Chapter 3

Global state of health care quality
3.1 THE QUALITY IMPERATIVE FOR UNIVERSAL HEALTH COVERAGE

Between 2000 and 2015, the Millennium Development Goals (MDGs) accelerated global progress towards attaining population health goals in low- and middle-income countries. Globally, child mortality fell by 53%, maternal mortality fell by 43%, and new HIV infections declined by over 38% (22). However, progress was highly unequal. In poor, rural, and hard-to-reach populations, preventable mortality remained high. For example, for children aged under 5 years in low- and middle-income countries there are significant differences in mortality between those living in the poorest households compared to those living to the richest households, between those whose mothers were the least educated compared to the most educated, and between those living in urban areas compared to rural areas (Figure 3.1).

Systematic assessments of essential health services in high-mortality countries revealed major deficiencies in the quality of care received. In one such assessment across eight countries in sub-Saharan Africa, quality-adjusted (effective) coverage averaged 28% for antenatal care, 26% for family planning, and 21% for sick child care, and was substantially lower than crude service coverage (23). Over 40% of facility-based deliveries...
in five countries in sub-Saharan Africa took place in primary care facilities with major gaps in resources and technical expertise (24). The MDGs did not include a specific focus on measuring and improving quality of care, yet these deficits in quality of care have had negative implications for translating increases in coverage to better population health. Poor-quality services have been shown to predict a higher risk of neonatal mortality in Africa (25). Also, an increase in institutional deliveries from 14% to 80% in India did not reduce maternal and child mortality due to the poor quality of care provided at health facilities (26). In essence, poor quality of care is responsible for persistently high levels of maternal and child mortality in low- and middle-income countries, despite substantial increases in access to essential health services achieved during the MDG era.

In 2015, the United Nations General Assembly adopted a new development agenda: Transforming our world: the 2030 Agenda for Sustainable Development. The SDGs comprise a broader range of economic, social and environmental objectives than the MDGs and set a new health goal, to “ensure healthy lives and promote well-being for all at all ages”. Universal health coverage is considered fundamental to the SDGs. Simply defined, universal health coverage means ensuring that all people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the use of these services does not expose the user to financial hardship. In explicitly focusing on the quality of health care services, the 2030 Agenda for Sustainable Development recognizes the urgent need to place quality of care in the fabric of national, regional, and global action towards promoting well-being for all.

While global attention has focused on universal health coverage, at the local level, the devastating outbreak of Ebola virus in West Africa reinforced the strong case for quality of care. In Guinea, Liberia and Sierra Leone, gaps in service delivery and the accompanying collapse of public trust in health systems presented herculean challenges to response and recovery efforts during the Ebola outbreak. For instance, assessments of the Sierra Leonean health system revealed a low density of human resource for health, low capacity for disease surveillance in the community, infrastructural deficits in health facilities, and weak supply chains for essential medicines (27). All three countries have since emphasized universal access to quality health service delivery to strengthen their ability to prevent large-scale outbreaks in the future, placing infection prevention and control and patient safety as key priorities. Following the outbreak, Liberia has developed an investment plan to build health system resilience and is working towards implementation of a health equity fund that places quality at its core (Box 3.1). The West African response to the Ebola outbreak demonstrates the very real and strong linkages between health system resilience, quality of care, and global health security.

Achieving the SDG health targets will require new financial investments, increasing over time from an initial US$ 134 billion to US$ 371 billion annually by 2030 (28). Poor-quality care is inefficient, wasting scarce resources and increasing the cost of expanding health coverage. Inefficiencies are introduced by unnecessary care that makes no difference to health outcomes. For instance, in low- and middle-income countries, overuse of antibiotics to treat acute respiratory tract infections adds an average of 36% to the cost of care (29). Errors in service delivery may also lead to direct harm to health, at an extra cost to the health system. A recent analysis of OECD countries indicates that more than 10% of hospital expenditure goes to correcting preventable medical mistakes or treating infections that people catch in hospitals (3). At the 2017 OECD Health Ministerial
Meeting, ministers acknowledged the intersection of the quality and efficiency agendas, agreeing that quality measurement and improvement should be at the centre of efforts to realize health outcomes at a high value for money (30).

Investing in high-quality health systems for universal health coverage has the potential to accelerate progress in promoting health while strengthening global health security and maximizing value for money.

### 3.2 DEFINING QUALITY OF CARE

Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (31). This definition implies that quality of care can be measured, is ultimately aimed at health improvements rather than simply increasing service inputs or refining system processes, and should reflect the desires of key stakeholders, including service users and communities. By including health services in general, this definition of quality of care spans both curative and preventive care, and facility and community-based care for individuals and populations. This scope is particularly important in countries facing an increasing burden of noncommunicable disease and whose health systems must provide services across the life course, including risk reduction, screening, disease management, rehabilitation and palliative care. As there is a steadily growing evidence base on the effectiveness of various modalities for disease prevention and control, this definition of quality of care also acknowledges the need for mechanisms to incorporate new evidence into service delivery systematically.

