World Health Assembly. Provisional agenda item 11.1, A71/4*. 2018: Geneva, 5 April 2018.
104. Zamora G et al. *Tools and approaches to operationalize the commitment to equity, gender and human rights: towards leaving no one behind in the Sustainable Development Goals.* Global Health Action, 2018. 11(sup1): p. 75–81.
105. WHO, *Strategy for integrating gender analysis and actions into the work of WHO*. 2008, World Health Organization.
106. Hosseinpoor AR et al. *Health Equity Assessment Toolkit (HEAT): software for exploring and comparing health inequalities in countries.* BMC Medical Research Methodology, 2016. 16(1): p. 141.
107. WHO, *Handbook for conducting an adolescent health services barriers assessment (AHSBA) with a focus on disadvantaged adolescents: knowing which adolescents are being left behind on the path to universal health coverage, and why.* 2019.
108. Ministry of Health, *Resource Handbook: Leaving no one behind in the context of subnational health system strengthening in Mongolia*. 2017, Ministry of Health, Government of Mongolia: Ulan Bataar.
109. WHO, *Innov8 approach for reviewing national health programmes to leave no one behind: technical handbook*. 2016, World Health Organization: Geneva.
110. Koller TS et al. *Applying the Innov8 approach for reviewing national health programmes to leave no one behind: lessons learnt from Indonesia.* Global Health Action, 2018. 11(sup1): p. 1423744.
111. Magar V et al. *Gender mainstreaming within WHO: not without equity and human rights.* Lancet (London, England), 2019. 393(10182): p. 1678.
112. United Nations Sustainable Development Group, *Leaving no one behind: A UNSDG operational guide for UN country teams (Interim draft – 18 March 2019)*. 2019, United Nations Sustainable Development Group: Online.
113. Magar V. *Gender, health and the Sustainable Development Goals.* Bulletin of the World Health Organization, 2015. 93(11): p. 743–743.
114. Manandhar M et al. *Gender, health and the 2030 agenda for sustainable development.* Bulletin of the World Health Organization, 2018. 96(9): p. 644.
115. Wehrmeister FC et al. *Summary indices for monitoring universal coverage in maternal and child health care.* Bulletin of the World Health Organization, 2016. 94(12): p. 903–912.

4

Changing the trajectory towards UHC

THE PRIMARY HEALTH CARE ROUTE

Key messages

- Lower the barriers to services. Geographic barriers continue to impede access to health services. And low capacity and poor quality services erode the trust that communities have in their health systems.
- Scale up interactions known to work. Progress towards universal health coverage (UHC) can be accelerated most effectively and equitably through a primary health care (PHC) trajectory – emphasizing prevention and promotion, ensuring equity of access to most essential interventions, and limiting out-of-pocket spending on medicines.
- Getting PHC closer to people is the best way to achieve UHC. Scaling up PHC interventions across low- and middle-income countries would need scaling up human resources and infrastructure and potentially save 60 million lives and increase average life expectancy by 3.7 years by 2030. A full UHC package would save about 100 million lives.
- Additional investments can do it. The targets set for UHC in the Sustainable Development Goals (SDGs) in low- and middle-income countries can be achieved through the PHC route with a relatively modest additional investment of around $370 billion a year – $200 billion for PHC and $170 billion for other services to reach UHC.
- Most countries can afford that. Most countries can make substantial progress by using domestic resources to increase PHC spending, through higher public spending on health, reallocations towards PHC or a combination of the two. Allocating or reallocating at least an additional 1% of GDP of public spending for PHC is within reach in all countries.

Key metrics

- In low- and middle-income countries, more than half the 15.6 million excess deaths are amenable to health care and 42% of them are due to not using health services.
- The health workforce deficiency in low- and middle-income countries was estimated by WHO at 17.4 million workers in 2013 and is particularly high in fragile settings.
- In six African countries, 70%–90% of clinics offer antenatal care, but only 10%–80% have at least one staff member who has received antenatal care training in the past two years. In those same countries, roughly 10%–50% of facilities offer diabetes care, but fewer than 10% have at least one staff member who received any training in the diagnosis and treatment of diabetes in the past two years.
- In six African countries, 10% of women and almost 20% of men have never had their blood pressure taken.

- Health workforce demand overall is expected to increase from 48.3 million health workers in 2013 to 80.2 million in 2030.
- Scaling up primary health care interventions across low- and middle-income countries would save at least 60 million lives and increase average life expectancy by 3.7 years by 2030.
- Most low-income countries can increase PHC spending from public sources by 0.9%–1.9% of GDP by 2030.

Today's slow progress will not lead to UHC by 2030. Step changes are essential to accelerate service coverage and financial protection, focusing on the poorest segments of the world population. For this, we need better understanding of where and how health systems fail on both the supply side (geographic access, service capacity quality) and the demand side (quality and trust). Countries need to systematically invest in measuring four main dimensions of health system capacity: physical access, human resource availability, infrastructure and process quality. Addressing these constraints will require a shift in the financing and delivery of health services. This chapter identifies primary health care (PHC) as the route to achieving UHC. It next analyses the cost of removing access, capacity and quality barriers to build PHC systems and scale up high-impact health interventions. It then examines how countries can reach universal coverage through more and better domestic financing and better targeted aid.

Remove barriers to access, upgrade quality and foster trust

GEOGRAPHIC ACCESS TO FACILITIES REMAINS A MAJOR OBSTACLE, PARTICULARLY IN AFRICA

In low- and middle-income countries, more than half the 15.6 million excess deaths are amenable to health care and 42% of them are due to not using health services *(3)*. Geographic access – the distance people must travel to access health services – is a common barrier. While geographic access can be particularly challenging in rural and remote areas, important and unique challenges to access are also found in cities, which will be home to two-thirds of the global population by 2030 (Box 4.1).

Having access to a facility offering health services close to where people live and work

BOX 4.1

The health challenges of cities

By 2030, two-thirds of the world's population will live in cities, including 750 million people in megacities of more than 10 million. Most mega and fast-growing cities (80%) are in low- and middle-income countries. Cities typically offer greater primary health care (PHC) access and capacity *(38)*, but they also present health challenges. Megacities have been associated with poverty, food shortages, more sedentary lifestyles leading to obesity and diabetes, elevated risk of breast cancer in some countries, increased violence including gender-based violence, higher rates of mental illness, more severe pollution leading to inadequate sanitation and pulmonary, cardiac and cerebrovascular disease *(13)*. For example, in 2016, only 50% of households had access to running water in cities of 91 countries with comparable data. Those in the highest wealth quintile were 2.7 times more likely to benefit from piped water than those in the poorest quintile. In Africa, the gap was 17-fold *(14)*.

Inequalities within cities are often as severe as those between rural and urban areas, and disaggregated data are needed to fully capture these differences *(15)*. Cities often attract the most vulnerable and marginalized people and can thus accentuate adverse determinants of health such as precarious housing, social isolation and a higher cost of living. These factors, combined with discrimination and stigma, can keep people from seeking timely care *(16)*. While the distance to facilities may be shorter than in rural areas, the cost of transportation and concerns about safety can also hinder access. In some large cities, the inequities in access have been mitigated by the establishment of community health centres accountable to deliver continuous, comprehensive and coordinated primary care to a defined population, often defined geographically, through integrated multidisciplinary family health teams *(17)*. The complex interplay of environmental and social determinants in shaping the health outcomes of people living in large cities will require solutions that engage multiple sectors as well as people and communities, making PHC the strategy of choice.

is central to PHC. Having too few facilities, far from where people live and work, or facilities that do not meet the needs and expectations of the population – for example, because of inconvenient operating hours, inhospitable staff or unsafe or dysfunctional infrastructure – can deter people from seeking care altogether or delay care, with direct impact on health outcomes. The time and cost of travelling long distances to reach a facility are particularly burdensome for poor people and those with physical disabilities. Even relatively short distances from health facilities are associated with reduced uptake of health services and poorer health outcomes (Figure 4.1).

The proportion of the population living within 5 km of a health facility varies greatly between countries and is associated with the capacity and access component of the UHC Service Coverage Index (SCI) and overall UHC score measured in Chapter 1. The associations are evident even though the measurements of distance and UHC scores are sometimes several years apart, possibly because health service infrastructure does not change rapidly over time.

Even when facilities are physically accessible, barriers related to language, literacy, culture, employment status and various special needs can impair access (chapter 3).

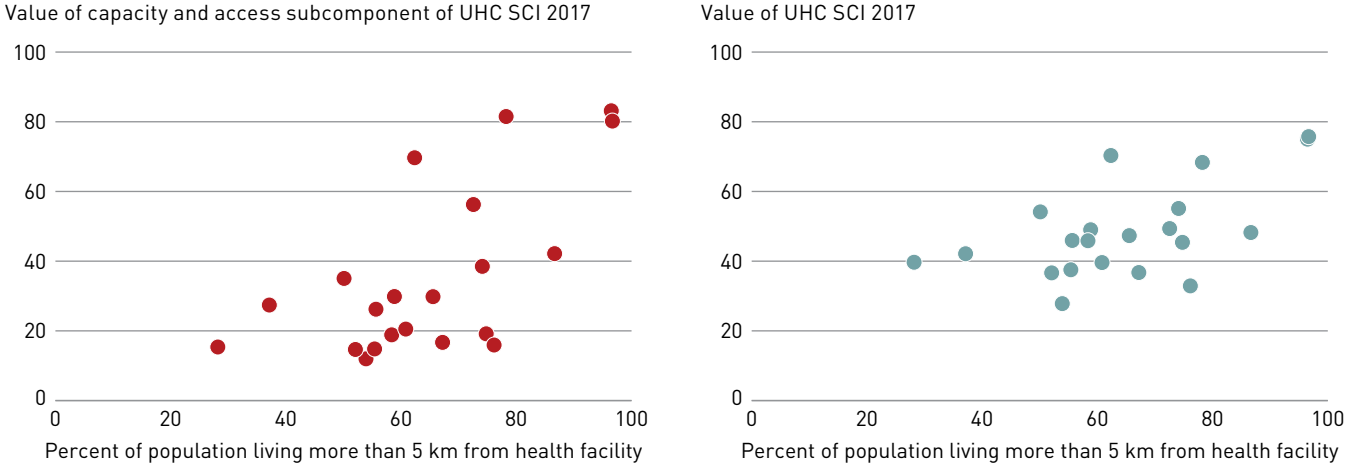
Mitigating geographic barriers is possible. Interventions delivered close to people through periodic outreach can increase access even when facilities are few and far apart. For example, immunizing children against diphtheria, pertussis and tetanus (DPT) is commonly delivered according to an outreach approach to all those who need it, using strategies such as episodic mass immunization campaigns through mobile clinics.

Where periodic outreach interventions offer a service free of charge to all those who need it and reach even rural and remote communities, such services enhance equity. This is reflected in the high level of DPT immunization across all countries and the low variation in immunization rates between boys and girls and between rural and urban populations (Figure 4.2). However, periodic service delivery has limitations. Pervasive delays in completing the DPT immunization series1 according to the prescribed schedule are seen in all populations due in part to a reliance on episodic immunization campaigns through mobile clinics instead of continuous services integrated through responsive models of care.

The distribution of insecticide-treated bed nets to prevent malaria is also a community-based health intervention, often delivered directly to people's homes. Like DPT immunization, access is fairly equitable, with consistent and high median proportions of households with at least one bed net across rural and urban, rich and poor and more and less educated populations. Women are more likely than men to report having at least one treated bed net in their household (see Figure 4.2), possibly because the nets are commonly distributed through antenatal programs, as well as through periodic outreach.

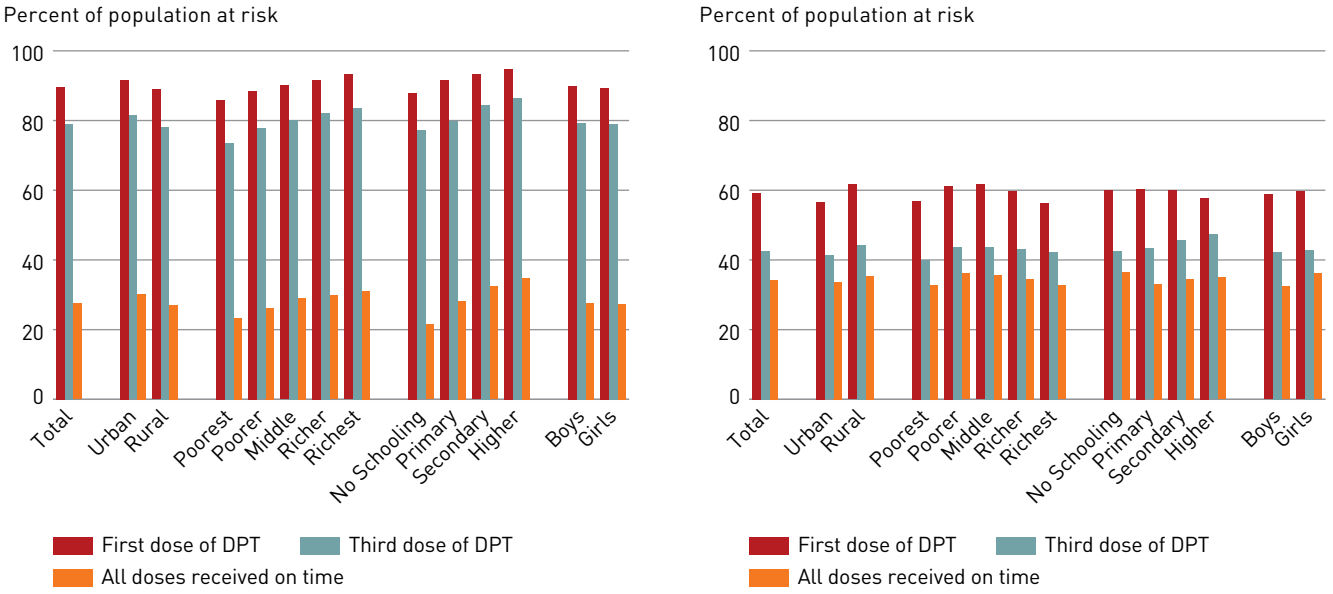
Despite the positive impacts on access or "reach", periodic outreach interventions in communities do not fully address gaps in service access. While access to DPT

FIGURE 4.1 The proportion of the population living within 5 kilometres of a health facility is associated with the coverage of health services



Source: of data on distance from health facility Karra et al. https://academic.oup.com/ije/article/46/3/817/2617178.

FIGURE 4.2 Periodic outreach interventions enhance coverage and equity, but do not fully eliminate barriers



Source: Demographic and Health Surveys from 38 countries since 2005.

immunization is high overall, people who are richer and more educated are slightly more likely to be immunized. Other interventions, such as conditional cash transfers focused on poor or otherwise vulnerable populations, should be considered as a complement to supply-side improvements *(4)*. In low- and lower-middle-income countries, people who are highly educated are more likely to get their immunizations according to the recommended schedule. For treated bed nets, men are less likely than women to obtain and use them, pointing to a need for better understanding of what influences demand (see Figure 4.2).

Low service capacity – medicines, health workers and water and energy – remains a major barrier

To reap the benefits of UHC, ensuring physical access to facilities is not enough. Facilities need to be "service ready", meaning they must have the capacity to deliver high-quality services. This requires trained and supported health workers, essential medicines, health products and equipment and information systems, along with key infrastructure foundations such as improved water and sanitation, clean water and standard precautions for preventing infection.

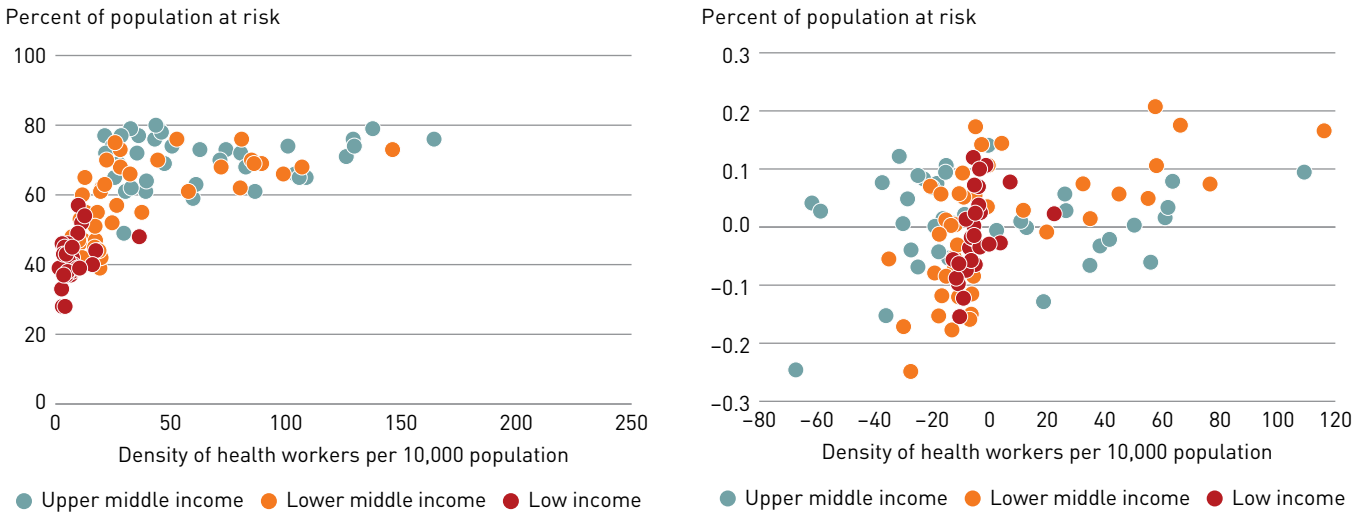
Shortages of health care providers remain a major impediment to progress towards UHC

Health care workers are central to the delivery of high-quality services. A higher density of health workers improves coverage of essential services. But the effect is weakened when country incomes are taken into account, alluding to the central role of the economy in shaping health labour markets (Figure 4.3). The unequal distribution of health workers affects access to essential services, particularly in rural and remote areas.

To be effective, health care providers need to be present in adequate numbers, and they need to be competent, supported and well-resourced. In many countries, the number and distribution of health care providers are still inadequate to deliver the needed services. The latest available data (WHO National Health Workforce Accounts) indicate that nearly a third of countries have fewer than 10 physicians per 10,000 people, and more than half have fewer than 40 nurses and midwives per 10,000 people *(5)*. Worse, regions with the highest burden of disease have the lowest proportion of health workers to deliver services (Figure 4.4). The health workforce deficiency in low- and middle-income countries was estimated by WHO at 17.4 million workers in 2013 and is particularly high in fragile settings *(6)*.[2]

The health and social sector is one of the biggest and fastest growing employers in the world. Multiple challenges have been identified throughout the health labour market, such as migration, retention and decent work. To tackle these challenges, WHO established in 2016 a Global Strategy on Human Resources for Health: Workforce 2030. While

FIGURE 4.3 UHC service coverage is tied to health worker density



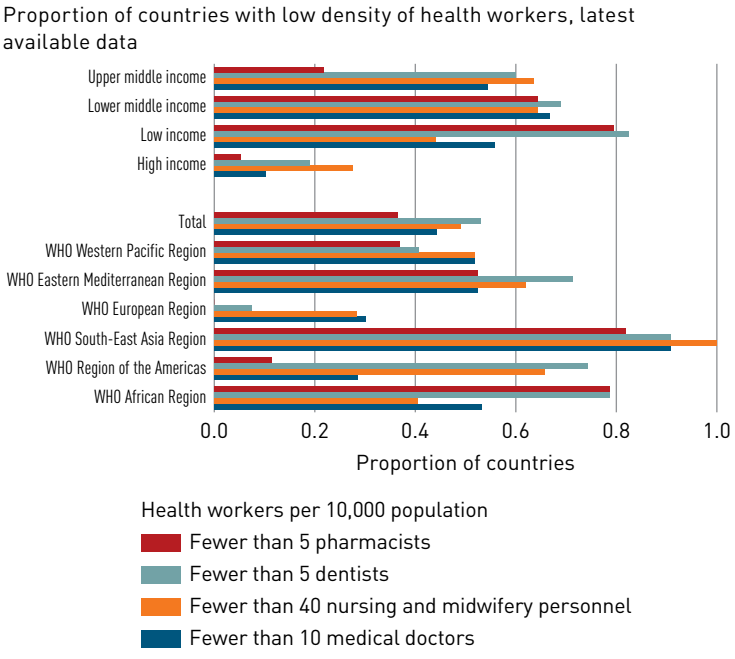
Note: The right-hand panel is adjusted by country income. The income adjustment consists in computing the residuals of each variable using a quadratic specification of the log of GDP per capita).
Source: Health workforce data from WHO Global Health Observatory, latest available years. The service coverage index is from the September 2019 Global database on UHC service coverage assembled by WHO: http://apps.who.int/gho/portal/uhc-service-coverage-v3.jsp.

health workforce was mainly seen as a cost to the health system, recent economic evaluations, in particular the United Nations Secretary-General's High-Level Commission on Health Employment and Economic Growth, found that investments in the health and social workforce would have a powerful multiplier effect on economic growth.

To deliver effective care, health service providers, individually and as teams, must have the competencies and support to deliver the needed services. This is not always the case. In six African countries, 70%–90% of clinics offer antenatal care, but only 10%–80% have at least one staff member who has received antenatal care training in the past two years (Figure 4.5) *(7)*. In those same countries, roughly 10%–50% of facilities offer diabetes care, but fewer than 10% have at least one staff member who received any training in the diagnosis and treatment of diabetes in the past two years (see Figure 4.5). No data are available on the ability of health care providers, individually or as teams, to deliver coordinated care for a range of complex conditions in a person-centred approach, as required of PHC-oriented systems. These data are essential to monitor progress on the delivery of the services that fully respond to the needs of people.

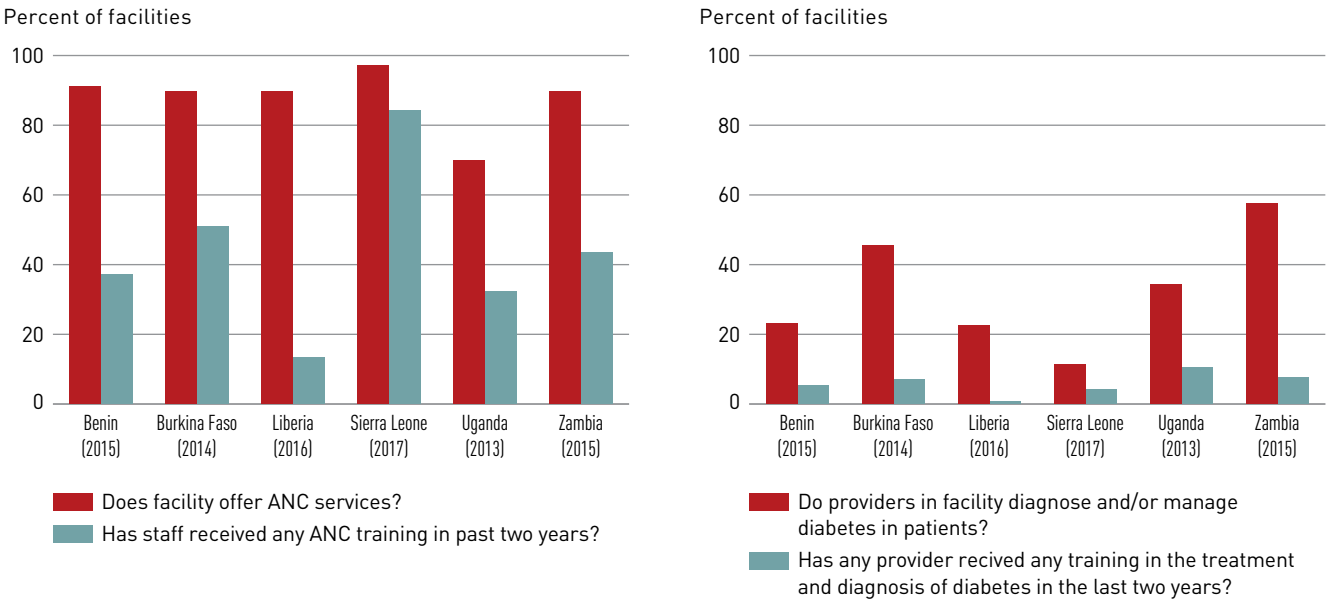
Bold and innovative approaches to training and retaining health workers and, above all, a major increase in the investment in budgets for health workforce salaries complemented with multi-stakeholder engagement through the NHWA implementation are required to meet such ambitions. These innovative approaches would need to account for technological developments and digital health,

FIGURE 4.4 Regions with the highest disease burden have the lowest density of health workers



Note: World Bank income groups are according to the 2018 classification. Grand total refers to global total.
Source: The 2018 update, Global Health Workforce Statistics, World Health Organization, Geneva. https://www.who.int/hrh/statistics/hwfstats/en/, Date accessed, August 2019.

FIGURE 4.5 More trained health providers are needed to deliver effective care for a comprehensive range of conditions



Source: Service Availability and Readiness Assessment surveys from six countries in the African Region.

and make use of the maximum capacity of available health workers. In low- and middle-income countries in particular, mobilizing community health workers, including through providing remuneration and decent working conditions, would help making progress towards universal health coverage.

Inadequate infrastructure, equipment, and medicines undermine the capacity to provide needed services

In many countries, basic infrastructure at PHC facilities lags well behind national and global aspirations for UHC. Globally in 2016, one in five health care facilities had no sanitation services, and one in six no hygiene services *(9)*. Safe and properly maintained equipment, products and medicines are not always available, undermining access to quality care. For example, in six African countries with facility survey data, fewer than 30% of facilities had the ability to diagnose HIV infection or to prescribe antiretrovirals, and fewer than 15% had the ability to test for viral load (Figure 4.6) *(8)*. In the same countries, only 10%–55% of facilities have the tetanus toxoid and blood pressure equipment to deliver quality antenatal care (see Figure 4.6), and fewer than 5% have the ability to diagnose diabetes *(7)*.

In a different sample, roughly 35%–60% of mothers reported receiving antenatal care that included the administration of a tetanus-containing vaccine and blood pressure measurement during their previous pregnancy (Figure 4.7) *(10)*. These data, while limited, suggest gaps in the availability of equipment, products and medicines that undermine the delivery of essential services.

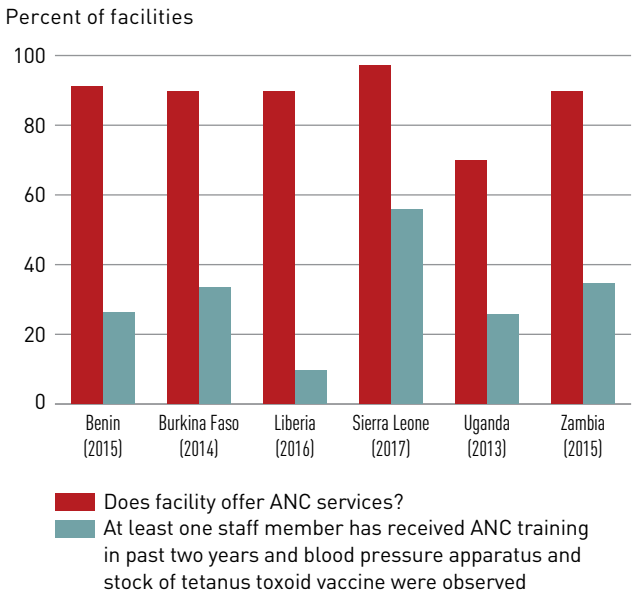
Quality of care is often suboptimal

To have the desired impact on health and well-being, services need to be of high quality – safe, effective and people-centred *(11)*. Poor service quality can result in treatment delays, incorrect diagnoses, patient harm and poor user experiences.

One way to assess quality is to examine whether health care providers make the right diagnosis and take the recommended or expected evidence-informed clinical action. A study across seven African countries revealed that despite improvements in institutional birth attendance and clinical consultations for sick children, providers performed just half to two-thirds of the minimal set of recommended clinical actions for pregnant women and sick children, and the quality of care was weak *(12)*. Box 4.2 provides examples of poor quality of care.

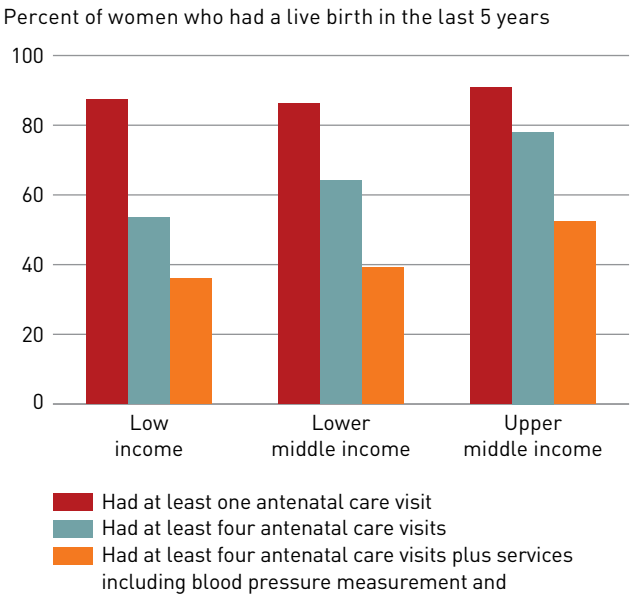
Quality of care can also be assessed by considering whether patients receive the full range of care they need, including diagnosis, treatment and control or resolution of the condition, as appropriate. For HIV infection, high-quality care includes timely diagnosis through testing, access to effective treatment, and monitoring

FIGURE 4.6 Safe equipment, products and medicines are essential for effective care delivery



Source: Service Availability and Readiness Assessment surveys from six countries in the African Region.

