Delivering quality health services

A global imperative
for universal health coverage

Delivering quality health services: a global imperative for universal health coverage

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Preface

The Sustainable Development Goals (SDGs) reaffirm a global commitment to achieve universal health coverage (UHC) by 2030. This means that all people and communities, everywhere in the world, should have access to the high-quality health services they need – promotive, preventive, curative, rehabilitative, or palliative – without facing financial hardship.

The way we typically measure progress in UHC is through effective coverage of essential health services and financial protection (ensuring that no one becomes impoverished because of ill-health). But even if the world achieved essential health coverage and financial protection, health outcomes would still be poor if services were low-quality and unsafe. Delivering quality health services is essential to UHC. That is the focus of this report.

Evidence suggests that substandard care wastes significant resources and harms the health of populations, destroying human capital and reducing productivity. Quality of care, especially patient safety, is essential to creating trust in health services. It is also key to global health security, which starts with local health security, and in turn depends on high-quality frontline health services. Quality health services not only prevent human suffering and ensure healthier societies, they also ensure better human capital and healthier economies.

Too often, quality is perceived as a luxury that only rich countries can afford. This is a fallacy. Building quality health services requires a culture of transparency, engagement, and openness about results, which are possible in all societies – regardless of their income level. Around the world, lessons abound on what works and what does not, providing a rich foundation from which to rapidly scale up a quality revolution. Technological innovation plays a key role in offering new ways to expand high-quality health care services more rapidly, and at an affordable cost.

A focus on people-centredness has to be the core of quality. People and communities must be engaged in the design, delivery, and ongoing assessment of health services to ensure they are built to meet local health needs – rather than those of donors, commercial or political interests, or because "it's always been done that way". Focusing on quality is critical, but leadership must also focus on celebrating excellence; communicating transparently; and fostering collaboration across clinical teams, as well as with patients, and civil society – including patient groups, nongovernmental organizations, and grassroots community groups.

Universal health coverage is not a dream for the future. It is already a reality in many countries; however, without quality health services, it can remain an empty promise. This foundational report builds a strong technical and political case for investing in quality health services. The collective prize is a healthier, safer and fairer world.

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Abbreviations

CAIS	centres for integrated health care (centros de atención integral en salud)
CDS	clinical decision support
DALY	disability-adjusted life-year
EBAIS	integrated health care basic teams (equipos básicos de atención integral de salud)
EuroHOPE	European Health Care Outcomes, Performance and Efficiency (project)
HTA	health technology assessment
MDG	Millennium Development Goal
OECD	Organisation for Economic Co-operation and Development
P4P	pay for performance
SDG	Sustainable Development Goal
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Executive summary

This document – *Delivering quality health services: a global imperative for universal health coverage* – describes the essential role of quality in the delivery of health care services. As nations commit to achieving universal health coverage by 2030, there is a growing acknowledgement that optimal health care cannot be delivered by simply ensuring coexistence of infrastructure, medical supplies and health care providers. Improvement in health care delivery requires a deliberate focus on *quality* of health services, which involves providing effective, safe, people-centred care that is timely, equitable, integrated and efficient. 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*.

Data show that quality of care in most countries, particularly low- and middle-income countries, is suboptimal, as revealed by the following examples.

- Adherence to clinical practice guidelines in eight low- and middle-income countries was below 50% in several instances, resulting in low-quality antenatal and child care and deficient family planning.
- The Service Delivery Indicators initiative in seven low- and middle-income countries showed significant variation in provider absenteeism (14.3–44.3%), daily productivity (5.2–17.4 patients), diagnostic accuracy (34–72.2%), and, adherence to clinical guidelines (22–43.8%).
- A systematic review of 80 studies showed that suboptimal 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 (OECD) data from high- and middle-income countries show that 19–53% of women aged 50–69 years did not receive mammography screening, and that 27–73% of older adults (age 65 years and above) did not receive influenza vaccination.

BETTER HEALTH OUTCOMES THROUGH IMPROVEMENT IN QUALITY

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. For instance, in Pakistan, increasing first-contact accessibility to health care workers through the Lady Health Worker Programme improved management of pneumonia and lowered neonatal mortality.

BUILDING QUALITY MECHANISMS INTO THE FOUNDATIONS OF HEALTH CARE SYSTEMS

The five foundational elements critical to delivering quality health care services are health care workers; health care facilities; medicines, devices and other technologies; information systems; and financing. To ensure that quality is built into the foundations

of systems, governments, policy-makers, health system leaders, patients and clinicians should work together to:

- ensure a high-quality health workforce;
- ensure excellence across all health care facilities;
- ensure safe and effective use of medicines, devices and other technologies;
- ensure effective use of health information systems;
- develop financing mechanisms that support continuous quality improvement.

INTERVENTIONS TO IMPROVE QUALITY OF CARE

Quality is a complex and multifaceted concept that requires the design and simultaneous deployment of combinations of discrete interventions. The development, refinement and execution of a national quality policy and strategy is a growing priority as countries strive to systematically improve health system performance. Most approaches to national quality strategy development involve one or more of the following processes:

- a quality policy and implementation strategy as part of the formal health sector national plan;
- a quality policy document developed as a stand-alone national document, usually within a multistakeholder process, led or supported by the ministry of health;
- a national quality implementation strategy – with a detailed action agenda – which also includes a section on essential policy areas;
- enabling legislation and regulatory statutes to support the policy and strategy.

Seven categories of interventions stand out and are routinely considered by health system stakeholders, including providers, managers and policy-makers, when trying to improve the quality of the health care system:

- changing clinical practice at the front line;
- setting standards;
- engaging and empowering patients, families and communities;
- information and education for health care workers, managers and policy-makers;
- use of continuous quality improvement programmes and methods;
- establishing performance-based incentives (financial and non-financial);
- legislation and regulation.

Selection by governments of a range and mix of quality interventions should be done by carefully examining the evidence-based quality improvement interventions in relation to the system environment; reducing harm; improvement in clinical care; and patient, family and community engagement and empowerment.

SHARING OF LESSONS LEARNED FOR SCALE-UP OF SUCCESSFUL INTERVENTIONS

Several nations are developing innovations to improve the different aspects of quality. As described in this document, many low- and middle-income countries have developed successful interventions, but require a global platform to share knowledge. This will allow nations to learn from successful interventions and adapt them to their local populations. It will also allow nations to avoid directing efforts towards unsuccessful interventions.

Improving quality of care has proven challenging for all nations. However, providing quality care to people everywhere remains the most important shared responsibility and opportunity to improve the health of people globally. With a deliberate emphasis on quality, nations will be able to make significant progress towards achieving the Sustainable Development Goals and attaining universal health coverage.

CALL TO ACTION

This document, from the perspective of three global institutions concerned with health – OECD, the World Bank and the World Health Organization – proposes a way forward for health policy-makers seeking to achieve the goal of access to high-quality, people-centred health services for all.

High-level actions are called for from each of the key constituencies that need to work together with a sense of urgency to enable the promise of the Sustainable Development Goals for better and safer health care to be realized.

All governments should:

- have a national quality policy and strategy;
- demonstrate accountability for delivering a safe high-quality service;
- ensure that reforms driven by the goal of universal health coverage build quality into the foundation of their care systems;
- ensure that health systems have an infrastructure of information and information technology capable of measuring and reporting the quality of care;
- close the gap between actual and achievable performance in quality;
- strengthen the partnerships between health providers and health users that drive quality in care;
- establish and sustain a health professional workforce with the capacity and capability to meet the demands and needs of the population for high-quality care;
- purchase, fund and commission based on the principle of value;
- finance quality improvement research.

All health systems should:

- implement evidence-based interventions that demonstrate improvement;
- benchmark against similar systems that are delivering best performance;
- ensure that all people with chronic disease are enabled to minimize its impact on the quality of their lives;
- promote the culture systems and practices that will reduce harm to patients;
- build resilience to enable prevention, detection and response to health security threats through focused attention on quality;
- put in place the infrastructure for learning;
- provide technical assistance and knowledge management for improvement.

All citizens and patients should:

- be empowered to actively engage in care to optimize their health status;
- play a leading role in the design of new models of care to meet the needs of the local community;
- be informed that it is their right to have access to care that meets achievable modern standards of quality;
- receive support, information and skills to manage their own long-term conditions.

All health care workers should:

- participate in quality measurement and improvement with their patients;
- embrace a practice philosophy of teamwork;
- see patients as partners in the delivery of care;
- commit themselves to providing and using data to demonstrate the effectiveness and safety of the care.

While no single actor will be able to effect all these changes, an integrated approach whereby different actors work together to achieve their part will have a demonstrable effect on the quality of health care services around the world.

Chapter 1

Background: striving for quality in health care services
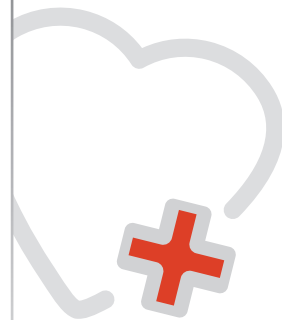
Universal health coverage is an important and noble objective. Enshrined in the Sustainable Development Goals (SDGs), universal health coverage aims to provide health security and universal access to essential care services without financial hardship to individuals, families and communities, thus enabling a transition to more productive and equitable societies and economies.

But universal health coverage should not be discussed and planned, let alone implemented, without a focus on quality. It is essential to ensure that care is effective, safe, and in keeping with the preference and needs of the people and communities being served. Further, provision of care should be timely and equitable across populations, coordinated across the continuum of care and throughout the life course, while minimizing resource waste.

Quality of care therefore underpins and is fundamental to universal health coverage. For if *quality* of care is not ensured, what is the point of expanding *access* to care? Access without quality can be considered an empty universal health coverage promise.

Quality is not a prerogative of high-income countries. If countries can afford to provide any health care – and even the poorest can and should do so – they must provide care of good quality. The alternative – poor-quality care – is not only harmful but also wastes precious resources that can be invested in other important drivers of social and economic development to improve the lives of citizens. Billions of dollars are spent on the consequences of poor-quality care – money that can fund schools, social services and infrastructure. And poor quality can also undermine the trust of the population in the benefits of modern medicine. Seen this way, universal health coverage without quality of care is a job half done.
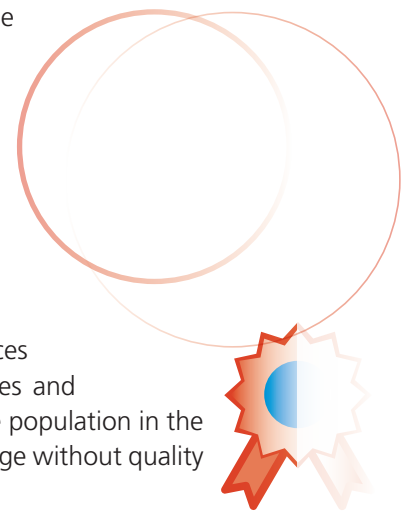
1.1 WIDESPREAD EVIDENCE OF POOR QUALITY IN ALL COUNTRIES

Much progress has been made in improving some aspects of quality of health care across the world, for example with regard to cancer survival rates and mortality from cardiovascular diseases *(1, 2)*. But in other areas, progress has been slow and uneven. The numbers speak for themselves.

- In high-income countries, one in 10 patients is adversely affected during treatment *(3)*.
- In high-income countries, seven in 100 hospitalized patients can expect to acquire a health care-associated infection (in developing countries this figure is one in 10), infections that can be easily avoided through better hygiene and intelligent use of antimicrobials *(4)*.
- Unwarranted variations in health care provision and delivery persist, and a considerable proportion of patients do not receive appropriate, evidence-based care *(5, 6)*.
- Influenza vaccination rates vary across high-income countries from 1% to over 78%, despite a goal of 75% by 2010 set by the World Health Assembly in 2003 *(7)*.
- Antimicrobial resistance has become a major global public health issue, partly due to the misuse and overuse of antimicrobials in health care *(8)*.
- Globally, the cost associated with medication errors has been estimated at US$ 42 billion annually, not counting lost wages, foregone productivity or health care costs *(9)*.

- While the rate of skilled birth attendance increased from 58% in 1990 to 73% in 2013, mainly due to increases in facility-based births, there are still many women and babies who, even after reaching a health facility, die or develop lifelong disabilities due to poor quality of care. The World Health Organization (WHO) estimates that 303 000 mothers and 2.7 million newborn infants die annually around the time of childbirth, and that many more are affected by preventable illness. Further, some 2.6 million babies are stillborn each year *(10, 11)*.

- Nearly 40% of health care facilities in low- and middle-income countries lack improved water and nearly 20% lack sanitation – the implications for quality of care are clearly evident *(12)*.