What characteristics of health services are indicative of quality? This document identifies seven measurable characteristics of health services that increase the likelihood of desired health outcomes and are consistent with current professional knowledge.
While multiple quality elements have been described over decades, there is growing acknowledgement that quality health services across the world should be effective, safe, and people-centred. In addition, in order to realize the benefits of quality health care, health services should be timely, equitable, integrated and efficient (Figure 3.2) (32, 33).

Consider Fatima, an 80-year-old woman who has lived alone, since retiring 15 years ago. She has long-standing type 2 diabetes mellitus, as well as hypercholesterolemia and essential hypertension. She generally stays indoors and takes only occasional walks due to her poor eyesight and recently-developed back pain. Over the past two years, she has twice been admitted to hospital for congestive cardiac failure. She does not monitor her blood pressure or blood glucose as advised, eats convenience foods, and has missed multiple follow-up appointments since her discharge. Today, Fatima has come to the clinic complaining that she is out-of-breath, that her chest feels unusually tight, that she has trouble lying flat. The attending nurse notices that Fatima repeats herself and has trouble finding the right words to describe her symptoms. Over the course of the next four weeks, Fatima will receive care from a myriad of health providers, including a dietician, primary care provider, cardiologist and social worker. The following points illustrate what high-quality health care for Fatima might look like through the lens of the seven elements of quality.

- **High-quality care for Fatima is effective**, thus, it would be offered based on scientific knowledge and evidence-based guidelines. The care team would adhere to clinical pathways for older patients with heart failure and significant comorbidities, developed from evidence and experience in managing similar cases. The team would reassure Fatima that she would be receiving evidence-based care and that a systematic process would be followed to arrive at an integrated management plan across the various providers taking care of her.

- **High-quality care for Fatima is safe**, that is, it minimizes harm, including preventable injuries and medical errors, to the patient. In every facility, there would be clear guidelines to prevent hospital-acquired infections and medical errors. For example, a thorough review of her outpatient medications at admission was made to prevent interactions with medications used during her inpatient care.
• **High-quality care for Fatima is people-centred**, that is, it respects and responds to her preferences, needs and values. Fatima might understandably be worried and ask many questions. The multidisciplinary care team would listen to her questions and concerns, answering patiently, and codevelop the care management plan with her active involvement.

• **High-quality care for Fatima is timely**, that is, it would keep delays in providing and receiving services to a minimum. For example, contact with each provider involved in her care would be managed by an efficient patient flow system for scheduling or modifying visits and for notifying clients of projected waiting times. Situations requiring urgent intervention would be recognized and acted on as quickly as possible. With proper planning, Fatima would not have to experience long waiting times during follow-up visits.

• **High-quality care for Fatima is equitable**, thus, the quality of care she receives would not vary according to personal characteristics such as gender, race, ethnicity, geographical location and socioeconomic status. The services received by Fatima would reflect evidence on the potential health benefits of the treatment only, and nothing else.

• **High-quality care for Fatima is integrated**, thus, the care she receives across facilities and providers would be coordinated. Post-discharge, the social worker would evaluate options to support her care plan, and connect her with agencies that offer dementia-related care and other services as needed.

• **High-quality care for Fatima is efficient**, and therefore avoids waste of resources, including equipment, medicines, energy and ideas. Each of her medical providers would be able to track previous tests and procedures she has undergone via an interoperable electronic medical record system, preventing repetition and waste of resources. Use of generic medicines would be stipulated in the clinical guidelines. Her care would be provided by a cohesive team, each working to their strengths and taking on tasks that match their competencies.

In summary, high-quality health care is the right care, at the right time, in a coordinated way, responding to the service users’ needs and preferences, while minimizing harm and resource waste. High-quality health care ultimately aims at increasing the probability of desired health outcomes. The quest for high-quality health care recognizes that such improvement is a continuous or dynamic rather than a static process. Regardless of the income level of a country, if there is room for improving health outcomes, the quality of care can also be increased.