FIGURE 4.7 Gaps in use and delivery of ANC services impair the quality of care



Source: Demographic and Health Surveys from 34 countries since 2005.

BOX 4.2

Evidence of deficiencies in the quality of care across countries

- Adherence to clinical practice guidelines for a number of clinical areas was below 50% in eight low- and middle-income countries, resulting in low-quality antenatal and child care and deficient family planning.
- Service delivery indicators initiative in seven low- and middle-income countries showed significant variation in provider absenteeism (14%–44%), daily productivity (5.2–17.4 patients per provider), diagnostic accuracy (34%–72%) and adherence to clinical guidelines (22%–44%).
- A systematic review of 80 studies showed that sub-optimal clinical practice is common in both private and public primary health care facilities in several low- and middle-income countries.
- Organisation for Economic Co-operation and Development data for high- and middle-income countries show that 25%-65% of women ages 50-69 did not undergo mammography screening in 2017 (OECD, 2019). For influenza, the average vaccination rate among the elderly population decreased among OECD countries from 49% in 2007 to 42% in 2017. Vaccination rates were less than 10% in Estonia, Latvia and Turkey. Only Korea attained the WHO 75% target, with a coverage of 82.7% *(10)*.
- A sample of 135 low- and middle -income countries showed wide variations in capacity and quality across countries as indicated by the low availability of basic equipment (63%–87%) and poor application of clinical guidelines (22%–44%) in 20 low- and middle-income countries with data.

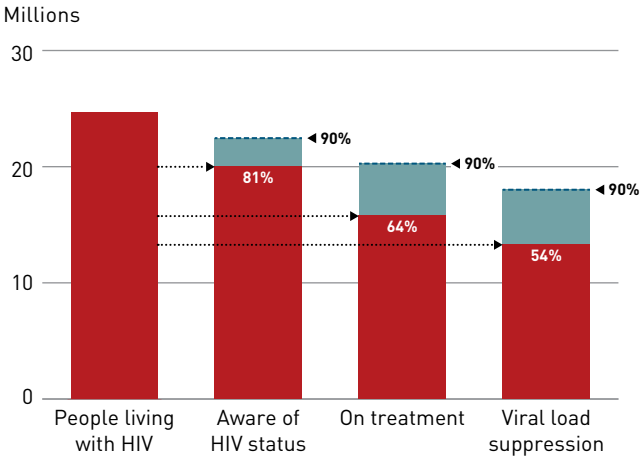
Source: Delivering quality health services: a global imperative for universal health coverage *(39)* and PHCPI Primary Health Care Performance Initiative *(40)*.

to ensure sustained viral suppression, delivered in a safe and person-centred approach. In the WHO African Region in 2018, despite impressive progress in access to HIV testing and treatment in the past decades, an average of only 81% of people living with HIV knew their status (range of 70%–93%), 64% (48%–76%) were on treatment and 54% (39%–68%) were virally suppressed (Figure 4.8) *(41)*. Ongoing management and full suppression of the virus are key to reducing harm to the infected individual and preventing transmission to others.

Similarly, in a sample of six African countries with available survey data, 10% of women

FIGURE 4.8 Improving the quality of care is required to achieve expected health outcomes

HIV testing and care continuum in the African Region, 2018

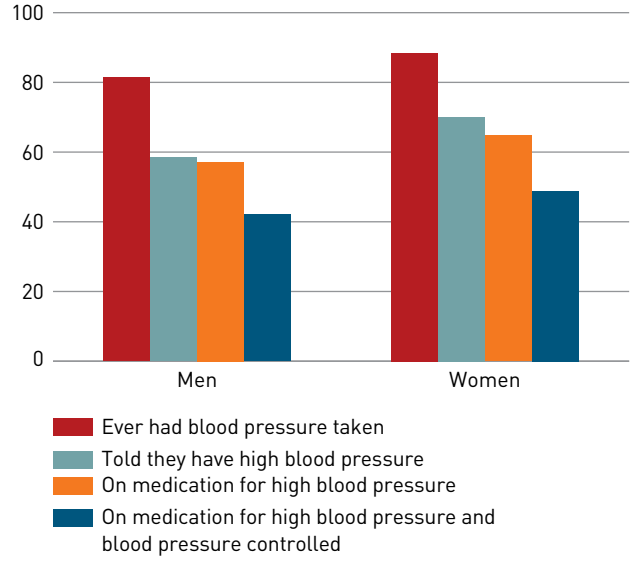


Source: UNAIDS/WHO estimate (https://www.who.int/hiv/data/en/)

and almost 20% of men have never had their blood pressure taken, even though high blood pressure is a very common condition. Among people diagnosed with high blood pressure, most men but only about 85% of women are taking medication, and roughly 20% of women and 30% of men have high blood pressure that is not fully controlled (Figure 4.9). This is significant because partially controlled blood pressure does not optimally protect against the adverse outcomes of hypertension, including heart attacks and strokes.

FIGURE 4.9 In many settings, clients do not receive comprehensive diagnostic, treatment and counselling services

Percent of respondents who either had high blood pressure on survey day or were on medication for high blood pressure



Source: Demographic and Health Surveys from six countries since 2005.

Currently, there are widespread gaps in UHC- and PHC-related data. UHC means that all people, including those who are vulnerable or marginalized, have access to good quality health services that put their needs at the centre without causing financial hardship. For monitoring health system performance, especially service quality, moving towards UHC, assessing population coverage with health interventions alone is insufficient. So, for countries to show progress on SDG target 3.8, investments in ways to assess the quality and integration of PHC are needed. Measuring progress will require new data sources capturing service capacity and quality, and systems and capacities enabling countries to better use existing data.

Furthermore, current data do not provide a clear picture of the ability of health care facilities or staff to provide comprehensive and integrated care in a holistic approach for patients who have several concurrent acute and chronic conditions. The PHC required to accelerate progress towards UHC includes the ability to deliver comprehensive person-centred services by health providers competent to provide care that is safe, adheres to clinical guidelines and responds to individual patient's needs and preferences.

The Lancet Global Health Commission on High Quality Health Systems recommends that national and global actors improve the measurement of health service quality and incorporate it more systematically into the measurement of effective coverage. This step would enable including quality-corrected coverage in tracking progress towards UHC. Kruk et al. wrote,

> National and global actors should seize three opportunities to improve measurement of health system quality: (1) measure effective coverage – use quality-corrected coverage metrics to track progress towards UHC; (2) adopt fewer, but better measures by shedding inefficient indicators and prioritising measures of system competence, user experience, and outcomes, including clinical and patient-reported health, confidence in the system, and economic benefit; (3) invest in country-led quality measurement, including strengthening national capacity for data use and policy translation, releasing an annual health system quality dashboard, and

disaggregating results for vulnerable populations *(42)*.

Approaches and issues related to measurement of effective coverage and quality of care are summarized in Box 4.3.

Trust between providers and the community is essential to reap the benefits of primary health care

Health systems can have the expected impact on health outcomes only if access, capacity and quality generate trust in the services. Building trust requires engaging communities meaningfully throughout health service planning, design, implementation and evaluation. Such engagement empowers individuals to make appropriate decisions about the delivery of their care and enjoy the full benefits of the health system. The power of people's participation for achieving desired health outcomes can be realized only when people have trust in the quality and efficacy of the services they receive. But current monitoring tools do not clearly capture patient satisfaction and measures of trust.

To have the desired impact on health and well-being, countries need to consider multiple indicators of health services access, quality and trust

Indicators of access, quality and trust include:

- Geographic access and tailored service delivery strategies supported by outreach and an understanding of the care-seeking behaviour of different population groups.
- Strategies to address discrimination, including targeted interventions and other measures to contact and serve the people who are most difficult to reach.
- A sufficient number of properly distributed health care providers who are able to skilfully address a range of concurrent health issues.
- Equipment, products and medicines that are safe, effective and well-maintained.
- Models of care that bring all these elements together in a way that fosters trust and mutual accountability between individuals and providers.
- Information systems that can measure, learn and continuously improve.
- A prioritized list of evidence-based interventions for improving the quality of health

BOX 4.3

Measuring effective coverage, including the quality of care, across the life course

Quality of care can be monitored and acted on through care cascades. Commonly, care cascades start from the number of people in need and include the successive steps of seeking care, receiving appropriate care (quality of care), controlling or preventing disease, and survival and well-being.

In addition, effective coverage can be covered in the monitoring of UHC as a measure of health system performance. Effective coverage is defined as "the fraction of potential health gain that can be delivered through an intervention by the health system, which is actually delivered".[1]

But data limitations and measurement challenges confront both quality of care and effective coverage.

For a care cascade, especially the quality component, measures that go beyond just self-reporting are urgently needed, such as observations or data from routine health management information systems to determine whether guidelines or standard operating procedures were followed and to better capture user experience. But these other data are often lacking, and even when they are available, standard methods for combining them are not yet fully established.

For effective coverage, measures have included adjusting crude coverage levels according to service readiness, quality of care provided, health outcomes or mortality-based measures. Measurement experts need to assess methods and develop standardized metrics for effective coverage.

Research is especially needed on how to more efficiently use traditional data sources (validated self-reports from population-based household surveys) and alternative data sources (health management information systems, sentinel surveillance sites, mHealth approaches), as well as statistical methods for combining data from multiple sources.

The global measurement community must work together to develop practical approaches for assessing effective coverage and quality of care and strengthen national capacity to implement and use these measures to improve PHC.

Note

1. Shengelia et al. Access, utilization, quality, and effective coverage *(43)*.

services throughout the health system, including reducing harm, improving clinical care, improving the system environment, and enabling patient, family and community engagement and empowerment.

These multiple considerations need to be organized through policies and strategies for improving the performance of the health system. PHC offers a pathway to UHC that addresses these many considerations. Together with engaged people and communities, and through multisectoral policies and actions, PHC entails high-impact, high-quality primary care services and essential public health functions that meet the health needs of the population by delivering promotion, prevention, curative, rehabilitative and palliative health care services. Therefore, the best route to UHC and the health targets of the SDGs is through PHC – it is not just a slogan.

Progress towards UHC differs across countries, as do the priorities for accelerating achievement of UHC

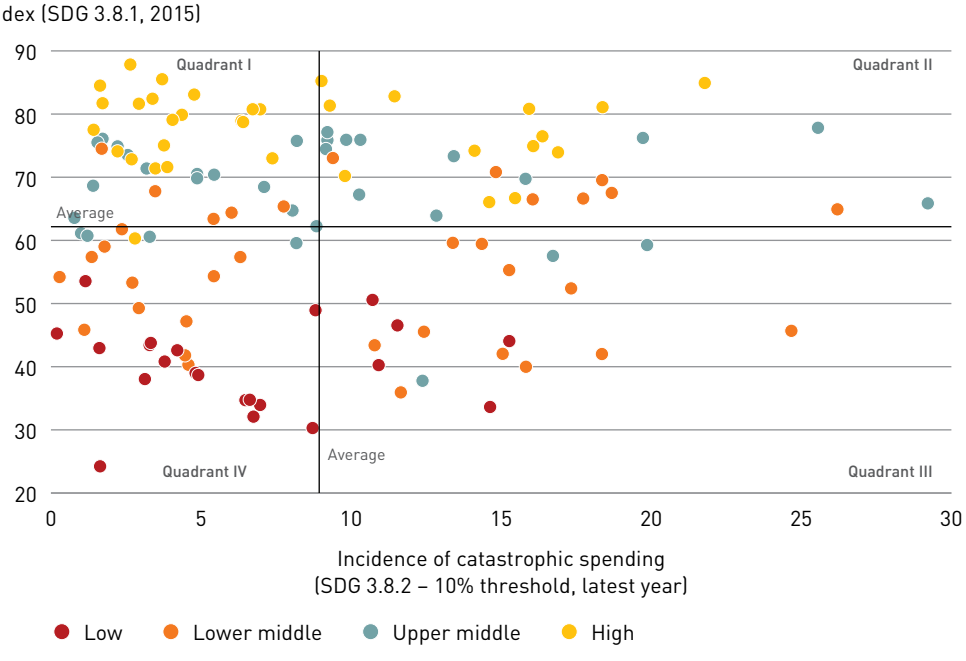
Countries are at different stages of progress towards UHC, with service coverage and financial protection following different trajectories (Figure 4.10).

Quadrant I: The high-performing countries have high service coverage and low financial hardship for individuals. Most countries in this group are high- and upper-middle-income countries. These countries have already made considerable progress towards UHC. They face the challenge of sustaining their gains, including through improving equity and efficiency *(1)*, and transforming their health systems and adapting them to emerging technologies and epidemiological changes *(2)*. Relative to the other groups, these countries are likely to have a more equitable distribution of access to health care.

Quadrant II: A second group of countries has high service coverage and high financial hardship for individuals. This group consists of high-, upper-middle and lower-middle income countries. They have achieved substantial progress in the supply of and demand for essential services, but they have not achieved high levels of financial protection. These countries need to give more attention to health financing reforms to address this challenge.

Quadrant III: The third group comprises countries with low service coverage and high financial hardship, mostly countries with large service inequities characteristic of contexts with fragmented financing and concentrated service provision serving urban populations, often requiring high levels of out-of-pocket spending *(26)*. Typically, these countries would need to revisit both their health service delivery models and their financing strategies to address barriers to service for poorer rural populations while developing more inclusive

FIGURE 4.10 Countries are at different stages in service coverage and financial protection



Source: Service Availability and Readiness Assessment surveys from six countries in the African Region.

health financing models that include specific mechanisms to target resources towards the currently underserved population.

Quadrant IV: The fourth group includes mostly low-income countries that have low service coverage and low financial hardship. As in the countries in the third group, financing arrangements are probably fragmented and service coverage highly inequitable, with very low use by people living in poverty. Those who do use services are typically upper-income or covered by social health insurance schemes that serve the small part of the population that works in the formal sector. They are well-protected against out-of-pocket costs. These countries need to build foundations for their health systems, including human resources, health infrastructure and supply chains to ensure basic service delivery, particularly for the rural poor, while protecting them – even for basic services – from the need to pay out of pocket. Fragile states and countries affected by protracted crisis or conflict constitute the bulk of these lagging countries.

Scaling up primary health care systems will lead the world towards universal health care

In low- and middle-income countries, investments in PHC account for more than half the estimated $371 billion needed to achieve UHC by 2030

Investments in PHC will be needed to boost the quality and availability of people-centred services to loosen health system constraints and foster broad-based policies that address the social determinants of low coverage and financial hardship. As agreed at the 2018 Global Conference on Primary Health Care, a PHC approach includes multisectoral policies and actions, engaged people and communities, and services that are integrated with essential public health functions. While the specific set of PHC interventions provided varies across countries, at its most basic it includes preventive public health interventions and general outpatient care.

In 2017, WHO published a price tag for expanding services and strengthening health systems towards achieving 16 SDG health targets for 67 low- and middle-income countries (with 95% of the population in low- and middle-income countries). The total price tag is an additional $371 billion a year *(18)*. Of this total, the additional spending needed for strengthening platforms and expanding coverage of PHC interventions for these countries is about $200 billion a year ($32 per person) (Figure 4.11 and Box 4.4) *(19)*. These are only rough indications of resource needs: costs vary considerably, and each country must carry out its own analysis.

As institutions develop, and supportive policy and regulatory functions create people-centred services, further investment is needed to expand PHC to those who remain unreached. Strengthening PHC requires an adequate workforce that is well motivated, well-resourced and available where needed, with basic infrastructure and functioning equipment. Thus, scaling up health systems to deliver primary health care services to all people in low- and middle-income countries will require upgrading implementation capacity.

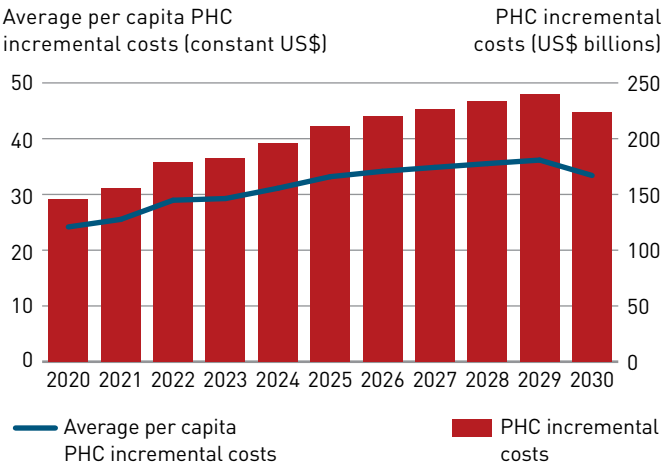
Addressing the shortage of health workers and scaling up infrastructure to deliver PHC accounts for most of the cost of PHC

Shortage of health skills is the largest impediment to UHC

The WHO 2017 SDG price tag also estimated that more than 23·million additional health workers are needed in these countries to achieve the SDG health targets. Health workforce demand overall is expected to increase from 48.3 million health workers in 2013 to 80.2 million in 2030 (165 countries); in low- and middle-income countries demand is expected to more than double by 2030. Yet this demand is still insufficient to cover needs.

A major increase in investment in the health workforce, including innovative approaches to

FIGURE 4.11 About US$200 billion a year of additional investment in primary health care is needed to reach universal health coverage by 2030



Source: Stenberg et al. 2019 Lancet Global Health *(19)*.

BOX 4.4

Primary health care cost and impact methodology

In 2017, WHO published estimates of the resource needs for advancing the Sustainable Development Goals (SDG) health-related targets in 67 low- and middle-income countries. The analysis shows that investments to expand services towards universal health coverage and the other SDG health targets could prevent close to 100 million premature deaths globally by 2030. This will require new ambitious investments that increase over time from an initial $134 billion annually to $371 billion, or $58 per person, by 2030. Most resources will be needed to support first-level clinical services *(18).*

Following additional work to define boundaries for PHC spending *(20)*, a similar approach was applied to WHO's SDG price tag model to derive projections of costs and impacts related to additional investments in PHC *(19)*. Health services were included based on the Astana Declaration and accompanying technical documents, informed by work delineating PHC within health accounts, and finalized through an expert meeting and country validation. The intervention-specific models were adjusted to contain only scale-up targets for the subset of PHC interventions. The health system models were similarly adjusted to include only the share of costs that represent the need to strengthen PHC in each country. Thus, the subset of PHC-specific costs was subtracted from the SDG models. Similarly to calculate the impact, a new analysis was carried out using the modified projection models that contained the PHC interventions only.

training and incentivizing health workers, is required to achieve UHC. These approaches need to incorporate advances in technology that maximize the capacity of available health workers. In low- and middle-income countries particularly, mobilizing a community-based health workforce would help advance progress towards UHC. While the health workforce has previously been seen mainly as a cost to the health system, recent economic evaluations – such as the UN Secretary-General's High-Level Commission on Health Employment and Economic Growth, have found that investments in the health and social workforce have powerful multiplier effects on economic growth *(21)*.

Investment in infrastructure is a particularly high priority for low-income countries

Boosting infrastructure is also needed to increase access and quality. The WHO 2017 SDG price tag estimated that about 415,000 health facilities need to be established and equipped, 378,000 of them PHC centres. One-fifth of them are needed in low-income countries *(18)*. To provide accessible, close-to-patient services, low-income countries need to build the infrastructure – including water, electricity and connectivity – for 77,000 additional primary health centres or clinics. Middle-income countries also need to invest heavily in infrastructure and equipment to reach poor populations now underserved.

Better understanding is needed of primary health care's cost and effectiveness

PHC interventions have a powerful impact on reducing mortality and morbidity to meet the life-course targets of SDG3. To support countries in advancing the UHC agenda, WHO is developing an online data repository detailing WHO-recommended interventions and their resource implications *(22)*. The repository is a global resource to facilitate discussions around what interventions to consider under PHC. The expanded intervention list will be used in future updates of the resource needs associated with advancing the UHC agenda and achieving the health SDGs (Box 4.5).

The PHC investment analysis provides normative average cost estimates across the 67 low- and middle-income countries (Figure 4.12). For these countries, the estimated incremental cost of expanding PHC services varies from 0.2% of GDP to more than 10% of GDP.

WHO's global estimates for PHC investments are indicative of resource needs, but countries must carry out their own assessments. With the support of WHO, some countries have already developed their own PHC investment analysis (Box 4.6).

Scaling up PHC interventions would save lives and increase average life expectancy.

Countries will advance a long way towards UHC and the other SDG health targets by investing in PHC. Scaling up PHC interventions

(see Box 4.5) across low- and middle-income countries would save at least 60 million lives and increase average life expectancy by 3.7 years by 2030 (Figure 4.13) *(19)*.

Unreached mothers and children offer the greatest scope for reducing deaths. Noncommunicable diseases and mental health are other promising areas for major gains in healthy life-years. However, despite significant progress possible through health services, advancing towards the full set of SDG health targets also requires multisectoral approaches to address environmental threats and the social determinants of health, particularly gender discrimination and poverty.

Additional primary health care investments are needed from public sources

Health system financing for UHC is primarily domestic – and will be increasingly so. But household out-of-pocket payments are the main source for PHC expenditures *(24)*, and most governments assign PHC a low priority in the allocation of public budgets *(20)*. An increase in public spending for PHC would allow most countries to greatly expand PHC access and quality. The Commission on Investing in Health recommends an increase of 1%–2% of GDP in public spending on health by 2035 *(35)*. This would also contribute to health system efficiency and equity, as improvements in PHC are also associated with increased financial protection. But even this level of increase raises affordability challenges in countries with tepid growth or low capacity for tax collection.

Financing for PHC is primarily domestic and will be increasingly so

Since 2000, global health spending has risen rapidly (4% a year), even faster than GDP (2.8% a year). In 2016, spending on health represented $7.5 trillion, or about 10% of global GDP. For the most part, public spending has driven health spending. Since 2000, per capita public spending on health has increased by about two-thirds in real terms in high-income countries and doubled in middle-income countries *(24)*.

External funding should focus on low-income countries and be complementary and catalytic

In low-income countries, however, the increase in public spending has been much lower – only about 30% – with aid accounting for a rising share and domestic funding a declining share *(24)*.

About 35 countries, many of them fragile and conflict-affected, need major donor

BOX 4.5

Examples of interventions provided by primary care services, by platform

Platform 1: Policy and population wide interventions

- Legislative and regulatory interventions such as taxes, marketing restrictions and bans
- Population level behaviour change communication campaigns

Platform 2: Periodic outreach services

- Vaccination programmes
- Family planning
- Child nutrition interventions
- Brief clinical interventions

Platform 3: First level clinical services

- Disease specific pharmaceutical treatment programmes
- Newborn and child health services
- Noncommunicable disease treatment[1]

Additional programmatic interventions, including activities addressing socioeconomic determinants

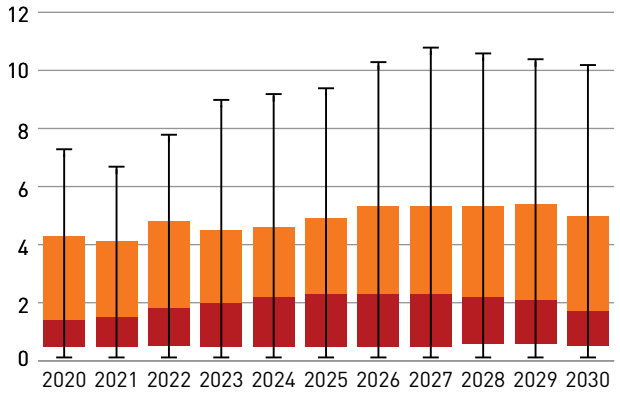
- Cash transfers and programme support costs

Note

1. Note that these services can also be delivered through higher level clinical services.

FIGURE 4.12 Incremental cost for expanding primary health care in 67 low- and middle-income countries

PHC incremental costs (% of GDP, projected)



Note: Boxplots show the interquartile range of values, with the median marked by a line inside the bar. The lines from the bars extend to the maximum and minimum values, with outliers excluded.
Source: Stenberg et al. *(19)*.

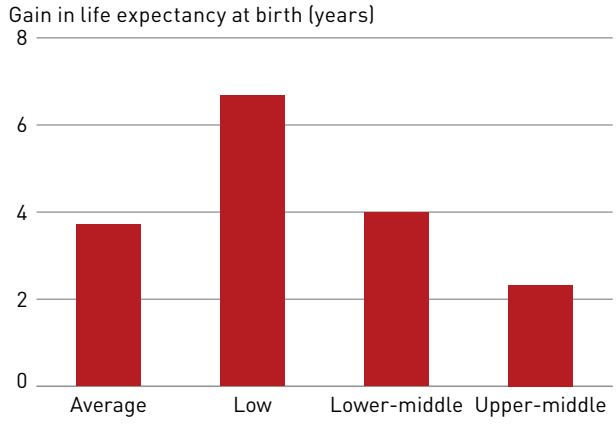
BOX 4.6

Primary health care cost estimates in Indonesia

Indonesia provides primary health care (PHC) through health centres called puskesmas. Half of them provide only outpatient care, and half provide both outpatient and inpatient care. The norm is one puskesmas per 30,000 population, supplemented by sublevel health posts and health centres per 3,000 population. In addition, several types of village-level health institutions provide PHC services, including village level maternity huts, mobile service units and village health posts.

A cost estimate shows that an incremental $6 per capita in 2020 is needed, increasing to $19 per capita by 2030. With the current health expenditure in PHC in 2016 of $27 based on the country's own PHC definition, this will lead to a total of $46 per capita for PHC by 2030. The incremental resources would provide for the scale-up in providing 155 interventions, building more than 4 800 puskesmas, rehabilitating 3,000 puskesmas, and hiring additional staff and purchasing ambulances to meet minimum standards for accreditation *(23)*.

FIGURE 4.13 Average life expectancy gain from further primary health care investment



Source: Stenberg et al. *(19)*.

funding. But even for fragile states, funding is not always the main constraint: governance, trade terms and environmental challenges are crucial. Well-managed investment and coherent programming and implementation can deliver substantial health benefits. A new international development aid compact should include fresh operating and financing models for these countries to invest in health system foundations and to build a delivery platform for essential services.

To support overall progress, external aid should:

- Focus on public goods by assigning priority to preparing for environmental and epidemic threats as the most equitable and efficient investment.
- Support the development of health systems for those left behind, particularly by investing in human resources and water, electricity and connectivity infrastructure for health clinics.
- Shift the allocation of current resources to favour cost-effective primary health interventions and delivery platforms.

By 2030, most countries will be able to increase their public spending on PHC as a percentage of GDP through increasing funding and better allocating available resources

Health spending is driven by income, but countries with similar spending levels perform differently *(24, 44)*. Higher total spending (both public and private) is strongly associated with service coverage, whereas higher public spending is particularly associated with financial protection *(24)*. Higher public spending, by contrast, is generally strongly associated with financial protection but weakly associated with service coverage *(24)*.

At any given level of GDP and fiscal capacity, spending on PHC can increase through three main routes:

- Reallocate government spending in favour of health overall.
- Reallocate government spending within health towards PHC.
- Increase external assistance for health with a greater focus on PHC.

Local realities will determine the strategies for mobilizing or redistributing resources to increase investment in health systems.

For high-income countries, reallocations favouring PHC would likely be the main pathway for increased public spending on PHC, while most low- and middle-income countries will have to combine increased public spending on health with increased priority towards PHC in this spending (Table 4.1 and Boxes 4.7 and 4.8).

Of course, for low- and middle-income countries, the key enabler for public policy action outside the health system is to improve taxation capacity and performance – that is, enhancing fiscal capacity. In addition, external financing will be needed to scale up investments in low-income countries, especially in infrastructure and human resources.

TABLE 4.1 General approaches to achieve increased primary health care spending, by country income group

Low-income • Increase domestic public funding on health as a whole • Increase donor funding on PHC • Reallocate donor funding	**Lower-middle-income** • Increase domestic public funding on health as a whole • Reallocate domestic public funding • Reallocate donor funding
Upper-middle-income • Increase domestic public spending on health as a whole • Reallocate domestic public funding	**High-income** • Reallocate domestic public funding

The starting point for any country is its current level and distribution of health spending, so an incremental approach is necessary to address a global target in a realistic way tailored to each country's circumstances.

It's not only about spending more; policy design matters to align primary health care with UHC goals

The need for increased investment in PHC is clear. The amounts may appear significant, but they would represent only about a 3% increase beyond the $7.5 trillion already spent on health globally each year, amounting to less than 5% increase above the $5.6 trillion

BOX 4.7

Illustration of potential increase of public spending on primary health care

Public spending on PHC at a given GDP level depends on fiscal capacity, the health budget share of government spending and the priority of PHC within the health sector (for both government and donors) (see Box 4.8). These can be reflected in the following equation with five parameters, as shown in Equation 4.1:

$$\frac{PHC}{GDP} = \left(\frac{GGE}{GDP} * \frac{GGHED}{GGE} * \frac{PHC_{GGHED}}{GGHED}\right) + \left(\frac{EXT}{GDP} * \frac{PHC_{EXT}}{EXT}\right)$$

Government fiscal capacity, proxied as $\frac{GGE}{GDP}$, is a contextual factor that reflects general economic growth and the capacity of government to collect domestic revenue. The average tax revenue is about 15% of GDP in low-income countries. The IMF predicts that increasing the tax-to-GDP ratio by 5 percentage points in the next 10 years is an ambitious but reasonable aspiration for many countries *(37)*. On the domestic side, health priority $\left(\frac{GGHED}{GGE}\right)$ and priority given to PHC within health $\left(\frac{PHC_{GGHED}}{GGHED}\right)$ combine with overall government expenditure relative to GDP $\left(\frac{GGE}{GDP}\right)$ to arrive at the share of PHC spending in terms of GDP. In low- and lower-middle-income countries, external funding would play an important role. External funding for PHC is determined by two parameters: Overall health aid in relation to the country's GDP $\left(\frac{EXT}{GDP}\right)$ and the allocation to PHC among this amount $\left(\frac{PHC_{EXT}}{EXT}\right)$. The accounting approach shown in those papers is extended here, with the same logic applied to incorporate the PHC share of health spending, and also to add in the role of external resources *(36)*.