- Cross-country estimates of the distribution of diagnosis and control of raised blood pressure in selected countries outside the OECD highlights the importance of quality preventive services. In most, at least half of the adults with raised blood pressure have not been diagnosed with hypertension. Hypertension treatment coverage is therefore low, ranging from 7% to 61% among people who have presented with raised blood pressure in the household surveys. However, effective coverage is considerably lower than coverage, ranging from 1% to 31%, indicating a quality issue *(13)*.

1.2 THE ECONOMIC ARGUMENT FOR GOOD QUALITY

Beyond the effects on people's lives, poor-quality care wastes time and money. Making quality an integral part of universal health coverage is both a matter of striving for longer and better lives and an economic necessity. Building quality in health systems is affordable for countries at all levels of economic development. In fact, the *lack* of quality is an unaffordable cost, especially for the poorest countries.

Substandard quality of care not only contributes to the global disease burden and unmet health needs, it also exerts a substantial economic impact, with considerable cost implications for health systems and communities across the world. Approximately 15% of hospital expenditure in high-income countries is used to correct preventable complications of care and patient harm. Poor-quality care disproportionately affects the more vulnerable groups in society, and the broader economic and social costs of patient harm caused by long-term disability, impairment and lost productivity amount to trillions of dollars each year *(14)*.

In addition, duplicate services, ineffective care and avoidable hospital admissions – features of many health systems – generate considerable waste. Up to a fifth of health resources are deployed in ways that generate very few health improvements. These scarce resources could be deployed much more effectively *(3)*.

1.3 QUALITY AS A FUNDAMENTAL FEATURE OF UNIVERSAL HEALTH COVERAGE

Quality does not come automatically; it requires planning, and should be a clearly identified priority of universal health coverage, along with access, coverage and financial protection. This document shows that building quality into health systems is possible if a number of steps are followed and principles applied, namely transparency, people-centredness, measurement and generation of information, and investing in the workforce, all underpinned by leadership and a supportive culture. With these fundamentals in place, proven interventions and practices to ensure quality – such as hand hygiene, treatment protocols, checklists, education, and reporting and feedback – can be implemented and sustained.

Transparency is paramount. It is the bedrock of continuous learning and improvement. The overarching conclusion from 15 reviews of quality in national health systems conducted by OECD between 2012 and 2016 was the need for greater transparency about performance in terms of quality and outcomes of care *(15)*. A key component of transparency is being open and honest about results, including lapses and mistakes. In such an environment these become opportunities to learn, as is the case in other sectors, including air transport. Successful outcomes should be celebrated and shared for the same reasons. This culture of transparency can take time to build, but it can and must be instilled in all health systems, regardless of resources available.

Involving people and communities in their own care and in the design of their health services is now recognized as a key determinant of better outcomes. People and the communities in which they are born, raised, live, work and play are at the heart of delivering quality health services. People who are actively engaged in their own health and care suffer fewer complications and enjoy better health and well-being. At the clinical level, this means enabling patients to partner in their care and in clinical decisions, and to actively manage their health. People-centredness is the "doorway to all qualities" *(16)*. Indeed, the common thread of success stories detailed later in this document is putting the patient's needs and values front and centre. This means caring with compassion and respect.

But people-centredness goes beyond individual care. People and patients should be involved in priority setting and in policy development. Nowhere is this more important than in primary and community care. These services need to be designed with input from the communities that they serve, based on their unique needs and preferences, as discussed in Chapter 4 of this document.

Quality requires **measurement and generation of information.** Health care is changing all the time, so quality needs to be continually monitored and assessed to drive improvement. This relies on accurate and timely information. The banking industry devotes 13% of its income to information systems. Health care invests less than 5% – a paltry amount for an information-intense sector. And when they exist, the data generated by health systems are too often concentrated on inputs and volume of activities. This needs to change if quality is to become a routine part of health care. Reliable quality metrics must be embedded in local and national health information infrastructures – this is even more important than measuring inputs. In the spirit of transparency, information must be available to all relevant actors, including patients, providers, regulators, purchasers and policy-makers.

All dimensions of quality should be measured. It is important to know about adherence to essential protocols and the quality of processes and pathways, for example hand hygiene; surgical safety checklists; adherence to clinical practice guidelines; and clinical outcomes, for example readmissions, mortality rates, adverse drug reactions, survival after a diagnosis of cancer and adequate control of glycaemia during pregnancy. But knowledge must also be generated on the outcomes and experiences of care that are valued by patients through the measurement of patient- and community-reported quality indicators *(17)*. All this needs to be done with a clear eye on strong linkages between measurement and improvement – measuring alone will not improve quality.

A skilled, motivated and adequately supported health workforce is critical. Health care providers want to deliver the best possible care to their patients. Often, however, the systems and environments they work in make this task difficult. Many countries face significant deficiencies in both the quantity and quality of their health

workforce. Of course, not all care should be delivered by doctors. Nurses, allied and community health workers, care coordinators and managers all play important roles in delivering high-quality care in the 21st century. It is possible to achieve high quality by leveraging their skills throughout the chain of health production *(18)*.

In providing high-quality care, technical knowledge needs to be augmented by the ability to communicate and work as a team with other professionals, and to partner with patients and their carers. It also requires a workforce trained in the principles and practice of continuous quality improvement, as well as recognition of the "hidden curriculum" that arises from the fallibility of human-designed systems. Quality is also a function of how well efforts are organized and integrated with other sectors, taking account of patterns of behaviour, human interaction and relationships. This in turn depends on the incentives that are in place, including funding and remuneration, regulation, reporting and feedback, which need to be carefully built into all processes and institutions. In the end, systems provide the fertile soil in which high-quality practice and improvement can bloom.

None of the above is possible without **leadership and an enabling culture**. A buoyant culture in which all actors are motivated to collaborate, communicate and work with their communities to deliver high-quality people-centred care, without fear or intimidation, has been shown to deliver better outcomes *(19)*. Many factors influence such a culture of continuous quality improvement. First and foremost, a transparent environment should be cultivated, as described above. Also important are training and socialization of workers, improvement measures, feedback on performance, and shared learning, as well as upstream factors such as financial incentives. But the key ingredient is consistency of leadership from governments, policy-makers, clinical leaders, health system managers and civil society. This does not require a high level of resources – it rather requires investment in a culture shift towards transparency for continuing improvement.

These fundamentals provide the backbone for policies and practices to continually improve health care quality. But quality must be the responsibility of all stakeholders and institutions. It must be supported by a crystal-clear national strategic direction, with well defined objectives and goals, and strong stakeholder engagement across the entire health system, as well as with other sectors.

1.4 AFFORDABILITY OF QUALITY FOR ALL COUNTRIES

While high-quality health care for all may seem ambitious, it can be achieved in all settings with good leadership, robust planning and intelligent investment. For example, in Uganda a model involving citizens and communities in the design of health care services has improved a range of indicators, including a 33% reduction in child mortality *(20)*. Costa Rica has achieved remarkable improvements in primary care quality through a carefully planned, implemented and resourced improvement strategy *(21)*. These and other examples are provided later in this document.

For low- and middle-income countries, addressing quality while building universal health coverage is a huge opportunity. A health system that is maturing and becoming established can be influenced, steered and nurtured in the desired way. Quality can be embedded into policies, processes and institutions as the system grows and develops.

The challenge is how to learn from the experiences – both the successes but also (and especially) the mistakes – of health systems in high-income countries. A key lesson is that retrofitting quality into established health systems is certainly possible but can be arduous; rather, quality must be built in from the start, along with access, coverage and financial protection.

Of course, quality care cannot be conjured up entirely for free – it requires some investment of capital and other resources. This investment is not beyond reach, even for the poorest countries. The costs of poor quality to people's lives, to health systems and to societies are massive. If applied intelligently, investment in quality will deliver better individual and population health, and value for money; the return on investment in ensuring high-quality care is likely to far outweigh the costs. Better outcomes also further economic and social development; for example, healthier people are more productive at work, and healthier children perform better at school. So striving for *universal quality* health coverage is not just an investment in better health – it is a commitment to building a healthier society and a healthier world.

My Quality

Ms Cecilia Rodriguez, Executive Director
'Me Muevo' Foundation

Eight years ago, when she was diagnosed with rheumatoid arthritis, an autoimmune disease that causes inflammation, swelling and acute pain in the joints, Cecilia Rodriguez was Director of a primary health care facility. "I had very bad rheumatoid arthritis and spent a lot of time in bed," says Rodriguez, who was in her thirties when she first experienced the painful symptoms. "I realized that what I had been promoting as a health administrator was very different from what I needed as a patient."

Rheumatoid arthritis touches people of all ages. Its exact causes are not known, but genetic and environmental factors may play a role. Up to 1% of the world's population is affected.[1] In Chile, where Rodriguez lives, 100 000 people are living with this lifelong condition.

For people with chronic diseases, quality health care can be defined as "an accurate equilibrium between clinical best practices and what is best for the patient, determined with the patient," Rodriguez explains. "We don't always need doctors who have all the answers. We need people who understand how we are coping with our condition."
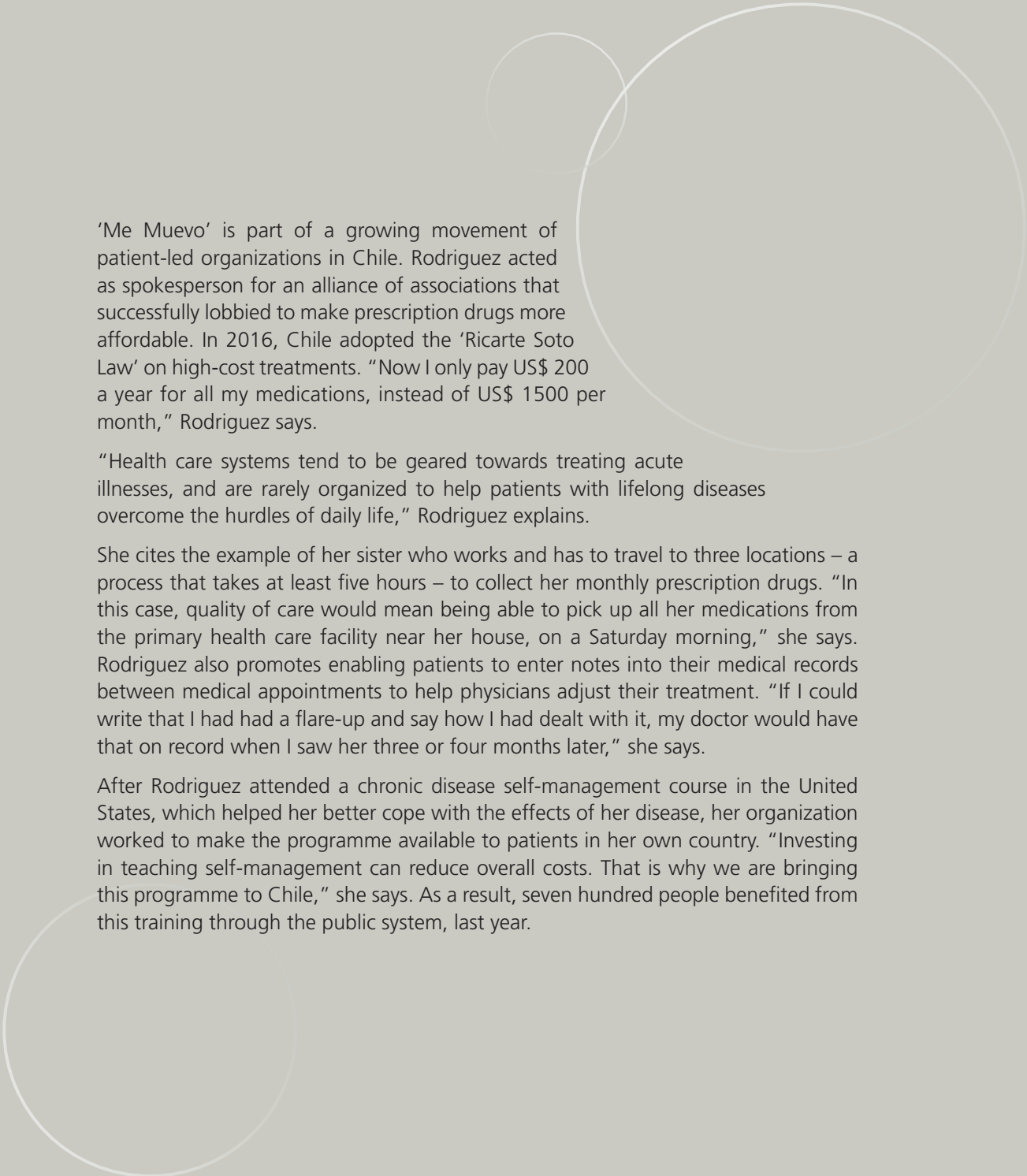
Above all, she believes patients suffering from chronic conditions that have a huge impact on daily life need to feel in control of their treatment. "As a patient, I know what I want to achieve. Clinicians can help me understand if I can achieve it and help me do so. For me, that's the best quality of health care."