### 3.3 GLOBAL PICTURE OF HEALTH CARE QUALITY

Assessment of trends in the global state of health care quality requires consensus on the definition and measurement of indicators for quality, comparable across countries. However, there is no dataset with uniformly defined quality indicators collected globally. There is also no agreement on a minimum set of standardized indicators for quality of care to monitor progress towards attainment of the health-related SDGs across countries. However, there is a growing body of work aimed at identifying indicators to support national, regional and international quality improvement efforts, including the OECD Health Care Quality Indicators Project, the World Bank Service Delivery Indicators, the WHO Global Health Observatory, and Demographic and Health Surveys (34–37). Using data from these sources, nationally representative household surveys, and empirical research, the state of quality of health services globally is described below.
This description focuses largely on process and outcome measures of quality of care – that is, actions in health care and the effects of these actions on desired health outcomes. These measures are examined in relation to the seven domains of quality of care: effectiveness, safety, people-centredness, timeliness, integration of care, equity and efficiency. The scientific and policy literature also examines structural measures of quality of care that form the context of service delivery, including equipment, human resources, incentives and organizational characteristics (38). This document considers these structural factors to be foundations of high-quality care processes and outcomes. Chapter 4 addresses the foundations of high-quality care.

### 3.3.1 Are health services effective?

When care is ineffective, that is, when providers do not adhere to evidence-based guidelines, this may reflect a lack of knowledge of guidelines or a lack of compliance regardless of knowledge. The effectiveness of care can be assessed using inspection of medical records, patient exit interviews, direct observation of provider–client interactions, standardized patients or clinical vignettes. While clinical vignettes measure the provider’s knowledge of evidence-based protocols for defined medical cases, other forms of measurement predominantly capture compliance with these guidelines. In particular, standardized patients provide consistent cases of illness to providers and allow for comparison of quality of care across providers. This method of effectiveness measurement is also free from observation and recall bias (39). The differences in prevalent diseases across countries and variations in clinical presentation within diseases prevent systematic comparison of the effectiveness of care across providers and countries. However, there is a growing body of evidence indicating that there are gaps in provider understanding of and compliance with evidence-based guidelines in high-, middle-, and low-income countries. For example, in Kenya, only 16% of providers correctly diagnosed all five patient cases that were presented in clinical vignettes to assess provider knowledge (Figure 3.3) (40). In a study of physicians of the former Yugoslav Republic of Macedonia and the United States of America, the mean percentage of correct diagnosis for four clinical vignettes was 48% and 67% respectively (41). Regardless of the method of measurement, there is also a significant gap between provider knowledge and actual practice in service delivery. This finding holds across countries, including Denmark, India, Kenya, the Netherlands and the United Republic of Tanzania (42–45).

![Figure 3.3](chart.png)

**Number of clinical vignettes correctly diagnosed by Kenyan providers**

<table>
<thead>
<tr>
<th>Number of clinical vignettes</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 case</td>
<td>0.5%</td>
</tr>
<tr>
<td>2 cases</td>
<td>11.5%</td>
</tr>
<tr>
<td>3 cases</td>
<td>30.3%</td>
</tr>
<tr>
<td>4 cases</td>
<td>42.1%</td>
</tr>
<tr>
<td>5 cases</td>
<td>15.6%</td>
</tr>
</tbody>
</table>

Source: Martin and Pimhidzai (41).
3.3.2 Are health services safe?

Patient harm is the 14th leading contributor to the global disease burden. The majority of this burden falls on low- and middle-income countries (Figure 3.4) (14). The main causes of harm differ between settings, including medication and diagnostic errors in primary care, pressure injury and adverse events in long-term care, and hospital-acquired infections and wrong-site surgery in hospital care (46–48). The scale of unsafe events in health services is considerable (14). In addition to the direct cost of treating adverse events, there are additional costs that result from loss of productivity and diminished trust in the health system. Approximately 15% of hospital expenditure and activity in OECD countries is attributed to safety failures. However, many adverse events are preventable. Evidence suggests that more than one in three adverse events in low- and middle-income countries occurs in non-complex situations and up to 83% may be preventable (49). The costs of safety failures also far exceed the cost of prevention. Improving patient safety in Medicare hospitals in the United States is estimated to have saved US$ 28 billion between 2010 and 2015.

![Figure 3.4](image)

**Figure 3.4** Burden of disease caused by adverse events, 2015

**Note:** Percentage of average DALYs/country.

**Source:** Institute of Health Metrics and Evaluation, 2015.

3.3.3 Are health services people-centred?

The degree to which the needs and preferences of service users are systematically incorporated into health services differs between high-, middle-, and low-income countries. Health systems in high-income countries have introduced measures and institutions to monitor patient experiences and perceptions on their specific medical conditions and general health. While expectations and approaches to people-centred care vary between countries, most service users in OECD countries report a positive experience with regard to time spent with the provider, easy-to-understand explanations, opportunities to raise concerns, and involvement in their care (Figure 3.5) (50). Attention to respectful, compassionate and otherwise people-centred care is not as prevalent in low- and middle-income countries. For example, a growing body of research on respectful maternity care indicates that women experience poor interactions with health care providers and exclusion from care decision-making, and are often not informed about the details of their care (51, 52).
3.3.4 Are health services timely?