This approach was applied for 66 countries using 2016 functional classification of health care expenditure data from either WHO's Global Health Expenditure Database (GHED) or the Organisation for Economic Co-operation and Development (OECD). Among the study countries, 13 are low-income, 17 are lower-middle-income, 8 are upper-middle-income and 28 are high-income. Since PHC spending by funding source is not available, we assume that the relative shares of funding for PHC mirror those of health spending as a whole. For this analysis, we used the WHO global definition of PHC expenditure for all data including OECD countries, which uses only the health care function classification.

Four scenarios are presented with specifications for each income group. The parameter changes for each income group are based on their current situation, the change in the past 16 years and the expectation for the next 14 years. However, we present the results for every income group for all scenarios for a more comprehensive picture. In the table below, the number in each cell is the absolute percentage point increase from 2016 to 2030. For example, if a low-income country has a ratio of domestic general government spending on health (GGHED) to general government expenditure (GGE) ratio of 7% in 2016, it will be 11% by 2030 because of a 4 percentage point increase.

BOX TABLE 1 Increases in primary health care spending by country income group, 2016–2030

Percentage points

Scenario	Target income group	$\frac{GGE}{GDP}$	$\frac{GGHED}{GGE}$	$\frac{PHC_{GGHED}}{GGHED}$	$\frac{EXT}{GDP}$	$\frac{PHC_{EXT}}{EXT}$
1	Low	3	4	–	0.5	10
2	Lower-middle	4	3	10	–	20
3	Upper-middle	3	2	15	–	–
4	High	–	2	15	–	–

BOX 4.8

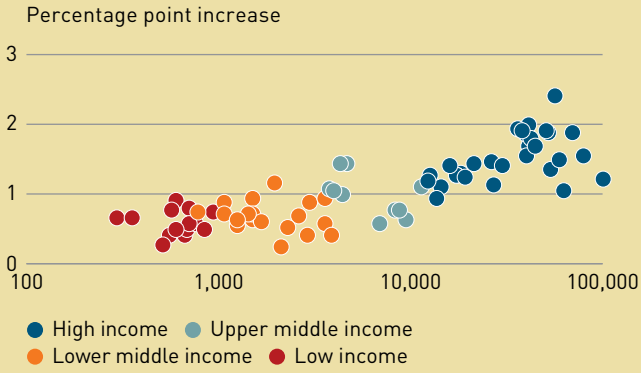
Increasing primary health care spending at a given GDP level

High-income countries

High-income countries are increasingly working to transform their health system. Faced with the challenges of ageing populations, the rising burden of non-communicable diseases, and growing citizen demand for health spending in a context of fiscal pressure, they are developing new models of service delivery. They are shifting their expenditure patterns to promotion, prevention, digital health and home-based care. Their context requires reallocating government spending on health from inefficient high-cost care to primary health care *(28)*.

In these countries, if the health share of the government budget increases 2 percentage points and the country manages to shift 15 percentage points of government health spending from non-PHC to PHC, public spending on PHC will increase by 1%–2.4% of GDP by 2030, even if overall government revenue does not grow as a share of GDP (Box figure 1).

BOX FIGURE 1 Scenario 4

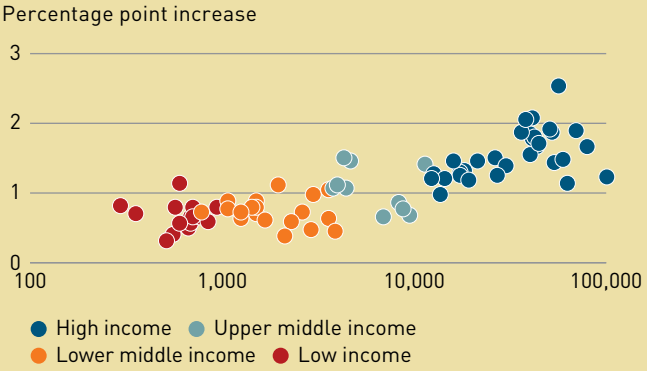


Upper-middle-income countries

Upper-middle-income countries are generally on a path of positive economic growth and strengthening revenue collection capacity. If government spending increases 3 percentage points, the health share of that budget increases 2 percentage points, and 15% of health sector resources can be shifted from non-PHC to PHC, these countries can increase PHC spending from public sources by 0.8%–1.7% of GDP by 2030 (Box figure 2).

Many upper-middle-income countries must develop the capacity to define benefit packages and link them explicitly to strategic purchasing arrangements and to service delivery improvements that support quality health care and produce health gains, particularly for the underserved and poor.

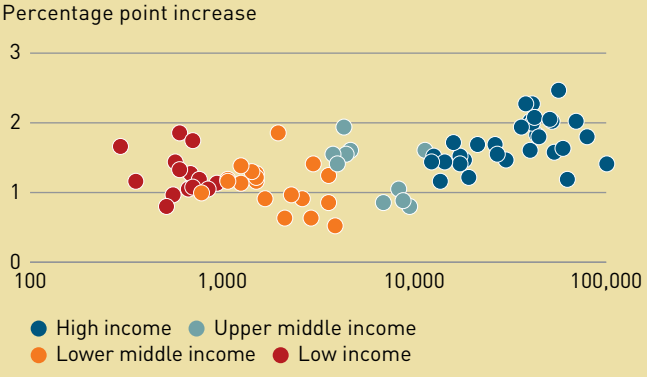
BOX FIGURE 2 Scenario 3



Lower-middle-income countries

Lower-middle-income countries have experienced rapid economic growth and increasing financial institutional capacity. These countries are very diverse. Most are experiencing social and economic transformation with great potential to improve health services through more funding and better institutions. The analysis assumes that government revenue increases 4 percentage points, the health share of that budget increases 3 percentage points and reallocation towards PHC increases by 10 percentage points by 2030. The transition assumes no increase in total external assistance but a 20 percentage point shift in existing aid from directly funding service delivery to building local institution capacity and developing PHC delivery systems in unreached areas. The changes will focus on leaving no one behind and shifting from parallel vertical subsystems (such as procurement and information systems) towards strong unified systems that can serve multiple programmatic needs *(29, 46)*. Under these assumptions, most countries will increase PHC spending from public sources by 0.5%–1.8% of GDP by 2030 (Box figure 3).

BOX FIGURE 3 Scenario 2



BOX 4.8 (CONTINUED)

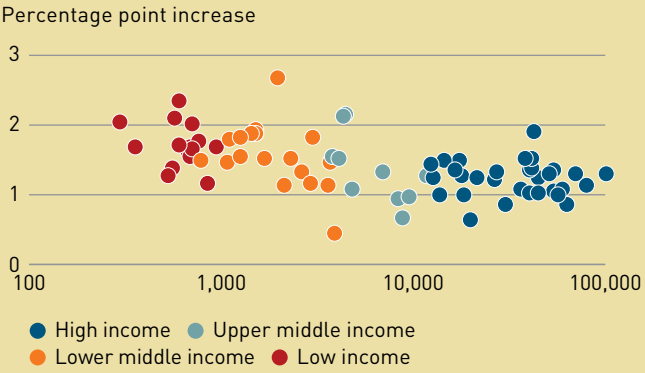
Low-income countries

Low-income countries still lag behind, with low domestic public spending, difficulties in absorbing resources and fungible external assistance. Since resources will remain a challenge, national plans and strategies must take into account the resources available within the fiscal space and set priorities accordingly.

External funding needs to be channelled into priority foundational areas for PHC, particularly human resources and infrastructure. Donor funding should increase and shift towards building these foundations, particularly in lagging and fragile countries in West and Central Africa. Enhanced investments of the global community in PHC systems should be accompanied by matching domestic funding for the operating costs of these systems – wages, medicines and maintenance.

The analysis assumes that external aid for health increases by 0.5% of GDP and that 10 percentage points of aid will be shifted from non-PHC to PHC services by 2030. Government spending is assumed to increase by 3% of GDP, the health budget share by 4 percentage points and the PHC share of government health spending to stay unchanged. Under these assumptions most low-income countries can increase PHC spending from public sources by 0.9%–1.9% of GDP by 2030 (Box figure 4).

BOX FIGURE 4 Scenario 1



Source: Global Health Expenditure Database (https://apps.who.int/nha/database) and OECD Health Statistics (https://stats.oecd.org/)

public spending. Just spending more will however not be enough to improve results. Maintaining financial protection, much less improving it, will be a particular challenge as increased income and total spending lead to greater service use and greater spending on health. Chapter 2 shows that out-of-pocket spending for outpatient medicines is an important contributor to financial hardship. Increased service use may lead to an increase in out-of-pocket spending even where the consultation visit is free, due to increases in the associated use of medicines or other prescribed services. But there are several key pathways for more effective PHC to yield better financial protection in the short and longer terms.

Even as PHC service use increases, a priority to enable protection against financial hardship is to put in place measures that limit out-of-pocket spending for services and inputs linked to that service use (mostly medicines). This can include outpatient drug packages that set an annual maximum amount for which a person is liable, linked to specific priority conditions (such as hypertension and diabetes) that are both critical to health and important drivers of financial hardship *(45)*. It is important that this is not merely used as a financial safety net but is also linked to actions such as following clinical guidelines and monitoring of service provision patterns based on PHC provider payment (including prescribing) data. Aligning purchasing mechanisms with desired service delivery patterns is important to improve both health service use and financial protection. Even where such mechanisms are effective, however, their impact will be limited to the covered conditions and the extent to which available prepaid resources limit individual financial risk.

The prevention agenda of PHC is also critical for a longer term sustainable reduction of financial hardship. If key risk factors for noncommunicable diseases go unchecked, the future will yield a greater share of the population with chronic illness requiring management, including medicines and other services. The larger the share of the population that has established high health needs, the more limited the scope for pooling in health financing to redistribute from the healthy to the sick. There simply will not be enough healthy people in the population. Therefore, addressing these key risk factors today – particularly tobacco, alcohol and added sugar – is important not only to improve health but also to enable the capacity of health financing systems to sustain improvements in financial protection in the future (Box 4.9).

BOX 4.9

PHC shapes an efficient pro-poor trajectory towards UHC

- PHC is the most efficient way of using available resource to deliver services. It ensures that the effective interventions are delivered at the place with the lowest cost within the service delivery system.
- PHC contributes to financial protection for individuals and households. Financial hardship is caused by both rare events of expensive treatments and cumulated expenditure of more frequent needed services. Through PHC people can avoid unnecessary expensive treatments and deteriorations in health condition that require more expensive treatment from a lack of early intervention.
- PHC is also the most equitable way for delivering needed services. It is the most frequently used service by everyone, and with the service being closer to the people and community, it improves service coverage and quality.

Putting the pieces together

UHC is not a luxury that only rich countries can afford. All countries can accelerate progress. All countries can achieve some level of universality by making better use of the resources they have and increasing public spending on health, thereby gradually expanding access to services and taking steps to reduce out-of-pocket spending *(30)*.

Increased public spending on PHC enables more accessible and better quality primary care services, particularly in poor and remote areas. Increasing PHC funding by 1% to 2% of GDP is within reach for most countries at all income levels with commitment from governments and development partners – and even higher levels are possible for many countries. With an increase in the tax-to-GDP ratio of 5 percentage points in 2030 projected by the IMF, the extra 1% of GDP on PHC means 20% of the increased revenue would go to PHC. The main responsibility rests with national governments *(30)*.

Where increased spending on health care overall is needed (as in low- and most middle-income countries), both increased fiscal capacity and higher priority for health in public resource allocation will be necessary. Governments are already committed to improving their tax and revenue situation under the Addis Ababa Action Agenda *(31)*, and the importance of meeting these commitments cannot be overstated. A government's assigning priority to health is a domestic political matter, but the wide cross-country variation in practice, combined with previous international commitments, suggests that more can be done *(32, 25, 26, 27)*.

But spending alone will not get the job done. It is essential to combine more resources with more effective policy design that enables both increased effective service coverage (PHC in particular) with measures to address both immediate and longer term threats to sustainable reductions in financial hardship associated with overall income and health spending growth.

Ultimately, how far each country can go depends on its political and economic context, the foundations of the health system, the capacity of its institutions and the way its system is transforming. In this endeavour, more innovations will emerge, and more evidence will be accumulated to accelerate progress to achieve UHC and the SDGs.

Notes

1. Refers to initial series of three DPT vaccines in children.
2. In 2016, WHO Member States adopted the Global Strategy on Human Resources for Health: Workforce 2030, which consolidated the evidence around a comprehensive health workforce framework for UHC.

References

1. OECD (2017), *Tackling Wasteful Spending on Health*, OECD Publishing, Paris, https://dx.doi.org/10.1787/9789264266414-en
2. OECD (2018), *Pharmaceutical Innovation and Access to Medicines*, OECD Health Policy Studies, OECD Publishing, Paris. https://doi.org/10.1787/9789264307391-en
3. Kruk ME, Gage AD, Joseph NT, Goodarz D, Garcia-Saiso S, Salomon JA. Mortality due to low-quality health systems in the universal coverage era: a systematic review of amenable deaths in 137 countries. *The Lancet* Nov 17, 2018. 392(10160): p. 2203–221
4. Owusu-Addo E, Cross R. The impact of conditional cash transfers on child health in low- and middle-income countries: A systematic review. *International Journal of Public Health*. 2014; 59:609–618. (https://link.springer.com/article/10.1007/s00038-014-0570-x).
5. WHO National Health Workforce Accounts (NHWA). Geneva: World Health Organization.
6. *WHO Global Strategy on Human Resources for Health: Workforce 2030.* Geneva: World Health Organization.
7. DHS and WHO Services Availability and Readiness Assessment – SARA.

8. SARA data from a sample of six African countries.
9. WASH in Health Care Facilities: Global Baseline Report 2019. World Health Organization and United Nations Children's Fund; 2019.
10. Delivering quality health services: A global imperative for universal health coverage. Geneva: World Health Organization, Organisation for Economic Co-operation and Development, and The World Bank; 2018.
11. Kieny MP, Evans TG, Scarpetta S, Kelley ET, Klazinga N, Forde I, Veillard JHM, Leatherman S, Syed S, Kim SM, Nejad, SB, Donaldson L. Delivering quality health services: A global imperative for universal health coverage. Geneva: World Health Organization; 2018.
12. Kruk ME, Chukwuma A, Mbaraku G, Leslie HH. Variation in quality of primary-care services in Kenya, Malawi, Namibia, Rwanda, Senegal, Uganda and the United Republic of Tanzania. Geneva: World Health Organization; 2017. (https://www.who.int/bulletin/volumes/95/6/16-175869/en/).
13. Jowell A, Zhou B, Barry M. The impact of megacities on health: Preparing for a resilient future. *Lancet Planetary Health*. 2017 Aug; 1(5):e176-e178.
14. Urban health: major opportunities for improving global health outcomes, despite persistent health inequities. Geneva: World Health Organization; 2016. (https://www.who.int/news-room/detail/31-03-2016-urban-health-major-opportunities-for-improving-global-health-outcomes-despite-persistent-health-inequities).
15. Verma A, van Ameijdan E, Birt CA, Bocsan J, Pope D. *European Journal of Public Health*. 2017 May; 27(Issue Suppl 2):1–3.
16. Martin P, Liam W, Bazemore A, Jetty A, Petterson S. Kushel M. Adults with housing insecurity have worse access to primary and preventive care. *Journal of the American Board of Family Medicine* 2019 Jul–Aug; 32(4): 521–530.
17. Dos Santos Cruz J, de Almeida PF, Figuerido AH, Dos Santos AM. Assessment of access to the Family Health Strategy from the perspective of users in Santo Antonio de Jesus-Bahia, Brazil. Revista de Salud Publica 2017 Sep-Oct; 19(5): 641–648.
18. Stenberg K, Hanssen O, Tan-Torres Edejer T, et al. Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected resource needs in 67 low-income and middle-income countries. *The Lancet*. 2017; 5:e875-e887.
19. Stenberg K, Hanssen O, Bertram M, Brindley C, Meshreky A, Barkley S, Tan-Torres Edejer T., "Guide posts for investment in primary health care and projected resource needs in 67 low-income and middle-income countries: an impact modelling study", Lancet Global Health (in press).
20. Van de Maele N, Xu K, Soucat A, et al. Measuring primary health care expenditure in low and lower-middle income countries. *BMJ Global Health*. 2019; 4:e001497.
21. Report of the High-Level Commission on Health Employment and Economic Growth, Working for Health and Growth: Investing in the Health Workforce.
22. WHO Compendium of health interventions for a UHC package. Geneva: World Health Organization.
23. Kosen S, et al. Advancing The Primary Health Care Agenda: Prioritization Of Investment Needs And Identification Of Financing Gaps In Indonesia. Unpublished report; 2018.
24. Xu K, Soucat A, Kutzin J, et al. Public spending on health: A closer look at global trends. Geneva: World Health Organization; 2018.
25. Kutzin J, and Jakab M. Fiscal context and health expenditure patterns. In Kutzin J, Cashin C, Jakab M (Eds.) *Implementing Health Financing Reform: Lessons from Countries in Transition.* Copenhagen, Denmark: World Health Organization; 2010.
26. Kutzin, J, Yip W, Cashin C. Alternative financing strategies for Universal Health Coverage. In Scheffler RM (Ed.) *Handbook of Global Health Economics and Public Policy. Volume 1;* Ch. 5 p.267–309 – The Economics of Health and Health Systems. World Scientific Publishing; 2016.
27. Tandon A, Cain J, Kurowski C, Postolovska I. Intertemporal dynamics of public financing for universal health coverage: accounting for fiscal space across countries. Health, Nutrition and Population Discussion Paper. Washington, DC: World Bank; 2018.
28. Jakab M, Farrington J, Borgermans L, Mantingh F. Health systems respond to noncommunicable diseases: time for ambition. Copenhagen: WHO Regional Office for Europe; 2018. (http://www.euro.who.int/en/publications/abstracts/health-systems-respond-to-noncommunicable-diseases-time-for-ambition-2018).
29. UHC2030. Technical Working Group on Sustainability and Transition. Statement on sustainability and transition from external funding. Geneva: UHC2030; 2018. (https://www.uhc2030.org/fileadmin/uploads/uhc2030/Documents/About_UHC2030/UHC2030_Working_Groups/2017_Transition_working_group_docs/UHC2030_Statement_on_sustainability_WEB.pdf).
30. Summers L. The economics of universal health coverage. In Kirton J, Kickbusch I (Eds.), *Health: A political choice. A Global Governance Project Publication*. London: GT Media Group Ltd; 2019. (http://www.globalgovernanceproject.org/uhc-summit/).
31. Addis Ababa Action Agenda of the Third International Conference on Financing for Development. New York: United Nations; 2015.
32. Abuja Declaration on HIV/AIDS, tuberculosis, and other related infectious diseases. OAU/SPS/ABUJA/3. Abuja, Nigeria: Organization of African Unity; 2001. (https://www.un.org/ga/aids/pdf/abuja_declaration.pdf).

33. Syed SB, Leatherman S, Mensah-Abrampah N, Neilson M, Kelley E. Improving the quality of health care across the health system. WHO Bulletin. Geneva: World Health Organization; 2018. (http://www.who.int/bulletin/volumes/96/12/18-226266.pdf).
34. Handbook on national quality policy and strategy. Geneva: World Health Organization; 2018. (http://www.who.int/servicedeliverysafety/areas/qhc/nqps_handbook/en/).
35. Jamison D, Summers L, Alleyne G. Global health 2035: a world converging within a generation. *Lancet* 2013; 382: 1898–955
36. The simple mathematics behind this and the disaggregation into distinct causal factors (from an accounting perspective) have been identified in several previous publications, whether strictly in terms of the share of GDP *(23, 24)* or in per capita terms *(25)*. The analyses for this paper do not disaggregate these causes, but the policy discussion in the conclusions returns to them.
37. Gaspar V, Amaglobeli D, Garcia-Escribano M, et al. Fiscal Policy and Development: Human, Social, and Physical Investment for the SDGs. IMF Staff Discussion Note. SDN/19/03. January 2019
38. Buchan J, Couper ID, Tangcharoensathienm V, Thepannya K, Jaskiewicz W, Perfiliera G, Dolea, C. Early implementation of WHO recommendations for the retention of health workers in remote and rural areas. *Policy & practice • Bull. World Health Organ.* 91 (11) Nov 2013.
39. Delivering quality health services: a global imperative for universal health coverage. Geneva: World Health Organization, Organisation for Economic Co-operation and Development, and The World Bank; 2018. Licence: CC BY-NC-SA 3.0 IGO
40. Primary health Care Performance Initiative. https://improvinglower.org/tools/compare-tool#?ind=17&loc=2,12,13,11,66,24,119,31,28,42,43,50,49,51,56,70,77,89,82,86,95,92,106,110,112,114,120,130,129,141
41. Progress report on HIV, viral hepatitis and sexually transmitted infections 2019. Accountability for the global health sector strategies, 2016–2021. Geneva: World Health Organization; 2019 (WHO/CDS/HIV/19.22). Licence: CC BY-NC-SA 3.0 IGO.
42. Kruk M, Gage A, Arsenault C, et al. High-quality health systems in the Sustainable Development Goals era: time for a revolution. Lancet Glob Health 2018; 6: e1196–252. Published online, September 5, 2018. http://dx.doi.org/10.1016/S2214-109X(18)30386-3.
43. Shengelia B, Tandon A, Adams OB, Murray CJL (2005). Access, utilization, quality, and effective coverage: An integrated conceptual framework and measurement strategy. *Social Science and Medicine* 2005;61:97–109.
44. Jowett M, MP Brunal, G Flores, J Cylus (2016). Spending targets for health: no magic number. Geneva: World Health Organization. Health Financing Working Paper No. 1. https://www.who.int/health_financing/documents/no-magic-number/en/.
45. Thomson, S, J Cylus, T Evetovits (2019). Can people afford to pay for health care? New evidence on financial protection in Europe. Copenhagen: World Health Organization, Regional Office for Europe. http://www.euro.who.int/en/health-topics/Health-systems/health-systems-financing/publications/2019/can-people-afford-to-pay-for-health-care-new-evidence-on-financial-protection-in-europe-2019.
46. Kutzin, J, S Sparkes, A Soucat, H Barroy (2018). "From silos to sustainability: transition through a UHC lens." *The Lancet* DOI:https://doi.org/10.1016/S0140-6736(18)32541-8.

Statistical annexes

ANNEX A1.1 Country score for the UHC service coverage index and its four components and SCI indicators

	Reproductive, maternal, newborn and child health				Infectious diseases				Noncommunicable diseases			Service capacity and access			SCI components				
Country	Family planning demand satisfied with modern methods	Antenatal care, 4+ visits	Child immunization (DTP3)	Care-seeking behaviour for child pneumonia	Tuberculosis effective treatment	HIV antiretroviral treatment	Insecticide-treated nets for malaria prevention[a]	At least basic sanitation	Normal blood pressure[b]	Mean fasting plasma glucose[b]	Tobacco non-smoking[b]	Hospital bed density[b]	Health worker density[b,c]	International Health Regulations core capacity index	RMNCH	Infectious diseases	NCDs	Service capacity and access	UHC Service Coverage Index (SDG 3.8.1)
Afghanistan	45	21	66	62	65	12	–	43	76	39	59	28	12	42	44	32	56	24	37
Albania	6	78	99	82	76	44	–	98	100	42	41	100	73	46	45	69	56	69	59
Algeria	76	67	91	66	72	75	–	88	94	50	71	100	100	75	75	78	69	91	78
Angola	26	61	52	49	14	24	18	50	98	41	77	44	12	75	45	23	68	35	40
Antigua and Barbuda	79	83	95	87	64	50	–	88	87	53	79	68	71	71	86	65	72	70	73
Argentina	82	90	86	94	47	60	–	94	97	55	56	100	100	70	88	64	67	89	76
Armenia	39	96	94	57	65	44	–	94	74	49	45	100	100	95	67	64	55	98	69
Australia	82	95	95	95	68	80	–	100	100	60	71	100	100	100	91	82	75	100	87
Austria	82	98	90	95	65	75	–	100	100	58	40	100	100	68	91	79	62	88	79
Azerbaijan	28	66	95	33	67	44	–	93	70	51	60	100	100	84	49	65	60	94	65
Bahamas	83	83	94	82	57	49	–	95	81	58	78	68	100	78	85	64	71	81	75
Bahrain	58	100	97	94	59	44	–	100	78	58	62	100	100	93	85	64	66	98	77
Bangladesh	74	37	98	42	63	19	–	48	64	51	57	46	21	78	58	39	57	42	48
Barbados	77	98	90	90	87	45	–	97	86	51	85	68	77	92	88	72	72	78	77
Belarus	75	100	97	93	71	45	–	98	92	45	46	100	100	89	91	68	58	96	76
Belgium	89	98	98	94	71	75	–	100	100	65	50	100	100	83	94	81	69	94	84
Belize	70	93	88	67	64	27	–	88	88	55	79	68	65	40	79	53	72	56	64
Benin	25	52	76	46	48	53	37	17	100	45	88	28	10	30	46	35	73	21	40
Bhutan	83	85	98	74	76	31	–	69	93	44	59	97	21	73	84	55	62	53	62
Bolivia (Plurinational State of)	54	85	84	62	54	35	–	61	97	64	79	72	99	76	70	49	79	82	68
Bosnia and Herzegovina	30	84	75	87	45	64	–	95	93	38	23	100	82	58	64	65	43	78	61
Botswana	78	73	95	37	61	78	–	77	95	41	62	100	25	42	67	72	62	47	61
Brazil	88	91	89	50	63	63	–	88	93	53	72	100	100	96	77	70	71	99	79
Brunei Darussalam	83	100	99	88	63	75	–	96	84	62	69	100	100	67	92	77	71	88	81
Bulgaria	64	89	92	81	68	37	–	86	95	43	21	100	100	65	81	60	44	87	66
Burkina Faso	49	47	91	52	47	59	68	19	100	35	75	22	4	45	57	44	64	15	40
Burundi	40	49	91	63	58	72	57	46	100	42	81	44	2	25	58	57	69	13	42
Cabo Verde	80	72	96	75	30	76	–	74	74	41	77	100	88	64	80	55	62	83	69
Cambodia	60	76	93	69	62	79	–	59	100	48	65	50	14	81	73	66	68	38	60
Cameroon	39	59	86	28	44	47	59	39	100	50	85	72	4	57	48	47	75	26	46
Canada	89	99	91	95	73	75	–	99	100	74	73	100	100	100	94	82	81	100	89
Central African Republic	36	38	47	30	38	33	53	25	57	38	77	56	3	27	37	36	55	16	33
Chad	19	31	41	26	38	44	39	8	100	35	81	22	2	44	28	27	65	12	28
Chile	85	98	93	92	69	59	–	100	94	58	10	100	100	84	92	74	38	94	70
China	95	74	99	80	81	47	–	85	87	62	50	100	100	100	86	69	65	100	79
Colombia	86	90	92	64	49	52	–	90	90	62	84	95	75	88	82	61	77	85	76
Comoros	34	49	91	38	54	78	79	36	100	44	73	100	13	37	49	59	69	37	52
Congo	38	79	69	28	39	33	22	20	93	48	75	89	5	31	49	27	69	24	39
Costa Rica	87	89	96	77	67	48	–	98	93	63	80	65	80	87	87	68	78	77	77
Côte d'Ivoire	36	51	83	44	48	49	67	32	100	45	75	22	14	87	51	47	70	30	47
Croatia	65	97	92	93	51	74	–	97	100	35	27	100	100	71	86	71	46	89	71
Cuba	89	99	99	93	73	66	–	93	100	62	44	100	100	99	95	77	65	100	83