Cecilia Rodriguez and her sister Lorena, who had been diagnosed with rheumatoid arthritis a few years earlier, established a non-profit organization to support people affected by the same condition and advocate for improved patient care. "We called the NGO 'Me Muevo' ('I move') because we learned that with this condition you have to keep your body moving, but also because 'I move' means 'I take action'", she says.

1. www.rheumatoidarthritis.org.

'Me Muevo' is part of a growing movement of patient-led organizations in Chile. Rodriguez acted as spokesperson for an alliance of associations that successfully lobbied to make prescription drugs more affordable. In 2016, Chile adopted the 'Ricarte Soto Law' on high-cost treatments. "Now I only pay US$ 200 a year for all my medications, instead of US$ 1500 per month," Rodriguez says.

"Health care systems tend to be geared towards treating acute illnesses, and are rarely organized to help patients with lifelong diseases overcome the hurdles of daily life," Rodriguez explains.

She cites the example of her sister who works and has to travel to three locations – a process that takes at least five hours – to collect her monthly prescription drugs. "In this case, quality of care would mean being able to pick up all her medications from the primary health care facility near her house, on a Saturday morning," she says. Rodriguez also promotes enabling patients to enter notes into their medical records between medical appointments to help physicians adjust their treatment. "If I could write that I had had a flare-up and say how I had dealt with it, my doctor would have that on record when I saw her three or four months later," she says.

After Rodriguez attended a chronic disease self-management course in the United States, which helped her better cope with the effects of her disease, her organization worked to make the programme available to patients in her own country. "Investing in teaching self-management can reduce overall costs. That is why we are bringing this programme to Chile," she says. As a result, seven hundred people benefited from this training through the public system, last year.

Chapter 2

About this document

Recognizing the global gap in understanding, measuring and improving quality of health care services, WHO, OECD and the World Bank have joined efforts to produce this document – *Delivering quality health services: a global imperative for universal health coverage.*

2.1 **OBJECTIVES**

This document has been developed with the following objectives:

- to provide governments with a description of the quality of health services and their importance to achieving broad public health goals, within the context of universal health coverage;
- to provide governments with a picture of evidence-based approaches that can ensure and improve quality of health services;
- to make a call for action at national and international levels.

2.2 **SCOPE**

This document is intended for policy-makers who want to bring the fundamentals of health care quality improvement into their health systems. Therefore, it looks at the quality of health care services at the foundation. The document does not aim to provide technical guidance for front-line health care professionals, though they may find useful information herein. Nor does it examine the implications of quality for specific technical areas.

2.3 **CONTENT**

The document begins with a chapter on the background to quality in health care services (Chapter 1), followed by a brief description of the document (Chapter 2). The main body of the publication comprises three chapters on key quality themes (Chapters 3–5), followed by a quality call to action in Chapter 6.

- **Chapter 3: Global state of health care quality.** In this chapter a global picture of quality in health care services is provided. Data are presented to show that quality of care in most countries, particularly low- and middle-income countries, is suboptimal, and improvement in quality is associated with better health outcomes.

- **Chapter 4: Building quality into the foundations of health systems.** This chapter describes how mechanisms to assure, monitor and continually improve quality must be built into the foundations of health systems, and addresses key issues that require attention to improve the quality of health care at country level.

- **Chapter 5: Understanding levers to improve quality.** Quality is a complex and multifaceted concept that requires the design and simultaneous deployment of combinations of discrete interventions. This chapter highlights the importance of driving quality improvement through national policy and strategy and presents a range of levers for quality improvement.

- **Chapter 6: The quality call to action.** A quality call to action is put forward to health policy-makers seeking to achieve the goal of access to high-quality, people-centred health services for all. This is offered with a sense of urgency, for if we do not act now, achievement of public health goals will be at stake.

Those chapters are followed by an annex, which provides a set of improvement interventions that have been selected for their potential impact on quality by reducing harm, improving front-line delivery of health care services, and building systemwide capacity for quality improvement. The illustrative interventions point to some of the options and possibilities available to health system leaders, managers, practitioners or policy-makers intent on advancing quality of care.

Chapter 3

Global state of health care quality

> **"What good does it do to offer free maternal care and have a high proportion of babies delivered in health facilities if the quality of care is substandard or even dangerous?"**
>
> Margaret Chan, former WHO Director-General, World Health Assembly, May 2012

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).

Figure 3.1 **Median under-5 mortality across dimensions of inequality, 2005–2012***
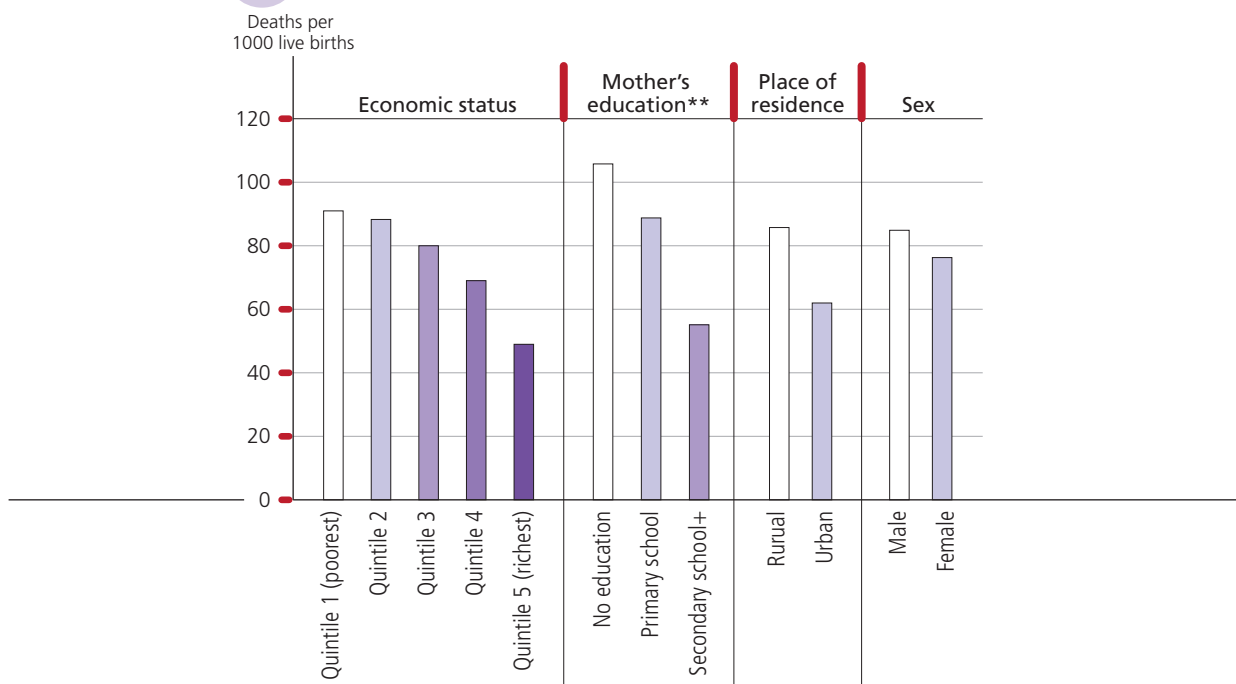
* Median value of 49 selected countries
** Data are not available for 10 countries
Source: World Health Organization *(22)*.

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
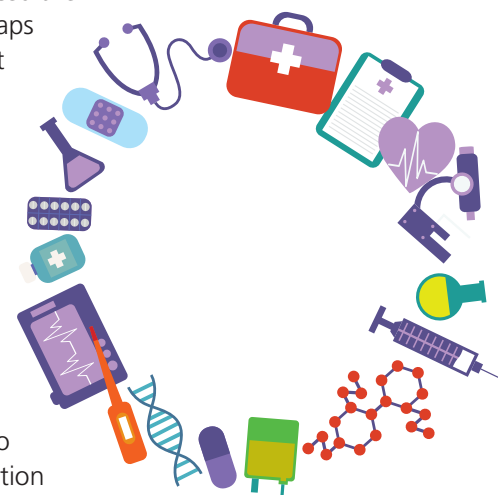
Box 3.1 **Liberia: embedding quality in the post-Ebola health agenda**

Before the 2014 Ebola outbreak, Liberia, a country recovering from years of political and economic instability, had made progress in improving the health outcomes of its population. However, the outbreak highlighted persistent health system constraints in this small West African nation. There was a lack of an adequately skilled health workforce in health facilities and within communities; there were no sustainable financing mechanisms; and there was an absence of necessary supply chain structures and integrated health information systems. In addition, infection prevention and control was largely absent where most needed, and linkages between health services and the community were inadequate. These weaknesses compromised the provision of quality service delivery and allowed the epidemic to proliferate rapidly.

In response to the outbreak, the Investment Plan for Building a Resilient Health System in Liberia 2015–2021 was developed. The plan aimed to restore the gains lost in the outbreak, tackle pre-existing vulnerabilities, improve community confidence in health systems, and provide health security. A key strategic aim of the Investment Plan is to accelerate universal access to safe and quality services through improving the capacity of the health network for the provision of essential services. The Government of Liberia recognizes that successful implementation of the Investment Plan – including a strong focus on quality of care – is essential to prevent, to detect, and to respond to future infectious disease outbreaks.

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.

Figure 3.2 **Elements of health care quality**

Source: Institute of Medicine *(32)*.

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. She has has also mentioned having difficulty keeping track of her monthly bills. 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 **Number of clinical vignettes correctly diagnosed by Kenyan providers** (total number of vignettes: five)
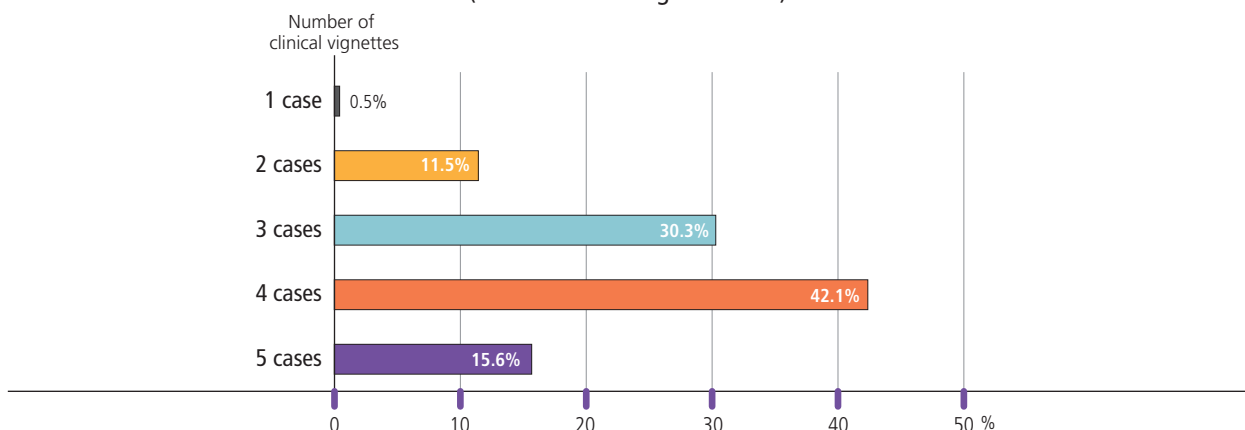
Source: Martin and Pimhidzai *(41)*.

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 **Burden of disease caused by adverse events, 2015**
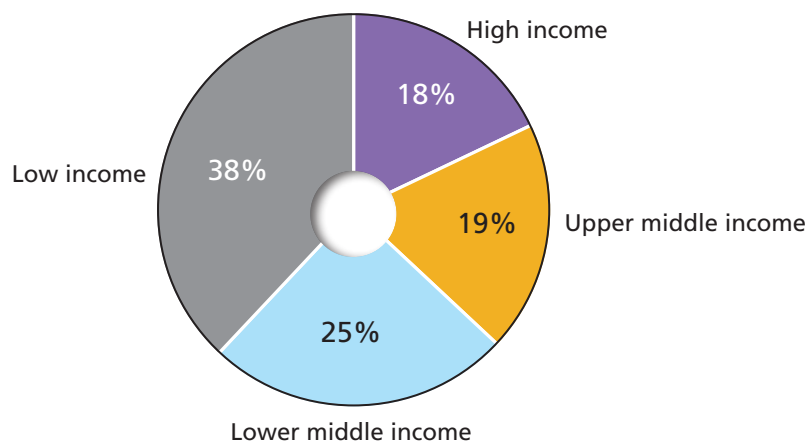
Note: Percentage of average DALYs/country.
Source: Institute of Health Metrics and Evaluation, 2015.