Waiting times for elective and emergency procedures have been shown to predict satisfaction among service users (53–55). In emergency situations, delays in receiving appropriate treatment may also lead to preventable deaths (56). Nonetheless, waiting times for different health services vary across OECD countries. For example, in 2015, the mean waiting time for hip replacement was around 42 days in the Netherlands, but 290 days in Estonia and over 400 days in Chile and Poland. Time trends show that reductions in waiting time have been experienced in Finland and New Zealand while this trend has converged in recent years, with relative stability in rates since 2008 in many countries, such as Denmark and the United Kingdom of Great Britain and Northern Ireland (Figure 3.6) (2). Much less work has been done to compare service delays across low- and middle-income countries. Empirical research from individual countries indicates that waiting times are relatively long. For example, in a study of an emergency department in Barbados, a median of 10 minutes was required for triage, 213 minutes for laboratory results, and 178 minutes to be seen by a doctor (57). Also, in an outpatient department in Nigeria, 74% of service users waited between 60 and 120 minutes to be registered and additional time to see a service provider (58).
3.3.5 Are health services equitable?

Gaps exist in health care quality everywhere in the world, but they are even more serious for disadvantaged populations. The United States National Healthcare Disparities Reports have tracked the quality of care since 2010. In 2015, half of the quality measures showed no change or had worsened amongst low-income populations. More than half of the quality measured showed no change or had worsened for rural populations (59). In Canada, patients with myocardial infarction from indigenous groups were less likely to have received recommended treatment, including cardiac angiography and revascularization procedures (60). In Kenya, the quality of maternal health services is lowest in impoverished counties, where only 17% of women had access to minimally adequate delivery care (Figure 3.7) (61). Also, in India, people who live in households of low socioeconomic status in poor communities are less likely to use knowledgeable health care providers (62).
3.3.6 Are health services integrated?
With emerging chronic and noncommunicable diseases, more people are living with multiple and complex chronic conditions that require coordination of care across all levels and throughout their life course. Continuity of care and care coordination can improve the care experience of people living with such conditions and support needs. However, substantial gaps in the coordination of health care exist, even in high-income countries. A survey of patients with complex care needs in 11 high-income countries found coordination problems, such as test results or records not available at appointment or duplicate tests ordered, providers failing to share important information with each other, and specialists not having information about medical history or regular doctors not informed about specialist care (63). An analysis of linked primary care and secondary care data on older adults (aged 62–82 years) from 200 general practices in England reported that patients who saw the same general practitioner a greater proportion of the time experienced fewer admissions to hospital for ambulatory care sensitive conditions (64).

3.3.7 Are health services efficient?
The World health report 2010 estimated that about 20–40% of all health sector resources are wasted (65). The leading causes of inefficiency in service delivery include inappropriate medicine use, suboptimal human resources mix, overuse or oversupply of equipment, corruption, and underuse of infrastructure. Unwarranted geographical variation in the prevalence of procedures and care intensity provides an indirect estimate of overuse and hence inefficiency. For example, in India, the rates of antibiotic use for acute diarrhoea in public facilities is 43% but rises to 69% in private facilities. Also, there is a ninefold variation in the use of percutaneous coronary interventions internationally and a fivefold variation in the use of coronary bypass grafting across OECD countries (66). These differences are not explained by the variation in the cardiovascular disease burden. Inefficient health care due to overuse and other causes has negative implications for population health outcomes. Life expectancy at birth could be raised by more than two years on average in OECD countries while holding health care spending constant if all countries were to become as efficient as the best performers (67).

3.4 CONCLUSION
Despite the substantial increase in access to essential health services achieved during the MDG era, there are high levels of preventable mortality and morbidity that can be addressed through quality efforts. For example, the remaining burden of maternal and child mortality in low- and middle-income countries is largely due to the poor quality of health services. The SDGs explicitly incorporate a focus on the quality of health services in attaining universal health coverage in all countries.

High-quality health services involve the right care, at the right time, responding to the service users’ needs and preferences, while minimizing harm and resource waste. Quality health care increases the likelihood of desired health outcomes and is consistent with seven measurable characteristics: effectiveness, safety, people-centredness, timeliness, equity, integration of care and efficiency. Regardless of the income level of a country, if there is room for improving health outcomes, the quality of care can also be increased.

Efforts to monitor trends in health care quality for the SDG agenda will be ineffective in the absence of consensus on key indicators that are comparable across countries and are collected on a regular basis. Empirical evidence from the growing body of work on quality measurement indicates that there are gaps globally in all the domains of quality health services. These gaps present opportunities to improve the quality of care and the health of populations.