Country	Reproductive, maternal, newborn and child health				Infectious diseases				Noncommunicable diseases			Service capacity and access			SCI components				UHC Service Coverage Index (SDG 3.8.1)
	Family planning demand satisfied with modern methods	Antenatal care, 4+ visits	Child immunization (DTP3)	Care-seeking behaviour for child pneumonia	Tuberculosis effective treatment	HIV antiretroviral treatment	Insecticide-treated nets for malaria prevention[a]	At least basic sanitation	Normal blood pressure[b]	Mean fasting plasma glucose[b]	Tobacco non-smoking[b]	Hospital bed density[b]	Health worker density[b,c]	International Health Regulations core capacity index	RMNCH	Infectious diseases	NCDs	Service capacity and access	
Cyprus	83	98	97	99	57	75	–	99	100	61	26	100	96	96	94	75	54	97	78
Czechia	86	98	96	93	60	55	–	99	93	44	37	100	100	94	93	69	53	98	76
Democratic People's Republic of Korea	85	94	97	86	69	47	–	83	100	64	62	100	29	67	90	65	74	58	71
Democratic Republic of the Congo	19	48	81	42	51	48	68	21	100	43	77	44	5	65	42	43	69	24	41
Denmark	86	98	98	96	33	88	–	100	98	59	61	100	100	90	94	66	71	96	81
Djibouti	44	26	76	94	69	28	19	64	100	47	68	78	15	33	53	39	68	34	47
Dominican Republic	84	93	84	73	60	50	–	84	100	57	81	86	89	55	83	63	77	75	74
Ecuador	82	80	85	76	58	51	–	88	93	64	79	77	100	81	81	64	78	86	77
Egypt	80	83	94	68	55	25	–	94	68	50	57	79	91	96	81	51	58	89	68
El Salvador	82	82	85	80	72	46	–	87	90	62	79	67	79	93	82	66	76	79	76
Equatorial Guinea	26	67	25	54	53	35	16	66	87	43	77	100	30	27	39	37	66	43	45
Eritrea	27	57	95	45	56	50	46	12	100	42	88	39	3	49	51	35	72	17	38
Estonia	75	96	93	93	70	58	–	99	100	45	38	100	100	70	89	74	55	89	75
Eswatini	80	76	90	60	66	86	–	58	83	41	82	100	13	75	76	69	65	46	63
Ethiopia	61	32	73	31	61	64	45	7	100	58	93	18	5	79	46	34	81	19	39
Fiji	65	94	99	69	71	47	–	95	38	57	46	100	43	72	80	68	46	68	64
Finland	89	98	89	98	28	74	–	99	90	61	60	100	100	94	93	59	69	98	78
France	91	99	96	96	45	82	–	99	100	56	31	100	100	89	96	71	56	96	78
Gabon	39	78	75	68	24	63	6	47	77	49	77	72	48	52	62	25	66	56	49
Gambia	27	78	92	68	54	27	41	39	91	42	69	61	9	27	60	39	64	25	44
Georgia	51	81	91	74	64	46	–	90	48	47	40	100	100	74	73	64	45	90	66
Germany	92	98	93	96	61	81	–	99	99	60	43	100	100	96	94	79	64	99	83
Ghana	44	89	99	56	27	31	56	19	100	53	93	50	8	74	68	31	79	31	47
Greece	63	98	99	92	65	75	–	99	100	62	21	100	100	76	86	79	50	91	75
Grenada	75	67	96	91	87	50	–	92	89	52	79	68	59	66	81	73	71	64	72
Guatemala	68	86	82	52	70	38	–	65	82	58	79	25	23	58	71	56	72	32	55
Guinea	21	51	45	56	52	35	61	23	100	40	77	17	5	60	41	40	67	17	37
Guinea-Bissau	43	65	88	34	24	27	57	21	100	40	77	56	4	53	54	30	67	24	40
Guyana	59	91	97	84	55	65	–	86	92	54	75	68	57	89	81	68	72	70	72
Haiti	42	67	64	37	62	61	–	35	100	51	82	39	11	62	51	51	75	30	49
Honduras	78	89	89	64	70	50	–	81	96	57	79	36	36	70	79	66	76	45	65
Hungary	77	89	99	92	62	51	–	98	98	40	38	100	100	82	89	68	53	94	74
Iceland	83	98	89	99	72	75	–	99	95	61	71	100	100	72	92	81	74	90	84
India	67	51	89	78	45	34	–	60	72	49	76	29	36	95	70	45	64	46	55
Indonesia	79	84	79	75	46	14	–	73	100	53	38	67	40	99	79	36	58	65	57
Iran (Islamic Republic of)	74	94	99	76	69	19	–	88	80	61	78	90	100	76	85	49	72	88	72
Iraq	55	68	85	49	44	44	–	94	77	50	63	72	42	89	63	57	62	65	61
Ireland	83	98	95	96	31	76	–	91	100	61	52	100	100	69	93	60	68	88	76
Israel	69	98	98	97	69	75	–	100	99	67	48	100	100	81	89	80	68	93	82
Italy	67	87	95	97	65	86	–	99	100	58	53	100	100	87	86	82	67	96	82
Jamaica	80	86	93	82	18	30	–	87	100	56	77	68	77	79	85	36	76	74	65
Japan	60	98	99	93	61	80	–	100	100	65	55	100	100	100	85	79	71	100	83
Jordan	56	95	99	72	71	72	–	97	73	58	68	78	92	72	78	79	66	80	76
Kazakhstan	76	95	99	81	88	49	–	98	77	46	50	100	100	73	87	75	56	90	76

Country	Reproductive, maternal, newborn and child health				Infectious diseases				Noncommunicable diseases			Service capacity and access			SCI components				
	Family planning demand satisfied with modern methods	Antenatal care, 4+ visits	Child immunization (DTP3)	Care-seeking behaviour for child pneumonia	Tuberculosis effective treatment	HIV antiretroviral treatment	Insecticide-treated nets for malaria prevention[a]	At least basic sanitation	Normal blood pressure[b]	Mean fasting plasma glucose[b]	Tobacco non-smoking[b]	Hospital bed density[b]	Health worker density[b,c]	International Health Regulations core capacity index	RMNCH	Infectious diseases	NCDs	Service capacity and access	UHC Service Coverage Index (SDG 3.8.1)
Kenya	81	58	82	66	43	73	65	29	100	41	79	78	13	58	71	49	69	39	55
Kiribati	40	71	90	81	72	47	–	48	41	57	1	100	39	53	68	54	13	59	41
Kuwait	67	80	99	87	76	57	–	100	57	54	61	100	100	85	83	76	57	95	76
Kyrgyzstan	65	95	92	60	63	39	–	97	100	47	47	100	100	56	76	62	60	82	70
Lao People's Democratic Republic	69	62	69	40	43	48	–	75	100	51	44	83	9	55	59	54	61	35	51
Latvia	75	89	98	91	74	40	–	92	97	41	26	100	100	90	88	65	47	97	71
Lebanon	62	80	83	74	74	54	–	99	86	59	36	100	100	80	74	73	57	93	73
Lesotho	79	74	93	63	37	60	–	43	100	43	42	72	5	62	77	46	57	28	48
Liberia	49	78	86	51	41	29	22	17	61	44	85	44	3	76	64	26	61	22	39
Libya	31	80	96	80	32	40	–	100	63	53	68	100	99	64	66	50	61	86	64
Lithuania	68	89	94	96	73	44	–	93	85	41	45	100	100	77	86	67	54	92	73
Luxembourg	83	98	99	97	65	75	–	98	100	56	56	100	100	88	94	78	68	96	83
Madagascar	61	51	74	41	44	7	5	11	100	44	59	11	7	43	55	11	64	15	28
Malawi	76	51	88	78	56	73	47	26	100	43	77	72	2	56	72	47	69	19	46
Malaysia	53	74	99	88	70	46	–	100	81	54	56	100	72	97	76	68	62	89	73
Maldives	52	82	99	22	66	34	–	99	99	51	59	100	47	63	55	60	67	67	62
Mali	37	43	70	55	49	29	54	40	100	35	76	13	6	40	50	42	64	15	38
Malta	82	98	98	95	66	75	–	100	96	61	49	100	100	79	93	79	66	92	82
Mauritania	29	63	81	34	40	52	37	48	100	37	77	22	13	32	47	44	66	21	41
Mauritius	55	57	94	79	71	22	–	96	50	50	56	100	74	71	69	53	52	80	63
Mexico	82	94	85	73	63	62	–	91	85	60	71	54	100	94	83	71	72	80	76
Micronesia (Federated States of)	60	74	73	64	72	47	–	88	1	50	49	100	54	86	67	67	13	77	47
Mongolia	72	90	99	70	29	31	–	59	83	42	49	100	80	87	82	37	56	89	62
Montenegro	37	87	87	89	70	39	–	98	100	42	44	100	100	56	71	64	57	82	68
Morocco	75	54	99	70	76	57	–	89	86	48	72	61	58	95	73	73	67	70	70
Mozambique	48	51	80	57	47	50	72	29	100	42	68	39	6	69	57	47	66	25	46
Myanmar	76	65	89	58	60	62	–	64	93	51	58	58	30	62	71	62	65	48	61
Namibia	77	63	88	68	67	84	–	35	100	43	58	100	20	79	73	58	63	54	62
Nepal	60	64	90	85	64	50	–	62	100	41	57	17	22	22	74	58	62	20	48
Netherlands	87	98	94	96	75	83	–	98	100	63	52	100	100	95	94	85	69	98	86
New Zealand	85	98	94	89	73	74	–	100	95	67	69	100	100	98	91	81	76	99	87
Nicaragua	92	88	98	58	69	47	–	74	100	58	79	52	82	91	82	62	77	73	73
Niger	45	39	85	59	44	51	47	14	100	33	84	22	2	74	54	35	65	15	37
Nigeria	39	49	57	24	21	53	42	39	100	52	92	28	15	51	40	37	78	27	42
Norway	89	98	96	97	77	81	–	98	95	61	61	100	100	99	95	85	71	100	87
Oman	36	77	99	56	44	38	–	100	84	52	84	83	100	90	63	55	72	91	69
Pakistan	49	51	75	84	64	8	–	60	69	39	59	35	30	51	63	31	54	38	45
Panama	75	93	81	82	65	51	–	83	96	60	88	100	92	76	83	65	80	89	79
Papua New Guinea	48	55	62	63	46	60	–	13	41	49	49	100	6	43	56	33	46	29	40
Paraguay	82	78	91	89	58	37	–	90	99	51	73	68	47	77	85	58	72	63	69
Peru	66	94	83	62	69	64	–	74	100	73	80	88	92	66	75	69	83	81	77
Philippines	53	87	72	67	50	38	–	77	96	55	51	55	43	81	69	53	64	58	61
Poland	66	98	96	92	47	75	–	99	100	42	47	100	100	74	87	70	58	90	75
Portugal	83	98	98	92	61	87	–	100	100	51	45	100	100	91	92	81	61	97	82

Country	Reproductive, maternal, newborn and child health				Infectious diseases				Noncommunicable diseases			Service capacity and access			SCI components				UHC Service Coverage Index (SDG 3.8.1)
	Family planning demand satisfied with modern methods	Antenatal care, 4+ visits	Child immunization (DTP3)	Care-seeking behaviour for child pneumonia	Tuberculosis effective treatment	HIV antiretroviral treatment	Insecticide-treated nets for malaria prevention[a]	At least basic sanitation	Normal blood pressure[b]	Mean fasting plasma glucose[b]	Tobacco non-smoking[b]	Hospital bed density[b]	Health worker density[b,c]	International Health Regulations core capacity index	RMNCH	Infectious diseases	NCDs	Service capacity and access	
Qatar	62	85	97	90	60	44	–	100	53	58	74	67	63	76	82	64	61	68	68
Republic of Korea	84	98	97	80	79	75	–	100	92	75	55	100	100	98	89	84	72	99	86
Republic of Moldova	64	95	88	79	72	30	–	76	92	40	50	100	100	70	81	55	57	89	69
Republic of North Macedonia	30	94	91	93	70	49	–	99	100	43	44	100	100	90	70	70	57	97	72
Romania	70	76	82	74	75	66	–	84	100	40	48	100	100	76	75	75	58	91	74
Russian Federation	74	78	97	87	71	44	–	91	88	45	43	100	100	99	84	66	56	100	74
Rwanda	67	44	98	54	69	83	65	67	100	47	77	89	6	66	63	71	71	33	57
Saint Lucia	75	90	80	80	64	50	–	88	84	46	79	68	46	68	81	65	67	59	68
Saint Vincent and the Grenadines	81	100	99	85	64	50	–	87	96	53	79	68	56	55	91	65	74	59	71
Samoa	38	73	74	78	74	47	–	98	61	52	41	56	33	74	63	70	51	51	58
Sao Tome and Principe	55	84	95	69	45	51	–	43	93	48	89	100	28	16	74	46	74	35	55
Saudi Arabia	41	80	98	89	65	44	–	100	62	54	75	100	100	99	73	66	63	100	74
Senegal	48	57	93	60	59	55	70	52	100	40	85	17	6	44	62	58	70	17	45
Serbia	39	94	95	90	72	61	–	98	100	41	18	100	100	44	75	75	42	76	65
Seychelles	43	57	97	82	52	51	–	100	78	53	57	100	100	87	67	65	62	95	71
Sierra Leone	43	78	90	74	62	35	52	16	100	40	59	22	2	70	69	36	62	15	39
Singapore	77	98	96	91	69	67	–	100	100	71	67	100	100	99	90	77	78	100	86
Slovakia	78	98	96	86	75	59	–	98	91	43	36	100	100	95	89	76	52	98	77
Slovenia	81	98	94	98	62	75	–	99	98	39	54	100	100	77	92	77	59	92	79
Solomon Islands	45	69	83	79	75	47	–	34	44	56	24	78	14	57	67	49	39	39	47
Somalia	13	6	42	13	37	26	18	38	100	34	77	48	2	29	15	29	64	15	25
South Africa	78	76	76	88	56	57	–	76	72	47	58	100	56	91	79	62	58	80	69
South Sudan	15	17	47	48	46	13	64	11	100	43	77	48	3	34	28	26	69	18	31
Spain	85	98	95	96	60	83	–	100	100	62	44	100	100	95	93	79	65	98	83
Sri Lanka	71	93	99	58	53	36	–	96	100	55	72	100	26	76	78	57	74	58	66
Sudan	31	51	95	48	52	14	47	37	100	40	77	37	15	67	52	33	67	33	44
Suriname	74	67	81	76	54	45	–	85	88	55	79	68	100	71	74	59	73	78	71
Sweden	81	98	97	96	79	75	–	99	100	61	65	100	100	93	92	84	74	98	86
Switzerland	87	98	97	96	59	75	–	100	100	64	49	100	100	91	94	76	68	97	83
Syrian Arab Republic	60	64	48	77	72	24	–	91	75	51	68	81	41	64	61	54	64	60	60
Tajikistan	46	64	96	69	69	39	–	97	88	48	44	100	100	68	66	64	57	88	68
Thailand	91	91	99	80	61	68	–	99	100	55	59	100	70	97	90	74	69	88	80
Timor-Leste	40	77	83	71	48	47	–	54	100	45	22	100	18	72	65	49	46	51	52
Togo	36	57	90	49	68	56	62	16	100	43	85	39	4	64	55	44	71	21	43
Tonga	49	70	81	76	87	47	–	93	19	53	39	100	48	61	68	73	34	66	58
Trinidad and Tobago	63	100	89	74	65	50	–	93	95	48	79	68	100	72	80	67	71	78	74
Tunisia	65	85	98	60	70	35	–	91	100	54	54	100	80	57	75	61	66	77	70
Turkey	60	89	96	87	76	44	–	97	89	60	41	100	84	88	82	69	60	90	74
Turkmenistan	73	96	99	59	67	44	–	99	63	49	44	100	100	71	80	67	51	89	70
Uganda	50	60	94	80	41	71	72	19	100	46	83	28	4	58	69	44	72	19	45
Ukraine	70	87	50	92	56	44	–	96	95	45	48	100	100	50	73	62	59	79	68
United Arab Emirates	58	100	97	88	77	44	–	99	55	60	70	80	100	97	84	69	62	92	76
United Kingdom	86	98	94	93	72	90	–	99	98	70	60	100	100	89	92	86	74	96	87
United Republic of Tanzania	55	51	97	55	40	64	44	30	100	46	77	39	2	69	62	43	71	19	43

Country	Reproductive, maternal, newborn and child health				Infectious diseases				Noncommunicable diseases			Service capacity and access			SCI components				UHC Service Coverage Index (SDG 3.8.1)
	Family planning demand satisfied with modern methods	Antenatal care, 4+ visits	Child immunization (DTP3)	Care-seeking behaviour for child pneumonia	Tuberculosis effective treatment	HIV antiretroviral treatment	Insecticide-treated nets for malaria prevention[a]	At least basic sanitation	Normal blood pressure[b]	Mean fasting plasma glucose[b]	Tobacco non-smoking[b]	Hospital bed density[b]	Health worker density[b,c]	International Health Regulations core capacity index	RMNCH	Infectious diseases	NCDs	Service capacity and access	
United States of America	81	92	95	92	70	75	–	100	72	74	59	100	100	100	90	81	68	100	84
Uruguay	90	97	93	91	64	52	–	97	100	58	55	100	94	87	93	68	68	94	80
Uzbekistan	83	89	99	68	63	45	–	100	72	49	75	100	100	54	84	66	64	81	73
Vanuatu	59	52	85	72	57	47	–	34	27	52	59	100	22	35	66	45	44	42	48
Venezuela (Bolivarian Republic of)	83	84	66	72	66	50	–	94	100	63	79	48	93	94	76	67	79	75	74
Viet Nam	79	74	94	81	76	61	–	84	100	53	49	100	60	95	82	73	64	83	75
Yemen	41	25	68	34	64	21	–	59	100	39	66	39	13	48	39	43	64	29	42
Zambia	67	56	94	70	51	70	59	26	100	46	73	100	6	64	70	49	69	34	53
Zimbabwe	86	70	89	51	58	81	38	36	98	44	72	94	6	72	72	50	68	35	54

– Not available or not applicable.

Note: The statistics shown in Annex A1.1 are based on the evidence available in mid-2019. They have been compiled primarily using publications and databases produced and maintained by WHO or the United Nations groups. Wherever possible, estimates have been computed using standardized categories and methods in order to enhance cross-national comparability. This approach may result, in some cases, in differences between the estimates presented here and the official national statistics prepared and endorsed by individual countries. It is important to stress that these estimates are also subject to uncertainty, especially for countries with weak statistical and health information systems where the quality of underlying empirical data is limited. More details on the indicators and estimates presented here are available at the WHO UHC data portal: http://apps.who.int/gho/cabinet/uhc.jsp. Due to the update of the entire underlying data series, the values of UHC SCI and its tracer indicators should not be compared to those reported in the 2017 Global monitoring report.

a. Pertains only to countries with highly endemic malaria.

b. Values have been rescaled for incorporation into the index calculations. See Annex A1.2.

c. Geometric mean of the rescaled values for medical doctors, psychiatrists and surgeons.

ANNEX A1.2 Metadata for SDG indicator 3.8.1

Goal: Ensure healthy lives and promote well-being for all at all ages

Target: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all

Indicator 3.8.1: Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases and service capacity and access, among the general and the most disadvantaged population)

INSTITUTIONAL INFORMATION

Organization
World Health Organization (WHO)

CONCEPTS AND DEFINITIONS

Definition
Coverage of essential health services – defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, noncommunicable diseases and service capacity and access, among the general and the most disadvantaged population.

The indicator is an index reported on a unitless scale of 0 to 100, which is computed as the geometric mean of 14 tracer indicators of health service coverage

Rationale
Target 3.8 is to "Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all". The target aspires to all people and communities receiving the quality health services they need (including medicines and other health products), without financial hardship. Two indicators have been chosen to monitor target 3.8 within the SDG framework. Indicator 3.8.1 is for health service coverage, and indicator 3.8.2 focuses on health expenditures in relation to a household's budget to identify financial hardship caused by direct health care payments. Taken together, indicators 3.8.1 and 3.8.2 are meant to capture the service coverage and financial protection dimensions, respectively, of target 3.8. These two indicators should be always monitored jointly.

Countries provide many essential services for health protection, promotion, prevention, treatment and care. Indicators of service coverage – defined as people receiving the service they need – are the best way to track progress in providing services under universal health coverage (UHC). Since a single health service indicator does not suffice for monitoring UHC, an index is constructed from 14 tracer indicators selected on the basis of epidemiological and statistical criteria. The tracer indicators include several already in other SDG targets, thereby minimizing the data collection and reporting burden. The index is reported on a unitless scale of 0 to 100, with 100 being the optimal value.

Concepts
The index of health service coverage is computed as the geometric mean of 14 tracer indicators. The 14 indicators are listed below, and detailed metadata for each are given online (http://www.who.int/healthinfo/universal_health_coverage/UHC_Tracer_Indicators_Metadata.pdf) and below. The tracer indicators are as follows, organized by four broad categories of service coverage:

I. Reproductive, maternal, newborn and child health

1. **Family planning:** Percentage of women of reproductive age (15–49 years) who are married or in-union who have their need for family planning satisfied with modern methods
2. **Pregnancy and delivery care:** Percentage of women aged 15-49 years with a live birth in a given time period who received antenatal care four or more times
3. **Child immunization:** Percentage of infants receiving three doses of diphtheria-tetanus-pertussis–containing vaccine
4. **Child treatment:** Percentage of children under 5 years of age with suspected pneumonia (cough and difficult breathing not due to a problem in the chest and a blocked nose) in the two weeks preceding the survey taken to an appropriate health facility or provider

II. Infectious diseases

1. **Tuberculosis:** Percentage of incident TB cases that are detected and successfully treated
2. **HIV/AIDS:** Percentage of people living with HIV currently receiving antiretroviral therapy
3. **Malaria:** Percentage of population in malaria-endemic areas who slept under an insecticide-treated net the previous night (only for countries with high malaria burden)
4. **Water and sanitation:** Percentage of households using at least basic sanitation facilities

III. Noncommunicable diseases

1. **Hypertension:** Age-standardized prevalence of non-raised blood pressure (systolic blood pressure < 140 mm Hg and diastolic blood pressure < 90 mm Hg) among adults aged 18 years and older
2. **Diabetes:** Age-standardized mean fasting plasma glucose (mmol/L) for adults aged 18 years and older
3. **Tobacco:** Age-standardized prevalence of adults ⩾ 15 years not smoking tobacco in the past 30 days (SDG indicator 3.a.1, metadata available at https://unstats.un.org/sdgs/metadata/files/Metadata-03-0a-01.pdf

IV. Service capacity and access

1. **Hospital access:** Hospital beds per capita, relative to a maximum threshold of 18 per 10,000 population
2. **Health workforce:** Health professionals (physicians, psychiatrists and surgeons) per capita, relative to maximum thresholds for each cadre (partial overlap with SDG indicator 3.c.1 – see metadata at https://unstats.un.org/sdgs/metadata/files/Metadata-03-0C-01.pdf)
3. **Health security:** International Health Regulations (IHR) core capacity index, which is the average percentage of attributes of 13 core capacities that have been attained (SDG indicator 3.d.1 – see metadata at https://unstats.un.org/sdgs/metadata/files/Metadata-03-0D-01.pdf

Comments and limitations

These tracer indicators are meant to indicate service coverage, not to provide a complete or exhaustive list of health services and interventions required for universal health coverage. The 14 tracer indicators were selected because they are well-established, with available data widely reported by countries (or expected to become widely available soon). Therefore, the index can be computed with existing data sources and does not require new data collection solely to inform it.

METHODOLOGY

Computation method

The index is computed with geometric means, based on the methods used for the Human Development Index. The calculation of the 3.8.1 indicator requires first preparing the 14 tracer indicators so that they can be combined into the index, and then computing the index from those values.

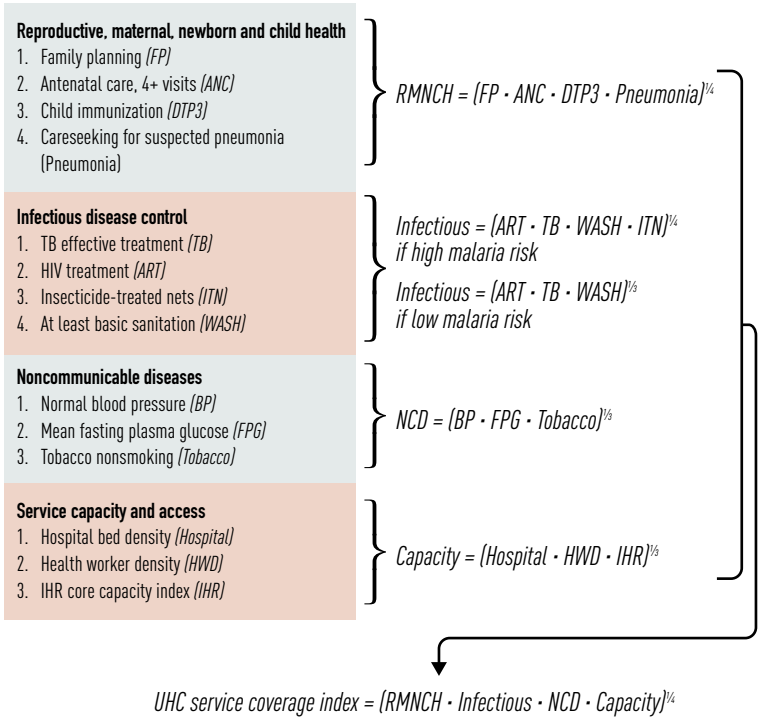
The 14 tracer indicators are first all placed on the same scale, with 0 the lowest value and 100 the optimal value. For most indicators, this scale is the natural scale of measurement – for example, the percentage of infants who have been immunized ranges from 0 to 100 percent. However, for a few indicators additional rescaling is required to obtain appropriate values from 0 to 100, as follows:

- Rescaling based on a non-zero minimum to obtain finer resolution (this "stretches" the distribution across countries): the prevalence of non-raised blood pressure and prevalence of non-use of tobacco are both rescaled using a minimum value of 50%.
  - rescaled value = (X – 50) / (100 – 50) * 100
- Rescaling for a continuous measure: mean fasting plasma glucose, which is a continuous measure (units of mmol/L), is converted to a scale of 0 to 100 using the minimum theoretical biological risk (5.1 mmol/L) and observed maximum across countries (7.1 mmol/L).
  - rescaled value = (7.1 – original value) / (7.1 – 5.1) * 100
- Maximum thresholds for rate indicators: hospital bed density and health workforce density are both capped at maximum thresholds, and values above this threshold are held constant at 100. These thresholds are based on minimum values observed across Organisation for Economic Co-operation and Development countries.
  - rescaled hospital beds per 10,000 = minimum (100, original value / 18 * 100)
  - rescaled physicians per 1,000 = minimum (100, original value / 0.9 * 100)
  - rescaled psychiatrists per 100,000 = minimum (100, original value / 1 * 100)
  - rescaled surgeons per 100,000 = minimum (100, original value / 14 * 100)

Once all tracer indicator values are on a scale of 0 to 100, geometric means are computed within each of the four health service areas, and then a geometric mean is taken of those four values. If the value of a tracer indicator happens to be zero, it is set to 1 (out of 100) before computing the geometric mean. Figure A1.2.1 illustrates the calculations.

Note that in countries with low malaria burden, the tracer indicator for use of insecticide-treated nets is dropped from the calculation.

FIGURE A1.2.1 Calculation of the index of health service coverage



Disaggregation

Equity is central to the definition of UHC, and therefore the UHC service coverage index should be used to communicate information about inequalities in service coverage within countries. This can be done by presenting the index separately for the national population and disadvantaged populations to highlight differences between them.

For countries, geographic location is likely the most feasible dimension for subnational disaggregation based on average coverage levels measured with existing data sources. To disaggregate by location, the UHC index can be computed separately by, say, province or by urban versus rural residence – which would allow for subnational comparisons of service coverage. Currently, the data most readily available for disaggregation on other dimensions of inequality, such as household wealth, comprise indicators of reproductive, maternal, newborn and child health services coverage. Inequality on this dimension can be used as a proxy for differences in service coverage across key inequality dimensions. Once data are available, this approach should be replaced with full disaggregation of all 14 tracer indicators.

Treatment of missing values

At country level

The starting point for computing the index is to assemble existing information for each tracer indicator. In many cases, this involves using country time series that have been produced or collated by UN agencies in consultation with country governments (for example, immunization coverage, access to sanitation and HIV treatment coverage). Some of these published time series involve mathematical modelling to reconcile multiple data sources or impute missing values, and these details are summarized the section below on metadata for tracer indicators.

With these inputs assembled, values are still missing for some country-years for some indicators. Calculating the UHC service coverage index requires values for every tracer indicator for a country, so imputing some data is necessary to fill these gaps. The current approach involves a simple algorithm. For each indicator:

- If a country has missing values between two years with values, linear interpolation is used to fill missing values for the intervening years.
- If a country has historical years with values but no current value, constant extrapolation is used to fill missing values for the current year.
- If a country has no values, a value is imputed. For pneumonia care-seeking and density of surgeons, a regression is fit to impute missing values (see the section on metadata for tracer indicators for details). For all other indicators, a regional median is calculated to impute missing values. Regions are based on World Bank geographic regions, with a separate grouping of traditional high-income countries.[1]

Given the timing and distribution of various health surveys and other data collection mechanisms, countries do not collect and

report on all 14 tracer indicators of health service coverage every year. In addition, country level monitoring is better suited to broader time intervals, such as every 5 years, to allow for new data collection across indicators. So, communicating the index value should include communicating the extent to which values have been imputed to fill missing information.

At regional and global levels
Any needed imputation is done at country level. These country values can then be used to compute regional and global values.

REGIONAL AGGREGATES

Regional and global aggregates use national population sizes to compute a weighted average of country values for the index. This is justified because UHC is a property of countries, and the index of essential services is a summary measure of access to essential services for each country's population.

SOURCES OF DISCREPANCIES

The service coverage index draws on existing, publicly available data and estimates for tracer indicators. These numbers have already been through a country consultation process (for example, for immunization coverage), or are taken directly from data reported by countries.

DATA SOURCES

Description

Many of the tracer indicators of health service coverage are measured by household surveys. But certain indicators use administrative data, facility data, facility surveys and sentinel surveillance systems. Underlying data sources for each of the 14 tracer indicators are explained in more detail in the section below on metadata for tracer indicators.
Values used to compute the index are taken from existing published sources. They include assembled data sets and estimates from various UN agencies.