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)*.

Figure 3.5 Doctor providing easy-to-understand explanations (2013 or nearest year)

Country	Rate
Luxembourg[1]	95.5
Belgium[1]	95.1
Portugal[1]	90.9
New Zealand[1]	88.2
United Kingdom[2]	88.0
Germany[2]	87.7
Australia[2]	86.0
United States[2]	83.9
Netherlands[2]	83.9
Norway[2]	83.3
Canada[2]	83.0
Czech Republic[1]	81.8
Switzerland[2]	81.4
OECD19	**81.3**
Sweden[2]	80.5
Israel[1]	79.7
France[2]	78.8
Estonia[1,2]	67.4
Spain[1,2]	62.1
Poland[1,2]	47.9

Age-standardized rates per 100 patients
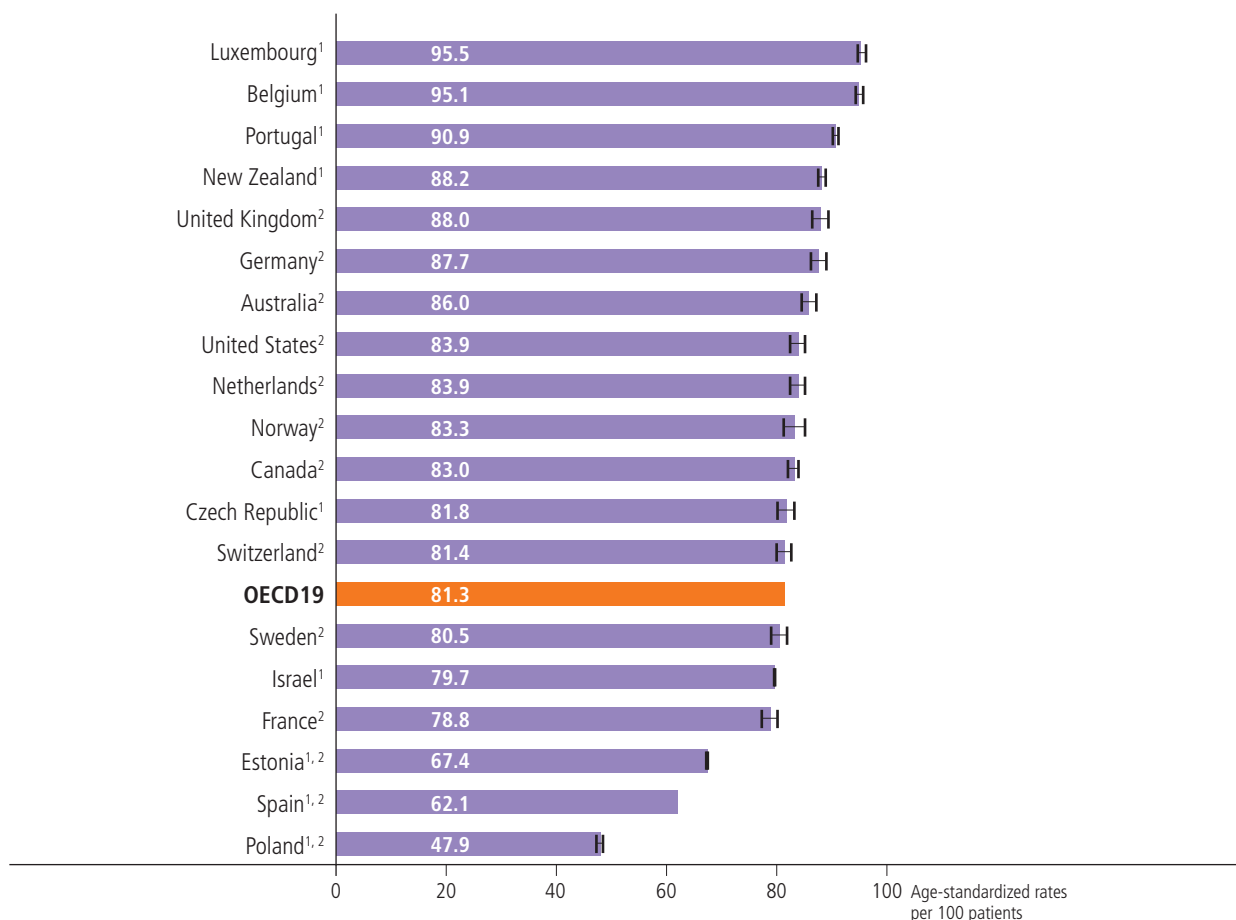
Note: 95% confidence intervals represented by ⊢.
1. National sources.
2. Data refer to patient experiences with regular doctor.
Source: Commonwealth Fund International Health Policy Survey 2013 and other national sources.

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)*.

Figure 3.6   **Trends in average waiting times for hip replacement**

Days

— Finland
— United Kingdom
— New Zealand
— Denmark
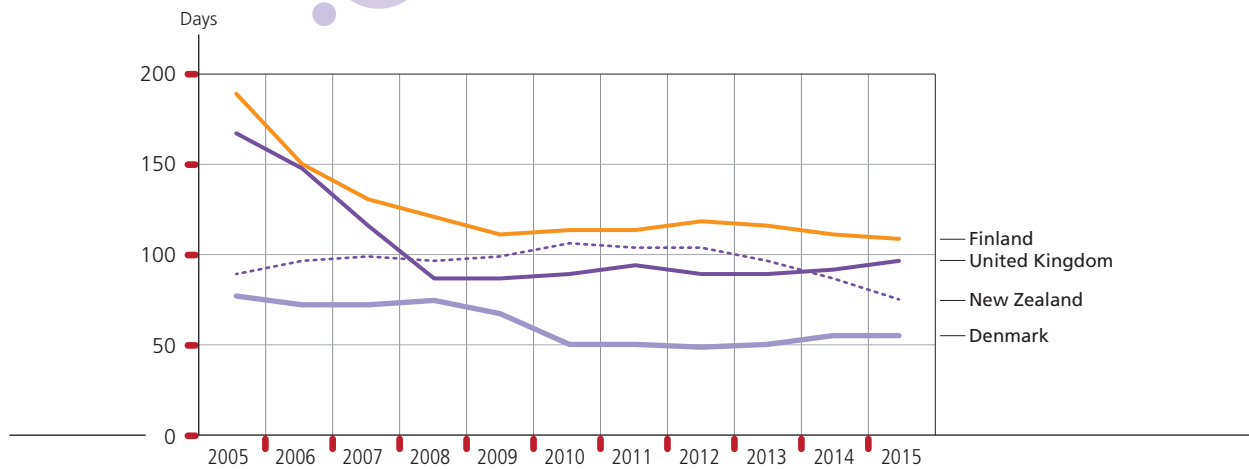
Source: Health at a glance 2017 *(2)*.

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)*.

Figure 3.7   **Structural and process quality of maternal services by county poverty level in Kenya**

Quality score

Quality of maternal care infrastructure
Quality of antenatal care
Quality of delivery care

☐ 80%+ poverty
☐ 60-80% poverty
☐ 40-60% poverty
☐ 20-40% poverty
☐ 0-20% poverty
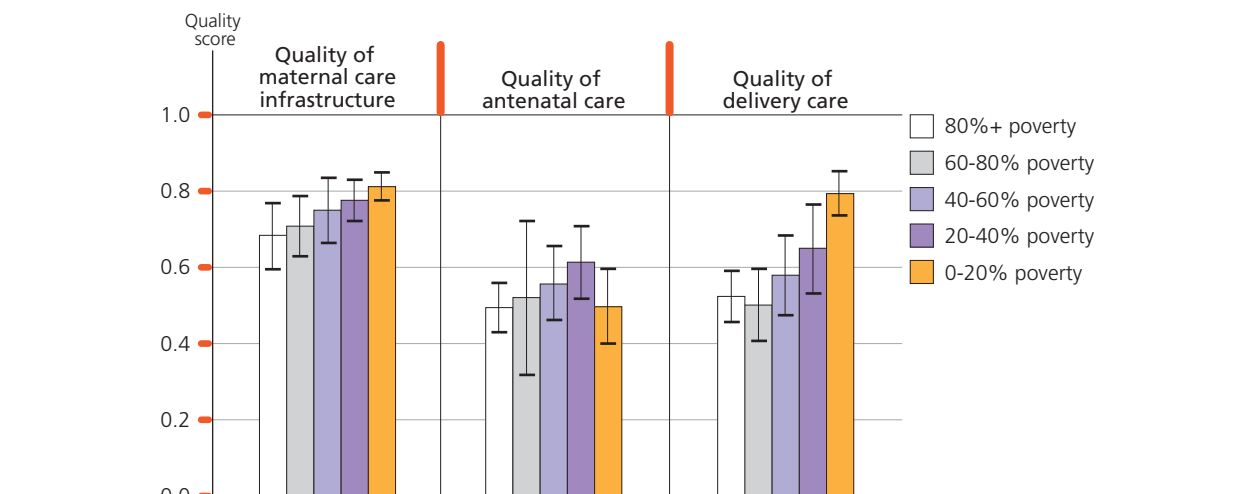
Source: Sharma et al. *(63)*.

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.

My Quality

Mr Bafana Msibi, Executive Manager for Compliance Inspections,
Office of Health Standards Compliance
South Africa

"In any health system, nursing is the backbone of the system," says Bafana Msibi, Executive Manager for Compliance Inspections at South Africa's Office of Health Standards Compliance. "In our country especially, and in other countries in Africa, primary health care is nurse-driven."

As a health care executive with over 15 years' experience, working for an independent body whose mission is to ensure quality of care and compliance with health standards in both public and private health care facilities, Bafana Msibi is well placed to assess the important contribution made by nurses to quality of health care.

He defines quality of care, in short, as "making use of the available resources to provide the best care to users." Msibi acknowleges that good patient care requires a holistic approach that sometimes goes beyond clinical treatment. "You might see a patient presenting with symptoms, and as you try to treat her, you may find that these symptoms are caused by stress," he says. Because nurses spend more time with patients than any other clinicians, their role is crucial. In addition, they are directly involved in the implementation of precautionary measures that promote a safe medical environment in their daily work.

In South Africa, all registered nurses have to undertake one year of community service after they complete their four-year degree. Working under the supervision of experienced professionals who mentor them, the new graduates are exposed to a wide range of medical issues. They also develop a solid understanding of the communities they serve. The knowledge and skills young nurses acquire during this period prepare them well for the demands of their profession.

"When I was young, I worked in a clinic in a rural area. If patients came with a problem that required the next level of care, we would refer them to the doctor or call an ambulance to take them to a hospital. There are clinics in most areas, and where there are none, mobile clinics carry out visits. Most of these clinics are nurse-run," Msibi says.
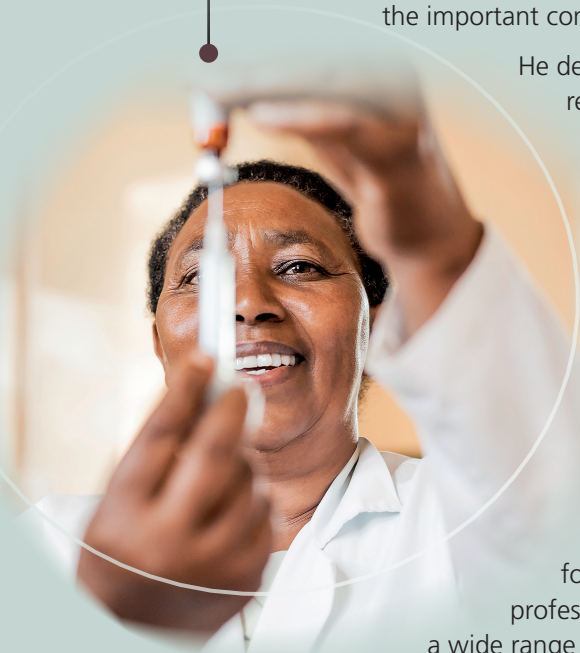
In South Africa, some nurses hold high-level jobs as CEOs of hospitals or district managers, Msibi says, but more are needed in leadership positions. "The nursing profession needs to produce leaders for the health care system. They must be developed through the system, know it inside out, and they must also understand the processes of policy development within it."

Bafana Msibi, who was able to conduct a study in a state hospital when he was studying for his Master's in Public Health, would like more nurses to enjoy similar opportunities to undertake research. Having more nurses involved in policy-making as members of advisory committees, commissions and boards would also contribute to further improvements in the quality of care, he believes.

Msibi's Office of Health Standards Compliance is currently negotiating a Memorandum of Understanding with the South African Nursing Council and other bodies representing medical professions to enhance cooperation across health services. Conducting joint inspections of hospitals, for example, could increase efficiency and help support high standards of care. "When we develop models and frameworks to improve quality, we must make sure they incorporate everyone and put the values of the profession up to the front," Msibi says. "In the end, we are all interested in providing quality care and if you want to have quality, you have to ensure there is good team work."

Chapter 4

Building quality into the foundations of health systems

4.1 INTRODUCTION

Poor-quality services – even if made available at an affordable cost – are an impediment to achieving effective universal health coverage. This is because communities will not use services that they mistrust and that are of little benefit to them. Mechanisms to assure, monitor and continually improve quality must be built into the foundations of health care systems.

This chapter considers five such foundations critical to any health service: health care workers; health care facilities; medicines, devices and other technologies; information systems; and financing. Mere availability of resources is not enough. Conscious and continuous effort is needed to ensure that they are used in ways that are effective, safe and individually tailored to patients' needs. Governance, as well as the tools, techniques and political economy of reform, is explored in the next chapter.

A comprehensive system of care allows people to access a continuum of care across their life course, comprising health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation, emotional and spiritual support, and palliative care. Three important considerations should underlie the design of any health care system: services should be built to meet local needs; accessible and high-quality primary care should be the bedrock for all other services; and individuals and communities should be engaged in the design, delivery, assessment, and improvement of each and every service *(68)*. The principles of quality improvement must infuse all activities from the front line to the system level.

4.2 FOUNDATIONS FOR HIGH-QUALITY CARE

4.2.1 Health care workers that are motivated and supported to provide quality care

Skilled doctors, nurses and other health care professionals are essential for delivering high-quality health care to individuals, families and communities. There is currently an estimated global shortfall of 2.5 million doctors, 9 million nurses and midwives, and 6 million allied health professionals. As a result, basic care is often absent or poorly delivered *(69)*. The problem is most severe in poorer countries (Figure 4.1). Even in developed economies, health workers are too often concentrated in cities, with the consequence that quality of care is often poorer in rural and remote areas. Even within cities, certain locations – for example slums – have a particular deficiency of health workers.

Community health workers can help alleviate workforce shortages. They are individuals who have been trained to deliver specific health care services, or to undertake surveillance and treatment for communicable or noncommunicable diseases. They usually come from the communities that they serve, thus providing a potential bridge to community engagement efforts. Community health workers can overcome cultural and linguistic barriers, whilst expanding access to care and providing new forms of employment. Evidence shows that community health workers are capable of delivering safe and effective care for childhood illnesses, reducing the spread of communicable and noncommunicable diseases, promoting nutrition, and providing family planning services, at low cost *(70)*. In low-resource settings, community health workers have reduced maternal, neonatal and child mortality *(71)*. More than 50 years' experience with programmes shows that these positions should be paid, not voluntary; have specific responsibilities that are not too wide ranging; receive training, continuing education and ongoing supervision; be integrated into primary health care teams; and be part of data feedback loops *(72)*.

Figure 4.1 **Global density and distribution of skilled health professionals by WHO region, 2005-2016**

Skilled health professionals density

Global average: 52.8

Density per 10 000 population

Density per 10 000 population

Distribution by country (in selected WHO region)

Regional average: 12.8

Source: Global Health Observatory *(34)*.

The availability of staff does not in itself assure good care. Health workers can spend little time with patients, lack the ability to make correct diagnoses, or prescribe inappropriate treatment *(73)*. Rural clinicians in southern China spent an average of only 1.6 minutes consulting with patients and asked only 18% of essential questions. A fully correct diagnosis was provided in only one in four consultations *(44)*.

Beyond simple headcounts of the health workforce, other critical aspects include:

- **accessibility**, or how easily people can see or speak to a health professional with the right skills, whether in person or via video and telephone links;

- **acceptability**, or whether people feel they have been treated with respect and have had their views taken into account when it comes to decisions related to their health;

- **quality**, or the knowledge, skills and attitudes of health professionals according to accepted norms, and as perceived by users;

- **skills mix and teamwork**, or whether the group of health professionals (and, in some settings, lay workers) together have the knowledge and skills to manage local mortality and morbidity patterns;

- **enabling environments**, or the physical, legal, financial, organizational, political and cultural conditions that support high-quality care.

The first step in building a high-quality workforce with the right skills mix should be a comprehensive national workforce strategy addressing gaps in numbers, distribution and retention, both in the short term and the longer term. Health professional workforce strategies must not deprive other health systems by attracting qualified staff away from their home countries' health systems. Workforce policies can take years to bear fruit. The most effective and sustainable solution to rural shortages lies in training students who are themselves from rural communities, including establishing clinical schools in remote areas.

Modernizing curricula for pre-service training of health care workers to ensure that they acquire core medical and nursing competencies is an obvious starting point and yet remains a challenge in many countries (Box 4.1) *(74)*. Another priority is continuous professional development to ensure that health professionals maintain and improve their knowledge and skills – spanning a wide range of competencies – throughout their working lives. Increasingly, health systems are making continuous professional development – and even recertification – mandatory. Even where continuous professional development is not in place, policy-makers can work with professional associations to encourage its use and evaluate its impact *(75)*. Finally, integrating the principles of quality and quality improvement into pre-service and in-service education and training curricula and programmes is vital in building a competent workforce that is capable of delivering high-quality health services.

Box 4.1 **Case study: training and retaining health care workers in underserved areas of the Philippines**

Two medical schools in the Philippines have a primary focus on recruiting, training and employing students in underserved areas of the country. Ateneo de Zamboanga University School of Medicine and University of the Philippines Manila School of Health Sciences are part of the Training for Health Equity Network (THENet). This international network of medical schools stipulates that the needs of underserved communities should be integrated with all phases and aspects of medical education, from the physical location of the school to the health issues guiding the curriculum. Also, there should be reliance on community-based practitioners for teaching and mentorship.

Ateneo de Zamboanga University School of Medicine opened in 1994 in Zamboanga City, on the southwest tip of the southernmost of the Philippine islands, bringing hope of greater access to health care to a population of 3.2 million people. The nearest existing medical school was 400 kilometres away. At the time, 80% of the region's 100 municipalities had no doctor. The region was plagued by high rates of infant mortality and communicable disease. In 2011, a review of the cumulative 164 graduates found that 85% were practising in the region, with half in rural and remote areas; overall, 90% remained practising in the Philippines versus 32% of graduates nationally. Between 1994 and 2008, the infant mortality rate in Zamboanga declined by approximately 90%, far exceeding the national average decline of 50%. The school continues to recruit students from the region and follows a curriculum that is deeply integrated with local community health needs.

Source: World Health Organization *(76)*; Cristobal and Worley *(77)*.

4.2.2 Accessible and well-equipped health care facilities

Substantial variation persists in service availability and readiness. Within and across countries, the density of hospitals and clinics is very different. Basic health care may be many hours away from poorer, rural communities. In sub-Saharan Africa, basic equipment such as a thermometer and stethoscope is available in slightly over half of facilities in Ethiopia, yet in Burkina Faso it is found in almost all facilities (Figure 4.2). The availability and readiness of services to operate is a necessary condition to deliver quality care. However, as discussed throughout this document, it is not sufficient to deliver quality services *(78)*.

Figure 4.2 **Variations in availability of basic equipment across health care facilities in sub-Saharan Africa**
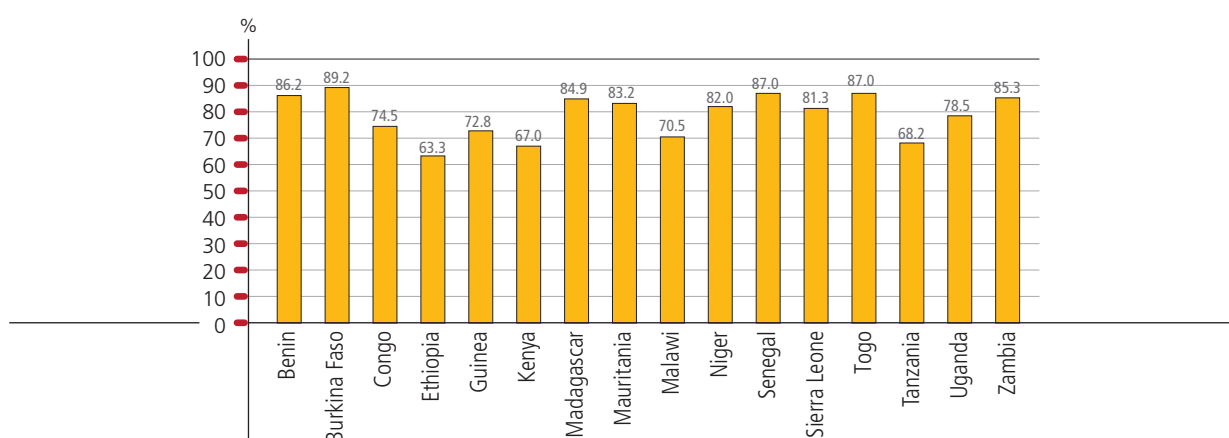
Source: Primary Health Care Performance Initiative *(79)*.

The quality of health care facilities is judged first on whether the basics are present, such as clean water, reliable electricity, good sanitation and safe waste disposal. In a 2014 survey, less than one quarter of facilities in Nigeria had reliable water, sanitation and electricity. Indeed, WHO estimates indicate that 40% of health care facilities in low- and middle-income countries lack improved water and nearly 20% lack sanitation. These basic foundations are urgently required for quality of care. However, adequate infrastructure does not necessarily equate to high-quality care. Minimum standards need to be set and enforced, and continuous improvement encouraged. Accreditation, inspection and other forms of external assessment and certification are widely used to evaluate health care facilities against explicit standards. The strength of the evidence supporting one-off external assessments is however limited *(80, 81)*. Accordingly, health care systems are increasingly moving to more continuous and formative evaluations of providers' performance, including measurement of patient outcomes and experiences *(15)*.

4.2.3 Medicines, devices and technologies that are safe in design and use

Reliable access to safe and effective medicines, devices and technologies, including blood transfusion, is a basic requirement for effective health care services. Actively restricting unsafe or ineffective products is critical to patient safety. Access to, and minimum quality standards for, medicines and other technologies have improved but substantial gaps remain in basic provision. Extensive and serious problems with counterfeit products complicate the issue.

Standards of regulation vary greatly. For example, in some countries, antibiotics can be bought without a prescription, fuelling unnecessary use and increasing the threat of antimicrobial resistance *(82)*. Even where medicine use is properly regulated, errors affect about one in 10 prescriptions issued, mostly dose-related errors *(83)*. According to one report, only 30–40% of patients in countries with developing or transitional economies are treated with medicines according to clinical guidelines *(84)*. The patients' role in making medicines and devices effective and safe is also critical. Health systems do not usually pay sufficient attention to informing and supporting patients in their use of medicines. The third WHO Global Patient Safety Challenge – Medication Without Harm – was launched at the second Global Ministerial Summit on Patient Safety, Bonn, Germany, in March 2017 with the aim of reducing severe, avoidable medication-related harm by 50% globally in the next five years.

Medical equipment requires maintenance, user training, backup support and, eventually, decommissioning. Donating equipment – important in some low-income countries – raises particular concerns. Unless spare parts, consumables and staff training are available, such equipment can be unusable or unsafe. Three out of 10 countries lack a national authority that regulates what medical technologies can be used, and how *(85)*. Blood transfusions are a special case. Many low-income countries are not able to screen blood for HIV, hepatitis B, hepatitis C and syphilis. Transfusion recipients are then at unacceptable risk of acquiring transmissible infections.

National policies on medicines and devices help to ensure products of assured quality, in adequate quantities and at affordable prices. Standardized processes for health technology assessment are discussed in the next chapter. Enforceable regulatory systems that address design and development, sale, use and disposal can be powerful in assuring quality and safety in this area. Guidelines and checklists can encourage appropriate use at the bedside. They should be accompanied by surveillance systems that monitor correct use, and that can detect accidents and adverse reactions. Voluntary non-remunerated blood donation improves the supply and safety of blood. Safety would be transformed if all health systems adopted this method of donation *(86)*. The risks of transfusion are reduced by external quality assessment of the collection, preparation and administration of blood products.