Collection

The mechanisms for collecting data from countries vary across the 14 tracer indicators, but for many, a UN agency or interagency group has assembled and analysed relevant national data sources and then conducted a formal consultation with country governments to review or produce comparable estimates. For the UHC service coverage index, once this existing information on the 14 tracer indicators is collated, WHO conducts a country consultation with named focal points from national governments to review inputs and the calculation of the index. WHO does not create new estimates to produce tracer indicator values for the service coverage index; rather, the index is designed to use existing and well-established indicator data series.

DATA AVAILABILITY

Description

Summarizing data availability for the UHC service coverage index is not straightforward, since different sources are used across the 14 tracer indicators. Additionally, for many indicators, comparable estimates have been produced, in many cases drawing on different types of underlying data sources to inform the estimates while also using projections to impute missing values. Setting aside estimates and projections, the average proportion of indicators used to compute the index with underlying data available since 2010 is around 70% across countries globally.

Time series

A baseline value for the UHC service coverage index for 2015 across 183 countries was published in late 2017. As part of the process of computing that value, data sources going back to 2000 were assembled. A time series from 2000 to 2017 was published in September 2019.

CALENDAR

Data collection

Data collection frequency varies from every 1 to 5 years across tracer indicators. For example, country data on immunizations and HIV treatment are reported annually, but household surveys to collect information on child treatment may occur every 3–5 years, depending on the country. More details about individual tracer indicators are available in the section on metadata below.

Data release

The first release of baseline values for the UHC service coverage index took place in December 2017. An update was published in September 2019.

DATA PROVIDERS

In most cases, ministries of health and national statistical offices oversee data collection and reporting for health service coverage indicators.

DATA COMPILERS

The World Health Organization compiled the data, drawing on inputs from other international agencies.

REFERENCES

Monitoring universal health coverage web page: http://www.who.int/healthinfo/universal_health_coverage/en/.
http://www.who.int/healthinfo/universal_health_coverage/report/2017/en/.
http://www.thelancet.com/pdfs/journals/langlo/PIIS2214-109X(17)30472-2.pdf.
http://www.who.int/healthinfo/universal_health_coverage/en/.
For historical development of methods, see:
http://www.who.int/healthinfo/universal_health_coverage/UHC_WHS2016_TechnicalNote_May2016.pdf?ua=1 (superseded by this document).
http://www.who.int/healthinfo/universal_health_coverage/report/2015/en/.
http://www.who.int/healthinfo/universal_health_coverage/report/2014/en/.
http://collections.plos.org/uhc2014.

RELATED INDICATORS

The UHC service coverage index is designed to summarize existing indicators of health service coverage to ensure consistency with the SDGs and other global initiatives and reduce duplication and reporting burden. Currently, three other SDG indicators are included in the index (3.7.1, 3.a.1, and 3.d.1), as well as a component of SDG indicator 3.b.1.

Indicator 3.8.1 should always be interpreted together with the other SDG UHC indicator, 3.8.2, which measures financial protection.

TABLE A1.2.1 Metadata for tracer indicators used to measure the coverage of essential health services for monitoring SDG indicator 3.8.1.

Tracer area	Family planning
Indicator definition	Percentage of women of reproductive age (15–49 years) who are married or in-union who have their need for family planning satisfied with modern methods
Numerator	Number of women aged 15-49 who are married or in-union who use modern methods
Denominator	Total number of women aged 15-49 who are married or in-union in need of family planning
Main data sources	Population-based health surveys
Method of measurement	Household surveys include a series of questions to measure modern contraceptive prevalence rate and demand for family planning. Total demand for family planning is defined as the sum of the number of women of reproductive age (15–49 years) who are married or in a union and who are currently using, or whose sexual partner is currently using, at least one contraceptive method, and the unmet need for family planning. Unmet need for family planning is the proportion of women of reproductive age (15–49 years) either married or in a consensual union, who are fecund and sexually active but who are not using any method of contraception (modern or traditional), and report not wanting any more children or wanting to delay the birth of their next child for at least two years. Included are: 1. All pregnant women (married or in a consensual union) whose pregnancies were unwanted or mistimed at the time of conception. 2. All postpartum amenorrhoeic women (married or in consensual union) who are not using family planning and whose last birth was unwanted or mistimed. 3. All fecund women (married or in consensual union) who are neither pregnant nor postpartum amenorrhoeic, and who either do not want any more children (want to limit family size), or who wish to postpone the birth of a child for at least two years or do not know when or if they want another child (want to space births), but are not using any contraceptive method. Modern methods include female and male sterilization, the intrauterine device (IUD), the implant, injectables, oral contraceptive pills, male and female condoms, vaginal barrier methods (including the diaphragm, cervical cap and spermicidal foam, jelly, cream and sponge), lactational amenorrhoea method (LAM), emergency contraception and other modern methods not reported separately.
Method of estimation	The United Nations Population Division produces a systematic and comprehensive series of annual estimates and projections of the percentage of demand for family planning that is satisfied among married or in-union women. A Bayesian hierarchical model combined with country-specific data is used to generate the estimates, projections and uncertainty assessments from survey data. The model accounts for differences by data source, sample population and contraceptive methods. See here for details: http://www.un.org/en/development/desa/population/theme/family-planning/cp_model.shtml

Tracer area	Pregnancy and delivery care
Indicator definition	Percentage of women aged 15-49 years with a live birth in a given time period who received antenatal care four or more times
Numerator	Number of women aged 15–49 years with a live birth in a given time period who received antenatal care four or more times
Denominator	Total number of women aged 15–49 years with a live birth in the same period
Main data sources	Household surveys and routine facility information systems
Method of measurement	Data on four or more antenatal care visits is based on questions that ask if and how many times the health of the woman was checked during pregnancy. Household surveys that can generate this indicator include Demographic and Health Surveys (DHS), UNICEF-assisted Multiple Indicator Cluster Surveys (MICS), Centers for Disease Control–assisted Reproductive Health Surveys (RHS) and other surveys based on similar methodologies. Service/facility reporting systems can be used where the coverage is high, usually in higher-income countries
Method of estimation	WHO maintains a data base on coverage of antenatal care: http://apps.who.int/gho/data/node.main.ANTENATALCARECOVERAGE4
UHC-related notes	Ideally this indicator would be replaced with a more comprehensive measure of pregnancy and delivery care, for example the proportion of women who have a skilled provider attend the birth or an institutional delivery. A challenge in measuring skilled attendance at birth is determining which providers are "skilled."
Tracer area	**Child immunization**
Indicator definition	Percentage of infants receiving three doses of diphtheria-tetanus-pertussis–containing vaccine (DTP3)
Numerator	Children 1 year of age who have received three doses of diphtheria-tetanus-pertussis–containing vaccine
Denominator	All children 1 year of age
Main data sources	Household surveys and facility information systems
Method of measurement	For survey data, the vaccination status of children aged 12–23 months is collected from child health cards or, if there is no card, from recall by the caretaker. For administrative data, the total number of doses administered to the target population is extracted
Method of estimation	Together, WHO and UNICEF derive estimates of DTP3 coverage based on data officially reported to WHO and UNICEF by Member States, as well as data reported in the published and grey literature. They also consult with local experts – primarily national Expanded Program of Immunization (EPI) managers and WHO regional office staff – for additional information regarding the performance of specific local immunization services. Based on the available data, consideration of potential biases, and contributions from local experts, WHO and UNICEF determine the most likely true level of immunization coverage. For details, see: • http://www.who.int/bulletin/volumes/87/7/08-053819/en/. • http://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/index4.html
UHC-related notes	There is variability in national vaccine schedules across countries. Given this, one option for monitoring full child immunization is to monitor the fraction of children receiving vaccines included in their country's national schedule. A second option, which may be more comparable across countries and time, is to monitor DTP3 coverage as a proxy for full child immunization. Diphtheria-tetanus-pertussis–containing vaccine often includes other vaccines, for example, against hepatitis B and haemophilus influenzae type b, and is a reasonable measure of the extent to which there is a robust vaccine delivery platform within a country.
Tracer area	**Child treatment (care-seeking for symptoms of pneumonia)**
Indicator definition	Percentage of children under 5 years of age with suspected pneumonia (cough and difficult breathing not due to a problem in the chest and a blocked nose) in the two weeks preceding the survey taken to an appropriate health facility or provider
Numerator	Number of children with suspected pneumonia in the two weeks preceding the survey taken to an appropriate health provider
Denominator	Number of children with suspected pneumonia in the two weeks preceding the survey
Main data sources	Household surveys
Method of measurement	During the UNICEF/WHO Meeting on Child Survival Survey-based Indicators, held in New York, 17–18 June 2004, it was recommended that acute respiratory infections (ARI) be described as "presumed pneumonia" to better reflect probable cause and the recommended interventions. The definition of presumed pneumonia used in the Demographic and Health Surveys (DHS) and in the Multiple Indicator Cluster Surveys (MICS) was chosen by the group and is based on mothers' perceptions of a child who has a cough, is breathing faster than usual with short, quick breaths or is having difficulty breathing, excluding children that had only a blocked nose. The definition of "appropriate" care provider varies between countries. WHO maintains a database of country-level observations from household surveys that can be accessed here: http://apps.who.int/gho/data/node.main.38?lang=en

Method of estimation	There are currently no internationally comparable estimates for this indicator
UHC-related notes	This indicator is not typically measured in higher income countries with well-established health systems. For countries without observed data, coverage was estimated from a regression that predicts coverage of care-seeking for symptoms of pneumonia (on the logit scale), obtained from the WHO data base described above, as a function of the log of the estimated under-five pneumonia mortality rate, which can be found here: https://www.who.int/healthinfo/global_burden_disease/estimates/en/index2.html
Tracer area	**Tuberculosis treatment**
Indicator definition	Percentage of incidence tuberculosis (TB) cases that are detected and successfully treated in a given year
Numerator	Number of new and relapse cases detected in a given year and successfully treated
Denominator	Number of new and relapse cases in the same year
Main data sources	Facility information systems, surveillance systems, population-based health surveys with TB diagnostic testing, TB register and related quarterly reporting system (or electronic TB registers)
Method of measurement	This indicator requires three main inputs: 1. The number of new and relapse TB cases diagnosed and treated in national TB control programmes and notified to WHO in a given year. 2. The number of incident TB cases for the same year, typically estimated by WHO. 3. Percentage of TB cases successfully treated (cured plus treatment completed) among TB cases notified to the national health authorities. The final indicator = (1) / (2) * (3)
Method of estimation	Estimates of TB incidence are produced through a consultative and analytical process led by WHO and are published annually. These estimates are based on annual case notifications, assessments of the quality and coverage of TB notification data, national surveys of the prevalence of TB disease and information from death (vital) registration systems. Estimates of incidence for each country are derived, using one or more of the following approaches, depending on available data: 1. Incidence = case notifications/estimated proportion of cases detected. 2. Incidence = prevalence/duration of condition. 3. Incidence = deaths/proportion of incident cases that die. These estimates of TB incidence are combined with country-reported data on the number of cases detected and treated, and the percentage of cases successfully treated, as described above
UHC-related notes	To compute the indicator using WHO estimates, one can access necessary files here: http://www.who.int/tb/country/data/download/en/, and compute the indicator as = c_cdr × c_new_tsr
Tracer area	**HIV treatment**
Indicator definition	Percentage of people living with HIV currently receiving antiretroviral therapy (ART)
Numerator	Number of adults and children who are currently receiving ART at the end of the reporting period
Denominator	Number of adults and children living with HIV during the same period
Main data sources	Facility reporting systems, sentinel surveillance sites, population-based surveys
Method of measurement	Numerator: The numerator is generated by counting the number of adults and children who received antiretroviral combination therapy at the end of the reporting period. Data can be collected from facility-based ART registers or drug supply management systems. These are then tallied and transferred to cross-sectional monthly or quarterly reports, which can then be aggregated for national totals. Patients receiving ART in the private sector and public sector should be included in the numerator. Denominator: Modelled estimates of the number of people living with HIV
Method of estimation	Estimates of antiretroviral treatment coverage among people living with HIV for 2000–2018 are derived as part of the 2019 UNAIDS estimation round. Country teams report numbers of people on treatment at the end of each reporting year. These data are validated by UNAIDS and partners prior to publication. To estimate the number of people living with HIV across time, most country teams, in collaboration with UNAIDS, use the epidemic software model Spectrum, available free at https://www.avenirhealth.org/software-spectrum.php). Spectrum combines demographic data, survey and surveillance and mortality data on HIV prevalence, assumptions about the natural history of HIV disease progression and the current number of patients receiving ART. Estimates of ART coverage can be found here: http://aidsinfo.unaids.org/
UHC-related notes	Comparable estimates of ART coverage in high-income countries in particular years are not always available.

Tracer area	Malaria prevention
Indicator definition	Percentage of population in malaria-endemic areas who slept under an insecticide-treated bed net (ITN) the previous night
Numerator	Number of people in malaria-endemic areas who slept under an ITN
Denominator	Total number of people in malaria-endemic areas
Main data sources	Data on household access and use of ITNs come from nationally representative household surveys such as Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), and Malaria Indicator Surveys. Data on the number of ITNs delivered by manufacturers to countries are compiled by Milliner Global Associates, and data on the number of ITNs distributed within countries are reported by national malaria control programs
Method of measurement	Many recent national surveys report the number of ITNs observed in each respondent household. Ownership rates can be converted to the proportion of people sleeping under an ITN using a linear relationship between access and use that has been derived from 62 surveys that collect information on both indicators
Method of estimation	Mathematical models can be used to combine data from household surveys on access and use with information on ITN deliveries from manufacturers and ITN distribution by national malaria programmes to produce annual estimates of ITN coverage. WHO uses this approach in collaboration with the Malaria Atlas Project. Methodological details can be found in the Annex of the World Malaria Report 2015: http://www.who.int/malaria/publications/world-malaria-report-2015/report/en/
UHC-related notes	WHO produces comparable ITN coverage estimates for 40 high-burden countries. For other countries, ITN coverage is not included in the UHC service coverage index because either they are malaria-free or their malaria burden is low or unstable enough for ITN coverage to be a good proxy for malaria prevention.
Tracer area	**Water and sanitation**
Indicator definition	Percentage of households using at least basic sanitation facilities
Numerator	Population living in a household with: flush or pour-flush to piped sewer system, septic tank or pit latrine; ventilated improved pit latrine; pit latrine with slab; or composting toilet
Denominator	Total population
Main data sources	Population-based household surveys and censuses
Method of measurement	Household-level responses, weighted by household size, are used to compute population coverage
Method of estimation	The WHO/UNICEF Joint Monitoring Programme has produced regular estimates of coverage of at least basic sanitation for Millennium Development Goal monitoring. After compiling a database of available data sources, for each country, simple linear regressions are fitted to the country's data series to obtain an in-sample estimate, as well as to produce a two-year extrapolation beyond the last available data point, after which coverage is held constant for four years and then assumed missing. This is done separately for urban and rural regions, and then combined to obtain national coverage estimates. Details of the methodology and most recent estimates can be found here: http://www.wssinfo.org/
UHC-related notes	The Sustainable Development Goal indicator for sanitation (SDG 6.2.1) is an expanded version of the Millennium Development Goal indicator, incorporating the quality of sanitation facilities. It is not used for UHC monitoring due to lower data availability.
Tracer area	**Prevention of cardiovascular disease**
Indicator definition	Age-standardized prevalence of non-raised blood pressure among adults aged 18 and older, regardless of treatment status
Numerator	Number of adults aged 18 and older with systolic blood pressure < 140 mm Hg and diastolic blood pressure < 90 mm Hg (regardless of treatment status)
Denominator	Number of adults aged 18 and older
Main data sources	Population-based surveys and surveillance systems
Method of measurement	Data sources recording measured blood pressure are used (self-reported data are excluded). If multiple blood pressure readings are given per participant, the first reading is dropped and the remaining readings are averaged

Method of estimation	For producing comparable national estimates, data observations of prevalence defined in terms of alternate systolic blood pressure (SBP) and/or diastolic blood pressure (DBP) cutoffs are converted into prevalence of raised blood pressure, defined as systolic blood pressure ≥ 140 mm Hg or diastolic blood pressure ≥ 90 mm Hg using regression equations. A Bayesian hierarchical model is then fitted to these data to calculate age-sex-year-country specific prevalences, which accounts for national versus subnational data sources, and urban versus rural data sources, and allows for variation in prevalence across age and sex. Age-standardized estimates are then produced by applying the crude estimates to the WHO Standard Population. Details on the statistical methods are here: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)31919-5/fulltext. WHO and the NCD Risk Factor Collaboration (NCD-RisC) has produced comparable estimates for this indicator up through year 2015, which are available here: http://apps.who.int/gho/data/node.main.A875STANDARD?lang=en
UHC-related notes	Prevalence estimates are converted to the prevalence of non-raised blood pressure for incorporation into the UHC service coverage index, so that a value of 100% is the optimal target. This is computed as: non-raised blood pressure prevalence = 1 minus raised blood pressure prevalence. Estimates are done separately for men and women; for the UHC tracer indicator, a simple average of values for men and women is computed. Non-raised blood pressure is the sum of the percentage of individuals who do not have hypertension, and the percentage of individuals whose hypertension is controlled by medication. The absence of hypertension is a result of prevention efforts via promotion of physical activity and healthy diets, as well as other factors. Hypertension controlled with medication is a result of effective treatment. This indicator is thus a proxy for both health promotion and medical services.
Tracer area	**Management of diabetes**
Indicator definition	Age-standardized mean fasting plasma glucose for adults aged 18 years and older
Main data sources	Population-based surveys and surveillance systems
Method of measurement	Fasting plasma glucose (FPG) levels are determined by taking a blood sample from participants who have fasted for at least 8 hours. Other related biomarkers, such as haemoglobin A1c (HbA1c), were used to help calculate estimates (see below)
Method of estimation	For producing comparable national estimates, data observations based on mean FPG, oral glucose tolerance test (OGTT), HbA1c or combinations of these are all converted to mean FPG. A Bayesian hierarchical model is then fitted to these data to calculate age-sex-year-country specific prevalences, which accounts for national versus subnational data sources and urban versus rural data sources, and allows for variation in prevalence across age and sex. Age-standardized estimates are then produced by applying the crude estimates to the WHO Standard Population. Methodological details can be found here: https://www.who.int/diabetes/global-report/en/
UHC-related notes	An individual's FPG may be low because of effective treatment with glucose-lowering medication or because the individual is not diabetic as a result of health promotion activities or other factors such as genetics. Mean FPG is thus a proxy for both promotion of healthy diets and behaviours and treatment of diabetes. The above estimates are done separately for men and women; for the UHC tracer indicator, a simple average of values for men and women is computed.
Tracer area	**Tobacco control**
Indicator definition	Age-standardized prevalence of adults aged 15 years and older not smoking tobacco in last 30 days
Numerator	Adults aged 15 years and older who have not smoked tobacco in the last 30 days
Denominator	Adults aged 15 years and older
Main data sources	Household surveys
Method of measurement	Current tobacco smoking includes cigarettes, cigars, pipes or any other smoked tobacco products used in the past 30 days. Data are collected via self-report in surveys
Method of estimation	WHO estimates prevalence of current tobacco (non-) smoking with a negative binomial meta-regression model, which generates comparable estimates by adjusting for differences in age groups and indicator definition across national surveys included in the analysis. These estimates are done separately for men and women. Methodological details can be found here: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60264-1/supplemental
UHC-related notes	Prevalence of not smoking tobacco is computed as 1 minus the prevalence of tobacco smoking

Tracer area	Hospital access
Indicator definition	Hospital beds per capita, relative to a maximum threshold of 18 per 10,000 population
Numerator	Number of hospital beds (should exclude labour and delivery beds)
Denominator	Total population
Main data sources	Administrative systems, health facility reporting systems
Method of measurement	Country administrative systems are used to total the number of hospital beds, which are divided by the total estimated population, and multiplied by 10,000. WHO regional offices and other groups collect information on national hospital bed density, including the following online resources: • WHOEMROregionalobservatory:https://rho.emro.who.int/rhodata/node.main.A36. • WHO AFRO regional observatory: http://www.aho.afro.who.int/en/data-statistics/hospital-beds-10-000-population. • WHO EURO European Health for All Database: https://gateway.euro.who.int/en/datasets/european-health-for-all-database/. • OECD: https://data.oecd.org/healtheqt/hospital-beds.htm
Method of estimation	Using available data, the indicator is computed relative to a threshold value of 18 hospital beds per 10,000 population. This threshold is below the observed OECD high income country minimum (since year 2000) of 20 per 10,000 and tends to correspond to an inpatient hospital admission rate of around 5 per 100 per year. This indicator is designed to capture low levels of hospital capacity; the maximum threshold is used because very high hospital bed densities are not necessary an efficient use of resources. The indicator is computed as follows, using country data on hospital bed density (x), which results in values ranging from 0 to 100: • Country with a hospital bed density x < 18 per 10,000 per year, the indicator = x / 18 * 100. • Country with a hospital bed density x ⩾ 18 per 10,000 per year, the indicator = 100
UHC-related notes	An alternative indicator could be hospital in-patient admission rate, relative to a maximum threshold. However, that indicator is currently not reported widely across regions, in particular the African Region. In countries where both hospital beds per capita and in-patient admission rates are available, they are highly correlated
Tracer area	**Health workforce**
Indicator definition	Health professionals (physicians, psychiatrists and surgeons) per capita, relative to maximum thresholds for each cadre
Numerator	Number of physicians, psychiatrists and surgeons
Denominator	Total population
Main data sources	National database or registry of health workers, ideally coupled with regular assessment of completeness using census data, professional association registers or facility censuses
Method of measurement	The classification of health workers is based on criteria for vocational education and training, regulation of health professions, and activities and tasks of jobs – on a framework for categorizing key workforce variables according to shared characteristics. The WHO framework largely draws on the latest revisions to the internationally standardized classification systems of the International Labour Organization (International Standard Classification of Occupations), UNESCO (International Standard Classification of Education), and the UN Statistics Division (International Standard Industrial Classification of All Economic Activities). Methodological details and data can be found here: http://www.who.int/hrh/statistics/hwfstats/en/. Data are from the following sources: • Physicians: http://apps.who.int/gho/data/node.main.HWFGRP_0020?lang=en. • Psychiatrists: https://www.who.int/healthinfo/universal_health_coverage/report/2017/en/. • Surgeons: http://apps.who.int/gho/data/node.main.HWF9?lang=en (data here were supplemented by prior editions of the database)
Method of estimation	The indicator is computed from available data by first rescaling, separately, health worker density ratios for each of the three cadres (physicians, psychiatrists and surgeons) relative to the minimum observed values across OECD countries since 2000, which are as follows: physicians = 0.9 per 1,000, psychiatrists = 1 per 100,000, and surgeons = 14 per 100,000. This rescaling is done in the same way as that for the hospital bed density indicator described above, resulting in indicator values that range from 0 to 100 for each of the three cadres. For example, using country data on physicians per 1,000 population (x), the cadre-specific indicator would be computed as: • Country with x < 0.9 per 1,000 per year, the cadre-specific indicator = x / 0.9 * 100. • Country with x ⩾ 0.9 per 1,000 per year, the cadre-specific indicator = 100. As a final step, the geometric mean of the three cadre-specific indicator values is computed to obtain the final indicator of health workforce density
UHC-related notes	The physician category would ideally be expanded to include all core health professionals, such as nurses and midwives. However, no internationally comparable database exists that uses consistent definitions of non-physician core health professionals to allow for fully accurate cross-country comparisons. For countries without observed data, the density of surgeons was estimated from a regression that predicts the log of surgeons per 100,000, obtained from the WHO database described above, as a function of the log of GDP per capita, as estimated by the World Bank.

Tracer area	Health security
Indicator definition	International Health Regulations (IHR) core capacity index, which is the average percentage of attributes of 13 core capacities that have been attained at a specific point in time. The 13 core capacities are: (1) national legislation, policy and financing; (2) coordination and national focal point communications; (3) surveillance; (4) response; (5) preparedness; (6) risk communication; (7) human resources; (8) laboratory; (9) points of entry; (10) zoonotic events; (11) food safety; (12) chemical events; (13) radionuclear emergencies
Numerator	Number of attributes attained
Denominator	Total number of attributes
Main data sources	Key informant survey
Method of measurement	Key informants report on attainment of a set of attributes for each of 13 core capacities using a standard WHO instrument, as described here: http://apps.who.int/iris/bitstream/10665/84933/1/WHO_HSE_GCR_2013.2_eng.pdf. Capacity-level indicator values for 2010–2017 can be found here: • http://apps.who.int/gho/data/node.main.IHR00ALLN?lang=en. Data for 2018 can be found here: • http://apps.who.int/gho/data/node.main.IHRSPARALL?lang=en
Method of estimation	The indicator is computed by averaging, across the 13 core capacities, the percentage of attributes for each capacity that have been attained
UHC-related notes	Countries began reporting IHR core capacity attainment to WHO for the year 2010. The earliest available IHR score for each country is used for all years 2000–2009.

ANNEX A1.3 Methods and data for estimating people fully covered

ESTIMATING THE PERCENTAGE AND NUMBER OF PEOPLE COVERED WITH ESSENTIAL HEALTH SERVICES: CURRENT ESTIMATES AND PROJECTIONS

This annex describes the methods and data used to estimate the percentage and number of people fully covered with essential health services, as presented in Chapter 1 of the 2019 Global Monitoring Report. Methods used for calculating coverage of essential health services are the same as described in the 2017 report *(1–2)*.

Updates for 2019 include new projections of the percentage and number of people covered with essential health services, offering insights into potential trajectories towards global targets in universal health coverage (UHC) in 2023 *(3)* – the midpoint for the Sustainable Development Goals (SDGs) – and 2030 *(4)*. While all projections are inherently uncertain, these calculations suggest how close or how far the world could be from meeting these UHC targets – 1 billion additional people benefiting from UHC from 2018 to 2023 and achieving UHC for all by 2030 – if recent trends hold in the future.

Results in the 2019 Global Monitoring Report and this annex represent updated country input data, UN population estimates, and analytical improvements. So, all estimates for 2000–2017 and projections for 2018–2030 supersede previously published UHC results. As UHC monitoring data continue to improve, future analyses will incorporate these updates and strive, in parallel, to advance analytical approaches in estimating people covered by essential health services.

BACKGROUND

Substantial interest surrounds calculating the percentage and number of people covered by essential health services, especially because SDG target 3.8 calls for achieving UHC by 2030 *(4)*. The interest has only increased under the WHO General Programme of Work 13 (GPW13) "UHC billion" ambition *(3)*, which established a global target of benefiting 1 billion more people under UHC between 2018 and the SDG midpoint of 2023.

UHC involves two main components: providing the essential health services people need and people receiving them without incurring financial hardship. The first – providing essential health services – is particularly challenging to define and measure, since what constitutes essential health services varies by population, age distribution, broader country contexts and disease burden profiles. No ideal measure of essential health service coverage currently exists, either in capturing the full range of potential health services a given population needs or the percentage of people who receive all services they need (as opposed to a subset or average of needed services).

Although calculating the average coverage of several essential health services is straightforward, using the average of multiple intervention indicators to approximate coverage of essential health services may overestimate the proportion of people who receive most or all services they need (a full suite of essential health services). And this approach may miss potential coverage patterns in groups of interventions or services (the correlations in receiving different amounts or types of health services).

To address that measurement issue – and ultimately get closer to an approximation of full UHC service coverage – a method to translate average service coverage to the percentage of people covered by essential health services was developed for the 2017 Global Monitoring Report *(1–2)*. Although the approach has its drawbacks, including the need for data beyond those used in SDG indicator, its overarching objective – approximating full coverage of essential health services beyond average service coverage – is crucial for optimally monitoring UHC service coverage at the population level. If data availability on UHC service coverage and tracer indicators improves in the future, alternative approaches to calculating coverage of essential health services should be considered as well.

METHODS SUMMARY OF CALCULATING COVERAGE OF ESSENTIAL HEALTH SERVICES

Consistent with the approach to measuring SDG indicator 3.8.1 on UHC service coverage *(5–6)*, this method relies on a small set of tracer indicators on coverage of essential services over a range of disease areas and service delivery platforms. The method focuses on "contact" coverage of essential services – that is, the percentage of people who need a service and receive it – not on "effective" coverage – the percentage of people in need who receive services of adequate quality to realize the potential health gains. In addition, selected tracer indicators are meant to reflect

coverage of, but do not define, the full set of essential health services that should be provided across countries.

Steps for calculating coverage of essential health services, for the past and for projections from 2018 to 2030 were as follows:

- **Select a small set of tracer indicators of service coverage informed by tracer indicators used in SDG indicator 3.8.1.** The selected tracer indicators are similar, but not identical, to those contained in SDG indicator 3.8.1 (UHC service coverage index – SCI) *(5)*, since they aim to measures service coverage more directly on a scale of 0% to 100%. The 12 tracer indicators are shown in Table A1.3.1. Where they differ from tracer indicators included in SDG 3.8.1, they are described in more detail later in this annex.
- **Compute the average coverage of essential services using these selected 12 indicators.** In 2017, the global estimate for average coverage for these 12 tracer indicators was 67%. This does not mean that 67% of the world's population was covered with all essential health services. Any given individual may be covered by some, but not all, essential health services; when aggregated up to the population level, this can result in an overestimation of the proportion of people who are covered by most or all essential health services they need. Thus, a set of equations was used to convert average service coverage to the percentage of people covered by essential health services.
- **Convert the average coverage of essential services to the percentage of people covered by essential health services through associations with intervention co-coverage measures.** Drawing from a database of household surveys from which both average coverage and co-coverage of multiple interventions could be calculated, a series of equations was used to establish the relationship between average service coverage and coverage of at least most health services (for example, 6 of 7 maternal and child health interventions). These results then informed the conversion from average coverage for the 12 tracer indicators described above and to coverage of essential health services, or what has been referred to as *full coverage* in previous analyses *(1–2)*. These percentage values are then multiplied by population estimates from the UN World Population Prospects (WPP) 20197 to estimate the number of people covered by essential health services.

TABLE A1.3.1 Tracer indicators included in the computation of average coverage of essential services

	Reproductive, maternal, newborn, and child health	Infectious	Noncommunicable diseases
Community and cross-sectoral	• Family planning	• At least basic sanitation • Malaria prevention	• Tobacco control measures
First-level care	• Skilled birth attendance • Measles vaccine, 2nd dose • Child pneumonia care	• HIV treatment • TB effective treatment	• Hypertension treatment • Diabetes treatment
Specialized care	• Amenable mortality (maternal, appendicitis, selected treatable cancers)		

- **Project coverage of essential health services through 2030 and compute potential numbers of people covered by essential health services added from 2018 to 2023.** At the global level, a simple linear extrapolation of recent levels for coverage of essential health services (in 2010, 2015 and 2017) and year was used to project a range of potential coverage values from 2018 to 2030. These values were multiplied by UN WPP 2019 *(7)* population projections to arrive at a range of the number of people who could be covered by essential health services in the future.

CONVERTING AVERAGE COVERAGE TO COVERAGE OF ESSENTIAL HEALTH SERVICES

The translation of average coverage to "full" coverage of essential health services – referred to as coverage of essential health services – originated from methods developed for the 2017 Global Monitoring Report *(1–2)*. In summary, the relationships between average coverage and co-coverage of health services were determined by considering seven interventions received by mother–child pairs in 180 Demographic and Health Surveys (DHS) for 63 countries. The interventions were: four or more antenatal care visits (ANC4), at least one tetanus vaccination during pregnancy, births attended by skilled health personnel (SAB), Bacillus Calmette-Guérin vaccination, the third dose of a diphtheria-tetanus-pertussis containing vaccine (DTP3), measles vaccination and access to improved drinking water in the household.

The proportion of mother–child pairs receiving each intervention in a given survey was calculated, and the average coverage across the seven interventions was derived. In addition, the proportion of the mother–child pairs receiving "most", or at least six of the seven interventions (about 86%), was calculated. This proportion of mother–child pairs receiving most of the interventions was used to approximate the percentage of the population "fully" covered by essential health services, since it allowed a more realistic approximation of population-level coverage than the proportion receiving all seven interventions and also helped to account for measurement error *(1–2)*.

A set of regression equations were then fitted to these data to convert average coverage to the expected coverage of essential health services at the population level. These regressions had the general form:

$$\ln\{E(y)\} = \beta x,\ y \sim Binomial,$$

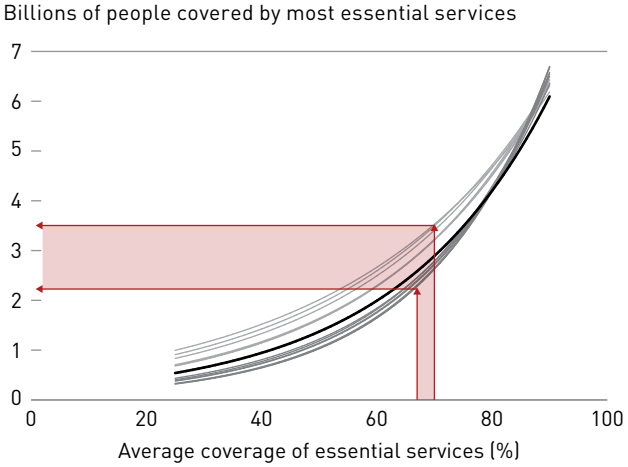
where x is average coverage of 7 interventions and y is the co-coverage of six of seven mother–child interventions.

A series of sensitivity analyses using the same dataset were run to develop alternative conversion equations. For these sensitivity analyses, an eighth health intervention, early initiation of breastfeeding, was included from the same dataset. First, regressions were fitted to predict full coverage, defined as five of six interventions, from their corresponding average coverage, for all seven possible sets of six interventions (excluding early initiation of breastfeeding) to determine if excluding any given intervention affected the fitted regression curve. Second, regression equations were fitted to predict coverage with six of seven interventions from their corresponding average coverage, for all eight possible sets of seven interventions (including early initiation of breastfeeding).

This resulted in 15 regression curves characterizing the relationship between average coverage and the proportion of the population with coverage of essential health services (Figure A1.3.1) *(2)*. Last, the proportion of people covered by essential health services was estimated based on the average coverage of 12 indicators (as calculated in Steps 1 and 2) and each of the 15 regression curves.

FIGURE A1.3.1 Modelled relationship between average coverage and the proportion of people fully covered by essential services

Prediction: Apply model to average coverage of UHC tracers to predict global percentage (and population) with coverage



Source: Based on the 2017 Global Monitoring Report *(2)*.

CALCULATING COVERAGE OF ESSENTIAL HEALTH SERVICES FROM 2018 TO 2030

Global estimates of the percentage of people covered by essential health services for 2010, 2015, and 2017 were used to project estimates for 2018–2030 using simple linear extrapolation. The number of people covered by essential health services were calculated by using UN WPP 2019 population estimates for 2018–2020 and then the medium-variant population projections for 2021–2030 *(7)*.

Like any projections of future trends, these are intrinsically uncertain. The results may not present the trajectories through 2023 and 2030, and more or fewer people may be covered by essential health services in the future. But the global estimates are meant to provide some initial insights into how close or how far the world could be to meeting established UHC targets if recent trends in service coverage continue. However, these calculations should be viewed in light of the limitations inherent to any type of projection, as well as those associated with the relatively simple approach used here.

This approach may yield conservative estimates for coverage of essential health services, since the probability of a person being "fully" covered by essential health services rises non-linearly as the coverage of each individual service increases (Figure A1.3.1). Yet, due to limited time series of data, particularly for those with relatively high percentage of coverage of multiple services (for example, > 70%), the out-of-sample predictive validity of the current estimation method for has yet to be comprehensively assessed. Therefore, extrapolating the underlying exponential pattern to future years according to the current method could yield overoptimistic projections

for a relatively high level of coverage of essential health services where maintaining exponential growth becomes increasingly challenging. Using a linear extrapolation instead likely mitigates this issue while also providing a more likely prospect for business-as-usual scenarios and for resource-limited settings. As a result, it was preferred to use the more conservative approach (linear extrapolation of the estimated coverage of essential health services from recent years). Future analyses should consider alternative approaches to producing projections through 2030, as well as implementing out-of-sample predictive validity tests if sufficient data become available.

TRACER INDICATORS USED IN ESTIMATING THE POPULATION COVERED WITH ESSENTIAL HEALTH SERVICES THAT DIFFER FROM THOSE IN SDG 3.8.1

Pregnancy and delivery care

The UHC service coverage index (SCI) uses ANC4 as a tracer indicator for pregnancy and delivery care. For the global SDG monitoring framework, this was selected over SAB due to concerns about lack of standard definition of which cadres are considered skilled, which could impede cross-country comparability. For average coverage computed here, estimates of SAB reported for UN SDG monitoring for SDG indicator 3.1.2 are used in an effort to more directly approximate pregnancy and delivery care *(8–9)*.

Child vaccination

The UHC SCI uses DTP3 as a tracer indicator for childhood vaccination. Measles-containing vaccine, second dose (MCV2) is used here rather than DTP3 due to its inclusion of MCV2 in SDG indicator 3.b.1 *(10)* to reflect a country's ability to deliver vaccines beyond the first year of life through routine immunization. DTP3, in contrast, is viewed as a good indicator of overall system strength to deliver infant vaccination. Since the aim here is to approximate service coverage across health needs, using MCV2 has the potential to better represent a broader set of child vaccination services. The Strategic Advisory Group of Experts (SAGE) on Immunization has previously recommended MCV2 for UHC service coverage monitoring *(11)*.

Tobacco control measures

The UHC SCI uses the percentage of adults aged 15 years and over not currently smoking tobacco as a tracer indicator. Although this indicator is meant to reflect the implementation of a suite of anti-tobacco measures, it is not a direct measure. To better reflect the coverage of antitobacco measures, the average coverage of six WHO "best buy" and other tobacco control interventions with cost-effectiveness data was used. The six interventions are: increase taxes and prices; implement plain packaging or graphic warnings; ban tobacco advertising, promotion and sponsorship; eliminate second-hand exposure; implement antitobacco mass media campaigns and provide tobacco cessation support *(12)*. For each intervention, one point is given if the intervention is implemented at a low level, two points if it is implemented at an intermediate level, and three points if implemented at the highest level *(13–14)*. Each country's total score is divided by 18 to give an average percentage coverage across all interventions, ranging from 0% to 100%.

Hypertension treatment coverage

The UHC SCI uses the percentage of adults aged 18 years and older with nonelevated blood pressure as a tracer indicator. Since the prevalence of nonelevated blood pressure is not a direct measure of coverage by health services, regional estimates of hypertension treatment coverage are used for the present calculation.

Estimated levels of hypertension treatment coverage are sensitive to including undiagnosed stage I hypertension in the denominator, that is, measured systolic blood pressure greater than or equal to 140 but less than 160 or diastolic blood pressure greater than or equal to 90 but less than 100. Those with blood pressure in this range are typically reassessed to ensure that treatment is indicated, since individuals experience large day-to-day variability in blood pressure. Of those whose blood pressure measurement is again greater than or equal to 140/90 but less than 160/100, some individuals with low total cardiovascular risk would not require antihypertensive medication. Estimated treatment coverage is substantially higher if undiagnosed stage I hypertension is excluded from the denominator, and final estimates of number of people covered with essential health services are sensitive to this decision.

Estimates of hypertension coverage in world regions were made on the basis of the Prospective Urban Rural Epidemiology (PURE) study *(15)*. Two estimates were made:

- The percentage of people with any hypertension (defined as ≥ 140 systolic blood pressure

or ⩾ 90 diastolic blood pressure) currently taking medication.
- The percentage of people with stage II hypertension (defined as ⩾ 140 systolic blood pressure or ⩾ 100 diastolic blood pressure) currently taking medication.

For both calculations, all individuals taking medication for hypertension, regardless of blood pressure measurement at diagnosis, are included in the numerator and denominator. Untreated individuals are included in the denominator only if their measured blood pressure exceeds the threshold noted above. Here, we consider stage II hypertension coverage to be our better estimate, but we still consider total hypertension coverage in the sensitivity analysis.

Diabetes treatment coverage

The UHC SCI uses mean fasting plasma glucose (FPG) as a tracer indicator. As mean FPG is not measured on a 0%–100% scale, diabetes treatment coverage is used for the present calculation. Diabetes treatment coverage was estimated for world regions based on data from population-representative household surveys, which included measurement of fasting plasma glucose and information on coverage with diabetes medication *(16, 17)*.

Specialized services

Measuring coverage with specialized (hospital) services is very challenging, since diagnosis of need (the denominator) is typically complex and thus cannot be done in a household survey. For the UHC SCI, these are captured with proxy tracer indicators of hospital beds and surgeons per capita. But this exercise requires an indicator of service coverage measured on a scale of 0%–100%. The indicator chosen is based on the concept of amenable mortality *(18)*: deaths from certain causes that should not occur if effective care is received in a timely manner. Multiple lists of amenable mortality causes have been previously published *(19)*; this analysis uses a small set of causes of death for which the incidence of the condition that potentially leads to death has moderate epidemiological variability, and for which death rates should be virtually zero, provided appropriate specialized care is provided.

The causes of death the analysis included are: (1) maternal mortality, (2) treatable cancers (cervix cancer and Hodgkin's lymphoma in ages 0–74, and leukaemia in ages 0–19) and (3) appendicitis in ages 0–74. Age-standardized mortality rates for each were calculated using WHO estimates *(20)*. For each of the three causes of death, coverage was calculated as one minus the ratio of age-standardized mortality in each country to the estimated 95th percentile of age-standardized mortality rate. High-HIV countries were excluded for the cancer calculation due to the substantially different epidemiology of cervical cancer in these countries. Conceptually, this denominator (assumed to be constant across all settings) represents the estimated mortality rate in the absence of quality specialized services. The coverage thus gives the percentage of deaths that were prevented by the provision of quality specialized services.

Limitations of current methods for calculating coverage of essential health services

- The methods assume that the relationships between average coverage and co-coverage as observed in the Demographic and Health Surveys for maternal and child health indicators are (1) representative of those relationships for a wider set of indicators, including infectious and noncommunicable diseases, and (2) stable over time and consistent across countries. If the correlation between the coverage of individual interventions is actually lower, then the number of people with "full" coverage of essential health services is lower than estimated here. Further, these relationships may vary across country contexts (sociodemographic development levels and disease burden profiles), so the global and World Bank income group estimates provided here may miss these differences and misrepresent potential future trends. Future work should consider if or how these models can be appropriately applied to lower geographic levels (the country level).
- The relationship between average coverage and co-coverage depends on the way full coverage is defined (for example, by five of six or by six of seven maternal and child health services).
- The average coverage of services is computed based on a small subset of tracer indicators, selected mainly according to data availability. It also focuses on contact coverage, as opposed to effective coverage.
- The measure of coverage with specialized services is not on a natural coverage scale and must be rescaled.
- The average coverage of the tracer indicators is sensitive to the definition of hypertension treatment coverage. Estimates could

change once more comprehensive time-series of hypertension and diabetes treatment coverage are available.

EFFECT OF SUBSTITUTING ALTERNATIVE INDICATORS FOR THE UHC SERVICE COVERAGE INDEX

The UHC SCI, the official measure for SDG indicator 3.8.1 *(5)*, is composed of 14 tracer indicators meant to approximate coverage of health services. While the method for measuring SDG indicator was formally accepted in April 2018 *(21)*, at least some of the indicators may not optimally capture progress on a particular health area but were the best options available at the time due to data constraints *(1)*. If or when data limitations are addressed, a number of alternative indicator measurement approaches or options have been identified as potentially more direct measures of UHC SCI sub-components (Table A1.3.2).

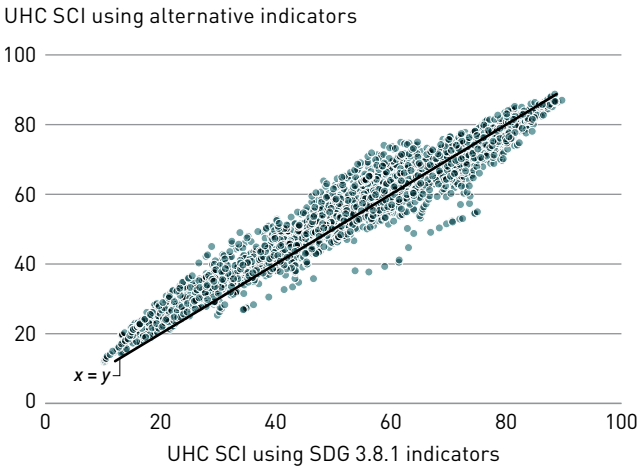
Data availability for many of the UHC SCI tracer indicators has improved since 2017, with estimates or input data updated for several indicators, and SDG indicators previously in Tier III being upgraded to Tier II with methods established for monitoring them. In alignment with the SDG 3.8.1 methodology upgrade to Tier II in April 2018 *(2)*, the 2019 Global Monitoring Report uses the same 14 tracer indicators to comprise the UHC SCI as the 2017 Global Monitoring Report *(3)*. In an effort to examine how the use of alternative indicators could affect overall UHC SCI results, analyses were conducted by replacing to consider the effects of substituting five of the current indicators listed in Table A1.3.2 (family planning, ANC4, DTP3, prevalence of nonsmoking, and health professional density) with their alternative measurements (such as the use of all women of reproductive age, irrespective of union status, as the denominator for family planning) or suggested alternative indicators (such as MCV2 instead of DTP3, as proposed by the Strategic Advisory Group of Experts [SAGE] on Immunization in 2017 *[11]*). The UHC SCI was then recalculated for 183 member states for 2000–2017 with the alternative indicators and compared with current UHC SCI estimates per the SDG 3.8.1 metadata definition.

In general, UHC SCI values with the five alternative indicators were lower if the SDG 3.8.1 values were low (Figure A1.3.2) and higher if the 3.8.1 values were high – that is, the UHC SCI values with the five alternative indicators widened the distribution of index values between the lowest- and highest-scoring country-year observations. Subsequently, it is possible that using alternative measurement options or indicators could further distinguish between countries with low and high values of the UHC SCI. Otherwise, the overall patterns did not substantially vary between the two approaches, suggesting

TABLE A1.3.2 Examples of current UHC tracer indicators and alternative indicator or measurement options

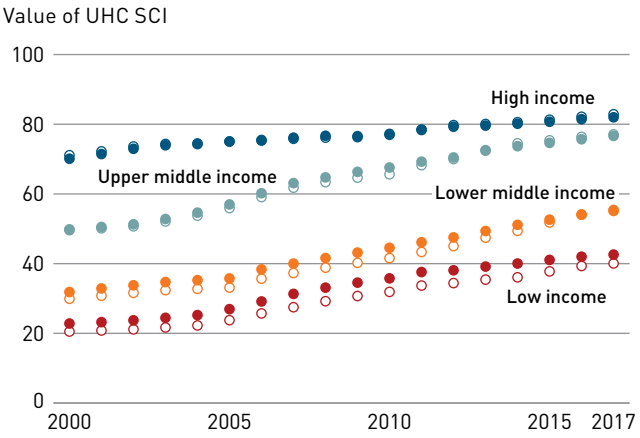
Current tracer indicator	Alternative indicator or measurement options
Family planning demand satisfied with modern methods for women aged 15–49 years who are married or in-union	Family planning demand satisfied with modern methods for women aged 15–49 years, irrespective of marriage or in-union status
Antenatal care, four or more visits (ANC4)	Births attended by skilled health personnel (SDG indicator 3.1.2)
Diphtheria-tetanus-pertussis vaccine, 3 doses (DTP3)	Measles containing vaccine, two doses (MCV2)
Proportion of households with access to at least basic sanitation	Proportion of the population using safely managed drinking water services (SDG indicator 6.1.1) or the proportion of the population using safely managed sanitation services (SDG indicator 6.2.1)
Prevalence of non–current smoking among populations aged 15 and older	Measure of effective implementation of tobacco control policies as defined by MPOWER composite coverage score[13]
Prevalence of nonelevated blood pressure	Measure of treatment coverage among people with hypertension
Mean fasting plasma glucose	Measure of treatment coverage among people with diabetes
Health professional density (physicians, psychiatrists, surgeons) per capita	Health worker density (physicians, nurses, midwives, dentists and pharmacists) per capita (SDG indicator 3.c.1)

FIGURE A1.3.2 Comparing UHC service coverage index values with index values using five alternative indicators



Note: Each point represents the value of UHC service coverage for a country for a year. Values were calculated for 183 member states for 2000–2017.
Source: WHO, Division for Data, Analytics and Delivery for Impact.

FIGURE A1.3.3 Comparing UHC service coverage index trends with index values using five alternative indicators by World Bank country income group for 2000–2017



Note: The current UHC SCI values (per the SDG 3.8.1), aggregated by World Bank income group, are represented by solid circles. Index values using five alternative indicator measures indicators are represented by hollow circles.
Source: WHO, Division for Data, Analytics and Delivery for Impact.

that substituting individual indicators or even groups of indicators (5 of 14 total indicators in this case) is unlikely to have large effects on the overall index.

In aggregating country-level results to World Bank income groups (Figure A1.3.3), somewhat similar patterns were found. Overall index values are fairly similar over time by country income group, though low-income countries averaged slightly lower values on the index using alternative tracer indicators. This result aligns with the country-level comparisons, such that the index with the five alternative indicators may show a wider spread between countries with the highest and lowest UHC SCI values.

These results are not meant to suggest that all types of alternative indicator substitutions, whether individual or in groups, should have little effect on the UHC SCI. It is possible that additional or different substitutions could more substantially affect levels and trends, particularly if more primary data could be incorporated for indicators currently facing sizeable data gaps in recent years. And alternative approaches to constructing the UHC SCI, such as using an arithmetic mean instead of a geometric mean or applying alternative scaling thresholds for indicators not measured on a 0%–100% scale, could have considerable effects on UHC SCI values. Future work could test all of these considerations, and different conclusions could arise. This analysis aimed to examine how much a subset of individual indicator substitutions could affect the overall UHC SCI, and to use indicators identified by others for which data availability has markedly improved over time (such as MCV2 for DTP3). Substituting this group of five indicators did not have marked effects on overall UHC SCI patterns and trends, implying that the use of alternative indicators, individually and for this indicator subset, is unlikely to dramatically affect overall index values.

Notes

1. The traditional high-income economies are: Argentina, Australia, Austria, Belgium, Brunei Darussalam, Canada, Chile, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, United States of America and Uruguay.

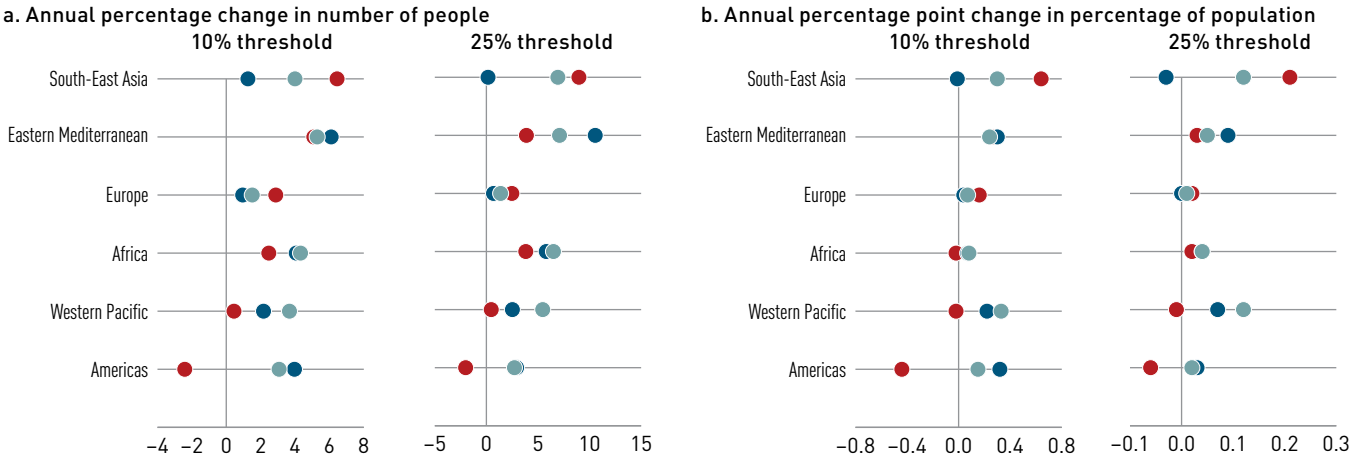
References

1. World Health Organization (WHO), World Bank. Tracking universal health coverage: 2017 Global Monitoring Report. Geneva, Switzerland; Washington, DC: WHO, World Bank, 2017. https://www.who.int/healthinfo/universal_health_coverage/report/2017/en/.
2. Stevens G, Hogan D. Service coverage within universal health coverage: how large is the gap? Technical note. Geneva, Switzerland: World Health Organization (WHO), 2017. https://www.who.int/healthinfo/universal_health_coverage/report/uhc_report_2017_technical_note.pdf?ua=1.
3. World Health Organization (WHO). Thirteenth General Programme of Work, 2019–2023. Geneva, Switzerland: WHO, 2018 https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf.
4. United Nations (UN). Transforming our world: the 2030 Agenda for Sustainable Development. New York, NY: UN, 2015.
5. UN Statistical Commission. SDG indicator 3.8.1 metadata. 2018. https://unstats.un.org/sdgs/metadata/files/Metadata-03-08-01.pdf .
6. Hogan DR, Stevens GA, Hosseinpoor AR, Boerma T. Monitoring universal health coverage within the Sustainable Development Goals: development and baseline data for an index of essential health services. *The Lancet Global Health* 2018; 6: e152–68.
7. United Nations, Department of Economic and Social Affairs, Population Division (UN DESA/PD). World Population Prospects 2019. New York, NY: UN DESA/PD https://population.un.org/wpp/
8. UN Statistical Commission. SDG indicator 3.1.2. 2017. https://unstats.un.org/sdgs/metadata/files/Metadata-03-01-02.pdf.

9. World Health Organization (WHO). World Health Statistics 2019: Monitoring Health for the SDGs. Geneva, Switzerland: WHO, 2019. https://www.who.int/gho/publications/world_health_statistics/2019/en/.
10. UN Statistical Commission. SDG indicator 3.b.1. 2019. https://unstats.un.org/sdgs/metadata/files/Metadata-03-0b-01.pdf .
11. Strategic Advisory Group of Experts (SAGE) on Immunization. Sustainable Development Goals (SDGs) Immunization indicator selection. Geneva, Switzerland: SAGE, 2017. https://www.who.int/immunization/sage/meetings/2017/october/2_Arora_GVAP_SAGE Oct2017_Modified_18th.pdf?ua=1.
12. World Health Organization (WHO). 'Best buys' and other recommended interventions for the prevention and control of noncommunicable diseases. Geneva, Switzerland: WHO, 2017. https://www.who.int/ncds/management/best-buys/en/ .
13. World Health Organization (WHO). WHO report on the global tobacco epidemic 2017: monitoring tobacco use and prevention policies. Geneva, Switzerland: WHO, 2017. https://www.who.int/tobacco/global_report/2017/en/ .
14. World Health Organization (WHO). WHO report on the global tobacco epidemic 2019: offer help to quit tobacco use. Geneva, Switzerland: WHO, 2019. https://www.who.int/tobacco/global_report/en/.
15. Chow CK, Teo KK, Rangarajan S, Islam S, Gupta R, Avezum A, et al. Prevalence, awareness, treatment, and control of hypertension in rural and urban communities in high-, middle-, and low-income countries. *JAMA* 2013; 310(9):959–68.
16. Gakidou E, Mallinger L, Abbott-Klafter J, Guerrero R, Villalpando S, Ridaura RL, et al. Management of diabetes and associated cardiovascular risk factors in seven countries: a comparison of data from national health examination surveys. *Bulletin of the World Health Organization* 2011;89(3):172–83.
17. Manne-Goehler J, Geldsetzer P, Agoudavi K, et al. Health system performance for people with diabetes in 28 low- and middle-income countries: A cross-sectional study of nationally representative surveys. *PLOS Medicine* 2019; 16: e1002751.
18. Rutstein DD, Berenberg W, Chalmers TC, Child CG, 3rd, Fishman AP, Perrin EB. Measuring the quality of medical care. A clinical method. *N Engl J Med* 1976; 294(11):582–8.
19. Nolte E, McKee M. Does healthcare save lives? Avoidable mortality revisited. London, UK: London School of Hygiene & Tropical Medicine, 2004. https://researchonline.lshtm.ac.uk/15535/1/does-healthcare-save-lives-mar04.pdf.
20. World Health Organization (WHO). Global Health Estimates 2016: Deaths by Cause, Age, Sex, by Country and by Region, 2000–2016. Geneva, Switzerland: WHO, 2018. https://www.who.int/healthinfo/global_burden_disease/estimates/en/.
21. Division, Department of Economic and Social Affairs (DESA). Report of the Seventh Meeting of the Inter-Agency and Expert Group on the Sustainable Development Goal Indicators. Vienna, Austria: UN DESA, 2018 https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-07/Meeting%20Report%207th%20IAEG%20Meeting%2018-06-18%20final.pdf.

ANNEX 2.1 Average annual change in the incidence of catastrophic health spending across WHO regions as tracked by Sustainable Development Goal indicator 3.8.2, evidence from selected countries in the WHO Region of the Americas

FIGURE A2.1.1 Average annual change in the incidence of catastrophic health spending across WHO regions as tracked by Sustainable Development Goal indicator 3.8.2, evidence from selected countries in the WHO Region of the Americas

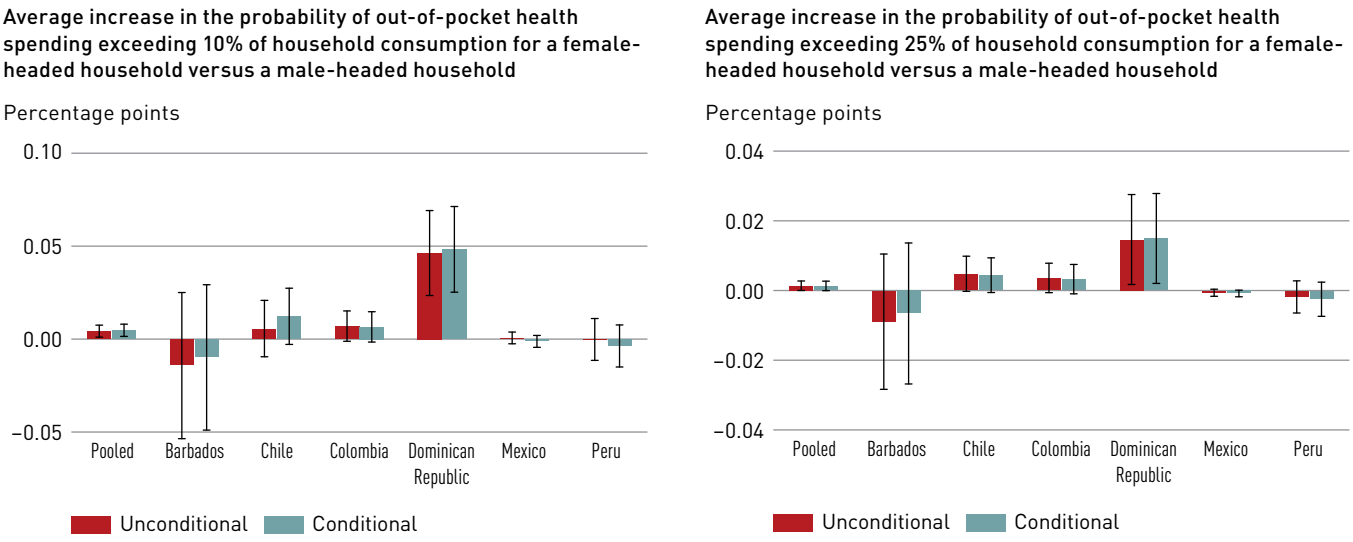


Source: Global monitoring report on financial protection in health, 2019 *(4)*.