4.2.4 Information systems that continuously monitor and drive better care

Developing timely, accurate quality measures of health care services, of users' experiences and of outcomes achieved remains challenging, given how little governments and donors spend on health information systems. Most OECD health systems invest only 2–4% of total health expenditure in information systems. In most low- and middle-income countries, the figure is less than 1% *(87)*. As a result, data on outcomes and quality are often not captured at all, or are collected in ways that cannot be analysed or benchmarked because of a lack of standardized terminology. Even when data are collected, the translation of these data into information that is actionable for quality improvement remains a fundamental challenge.

Yet, good performance information matters to improving quality of care. The European Health Care Outcomes, Performance and Efficiency (EuroHOPE) project found that survival after a heart attack varied as much as twofold within a single national health system *(88)*. To enable hospitals and clinics to offer the same level of excellent care, richer comparative data on variation in quality and outcomes need to be collected, interpreted

and used to spread best practices and support poor performers. As well as EuroHOPE, the European Collaboration for Healthcare Optimization *(89)* and the OECD Health Care Quality Indicators Project *(35)* exemplify a trend to develop such data quality schemes globally (Box 4.2).

Box 4.2   **Case study: OECD Health Care Quality Indicators Project**

The OECD Health Care Quality Indicators Project began in 2001 with the aim of developing international comparisons of health care quality and, thereby, identifying and sharing best practices to monitor, assure and improve quality. Experts engaged in the project are drawn from OECD and non-OECD countries, international organizations including WHO, the European Commission, and research institutes.

Around 50 indicators are reported (covering primary care, hospital care, mental health services, patient safety and patient experiences) from around 40 countries. Comparable health care quality indicators are published alongside other OECD health statistics on expenditure, resources and utilization to facilitate their interpretation.

Alongside the regular data collection, there is continuous research and development to improve the validity, utility and comparability of health care quality indicators. Another goal of the project is to strengthen national information infrastructures to produce more complex and reliable indicators in an increasing number of countries, including non-OECD countries.

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Source: OECD *(35)*.

Too often, data are left to moulder in poorly organized, paper-based systems, or are trapped in digital silos incompatible with each other. Timely and appropriate *use of* and *action on* information is vitally important. The Health Data Collaborative, a global initiative led by WHO, the World Bank and the United States Agency for International Development (USAID), is addressing this challenge. By working with international agencies and individual countries, the Health Data Collaborative seeks to harmonize how health systems data are collected and reported globally, and aims to enable better tracking of health system performance and progress towards the health-related targets of the SDGs *(90)*. Similarly, the Primary Health Care Performance Initiative *(79)* aims at sharing internationally comparable results on the performance of primary health care systems globally and enabling performance improvement through sharing of results and best practices for performance improvement.

Basic information on all births and deaths needs to be reliably registered. Effective civil registration is the spine of a health system's information infrastructure. Registers monitoring the needs, interventions and outcomes for patient groups (such as those with HIV, cancer or mental illness) can be built from this.

Civil registration allocates a unique person identifier to an individual. This allows data from various providers over time to be linked and enables the performance of health care services to be tracked. If legislation to protect privacy prevents anonymous data linkage of elements of an individual's health experience in different places and at different times, there will be no way of evaluating an entire pathway of care (Box 4.3).

Box 4.3   **Case study: improving civil registration and vital statistics in Uganda**

Only one in five of the 1.5 million annual births in Uganda were registered with the national civil registration and vital statistics system. Families often had to travel long distances to register in person, which required a fee. A paper-based system created frequent delays in issuing birth certificates. Even amongst registered births, over half did not receive a birth certificate.

The United Nations Children's Fund (UNICEF) and Uganda Telecom implemented the Mobile Vital Records System, which links mobile phone users and hospital computers to a central government server. For births occurring outside health facilities, volunteers – typically village leaders – collect and send birth information to a government database through a free service from their mobile phones. An official reviews the information and if it is deemed credible, then a birth certificate is issued. The community volunteer is notified via text message. The roll-out of the Mobile Vital Records System increased birth registration substantially, leading to greater expansion of the programme. Now it is also implemented in schools to reach previously unregistered children.

Source: UNICEF *(92)*.

Effective *information governance* remains weak in many health systems. The use of personal health data to monitor and improve health service performance serves an important public purpose, but must always be done in ways that protect privacy. National legislation is needed that protects patient privacy whilst enabling data use and good communication with the public about data use, as well as, at global level, standards to enhance data quality and comparability *(91)*.

Moving from paper-based records to a unique electronic health record, usable in multiple health care settings, will help monitor the performance of health care services. Supporting clinicians, managers and policy-makers in interpreting service data and using them for quality improvement will be also vital.

Special action is needed to improve patient safety. Encouraging transparency when things go wrong, by building a blame-free and learning culture, is a prerequisite. This can be supported if analyses focus on understanding *the root causes of adverse events* by exploring the multiple causal and contributory factors that provoke errors, some of which result in major harm to patients. Agreeing on an internationally standardized terminology will also enhance the ability to classify, compare and prevent adverse events across different health systems.

Finally, in 2017 ministers of health from OECD countries agreed that their health systems would be benchmarked using a new wave of patient-reported indicators of performance *(30)*. More sophisticated health information systems survey patients directly, to monitor and compare their views on the quality of care received and monitor their health outcomes *(93)*. This strategy is an important development that will support a paradigm shift from measurement systems that are focused on health care providers to truly people-centred systems in which measurement is focused on experiences and outcomes viewed from the perspective of patients *(94)*.

4.2.5 Financing mechanisms that enable and encourage quality care

The way funds are collected, pooled and used to pay for health care services can, unsurprisingly, have large effects on the quality and outcomes of care. First, there is solid evidence that funds should be collected and pooled in advance of needing care, through mandatory insurance schemes (with subsidized contributions for those unable to afford insurance). The alternative – paying out of pocket at the moment of need – means that people go without care when they need it and end up sicker as a result, or catastrophically impoverished *(65)*.

How funding then flows from insurance agencies to the front line, to purchase or reimburse services, is equally critical. There are several possible mechanisms, such as fee for service, capitation, or annual block budgets (transferred to hospitals or clinics, based on previous or predicted spending). Each has strengths and weaknesses, in the extent to which it rewards activity over outcomes, or incentivizes preventive over reactive care. There are no "silver bullets", and in practice a blend of mechanisms is usually employed. What is important, from the perspective of quality of care, is that the blend is intelligently designed, aligns as closely as possible with local needs, incentivizes coordination of care for individuals with complex needs, invests adequately in primary care and prevention, rewards quality care, and penalizes care that does not meet sufficient standards. Accordingly, health systems are increasingly designing mechanisms that pay for bundles or pathways of care, and experimenting with quality-based payments.

One family of such innovations, applied in high- as well as in low-income settings, is pay for performance (P4P), or results-based financing. Carefully designed, often time-limited, programmes pay health care providers to deliver specific, high-priority interventions. Nearly two thirds of OECD countries have at least one P4P scheme in place, predominantly in primary care. Systematic reviews tentatively suggest a positive impact of P4P and results-based financing programmes on quality in OECD countries *(93)*. Results for results-based financing in lower-income settings are mixed, with fairly modest results so far for quality improvement, particularly for non-targeted conditions. Overall, payment innovations can also be used to deliver sustained collateral benefits – such as improved protocols of care, improved collaboration across providers, and improved information systems – on health care needs, activities, outcomes and costs.

4.3 QUALITY OF CARE AS THE FOUNDATION OF PEOPLE-CENTRED HEALTH CARE

As governments plan to deliver universal health coverage, there are three key design principles that should be considered. First, services should be built in a way that meets local health care needs. Although seemingly obvious, many health systems lack a population–health focus. Instead, available health service networks are the product of historical legacy, or are the result of political lobbying or of transient donor funding. Local communities may be innocent bystanders in the design of care that is ultimately destined for them. Many low- and middle-income countries have dealt with a high burden of communicable disease and this has meant that their systems have needed strong public health functions in areas such as surveillance, laboratories and routine immunization. They may also have received substantial donor funds in the form of programme grants to control or eliminate particular diseases. Increasingly, though, the growing burden of noncommunicable disease in these same countries necessitates services capable of supporting people over time with personalized, proactive care to manage their condition, prevent complications and enhance quality of life (Box 4.4).

Box 4.4   **Case study: unmet needs for the care of chronic diseases**

Hypertension, or high blood pressure, is one of the most prevalent and critical risk factors for early death and disability globally. Untreated hypertension leads to kidney disease, ischaemic heart disease and stroke (the latter are the two leading causes of death worldwide). Hypertension affects an estimated one in three adults over the age of 20 years worldwide, with the prevalence now higher in low- and middle-income countries than in high-income countries (age-standardized prevalence of 31.5% versus 28.5%, respectively). Of the approximately 1.5 billion people with hypertension, less than half will be aware of their condition; only 36.9% will be on appropriate treatment; and as few as 13.8% will have their blood pressure effectively controlled. Significant disparities in awareness and treatment exist by country income level: in high- versus low- and middle-income countries, rates of diagnosis and treatment are twice as high and 4 times the proportion of patients have their blood pressure controlled.

Source: Mills et al. *(96)*.

A recent study analysed 22 initiatives to strengthen primary health care in 10 counties in China and at national and subnational levels in 12 countries. Eight tenets of high-performing primary health care systems were derived: ensuring primary health care as first point of contact for most health care needs; functioning multidisciplinary care teams; vertical integration of services; horizontal integration of services; advanced information and communication technology; integrated clinical pathways and functioning dual referral systems; measurement standards and feedback; and certification *(95)*.

The second key principle of design is to build high-quality primary care services *(97)*. First contacts with health care, and a person's regular point of entry into the health system, must be continuous and comprehensive (Box 4.5). No physical or mental health issue should be excluded from the oversight and coordination functions of primary care. If individuals and families in a geographically (or otherwise defined) community are formally registered with a named primary care provider, this enables creation of community health profiles, as well as surveillance of needs and delivery of preventive care. Registration also creates a structure for *proactive* care amongst people with chronic conditions. Primary care is also fundamental to health system resilience, and is pivotal in surveillance of communicable diseases or other hazards, and in the delivery of front-line care in the case of outbreaks.

Third, engagement with patients, families and communities needs to be designed into health systems, rather than bolted on as an afterthought. A review of randomized controlled studies of integrated care programmes for the frail elderly, for example, showed that the most benefit was derived from those in which the elderly person was directly involved in care planning *(98, 99)*.

If patient groups are encouraged to engage in collective action, people benefit hugely from the support of others with similar health problems. The WHO Patients for Patient Safety programme illustrates this well. The programme has empowered a global network of patient advocates that aims to foster collaborations between patients, families, communities, health care providers and policy-makers to make health care safer through the insights and experiences of patients themselves *(100)*.

Box 4.5 **Case study: primary care in Costa Rica**

In Costa Rica, an innovative primary care sector forms a solid base for the rest of the health care system. Community clinics, or integrated health care basic teams (equipos básicos de atención integral de salud, EBAIS) are the functional units of primary care delivery. Each EBAIS serves around 1000 households. Each consists of at least one medical doctor, one nurse and one health care assistant. Other personnel, such as social workers, dentists, laboratory technicians, pharmacists and nutritionists, may also support the clinic.

To complement EBAIS, centres for integrated health care (centros de atención integral en salud, CAIS) have recently been developed. They offer an extended model of primary care, including maternity services, intermediate care beds (to avoid hospital admission or expedite early discharge), minor surgery, rehabilitation, specialty clinics (such as pain management), and diagnostics such as radiography.

A detailed primary care performance framework evaluates local health authorities across 30 indicators in the domains of access, continuity, effectiveness, efficiency, patient satisfaction and organizational competence. For each indicator, a national target is set and dashboards of local results are published, allowing providers to compare their performance against national, regional and local benchmarks.

National data show that 80% of primary care presentations are resolved at that level, without referral to secondary care. Referral guidelines exist, and hospital referrals are turned back if appropriate steps have not been completed in primary care. Hospital doctors also train colleagues working in EBAIS to strengthen primary care management.

Source: OECD *(21)*.

More broadly, collaboration with nongovernmental organizations, grass-roots community groups and patient representative organizations also offers huge potential gains. Civil society organizations focused on health issues are increasingly well established in many low- and middle-income countries (Box 4.6). These groups do far more than just offer advice and support – they also help people assert their rights to high-quality care. A review of literature by Laverack *(101)* illustrates the multiple avenues through which community engagement strengthens health systems. These include strengthening social networks, developing local skills such as leadership, resource mobilization, or simply asking the question "Why?"