ANNEX 2.2 Inequalities in catastrophic health spending as tracked by Sustainable Development Goal indicator 3.8.2 by gender of the head of the household

Using data for six countries in the WHO Region of the Americas from the Pan American Health Organization/World Health Organization database on financial protection, a simple analysis of differences by gender of the household head was conducted without controlling for other characteristics. It demonstrated again that this is often insufficient to capture inequality in financial hardship experienced by female- versus male-headed households using SDG indicator 3.8.2 (FigureA2.2.1, compare with Figure 2.13). The expected unconditional difference in the probability of incurring catastrophic health spending at both thresholds, as defined by SDG indicator 3.8.2, associated with a female-headed household was positive in all countries but only significant in one.

FIGURE A2.2.1 WHO Region of the Americas, selected countries, A simple analysis of differences by gender of the household head without controlling for other characteristics is often insufficient to capture inequality in financial hardship experienced by female- versus male-headed households as tracked by SDG indicator 3.8.2



Source: Pan American Health Organization/World Health Organization database on financial protection.

ANNEX 2.3 Universal health care indicators (service coverage and financial protection) by country, most recent year available

Country	SDG UHC indicator 3.8.1: Service coverage index, 2017	SDG UHC indicator 3.8.1: Service coverage index, 2015	Availability of estimates for SDG UHC indicator 3.8.2	SDG UHC indicator 3.8.2, most recent available estimate (year)	SDG UHC indicator 3.8.2, latest year: incidence of catastrophic expenditure (%)	
					At 10% of household total consumption or income	At 25% of household total consumption or income
Afghanistan	37.2	33.6	yes	2013	14.6	2.0
Albania	58.8	57.5	yes	2012	16.7	4.9
Algeria	77.8	76.4	no	–	–	–
Angola	39.6	37.8	yes	2008	12.4	4.5
Antigua and Barbuda	72.7	73.3	no	–	–	–
Argentina	76.1	75.9	yes	2004	16.9	4.1
Armenia	69.5	66.5	yes	2013	16.1	4.9
Australia	86.6	85.5	yes	2010	3.7	0.5
Austria	78.9	79.4	yes	1999	4.3	0.7
Azerbaijan	65.1	62.7	yes	2005	8.1	1.1
Bahamas	75.0	72.8	yes	2013	2.7	0.2
Bahrain	76.8	75.3	no	–	–	–
Bangladesh	48.2	45.7	yes	2016	24.7	9.5
Barbados	77.4	76.5	yes	2016	16.4	3.8
Belarus	76.5	74.5	yes	2016	9.2	0.7
Belgium	83.8	82.8	yes	2010	11.4	1.4
Belize	64.3	65.8	no	–	–	–
Benin	39.6	40.2	yes	2011	10.9	5.4
Bhutan	62.5	59.0	yes	2017	1.8	0.4
Bolivia (Plurinational State of)	68.3	64.4	yes	2015	6.0	1.1
Bosnia and Herzegovina	61.1	59.6	yes	2015	8.2	1.4
Botswana	61.3	61.1	yes	2009	1.0	0.2
Brazil	78.6	77.8	yes	2008	25.6	3.5
Brunei Darussalam	81.5	83.2	no	—	—	—
Bulgaria	65.7	63.9	yes	2010	12.8	0.8
Burkina Faso	39.7	38.0	yes	2014	3.1	0.4
Burundi	41.6	43.4	yes	2013	3.3	0.4
Cabo Verde	68.9	67.0	yes	2007	2.0	0.0
Cambodia	59.6	55.3	yes	2014	15.3	5.2
Cameroon	45.9	43.4	yes	2014	10.8	3.0
Canada[a]	88.7	87.8	yes	2010	2.6	0.5
Central African Republic	32.9	32.1	yes	2008	6.7	1.2
Chad	27.8	27.3	yes	2003	6.3	0.2
Chile	70.2	66.1	yes	2016	14.6	2.1
China	78.6	76.2	yes	2013	19.7	5.4
Colombia	75.9	75.8	yes	2016	8.2	2.2
Comoros	51.8	48.9	yes	2014	8.8	1.6
Congo	38.6	40.3	yes	2011	4.6	0.7
Costa Rica	77.0	75.9	yes	2012	9.8	1.7
Côte d'Ivoire	47.3	45.5	yes	2015	12.4	3.4
Croatia	70.6	60.3	yes	2010	2.8	0.3

Country	SDG UHC indicator 3.8.1: Service coverage index, 2017	SDG UHC indicator 3.8.1: Service coverage index, 2015	Availability of estimates for SDG UHC indicator 3.8.2	SDG UHC indicator 3.8.2, most recent available estimate (year)	SDG UHC indicator 3.8.2, latest year: incidence of catastrophic expenditure (%)	
					At 10% of household total consumption or income	At 25% of household total consumption or income
Cuba	82.8	81.2	no	—	—	—
Cyprus	78.1	74.9	yes	2010	16.1	1.5
Czechia	76.0	74.1	yes	2010	2.2	0.1
Democratic People's Republic of Korea	70.6	69.6	no	—	—	—
Democratic Republic of the Congo	41.5	39.0	yes	2012	4.8	0.6
Denmark	80.8	81.6	yes	2010	2.9	0.5
Djibouti	46.9	43.8	yes	2002	1.1	0.1
Dominican Republic	74.3	74.5	yes	2007	17.7	4.9
Ecuador	76.5	75.9	yes	2013	10.3	2.4
Egypt	67.7	64.9	yes	2012	26.2	3.9
El Salvador	75.6	74.5	yes	2014	1.7	0.3
Equatorial Guinea	45.2	39.7	no	—	—	—
Eritrea	38.4	38.1	no	—	—	—
Estonia	75.3	74.6	yes	2007	12.8	2.7
Ethiopia	39.4	38.7	yes	2015	4.9	1.4
Fiji	64.4	63.6	yes	2008	0.8	0.1
Finland	78.1	78.9	yes	2010	6.3	1.0
France[a]	77.7	77.5	yes	2010	1.4	0.2
Gabon	49.4	51.1	yes	2005	5.7	0.2
Gambia	43.9	45.3	yes	2015	0.2	0.0
Georgia	66.0	65.9	yes	2013	29.2	9.0
Germany[a]	82.7	81.7	yes	2010	1.7	0.1
Ghana	47.4	45.8	yes	2012	1.1	0.1
Greece	74.8	73.9	yes	2016	16.9	1.6
Grenada	72.2	68.6	no	—	—	—
Guatemala	54.9	57.4	yes	2014	1.4	0.0
Guinea	36.7	33.9	yes	2012	7.0	1.3
Guinea-Bissau	39.9	39.9	yes	2002	5.5	1.4
Guyana	72.4	70.4	yes	1993	2.7	0.6
Haiti	49.0	46.5	yes	2013	11.5	4.0
Honduras	64.9	66.3	yes	2004	1.1	0.1
Hungary	73.9	73.0	yes	2010	7.4	0.3
Iceland	84.0	85.2	yes	1995	6.9	0.9
India	55.3	52.4	yes	2011	17.3	3.9
Indonesia	57.3	53.3	yes	2018	2.7	0.5
Iran (Islamic Republic of)	71.7	69.7	yes	2013	15.8	3.8
Iraq	61.5	60.6	yes	2012	3.3	0.4
Ireland	76.0	78.7	yes	2010	6.4	0.7
Israel	82.2	80.8	yes	2012	6.7	0.9
Italy	82.0	81.3	yes	2010	9.3	1.1
Jamaica	64.7	62.4	yes	2004	10.2	2.9
Japan[a]	83.1	79.9	yes	2015	4.4	0.6
Jordan	75.7	76.1	yes	2008	1.7	0.3

Country	SDG UHC indicator 3.8.1: Service coverage index, 2017	SDG UHC indicator 3.8.1: Service coverage index, 2015	Availability of estimates for SDG UHC indicator 3.8.2	SDG UHC indicator 3.8.2, most recent available estimate (year)	SDG UHC indicator 3.8.2, latest year: incidence of catastrophic expenditure (%)	
					At 10% of household total consumption or income	At 25% of household total consumption or income
Kazakhstan	75.9	73.5	yes	2015	2.6	0.1
Kenya	55.1	54.3	yes	2015	5.4	1.5
Kiribati	41.2	39.3	no	—	—	—
Kuwait	76.3	75.3	no	—	—	—
Kyrgyzstan	69.5	67.8	yes	2016	3.5	0.7
Lao People's Democratic Republic	50.7	49.3	yes	2007	3.0	0.3
Latvia	71.3	66.7	yes	2009	15.5	3.5
Lebanon	73.1	70.7	yes	1999	44.9	10.0
Lesotho	48.3	47.2	yes	2010	4.5	1.4
Liberia	38.6	37.2	no	—	—	—
Libya	64.5	62.3	no	—	—	—
Lithuania	73.0	70.2	yes	2010	9.8	1.6
Luxembourg	83.2	82.4	yes	2010	3.4	0.1
Madagascar	27.7	24.2	yes	2010	1.6	0.2
Malawi	45.9	42.6	yes	2016	4.2	0.9
Malaysia	73.3	70.8	yes	2004	0.7	0.0
Maldives	62.1	59.3	yes	2009	19.9	6.2
Mali	37.5	34.7	yes	2016	6.5	1.1
Malta	81.8	80.8	yes	2010	15.9	2.8
Mauritania	41.1	35.9	yes	2014	11.7	2.9
Mauritius	62.7	62.2	yes	2012	8.8	1.8
Mexico	76.2	75.5	yes	2016	1.6	0.2
Micronesia (Federated States of)	46.6	43.6	no	—	—	—
Mongolia	62.3	61.8	yes	2014	2.4	0.5
Montenegro	67.9	67.2	yes	2015	10.3	0.8
Morocco	70.3	68.7	yes	2006	22.0	2.7
Mozambique	46.0	42.9	yes	2014	1.6	0.4
Myanmar	60.7	59.4	yes	2015	14.4	2.8
Namibia	61.7	60.7	yes	2009	1.2	0.2
Nepal	48.0	50.6	yes	2014	10.7	2.4
Netherlands	85.6	85.1	no	—	—	—
New Zealand	86.7	85.3	no	—	—	—
Nicaragua	73.3	70.8	yes	2014	14.8	3.0
Niger	36.6	34.8	yes	2011	6.6	1.9
Nigeria	42.1	42.0	yes	2012	15.1	4.1
Norway	86.8	85.6	yes	1998	5.1	0.5
Oman	68.9	71.4	yes	1999	0.6	0.1
Pakistan	44.8	41.8	yes	2015	4.5	0.5
Panama	78.5	75.6	yes	2007	3.3	0.6
Papua New Guinea	39.7	41.4	no	—	—	—
Paraguay	68.5	68.5	yes	2014	7.1	1.9
Peru	76.9	77.1	yes	2018	9.2	1.3
Philippines	60.6	57.4	yes	2015	6.3	1.4
Poland	75.3	74.2	yes	2016	14.1	1.3

Country	SDG UHC indicator 3.8.1: Service coverage index, 2017	SDG UHC indicator 3.8.1: Service coverage index, 2015	Availability of estimates for SDG UHC indicator 3.8.2	SDG UHC indicator 3.8.2, most recent available estimate (year)	SDG UHC indicator 3.8.2, latest year: incidence of catastrophic expenditure (%)	
					At 10% of household total consumption or income	At 25% of household total consumption or income
Portugal	81.5	81.1	yes	2010	18.4	3.3
Qatar	68.5	68.6	no	—	—	—
Republic of Korea	85.7	84.9	yes	2015	21.8	3.9
Republic of Moldova	68.8	67.5	yes	2016	18.7	3.6
Republic of North Macedonia	72.1	70.4	yes	2008	5.4	0.6
Romania	73.7	73.3	yes	2016	13.4	2.2
Russian Federation	74.3	70.5	yes	2014	4.9	0.6
Rwanda	56.9	53.5	yes	2016	1.2	0.1
Saint Lucia	67.9	66.2	no	—	—	—
Saint Vincent and the Grenadines	71.2	67.0	no	—	—	—
Samoa	58.2	57.6	no	—	—	—
Sao Tome and Principe	54.6	53.4	yes	2000	10.2	1.0
Saudi Arabia	74.2	72.6	no	—	—	—
Senegal	45.4	43.8	yes	2011	3.3	0.2
Serbia	65.2	64.7	yes	2015	8.0	0.5
Seychelles[a]	71.0	71.4	yes	2013	3.5	1.6
Sierra Leone	38.8	36.0	yes	2011	54.2	22.2
Singapore	85.8	85.2	yes	2013	9.0	1.5
Slovakia	76.5	75.0	yes	2010	3.8	0.4
Slovenia[a]	78.9	79.1	yes	2012	4.1	0.5
Solomon Islands	47.4	45.9	no	—	—	—
Somalia	25.0	21.5	no	—	—	—
South Africa	69.1	68.7	yes	2010	1.4	0.1
South Sudan	30.5	30.3	yes	2009	8.7	2.6
Spain[a]	82.7	80.8	yes	2010	7.0	1.8
Sri Lanka	66.0	63.4	yes	2016	5.4	0.9
Sudan	44.3	42.0	yes	2009	18.4	3.3
Suriname	70.7	69.8	yes	2016	4.9	1.4
Eswatini	63.0	59.6	yes	2009	13.4	2.0
Sweden	86.4	85.0	yes	1996	5.5	0.7
Switzerland	83.0	82.3	yes	2004	19.7	6.7
Syrian Arab Republic	59.6	59.2	yes	2007	6.9	1.4
Tajikistan	68.0	66.6	yes	2009	17.7	5.7
Thailand	79.8	74.9	yes	2017	2.2	0.4
Timor-Leste	52.5	49.3	yes	2014	2.9	0.5
Togo	43.4	42.2	yes	2006	10.7	0.0
Tonga	57.8	56.2	no	—	—	—
Trinidad and Tobago	74.1	71.6	yes	2014	3.9	1.9
Tunisia	69.6	69.5	yes	2015	18.4	2.7
Turkey	74.4	71.4	yes	2016	3.2	0.4
Turkmenistan	70.4	68.8	no	—	—	—
Uganda	45.4	44.1	yes	2016	15.3	3.8
Ukraine	67.8	65.4	yes	2014	7.8	0.8
United Arab Emirates	75.7	72.2	no	—	—	—

Country	SDG UHC indicator 3.8.1: Service coverage index, 2017	SDG UHC indicator 3.8.1: Service coverage index, 2015	Availability of estimates for SDG UHC indicator 3.8.2	SDG UHC indicator 3.8.2, most recent available estimate (year)	SDG UHC indicator 3.8.2, latest year: incidence of catastrophic expenditure (%)	
					At 10% of household total consumption or income	At 25% of household total consumption or income
United Kingdom	87.0	84.5	yes	2013	1.6	0.5
United Republic of Tanzania	43.2	40.8	yes	2011	3.8	1.2
United States of America	83.9	83.1	yes	2013	4.8	0.8
Uruguay	79.8	79.3	yes	2005	4.5	0.3
Uzbekistan	73.3	72.4	yes	2003	6.7	1.8
Vanuatu	48.4	48.5	no	—	—	—
Venezuela (Bolivarian Republic of)	74.2	73.2	no	—	—	—
Viet Nam	75.0	73.0	yes	2016	9.4	1.9
Yemen	42.0	40.0	yes	2014	15.8	4.2
Zambia	53.3	54.2	yes	2010	0.3	0.0
Zimbabwe	54.1	53.6	yes	2007	2.1	0.7

a. Estimates based on household income data instead of household consumption.
Note: Catastrophic health spending is defined as out-of-pocket expenditures exceeding 10% of household total consumption or income. This definition with this threshold corresponds to SDG indicator 3.8.2, defined as "the proportion of population with large household expenditures on health as a share of total household expenditure or income". WHO and World Bank estimated values are based on standard definitions and methods to ensure cross-country comparability, which may not correspond to the methods used at regional and/or national level to monitor catastrophic spending on health. These estimates are based on a data availability for global monitoring which may not necessarily align with availability of data at national or regional levels.
Source: Global monitoring report on financial protection in health, 2019 *(4)*.

ANNEX 2.4 Sustainable Development Goal–related indicators of impoverishment due to out-of-pocket health spending by country, latest year

Country	Availability of estimate	Latest year	Incidence of impoverishment due to out-of-pocket health spending (%)			Poverty gap increase due to out-of-pocket health spending expressed as a % of the poverty line		
			Poverty line			Poverty line		
			$1.90 a day in 2011 PPP	$3.20 a day in 2011 PPP	60% of median daily per capita household consumption	$1.90 a day in 2011 PPP	$3.20 a day in 2011 PPP	60% of median daily per capita total household consumption
Afghanistan	yes	2013	4.52	2.97	3.08	1.94	2.84	0.80
Albania	yes	2012	0.36	1.42	2.51	0.06	0.35	0.62
Angola	yes	2008	2.01	2.55	1.65	0.77	1.41	0.64
Argentina	yes	2004	0.20	0.60	2.00	0.10	0.20	0.70
Armenia	yes	2013	0.49	2.57	2.54	0.10	0.59	0.53
Australia	yes	2010	0.00	0.00	1.22	0.00	0.00	0.28
Austria	yes	1999	0.00	0.00	1.28	0.00	0.00	0.31
Azerbaijan	yes	2005	0.00	0.00	0.76	0.00	0.00	0.07
Bahamas	yes	2013	0.00	0.00	1.35	0.00	0.00	0.25
Bangladesh	yes	2016	6.98	6.18	6.52	2.70	4.51	2.41
Barbados	yes	2016	0.34	0.29	1.76	0.10	0.18	0.49
Belarus	yes	2016	0.00	0.01	1.71	0.00	0.00	0.33
Belgium	yes	2010	0.00	0.00	2.23	0.00	0.00	0.54
Benin	yes	2011	1.86	0.62	4.00	3.06	2.30	3.18
Bhutan	yes	2017	0.01	0.21	0.36	0.00	0.05	0.12
Bolivia (Plurinational State of)	yes	2015	0.25	0.62	0.88	0.05	0.17	0.32
Bosnia and Herzegovina	yes	2015	0.01	0.07	1.85	0.00	0.01	0.43
Botswana	yes	2009	0.19	0.26	0.27	0.28	0.27	0.27
Brazil	yes	2008	1.04	2.01	2.62	0.39	0.83	1.26
Bulgaria	yes	2010	0.00	0.13	2.43	0.00	0.04	0.57
Burkina Faso	yes	2014	1.92	1.04	1.61	1.12	1.22	0.38
Burundi	yes	2013	0.99	0.42	1.25	0.90	0.79	0.39
Cabo Verde	yes	2007	0.14	0.26	0.55	0.05	0.15	0.26
Cambodia	yes	2009	2.99	6.15	4.55	1.48	2.76	1.96
Cameroon	yes	2014	1.86	1.86	1.87	0.61	1.11	0.83
Canada[a]	yes	2010	0.03	–	1.24	0.06	–	0.45
Central African Republic	yes	2008	1.06	0.51	0.97	0.96	0.90	0.56
Chad	yes	2003	1.36	0.82	1.36	1.07	1.12	0.44
Chile	yes	2016	0.00	0.06	2.03	0.00	0.01	0.48
China	yes	2013	1.48	–	4.19	0.38	–	1.63
Colombia	yes	2016	0.31	0.71	1.24	0.10	0.24	0.51
Congo	yes	2011	1.05	1.67	1.10	0.62	0.89	0.59
Costa Rica	yes	2012	0.05	0.29	1.21	0.02	0.08	0.48
Côte d'Ivoire	yes	2015	2.25	2.58	2.10	0.81	1.50	0.69
Croatia	yes	2010	0.00	0.00	1.04	0.00	0.00	0.26
Cyprus	yes	2010	0.00	0.00	2.80	0.00	0.00	0.71
Czechia	yes	2010	0.00	0.00	0.94	0.00	0.00	0.19
Democratic Republic of the Congo	yes	2012	0.87	0.40	1.18	1.04	0.87	0.57
Denmark	yes	2010	0.00	0.00	1.37	0.00	0.00	0.19

Country	Availability of estimate	Latest year	Incidence of impoverishment due to out-of-pocket health spending (%)			Poverty gap increase due to out-of-pocket health spending expressed as a % of the poverty line		
			Poverty line			Poverty line		
			$1.90 a day in 2011 PPP	$3.20 a day in 2011 PPP	60% of median daily per capita household consumption	$1.90 a day in 2011 PPP	$3.20 a day in 2011 PPP	60% of median daily per capita total household consumption
Djibouti	yes	2002	0.60	0.82	0.64	0.22	0.47	0.24
Dominican Republic	yes	2007	0.53	1.71	3.18	0.14	0.60	1.20
Ecuador	yes	2013	0.65	1.44	2.31	0.34	0.61	0.97
Egypt	yes	2012	0.12	1.07	3.98	0.02	0.20	0.77
El Salvador	yes	2014	0.04	0.08	0.25	0.01	0.03	0.08
Estonia	yes	2007	0.01	0.17	2.72	0.00	0.09	0.79
Ethiopia	yes	2015	0.95	0.56	1.01	0.95	0.80	0.59
Finland	yes	2010	0.00	0.00	2.26	0.00	0.00	0.53
France[a]	yes	2010	0.04	0.02	0.71	0.03	0.03	0.29
Gabon	yes	2005	0.64	1.11	1.09	0.11	0.34	0.37
Gambia	yes	2003	0.86	0.42	0.99	0.47	0.49	0.29
Georgia	yes	2013	3.07	5.33	4.46	1.15	2.35	2.04
Germany[a]	yes	2010	0.02	0.01	0.65	0.01	0.01	0.21
Ghana	yes	2012	0.21	0.47	0.37	0.07	0.19	0.19
Greece	yes	2016	0.00	0.00	2.49	0.00	0.00	0.61
Guatemala	yes	2014	0.29	0.22	0.35	0.02	0.08	0.10
Guinea	yes	2012	2.48	1.46	1.33	0.87	1.35	0.49
Guinea-Bissau	yes	2002	1.61	1.71	1.20	1.06	1.23	0.43
Guyana	yes	1993	0.34	0.68	0.55	0.15	0.35	0.24
Hungary	yes	2010	0.00	0.03	1.48	0.00	0.01	0.40
Iceland	yes	1995	0.00	0.00	1.31	0.00	0.00	0.34
India	yes	2011	4.16	4.61	3.23	1.12	2.48	0.68
Indonesia	yes	2015	0.31	0.84	0.90	0.05	0.31	0.20
Iran (Islamic Republic of)	yes	2013	0.01	0.17	2.12	0.00	0.03	0.63
Iraq	yes	2012	0.35	1.39	1.23	0.11	0.38	0.43
Ireland	yes	2010	0.00	0.00	0.73	0.00	0.00	0.16
Israel	yes	2012	0.00	0.00	1.44	0.00	0.00	0.47
Italy	yes	2010	0.00	0.00	1.33	0.00	0.00	0.43
Jamaica	yes	2004	0.50	1.16	2.42	0.13	0.39	0.89
Japan[a]	yes	2015	0.11	0.13	1.35	0.10	0.11	0.62
Jordan	yes	2002	0.05	0.29	0.56	0.02	0.07	0.24
Kazakhstan	yes	2015	0.00	0.02	1.30	0.00	0.00	0.16
Kenya	yes	2015	1.48	1.32	1.51	0.97	1.13	0.85
Kyrgyzstan	yes	2016	0.07	1.01	0.62	0.01	0.18	0.08
Lao People's Democratic Republic	yes	2007	0.40	0.99	0.44	0.09	0.39	0.11
Latvia	yes	2009	0.10	0.65	2.54	0.02	0.14	0.69
Lebanon	yes	1999	0.03	0.03	6.95	0.00	0.01	2.68
Lesotho	yes	2010	0.35	0.15	0.71	0.66	0.54	0.65
Lithuania	yes	2010	0.00	0.01	1.86	0.00	0.00	0.54
Luxembourg	yes	2010	0.00	0.00	1.06	0.00	0.00	0.46
Madagascar	yes	2010	0.39	0.20	0.51	0.40	0.36	0.16
Malawi	yes	2016	1.31	0.71	1.06	0.73	0.93	0.28

Country	Availability of estimate	Latest year	Incidence of impoverishment due to out-of-pocket health spending (%)			Poverty gap increase due to out-of-pocket health spending expressed as a % of the poverty line		
			Poverty line			Poverty line		
			$1.90 a day in 2011 PPP	$3.20 a day in 2011 PPP	60% of median daily per capita household consumption	$1.90 a day in 2011 PPP	$3.20 a day in 2011 PPP	60% of median daily per capita total household consumption
Malaysia	yes	2004	0.09	0.23	0.44	0.01	0.04	0.12
Maldives	yes	2009	1.49	3.47	3.37	0.23	0.84	0.79
Mali	yes	2016	1.97	1.22	1.68	1.22	1.46	0.46
Malta	yes	2010	0.00	0.00	3.10	0.00	0.00	0.86
Mauritania	yes	2008	1.12	1.99	1.36	0.36	0.75	0.57
Mauritius	yes	2012	0.01	0.47	1.01	0.00	0.06	0.26
Mexico	yes	2016	0.03	0.13	0.44	0.01	0.03	0.16
Mongolia	yes	2014	0.24	0.37	0.57	0.05	0.11	0.36
Montenegro	yes	2015	0.00	0.41	1.64	0.00	0.03	0.41
Morocco	yes	2006	0.63	3.18	3.47	0.14	0.78	1.04
Mozambique	yes	2008	0.23	0.12	0.28	0.25	0.23	0.14
Myanmar	yes	2015	0.63	2.92	2.27	0.14	0.80	0.63
Namibia	yes	2009	0.31	0.61	0.40	0.15	0.26	0.17
Nepal	yes	2014	1.67	3.68	2.24	0.54	1.50	0.66
Nicaragua	yes	2014	0.99	1.84	2.63	0.20	0.72	0.87
Niger	yes	2011	2.55	1.74	1.10	0.96	1.48	0.24
Nigeria	yes	2012	3.50	3.91	2.98	1.43	2.30	0.97
Norway	yes	1998	0.00	0.00	2.09	0.00	0.00	0.37
Occupied Palestinian territory	yes	2016	0.12	0.09	1.52	0.01	0.10	0.41
Pakistan	yes	2015	0.87	2.92	2.06	0.12	0.84	0.33
Panama	yes	2007	0.00	0.01	1.00	0.00	0.01	0.29
Paraguay	yes	2014	1.27	1.73	1.37	0.69	1.02	1.28
Peru	yes	2018	0.02	0.35	1.35	0.01	0.07	0.39
Philippines	yes	2015	0.48	1.37	0.96	0.12	0.45	0.29
Poland	yes	2016	0.00	0.04	2.67	0.00	0.00	0.62
Portugal	yes	2010	0.00	0.00	3.15	0.00	0.00	1.03
Republic of Korea	yes	2015	0.00	0.02	3.85	0.00	0.00	1.17
Republic of Moldova	yes	2016	0.00	0.39	3.05	0.00	0.07	0.68
Republic of North Macedonia	yes	2008	0.09	0.28	0.74	0.05	0.12	0.31
Romania	yes	2016	0.00	0.39	2.14	0.00	0.07	0.54
Russian Federation	yes	2014	0.00	0.01	1.79	0.00	0.00	0.45
Rwanda	yes	2016	0.60	0.28	0.69	0.41	0.41	0.24
Sao Tome and Principe	yes	2000	0.82	2.24	0.89	0.34	0.80	0.40
Senegal	yes	2011	1.10	1.42	1.78	0.65	0.99	0.49
Serbia	yes	2015	0.04	0.12	2.11	0.00	0.03	0.50
Seychelles[a]	yes	2013	0.95	1.15	1.26	0.60	0.72	1.08
Sierra Leone	yes	2011	13.42	6.01	11.60	8.19	8.67	3.91
Singapore	no	2013	—	—	—	—	—	—
Slovakia	yes	2010	0.00	0.02	0.83	0.00	0.00	0.23
Slovenia[a]	yes	2012	0.02	—	1.30	0.01	—	0.39
South Africa	yes	2010	0.45	0.61	0.50	0.17	0.31	0.31
South Sudan	yes	2009	1.56	1.68	1.05	0.89	1.15	0.71

Country	Availability of estimate	Latest year	Incidence of impoverishment due to out-of-pocket health spending (%)			Poverty gap increase due to out-of-pocket health spending expressed as a % of the poverty line		
			Poverty line			Poverty line		
			$1.90 a day in 2011 PPP	$3.20 a day in 2011 PPP	60% of median daily per capita household consumption	$1.90 a day in 2011 PPP	$3.20 a day in 2011 PPP	60% of median daily per capita total household consumption
Spain[a]	yes	2010	0.17	0.23	1.99	0.15	0.17	0.84
Sri Lanka	yes	2016	0.07	0.52	1.26	0.01	0.11	0.28
Suriname	yes	2016	0.02	0.04	1.07	0.00	0.02	0.27
Eswatini	yes	2009	1.36	1.29	1.85	1.18	1.22	0.74
Sweden	yes	1996	0.00	0.00	1.23	0.00	0.00	0.36
Switzerland	yes	2004	0.00	0.00	3.55	0.00	0.00	0.83
Syrian Arab Republic	yes	2007	0.05	0.72	1.51	0.01	0.16	0.39
Tajikistan	yes	2009	2.56	4.55	2.49	0.73	1.60	0.91
Thailand	yes	2017	0.00	0.01	0.62	0.00	0.00	0.18
Timor-Leste	yes	2014	—	0.62	0.29	—	0.54	0.11
Togo	yes	2006	2.54	1.59	1.88	1.43	1.63	0.46
Trinidad and Tobago	yes	2005	0.51	0.66	1.27	0.52	0.56	0.68
Tunisia	yes	2015	0.09	0.73	2.83	0.01	0.15	0.91
Turkey	yes	2016	0.00	0.14	0.71	0.00	0.03	0.28
Uganda	yes	2016	3.18	2.89	2.62	1.51	2.17	0.81
Ukraine	yes	2014	0.00	0.07	1.43	0.00	0.01	0.30
United Kingdom	yes	2013	0.00	0.00	0.35	0.00	0.00	0.10
United Republic of Tanzania	yes	2011	1.38	0.84	1.01	0.50	0.69	0.22
United States of America	yes	2013	0.00	0.00	0.84	0.00	0.00	0.26
Uruguay	yes	2005	0.01	0.22	0.48	0.01	0.05	0.30
Uzbekistan	yes	2003	1.39	0.92	0.83	0.94	1.03	0.26
Viet Nam	yes	2016	0.25	1.16	2.36	0.05	0.27	0.70
Yemen	yes	2014	3.48	4.22	4.27	1.50	2.49	2.08
Zambia	yes	2010	0.14	0.10	0.00	0.08	0.09	0.00
Zimbabwe	yes	2007	0.01	0.09	0.19	0.12	0.10	0.13

a. Estimates are based on household income data instead of household consumption data.
Note: Impoverishing spending on health occurs when a household is forced by an adverse health event to divert spending from nonmedical budget items such as food, shelter and clothing to such an extent that its spending on these items is reduced below the level indicated by the poverty line. Indicators of impoverishing spending on health are not part of the official SDG indicator of universal health coverage per se, but link universal health coverage directly to the first SDG goal, namely to end poverty in all its forms everywhere. WHO and World Bank estimated values are based on standard definitions and methods to ensure cross-country comparability, which may not correspond to the methods used at regional and/or national level to monitor catastrophic spending on health. These estimates are based on a data availability for global monitoring, which may not necessarily align with availability of data at national or regional levels.
Source: Global monitoring report on financial protection in health, 2019 *(4)*.