Box 4.6 **Case study: using Citizen Voice and Action to empower communities in Uganda**

Empowering communities through training and education is an important step in enabling them to engage with health care providers. The Citizen Voice and Action project model *(20)*, for example, allows citizens to learn about the number of health workers, vaccines, equipment and materials that should be present at their local health centre. Residents then work with health workers and local government to measure the facility's compliance with government standards.

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They can also use a community scorecard to rate the facility according to criteria that they themselves generate, and convene meetings with civil society, government and service providers where all stakeholders can review the evidence and commit to an action plan to improve services.

The Citizen Voice and Action model was successfully implemented in Uganda in 2004 in response to perceived weak health care delivery at the primary care level. The main objective of the intervention was to strengthen the provider's accountability to citizen clients by introducing a process, using trained community-based organizations as facilitators, which the communities could manage and sustain on their own. One year after implementation, health facilities in treatment villages (as compared to comparison villages) saw a 12-minute reduction in average waiting time and a 13% reduction in absenteeism. Health facilities in treatment villages also showed a 33% decrease in under 5 mortality; a 58% increase in the use of skilled birth attendants; and a 19% increase in number of patients seeking prenatal care. The improvements were maintained four years after the project started.

4.4 THE VISION: HEALTH SYSTEMS COMMITTED TO PEOPLE-CENTRED CARE

The expectant mother with high blood pressure, or the elderly man with diabetes, arthritis and hearing loss, both require a range of services to be delivered effectively – not just within the formal health system, but in the community to which they will return to live and work. The young man with schizophrenia needs carefully coordinated care to manage his mental health problems, but also to deal with the array of chronic physical health problems that reduce life expectancy by up to 25 years in people with severe mental illness. Complex health care requires systems able to deliver an entire pathway of care (health promotion, disease prevention, diagnosis, treatment, disease management, rehabilitation and palliative care services) consistently, effectively, safely and in ways that are valued by patients and their families.

Effective governance of health systems comprises several tasks, including maintaining strategic oversight of goals and priorities; generating the information and analysis required to track whether goals are being met; designing rules, policies and processes to steer the system in the desired direction; and creating and nurturing collaborations within and beyond the health system.

Enshrining the right to health care, according to need, in national legislation is a valuable step in making progress towards universal health coverage. Experience shows that de jure commitments often fail to translate, de facto, into access to good-quality care. Setting up a national agency responsible for quality monitoring and improvement is also an important step. Ideally, it should be independent of health care insurers and providers, with the regulatory powers to collect, analyse and publish quality and outcome data. Its role can also encompass sharing lessons learned from high performers and supporting poorly performing services in addressing performance gaps.

People-centred care means that health systems must ensure:

- *continuity* from illness prevention to palliation, between services (e.g. intensive care and radiology) and between levels of care (primary to specialist), throughout the life course;

- *coordination* across different care settings, in ways that meet the particular needs of the individuals and their carers;

- *comprehensiveness* that broadens the portfolio of care – from health promotion through to palliative care – that individuals and communities can use.

When health systems struggle to provide people-centred care it is often because services still place too much emphasis on treating individual diseases, rather than preventing illness or promoting better health and well-being. The system prioritizes specialist care for its investment and concentration of resources. Primary care can be designed so that it is the mediator between a community's needs and the range of provision in a health system. It can then fulfil the enhanced coordination role that person-centred care requires (Figure 4.3). An important way of keeping people-centred care on track, and ensuring the right balance of primary and secondary care services, is to publish regular reports analysing performance of the health system as a whole.

Figure 4.3 **Primary care as a hub of coordination**
Networking within the community served and with outside partners
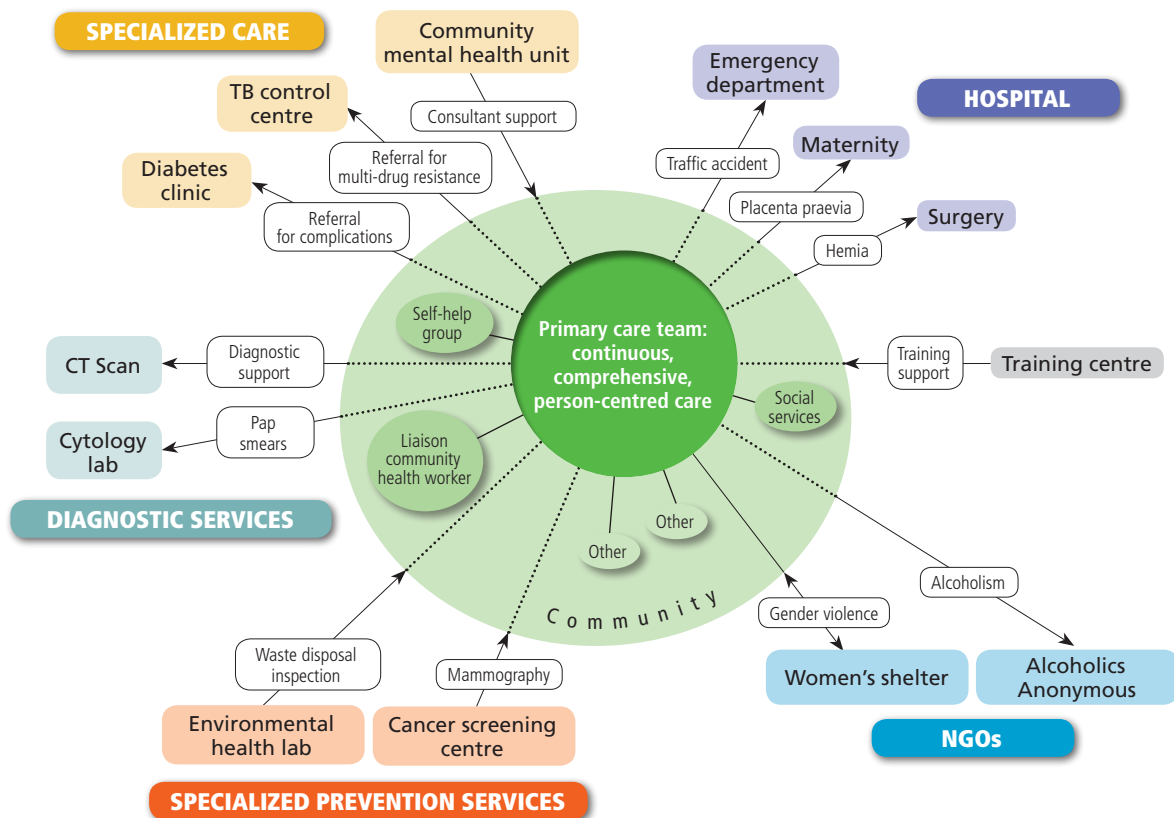
Source: World Health Organization *(102)*.

People-centred care is a critical entry point through which to improve quality. It involves patients in decisions about their care, and asks their opinions about their outcomes of care; it questions variations in patient outcomes across different providers; it drives greater investment in electronic records that work across multiple settings; it assures transparency and learning when things go wrong; and it fosters a myriad of other actions to improve health care quality. As global health care quality expert Donald Berwick has said: "Person-centredness is not just one of the dimensions of health care quality, it is the doorway to all qualities" *(16)*.
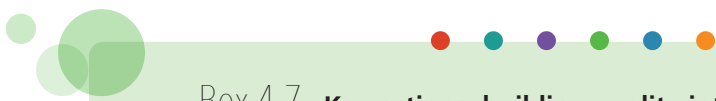
The WHO Framework on Integrated, People-centred Health Services, adopted with overwhelming support by Member States at the World Health Assembly in May 2016, sets forth a compelling vision in which "all people have equal access to quality health services that are co-produced in a way that meets their life course needs". It calls for the coordination of services across the continuum of care and for a supportive environment that helps caregivers practise with the skills and resources they need. This framework proposes five interrelated strategic areas (Figure 4.4) for how health services and systems can be reoriented to accomplish this vision *(103)*.

Figure 4.4 **Five strategies for people-centred services**

4.5 **CONCLUSION**

Quality can be built into the foundations of health care systems, no matter how far along the road a health system is to reaching universal health coverage. A quality-oriented approach to health care workers, health care facilities, medicines, devices and other technologies, information systems, and financing is vital at all stages of development. Building up the foundations of quality health systems needs to be at the forefront of thinking, planning and policy-making. But more action is urgently required to create quality health systems. Health systems must exchange a top-down hierarchy for pathways and networks based upon cooperation and collaboration, with primary care as the bedrock and people at the centre. This transformation of relations needs to be coupled with new mechanisms to hold governments and health system leaders to account and build citizens' trust. Box 4.7 outlines key actions that can be taken to ensure that quality is built into the foundations of health care systems.

The following chapter provides greater detail about what types of interventions can be brought together and implemented at macro, meso and micro levels to improve quality of care.

Box 4.7 **Key actions: building quality into the foundations of health systems**

To ensure that quality is built into the foundations of systems to achieve universal health care coverage, governments, policy-makers, health system leaders, patients, and clinicians should work together to:

1. Ensure a high-quality health care workforce, by:

- developing a national strategy to address gaps in numbers, distribution and retention of health professionals, both in the short term and the longer term;

- modernizing training curricula for health care workers and integrating the principles of quality and quality improvement methods into training curricula;

- encouraging programmes of continuous professional development and evaluating their impact.

2. Ensure excellence across all health care facilities, by:

- ensuring service readiness and availability as a necessary but not sufficient condition for quality of care;

- encouraging continuous and formative evaluations of facilities' quality of care;

- collecting and analysing richer data on variations in quality and outcomes across facilities, turning insights into action to spread best practices and support poor performers.

3. Ensure safe and effective use of medicines, devices and other technologies, by:

- developing national policies on medicines and devices focusing on assured quality, adequate supply and affordable prices, supported by standardized health technology assessment;

- developing guidelines, checklists and surveillance systems to support the correct use of medical technology, and monitor errors, accidents and adverse reactions;

- adopting voluntary non-remunerated blood donation and introducing external quality assessment of the processes for collecting, preparing and administering blood products.

4. Ensure effective use of health information systems, by:

- building reliable births and death registration systems and, from this, developing a national system of unique patient identifiers to support quality monitoring across pathways of care;

- moving away from paper-based records to a unique electronic health record that can be used across multiple health care settings;

- developing national legislation that protects individual privacy whilst enabling the use of personal health data for research and quality improvement;

. . .

- supporting clinicians, managers and policy-makers in collecting and analysing service data for quality improvement, and communicating effectively with the public about how these data are used;

- encouraging transparency when things go wrong, by building a learning culture that focuses on understanding root causes rather than assigning individual blame;

- at global level, agreeing on standards to enhance data quality and comparability, particularly standardized terminology to classify, analyse and prevent adverse events;

- including measurement of patient outcomes and experiences as a standard element in facilities' quality assessment.

5. **Develop financing mechanisms that support continuous quality improvement, by:**

- reducing reliance on out-of-pocket funding, and shifting to prepaid and pooled funds for the majority of health system financing through mandatory insurance schemes, with subsidies for those unable to afford contribution;

- linking financing for health care providers to local health care needs, incentivizing coordination of care for individuals with complex needs, and investing adequately in primary care;

- fully exploiting the potential of payment schemes to deliver sustained collateral benefits such as improved protocols of care, improved collaboration across providers, and improved information systems on health care needs, activities, costs and outcomes.

Chapter 5 **Understanding levers to improve quality**

5.1 **INTRODUCTION**

Quality is a complex and multifaceted concept. Its pursuit requires the design and simultaneous deployment of combinations of discrete interventions. Understanding this interdependence is critical in designing future health systems. For example, establishing standards for care is part of quality improvement, but, for the standards to be reliably implemented, additional actions are needed, such as training and supervision, monitoring for compliance and feedback to health care providers. The process of standard setting alone, without these other supporting and interdependent actions, is of limited value *(104, 105)*.

This chapter describes a range of levers to improve the quality of health services and discusses the rationale for developing national quality-related policies and strategies. Common goals addressing quality through a wide array of interventions, across all levels of the health care system – from national-level policy and regulation to the direct provision of individual patient care – are examined. The interdependence of these diverse levers for change and the avoidance of a single-track approach are explained. The levers should also be customized within countries as health-related decisions may be made at the subnational and community levels, and should also be sensitive to unique contextual factors.