ANNEX 2.5 Incidence of catastrophic health spending as tracked by Sustainable Development Goal indicator 3.8.2, by WHO region and World Bank income group

SDG 3.8.2, 10% threshold	2000		2005		2010		2015	
WHO regions	% of population	Number of people (millions)	% of population	Number of people (millions)	% of population	Number of people (millions)	% of population	Number of people (millions)
Global	9.4	570.5	11.4	738.1	12	828.3	12.7	926.6
African Region	6	39.8	7	52.6	7.4	63.2	7.3	71.1
Region of the Americas	9.1	75.3	11.8	104.2	13.4	124.8	11.3	109.8
Eastern Mediterranean Region	8	38.1	8.8	47.0	10.3	61.3	11.7	76.9
European Region	6.3	54.4	6.4	56.3	6.6	58.9	7.4	67.4
South-East Asia Region	11.5	180.1	12.9	218.7	12.8	232.5	16	307.4
Western Pacific Region	10.9	181.7	14.9	258.2	16	286.2	15.9	292.6
World Bank income groups								
High-income countries	5.2	46.2	6.1	60.5	6.5	71.7	6.9	80.3
Upper-middle-income countries	10.2	66.3	6.2	37.5	15.8	387.6	14.9	385.1
Lower-middle-income countries	10	204.6	14.2	351.2	11.8	300.2	14.2	418.1
Low-income countries	10.1	252.2	12	288.3	8.6	68.3	6.9	43.2

Note: WHO and World Bank estimated values are based on standard definitions and methods to ensure cross-country comparability, which may not correspond to the methods used at regional or national level to monitor catastrophic spending on health. These estimates are based on a data availability for global monitoring, which may not necessarily align with the availability of data at national or regional levels.
Source: Global monitoring report on financial protection in health, 2019 *(4)*.

SDG 3.8.2, 25% threshold	2000		2005		2010		2015	
WHO regions	% of population	Number of people (millions)	% of population	Number of people (millions)	% of population	Number of people (millions)	% of population	Number of people (millions)
Global	1.7	105.9	2.5	161.6	2.6	180.2	2.9	208.7
African Region	1.2	7.6	1.5	11.4	1.7	14.6	1.8	17.4
Region of the Americas	1.5	12.8	2.0	17.5	2.2	20.0	1.8	18.0
Eastern Mediterranean Region	1.1	5.0	1.3	6.8	1.7	10.3	1.9	12.4
European Region	1.0	8.6	1.0	9.0	1.0	9.4	1.2	10.5
South-East Asia Region	2.0	31.8	3.0	50.4	2.8	50.8	3.8	73.6
Western Pacific Region	2.4	39.8	3.8	66.4	4.2	74.8	4.2	76.6
Non-Member States	0.9	0.2	1.1	0.2	1.2	0.2	1.1	0.2
World Bank income groups								
High-income countries	0.9	7.7	1.0	10.1	1.0	11.4	1.1	12.6
Upper-middle-income countries	1.5	9.7	1.2	7.0	3.7	90.2	3.5	90.7
Lower-middle-income countries	2.1	43.4	3.2	78.7	2.5	62.6	3.3	95.9
Low-income countries	1.8	44.9	2.7	65.8	2.0	15.9	1.5	9.5

Note: WHO and World Bank estimated values are based on standard definitions and methods to ensure cross-country comparability, which may not correspond to the methods used at regional or national level to monitor catastrophic spending on health. These estimates are based on a data availability for global monitoring, which may not necessarily align with the availability of data at national or regional levels.
Source: Global monitoring report on financial protection in health, 2019 *(4)*.

ANNEX 2.6 Incidence of impoverishment due to out-of-pocket health spending at the $1.90 and $3.20 a day poverty line (in 2011 PPP), by WHO region and World Bank income group

$1.90 a day poverty line	2000		2005		2010		2015	
WHO regions	% of population	Number of people (millions)	% of population	Number of people (millions)	% of population	Number of people (millions)	% of population	Number of people (millions)
Global	2.0	123.9	1.8	116.8	1.5	103.4	1.2	89.7
African Region	3.3	21.5	1.4	10.4	1.7	14.2	1.5	14.8
Region of the Americas	0.4	3.3	0.4	3.9	0.3	3.1	0.2	1.5
Eastern Mediterranean Region	1.3	6.4	0.9	5.0	0.5	3.0	0.4	2.6
European Region	0.2	2.0	0.1	0.9	0.1	0.8	0.1	0.4
South-East Asia Region	3.2	50.8	3.6	61.9	3.0	55.2	2.8	53.0
Western Pacific Region	2.4	39.9	2.0	34.8	1.5	27.2	0.9	17.4
World Bank income groups								
Global	2.0	123.9	1.8	116.8	1.5	103.4	1.2	89.7
High-income countries	0.1	0.6	0.1	0.5	0.1	0.7	0.0	0.4
Upper-middle-income countries	0.4	2.5	0.2	1.1	1.2	28.9	0.7	18.5
Lower-middle-income countries	1.9	38.6	1.6	39.3	2.4	60.2	2.2	63.2
Low-income countries	3.3	82.2	3.2	75.8	1.7	13.7	1.2	7.6

Note: Impoverishing spending on health occurs when a household is forced by an adverse health event to divert spending from nonmedical budget items such as food, shelter and clothing to such an extent that its spending on these items is reduced below the level indicated by the poverty line. Indicators of impoverishing spending on health are not part of the official SDG indicator of universal health coverage per se, but link universal health coverage directly to the first SDG goal, namely to end poverty in all its forms everywhere. WHO and World Bank estimated values are based on standard definitions and methods to ensure cross-country comparability, which may not correspond to the methods used at regional or national level to monitor catastrophic spending on health. These estimates are based on a data availability for global monitoring, which may not necessarily align with the availability of data at national or regional levels.
Source: Global monitoring report on financial protection in health, 2019 *(4)*.

$3.20 a day poverty line	2000		2005		2010		2015	
WHO regions	% of population	Number of people (millions)	% of population	Number of people (millions)	% of population	Number of people (millions)	% of population	Number of people (millions)
Global	1.5	93.0	1.8	118.9	1.7	119.5	1.4	98.8
African Region	1.8	12.2	1.3	9.8	1.6	13.4	1.4	13.3
Region of the Americas	0.8	6.4	0.9	7.8	0.8	7.3	0.4	4.2
Eastern Mediterranean Region	1.7	8.1	1.9	9.8	1.4	8.4	1.2	8.2
European Region	0.4	3.6	0.2	2.0	0.2	1.6	0.1	1.1
South-East Asia Region	2.0	30.8	2.9	49.6	3.4	61.3	3.3	63.6
Western Pacific Region	1.9	31.7	2.3	39.7	1.5	27.4	0.4	8.2
Non-Member States	1.0	0.2	0.8	0.1	0.7	0.1	0.4	0.1
World Bank income groups								
Global	1.5	93.0	1.8	118.9	1.7	119.5	1.4	98.8
High-income countries	0.1	0.9	0.1	0.9	0.1	0.9	0.1	0.7
Upper-middle-income countries	0.8	5.2	0.4	2.2	1.3	31.9	0.4	10.8
Lower-middle-income countries	1.7	35.2	2.0	49.5	2.8	72.0	2.8	81.6
Low-income countries	2.1	51.7	2.8	66.2	1.8	14.6	0.9	5.7

Notes: Impoverishing spending on health occurs when a household is forced by an adverse health event to divert spending away from nonmedical budget items such as food, shelter and clothing to such an extent that its spending on these items is reduced below the level indicated by the poverty line. Indicators of impoverishing spending on health are not part of the official SDG indicator of universal health coverage per se, but link universal health coverage directly to the first SDG goal, namely to end poverty in all its forms everywhere. WHO and World Bank estimated values are based on standard definitions and methods to ensure cross-country comparability, which may not correspond to the methods used at regional or national level to monitor catastrophic spending on health. These estimates are based on a data availability for global monitoring, which may not necessarily align with the availability of data at national or regional levels.
Source: Global monitoring report on financial protection in health, 2019 *(4)*.

ANNEX 2.7 Incidence of impoverishment due to out-of-pocket health spending at the relative poverty line of 60% of median daily per capita consumption, by WHO regions and World Bank income groups

Relative poverty line	2000		2005		2010		2015	
WHO regions	% population	Number of people (millions)	% population	Number of people (millions)	% population	Number of people (millions)	% population	Number of people (millions)
Global	1.8	110.9	1.9	126.3	2.2	151.2	2.5	183.2
African Region	1.1	7.3	1.3	9.9	1.5	12.6	1.6	15.8
Region of the Americas	1.4	11.8	1.5	13.6	1.6	14.5	1.5	14.6
Eastern Mediterranean Region	1.7	7.9	1.9	10.2	1.9	11.0	2.2	14.2
European Region	1.3	11.4	1.3	11.7	1.5	13.0	1.6	14.3
South-East Asia Region	2.3	36.3	2.2	37.3	2.3	42.1	3.1	59.7
Western Pacific Region	2.2	36.0	2.5	43.3	3.2	57.7	3.5	64.5
Non-Member States	1.3	0.2	1.4	0.2	1.5	0.3	1.5	0.3
World Bank income groups								
Global	1.8	110.9	1.9	126.3	2.2	151.2	2.5	183.2
High-income countries	1.3	11.2	1.3	12.9	1.6	17.8	1.4	16.5
Upper-middle-income countries	1.5	9.8	1.1	7.0	2.7	65.4	2.9	76.1
Lower-middle-income countries	1.9	38.5	2.2	54.4	2.1	53.7	2.8	81.6
Low-income countries	2.0	51.1	2.2	51.9	1.8	14.2	1.5	9.1

Note: Impoverishing spending on health occurs when a household is forced by an adverse health event to divert spending from nonmedical budget items such as food, shelter, clothing to such an extent that its spending on these items is reduced below the level indicated by the poverty line. Indicators of impoverishing spending on health are not part of the official SDG indicator of universal health coverage per se, but link universal health coverage directly to the first SDG goal, namely to end poverty in all its forms everywhere. WHO and World Bank estimated values are based on standard definitions and methods to ensure cross-country comparability, which may not correspond to the methods used at regional and/or national level to monitor catastrophic spending on health. These estimates are based on a data availability for global monitoring which may not necessarily align with availability of data at national or regional levels.
Source: WHO and World Bank, Global monitoring report on financial protection in health, 2019 *(4)*.

ANNEX 2.8 WHO European Region indicators of catastrophic and impoverishing health spending, by country

Country	Latest year	Proportion of households with out-of-pocket payments greater than 40% of capacity to pay[a]	Proportion of households at risk of impoverishment after out-of-pocket payments[b]				
			Further impoverished	Impoverished	At risk of impoverishment	Not at risk of impoverishment	No out-of-pocket payments
Albania	2015	12.5	6.7	1.5	6.7	51.4	33.7
Austria	2014/2015	3.2	0.8	0.2	1.0	77.9	20.9
Croatia	2014	4.0	2.0	0.5	3.3	73.8	20.4
Cyprus	2015	5.0	1.3	0.5	1.9	88.4	8.0
Czechia	2012	1.1	0.4	0.1	1.4	97.6	0.6
Estonia	2016	8.1	1.5	1.3	2.8	50.0	40.4
France	2011	1.9	1.1	0.2	1.4	81.8	15.6
Georgia	2015	14.5	2.7	2.2	3.4	70.5	21.3
Germany	2013	2.4	0.8	0.2	2.6	86.8	9.7
Greece	2016	9.7	1.6	1.0	3.1	80.5	13.9
Hungary	2015	11.6	3.8	2.1	5.7	76.0	12.3
Ireland	2015/2016	1.2	0.8	0.1	0.9	64.5	33.8
Italy	2016	8.0	2.7	1.1	2.8	72.6	20.8
Kyrgyzstan	2014	12.8	2.2	1.5	6.7	71.2	18.5
Latvia	2013	12.9	2.4	1.8	3.8	58.9	33.2
Lithuania	2016	15.2	2.2	3.4	4.2	52.3	37.8
Republic of Moldova	2016	17.1	3.2	3.5	8.9	56.5	27.9
Poland	2014	8.6	2.6	1.1	4.3	75.3	16.7
Portugal	2015	8.1	1.9	1.2	2.5	86.4	8.1
Slovakia	2012	3.5	1.3	0.2	3.1	79.7	15.7
Slovenia	2015	1.0	0.3	0.1	0.7	77.5	21.5
Spain	2015	3.9	2.2	0.2	1.3	66.4	29.8
Sweden	2012	1.8	0.9	0.2	0.6	50.5	47.8
Turkey	2014	5.2	3.1	0.5	2.5	60.1	33.8
Ukraine	2015	14.5	6.8	2.2	8.3	75.8	7.0
United Kingdom	2014	1.4	0.8	0.0	0.7	51.4	47.1

a. Catastrophic health spending defined as out-of-pocket payments exceeding 40% of capacity to pay using the food, housing and utilities approach (Box 2.1).
b. Proportion of households at risk of impoverishment after out-of-pocket payments using a relative poverty line reflecting basic needs on food, housing and utilities (Boxes 2.2 and 2.3).
Source: WHO Regional Office for Europe, *Can people afford to pay for health care? New evidence on financial protection in Europe (5).*

ANNEX 3.1 Technical details for RMNCH coverage

Indicators

Composite coverage index (CCI) *(115)*: weighted average of eight reproductive, maternal, newborn and child indicators: demand for family planning satisfied with modern methods (DFPSm); antenatal care (4+ visits; ANC4); skilled birth attendant (SBA); tuberculosis vaccine (BCG); diphtheria, tetanus, and pertussis vaccine (3+ doses, DPT3); measles vaccine (MSL); oral rehydration salts for children with diarrhoea (ORS); and careseeking for children with pneumonia symptoms (CPNM). It has different RMNCH indicators than the UHC Index. See Chapter 1 for the UHC Index.

$$CCI = \frac{1}{4}\left(DFPSm + \frac{ANC4 + SBA}{2} + \frac{BCG + 2DPT3 + MSL}{4} + \frac{ORS + CPNM}{2}\right)$$

Demand for family planning satisfied (DFPSm): proportion of women married or in a union, aged 15–49 years in need of contraception that are using a modern contraceptive method (contraceptive pills, condoms (male and female), intrauterine device (IUD), sterilization (male and female), injectables, hormone implants, patches, diaphragms, spermicidal agents (foam/jelly), and emergency contraception).

- **Demand for family planning satisfied with short-acting reversible contraceptive (SARC) methods:** proportion of women married or in a union, aged 15–49 years in need of contraception that are using a short-acting reversible contraceptive method (pills, condoms (male and female), injectables, patches, diaphragms, spermicidal agents (foam/jelly), or emergency contraception).

- **Demand for family planning satisfied with long-acting reversible contraceptive (LARC) methods:** proportion of women married or in a union, aged 15–49 years in need of contraception that are using a long-acting reversible contraceptive method (intrauterine device (IUD) or hormone implants).

- **Demand for family planning satisfied with permanent contraceptive methods:** proportion of women married or in a union, aged 15–49 years in need of contraception that are using a permanent contraceptive method (male or female sterilization).

Antenatal care (4+ visits, ANC4): proportion of women aged 15–49 who attended at least four antenatal care visits with any health care provider in their last pregnancy.

Skilled birth attendant (SBA): proportion of children born in the last two years who were delivered by a skilled attendant.

Tuberculosis vaccine (BCG): proportion of children 12–23 months of age[1] who received BCG vaccine.

DTP vaccine (3+doses, DTP3): proportion of children 12–23 months of age[1] who received at least 3 doses of DPT (diphtheria, pertussis and tetanus) vaccine.

Measles vaccine (MLS): proportion of children 12–23 months of age who received measles vaccine.

Oral rehydration salts for children with diarrhoea (ORS): Proportion of children under 5 years of age with diarrhoea in the last 2 weeks who received oral rehydration salts.

Careseeking for pneumonia (CPNM): proportion of children under 5 years of age with suspected pneumonia in the last 2 weeks who were taken to an appropriate health provider.

Improved sanitation: proportion of households members with improved sanitation available (improved sources of sanitation: flush or pour-flush to a piped sewer system, a septic tank or a pit latrine; ventilated improved pit latrine (VIP); pit latrine with slab; composting toilet given the facility is not shared).

Place of residence: rural and urban area of residence, as defined by each country.

Wealth quintiles: based on asset ownership, characteristics of the household and the head of the household, the wealth index is calculated for each household through principal components analysis. The households are then divided into quintiles (Q), where Q1 represents the poorest 20% of households and Q5 the richest 20% in each country.

Wealth deciles: based on the same wealth index as the wealth quintiles. The households are then divided into deciles (D), where D1 represents the poorest 10% of households and D10 the richest 10% in each country.

Women's empowerment – social independence domain: empowerment level based on the Survey-based Women's emPowERment (SWPER) Index *(23)* among married women aged 15–49 years. The SWPER was developed based on 14 variables, allowing the assessment of three empowerment domains: social independence, attitude to violence and decision-making. The social independence domain is mainly based on six variables – frequency of reading newspapers and magazines, woman's education (number of years completed), age at first childbirth, age at first cohabitation, age difference with partner (wife's age minus husband's age) and education difference (wife's years of schooling minus husband's). For women that did not have any child by the time of the survey, age at first childbirth was imputed according to the SWPER methodology *(23)*. The index is calculated for each woman and then categorized into quintiles of empowerment, where Q1 represents the 20% least empowered women and Q5 the 20% most empowered in each country.

Methods for the trend analyses

All countries with two or more surveys since 2000 with an estimate for the Composite Coverage Index (CCI), both at country and wealth quintile levels were included in the trend analyses. In total, 63 countries were studied (see Table A3.1.1 for the country list). Given that previous analyses seldom presented evidence for non-linear change of coverage over time, the average absolute annual change (AAAC) was estimated for each country. AAAC can be interpreted as the average change over time in intervention coverage, in percentage points. For example, a country with an estimated AAAC of 1.2 percentage points for the CCI presented an average increase of 1.2 percentage points every year. Therefore, over a period of 10 years, this country would have presented an increase of 12 percentage points for the CCI. For each country, variance-weighted least squares model was fitted using the estimates for each available survey as the outcome, along with their standard errors. The predictor in this model is the survey year. The resulting slope parameter is the estimate of AAAC that takes into account the variability of each survey coverage estimate. To obtain an overall and regional level estimates of AAAC for each indicator, a weighted average of the AAAC for all the countries together and for the countries in each world region separately was calculated using the country population as weights.

TABLE A3.1.1 List of the surveys analysed in both the current status and the trend analyses with the population of each country (according to the World Bank), which was used to weight the estimates by WHO regions and the overall estimates for all countries

Country	ISO code	WHO region	Total population (World Bank)	Current status analyses	Trend analyses
				Latest survey 2010–2017	Number of surveys with 2+ CCI estimates 2000–2017
Algeria	DZA	Africa	38,000,000	2012	NA
Angola	AGO	Africa	28,000,000	2015	NA
Benin	BEN	Africa	10,000,000	2014	4
Burkina Faso	BFA	Africa	16,000,000	2010	2
Burundi	BDI	Africa	11,000,000	2016	2
Cameroon	CMR	Africa	22,000,000	2014	3
Central African Republic	CAF	Africa	4,400,000	2010	NA
Chad	TCD	Africa	14,000,000	2014	3
Comoros	COM	Africa	723,868	2012	NA
Congo	COG	Africa	4,900,000	2014	3
Côte d'Ivoire	CIV	Africa	24,000,000	2016	2
Congo DR	COD	Africa	71,000,000	2013	3
Eswatini	SWZ	Africa	1,300,000	2014	3
Ethiopia	ETH	Africa	100,000,000	2016	4
Gabon	GAB	Africa	1,800,000	2012	2
Gambia	GMB	Africa	1,900,000	2013	2
Ghana	GHA	Africa	27,000,000	2014	4
Guinea	GIN	Africa	12,000,000	2016	2
Guinea-Bissau	GNB	Africa	1,700,000	2014	NA
Kenya	KEN	Africa	46,000,000	2014	3
Lesotho	LSO	Africa	2,100,000	2014	3
Liberia	LBR	Africa	4,300,000	2013	2
Madagascar	MDG	Africa	—	NA	2
Malawi	MWI	Africa	18,000,000	2015	5
Mali	MLI	Africa	17,000,000	2015	5
Mauritania	MRT	Africa	4,200,000	2015	2
Mozambique	MOZ	Africa	28,000,000	2015	3
Namibia	NAM	Africa	2,300,000	2013	3
Niger	NER	Africa	18,000,000	2012	2
Nigeria	NGA	Africa	190,000,000	2016	6
Rwanda	RWA	Africa	11,000,000	2014	4
Sao Tome and Principe	STP	Africa	191,266	2014	2
Senegal	SEN	Africa	16,000,000	2017	7
Sierra Leone	SLE	Africa	6,900,000	2013	3
South Africa	ZAF	Africa	56,000,000	2016	NA
South Sudan	SSD	Africa	10,000,000	2010	NA
Togo	TGO	Africa	7,000,000	2013	2
Uganda	UGA	Africa	41,000,000	2016	4
Tanzania	TZA	Africa	54,000,000	2015	3
Zambia	ZMB	Africa	15,000,000	2013	3
Zimbabwe	ZWE	Africa	16,000,000	2015	4
Total		Africa		40 countries	34 countries

Country	ISO code	WHO region	Total population (World Bank)	Current status analyses	Trend analyses
				Latest survey 2010–2017	Number of surveys with 2+ CCI estimates 2000–2017
Argentina	ARG	Americas	42,000,000	2011	NA
Barbados	BRB	Americas	281,585	2012	NA
Belize	BLZ	Americas	359,288	2015	2
Bolivia	BOL	Americas	—	NA	2
Colombia	COL	Americas	48,000,000	2015	3
Costa Rica	CRI	Americas	4,600,000	2011	NA
Cuba	CUB	Americas	11,000,000	2014	NA
Dominican Republic	DOM	Americas	10,000,000	2014	4
El Salvador	SLV	Americas	6,300,000	2014	NA
Guatemala	GTM	Americas	16,000,000	2014	NA
Guyana	GUY	Americas	763,393	2014	2
Haiti	HTI	Americas	11,000,000	2016	4
Honduras	HND	Americas	8,400,000	2011	2
Jamaica	JAM	Americas	2,800,000	2011	NA
Mexico	MEX	Americas	130,000,000	2015	NA
Panama	PAN	Americas	3,800,000	2013	NA
Paraguay	PRY	Americas	6,700,000	2016	NA
Peru	PER	Americas	32,000,000	2016	14
Saint Lucia	LCA	Americas	174,835	2012	NA
Suriname	SUR	Americas	526,103	2010	NA
Trinidad and Tobago	TTO	Americas	1,300,000	2011	NA
Uruguay	URY	Americas	3,400,000	2012	NA
Total		Americas		21 countries	8 countries
Afghanistan	AFG	Eastern Mediterranean	34,000,000	2015	NA
Egypt	EGY	Eastern Mediterranean	92,000,000	2014	4
Iraq	IRQ	Eastern Mediterranean	32,000,000	2011	2
Jordan	JOR	Eastern Mediterranean	9,700,000	2017	4
Pakistan	PAK	Eastern Mediterranean	200,000,000	2017	3
Qatar	QAT	Eastern Mediterranean	2,100,000	2012	NA
Sudan	SDN	Eastern Mediterranean	38,000,000	2014	2
Tunisia	TUN	Eastern Mediterranean	11,000,000	2011	NA
Yemen	YEM	Eastern Mediterranean	26,000,000	2013	NA
Total		Eastern Mediterranean		9 countries	5 countries

Country	ISO code	WHO region	Total population (World Bank)	Current status analyses: Latest survey 2010–2017	Trend analyses: Number of surveys with 2+ CCI estimates 2000–2017
Albania	ALB	Europe	2,900,000	2017	NA
Armenia	ARM	Europe	2,900,000	2015	4
Belarus	BLR	Europe	9,500,000	2012	NA
Bosnia and Herzegovina	BIH	Europe	3,700,000	2011	NA
Kazakhstan	KAZ	Europe	18,000,000	2015	NA
Kyrgyzstan	KGZ	Europe	5,800,000	2014	2
Montenegro	MNE	Europe	621,207	2013	NA
Republic of Moldova	MDA	Europe	3,600,000	2012	2
Republic of North Macedonia	MKD	Europe	2,100,000	2011	NA
Serbia	SRB	Europe	7,100,000	2014	NA
Tajikistan	TJK	Europe	8,900,000	2017	2
Turkmenistan	TKM	Europe	5,600,000	2015	NA
Ukraine	UKR	Europe	46,000,000	2012	NA
Total		Europe		13 countries	4 countries
Bangladesh	BGD	South-East Asia	160,000,000	2014	5
Bhutan	BTN	South-East Asia	727,641	2010	NA
India	IND	South-East Asia	1300,000,000	2015	3
Indonesia	IDN	South-East Asia	250,000,000	2012	3
Maldives	MDV	South-East Asia	427,756	2016	2
Myanmar	MMR	South-East Asia	52,000,000	2015	NA
Nepal	NPL	South-East Asia	29,000,000	2016	6
Thailand	THA	South-East Asia	69,000,000	2015	2
Timor-Leste	TLS	South-East Asia	1,300,000	2016	2
Total		South-East Asia		9 countries	7 countries
Cambodia	KHM	Western Pacific	15,000,000	2014	4
Lao	LAO	Western Pacific	6,300,000	2011	NA
Mongolia	MNG	Western Pacific	2,900,000	2013	2
Philippines	PHL	Western Pacific	100,000,000	2017	4
Viet Nam	VNM	Western Pacific	91,000,000	2013	3
Total		Western Pacific		5 countries	4 countries
West Bank and Gaza Strip	PSE	NA	4,300,000	2014	2
Total		NA		1 country	1 country
Total		Global		98 countries	203 surveys from 63 countries

Note: West Bank and Gaza Strip is not officially in any WHO region, so it was not included in the regional estimates, but it was included in the overall estimates for all countries both in the current status and the trend analyses.

https://www.who.int/healthinfo/universal_health_coverage/report/2019/en/