5.2 **DRIVING IMPROVEMENT THROUGH NATIONAL QUALITY POLICY AND STRATEGY**

The development, refinement and execution of a national quality policy and strategy are a growing priority as countries strive to systematically improve health system performance. A carefully designed national quality policy and strategy – applying an implementation-informed approach – is likely to be one of the pivotal considerations of countries as they work to achieve enhanced access to health services that yield the best achievable outcomes.

But why are countries focused on driving quality through national efforts? Each country has its own culture, population needs, and a historical legacy shaping its health care system. Most countries, though, share a set of goals and an awareness of the strategic context for health care. There are six main areas of common ground:

- belief that high-quality, safe, people-centred health care is a public good that should be secured for all citizens;
  - acceptance that better access to care without attention to its quality will not lead to desired population health outcomes;
    - acknowledgement that strategies to improve the efficiency of health systems must deliver in an increasingly constrained financial situation;
    - need to align the performance of public and private health care delivery in fragmented and mixed health markets;
  - awareness that quality health care is vital to resilience in the political context of national and global health security;
- realization that good governance means satisfying the public demand for greater transparency about standards of care, treatment choices, performance and variable outcomes.

Countries face the challenge of developing or refining their quality-related policies and strategies through national consensus. They must also recognize that driving change towards a future vision of better performance will almost always be limited by the practical realities of how and where health care is currently provided.

National policies on health care quality are developed through various governmental structures. In some countries, this involves enabling legislation to establish new administrative and governance structures or to create new forms of mandatory action (for example, physician registration and licensing) or to formulate new regulatory mechanisms (for example, inspection and accreditation). This may trigger the need for an explicit national quality policy document. In other situations, implementation of a national quality policy or strategy may simply be part of the routine five-year health sector plan or an internal ministry of health document. There is no single right way to do this, but most approaches involve one or more of the following processes:

- quality policy and implementation strategy as part of the formal long-term health sector national plan;
- a quality policy document developed as a stand-alone national document, usually within a multistakeholder process, led or supported by the ministry of health;
- a national quality implementation strategy – with a detailed action agenda – which also includes a section on essential policy areas;
- enabling legislation and regulatory statutes to support the policy and strategy.

Boxes 5.1 and 5.2 provide country case studies on the implementation of national quality policy and strategy in the health sectors of Ethiopia and Sudan.

Box 5.1 **Case study: Ethiopia –
National Health Care Quality Strategy 2016–2020**

Ethiopia is the second most populous country in Africa, with a population of around 100 million. Since 1995, the country's health sector has undergone significant reform through implementation of a Health Care Financing Strategy. The Health Sector Transformation Plan identifies four transformation priority agendas: ensuring the delivery of quality health services in equitable fashion; focusing on district-level transformation; strengthening health information systems; and creating a compassionate, respectful and caring health workforce.

The Ethiopian National Health Care Quality Strategy was launched in March 2016. In order to operationalize the strategy, the Health Services Quality Directorate has developed a quality improvement tool for clinical audit of selected high-priority health care services in hospitals. Nationwide training on quality of care and audit methods has been conducted with selected health care cadres from all hospitals. The quality data system now allows integration of key performance indicators with the existing health management information system *(106)*.

A number of priorities are pivotal to implementation of the strategy, including strengthening the National Quality Steering Committee chaired by the State Minister; supporting the formation of quality units in regional health bureaus and health facilities; capacity-building through training of cadres and dedicated mentorship; integration of quality improvement in the pre school health curriculum; strengthening monitoring and evaluation mechanisms; and creating demand for quality within the community, with a focus on respectful care. In order to operationalize the strategy, the Health Services Quality Directorate has developed a quality improvement tool for clinical audit of selected high-priority health care services in hospitals.

Box 5.2 **Case study: Sudan –
National Health Care Quality Policy and Strategy**

Sudan has a decentralized health system, with the federal government responsible for national health policy-making, strategy and coordination; state governments responsible for planning and implementation at the state level; and local entities concerned with service delivery on the ground. The main administrative body is the multisectoral National Health Sector Coordination Council.

Awareness of quality of care among the public and health care professionals is sporadic. While research into quality exists there is no adequate mechanism for interorganizational dissemination of results, so decision-making is not always informed by relevant data and evidence. However, measures are being undertaken to rectify these shortcomings. In line with the third National Health Sector Strategic Plan, a National Health Care Quality Policy and Strategy was formulated in 2017, to be implemented during 2017–2020. The policy addresses four main priority areas: strengthening governance and accountability, compliance with national quality standards, promotion of a people-centred approach, and reduction of avoidable harm to patients. Particular focus has been given to the health workforce through accredited training, career pathways, staffing norms, human resources for health management systems, and performance appraisal and auditing systems to help build capacity. Establishment of a formal partnership with patients and the community is high on the agenda of the National Quality Policy and Strategy.

Next steps include strengthening coordination mechanisms for the National Health System; devising a retention scheme for human resources; strengthening the health management information system; institutionalizing quality at all levels; improving patient safety and infection control at the state level; and strengthening management and implementation capacity at all levels.

At its most effective, a quality strategy acts as a bridge between where a health system currently stands and the level of quality a country aims to attain. It can accelerate the achievement of health goals and priorities, using quality management principles that incorporate planning, control and improvement processes *(107)*. Though the form and content of the national policy and strategy of each country will vary, the following eight components are likely to receive universal consideration:

- **National health goals and priorities.** These will help to direct resources to meet the most pressing demands of the population. The quality agenda is then aligned to them.
- **Definition of quality.** The definition of quality used must be acceptable in the local context within the country and should underpin the national approach. Use of local language and shared understanding are essential.
- **Stakeholder mapping and engagement.** Quality is an aggregate of the individual components of the whole health system. Including key stakeholders in the development of policy and strategy allows a comprehensive range of factors that promote good-quality health services to be addressed.
- **Situational analysis: state of quality.** The current state of quality in any health system encompasses relevant priorities and problems; related programmes and policies; organizational capabilities and capacity; leadership and governance; and related resources. Assessment of the current state of quality defines key gaps requiring attention and areas of health care services that can be strengthened.

- **Improvement methods and interventions.** Judicious selection of interdependent interventions implemented across all levels of the health care system will improve health outcomes. This task is complicated by limited resources, evidence of impact, feasibility and acceptability.

- **Governance and organizational structure for quality.** Governance, leadership and technical capacity are all necessary factors for improving quality. They need to be clearly articulated. In a growing number of countries, a national-level unit, usually in the ministry of health, has been created and coexists with other national quality bodies.

- **Health management information systems and data systems.** Improving quality relies on clear and accurate performance data. An information system to support nationally driven quality efforts is necessary for measurement, performance feedback and reporting.

- **Quality measures.** A core set of quality indicators is critically important for judging whether activities are producing higher quality of care leading to significant change in health outcomes; for providing feedback to providers and facility management; for promoting transparency to the public; and for comparative benchmarking to identify best practices for learning.

Box 5.3 presents a case study on the implementation of national quality strategy through a coordinated Quality Management Framework in Mexico.

Box 5.3 Case study: Mexico – National Strategy for Quality Consolidation in Health Care Facilities and Services

Mexico, with around 120 million inhabitants, has a mixed health care system with both public and private providers. Despite major reforms, including the introduction of a free health coverage system in 2003, demographic and epidemiological transitions – such as an ageing population and an increase in the prevalence of noncommunicable diseases – continue to place tremendous pressures upon the health care system.

A comprehensive systemwide quality improvement strategy was launched in Mexico in January 2001. The main objectives were to promote quality of care as a core value in the culture of health care organizations, both public and private, and to improve the quality of services across the health care system. In 2012 the National Strategy for Quality Consolidation in Health Care Facilities and Services was established, to be implemented through the General Directorate of Quality and Education in Health Care of the Ministry of Health. The strategy aimed to achieve quality improvement in the following areas: patient safety, innovation and continuous improvement, risk management, accreditation of health care facilities, health regulation, and health education.

Implementation of the strategy is supported by a Quality Management Framework that provides the administrative structure for quality improvement at all levels. The framework targets five value outcomes: population health, effective access, reliable and safe organizations, satisfactory experience of the population with health care, and reasonable costs. Citizen participation is promoted, and a monitoring system with indicators has been put in place. Incentives include a national quality award, and financial incentives to networks of units for the development of specific joint quality improvement projects.

Source: Ministry of Health *(108)*, Sarabia-González et al. *(109)*, Ruelas et al. *(110)*.
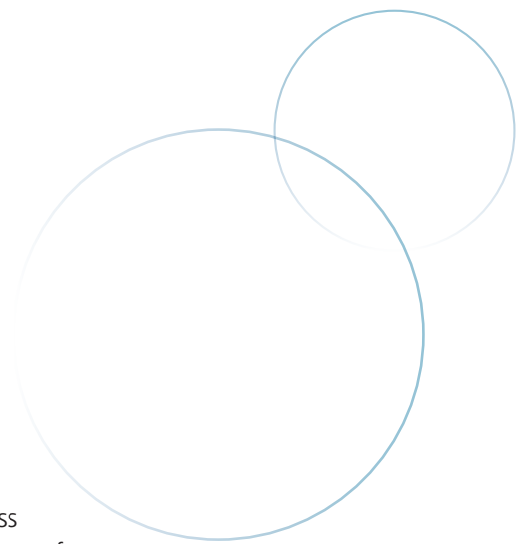
5.3 QUALITY INTERVENTIONS

Quality interventions can have a significant impact on specific health services delivered and on the health system at large. Understanding the types of commonly deployed interventions, and knowledge of the evidence regarding their use and effectiveness, can allow for more informed choices about which interventions to select in countries. The nature of health care challenges in different health systems across the world is actually quite similar, despite the different contexts of population health needs, financing and workforce capacity. Whilst priorities may differ – communicable versus noncommunicable disease, care needs of later life versus treatment of mothers and children – the same quality goals are pursued everywhere:

- reduce harm to patients
- improve clinical effectiveness of the health services delivered
- engage and empower patients, families and communities
- build systemic capacity for ongoing quality improvement activities
- strengthen governance and accountability.

But where does that leave action? Agreeing upon a list of goals is easier than identifying strategies to achieve them. In this context, seven categories of action stand out. They are routinely considered by quality stakeholders – providers, managers, policy-makers – when trying to improve the performance of the health care system. They are considered in the following subsections.

5.3.1 Changing clinical practice at the front line

The gap between what is known to be effective care ("know") and what is routinely performed by providers ("do") has been well documented around the world. Closing this "know–do" gap requires multimodal changes in clinical practice at every level of a health system, from the individual encounter between the patient and the health care worker to the redesign of health care delivery. The skills, knowledge and attitudes of health care workers are fundamental. Measures to support health care providers to achieve the most effective care include clinical decision support systems ranging from written protocols to electronically supported aids. Reducing harm to patients is a key objective – It is estimated that of every 100 hospitalized patients at any given time, 7 in developed and 10 in developing countries will acquire at least one health care-associated infection *(111)*. Away from the individual patient and provider, new models of care are being developed and implemented to address multiple dimensions of quality. The models define current best practice for the delivery of health care generically and also as related to special populations (for example, people with chronic disease or mental health conditions) or those with common characteristics (for example, children or the elderly). New models of care are often community based, extending well beyond the walls of hospitals and integrating the contributions of primary, specialized and social care organizations *(104)*.

5.3.2 Setting standards

Setting standards, with evidence-based protocols, can establish consistency in delivery of high-quality care across diverse health systems globally. Though often led by government entities, standard setting is an area of quality improvement where professional bodies should play a major role, either working independently or in partnership with governments. Some clinical standards focus on specific population
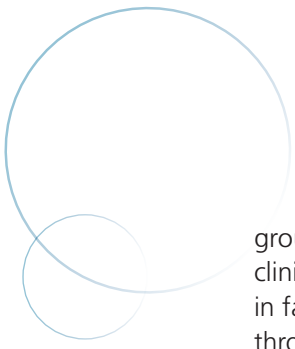
groups, others on disease conditions or treatment protocols. For example, global clinical standards of care have been developed to improve maternal and newborn care in facilities *(112)*. Embedding clinical policy and standards-based care is often achieved through patient care protocols and clinical pathways. Whilst clinical standards are often an early step in national quality strategies, developing standards without a holistic quality approach may not yield the expected results and progress.

5.3.3 Engaging and empowering patients, families and communities

Health systems need to go further than health literacy programmes to make full use of the potential of people-centredness as an entry point to higher-quality care. There is strong evidence, across all country contexts, that interventions that seek to engage and empower patients, caregivers and families can promote better care, including healthier behaviours, enhanced patient experience, more effective utilization of health services, reduced costs and improved outcomes *(100)*. For example, engaging women's groups in Nepal to identify the major maternal and newborn problems and strategies for improvement resulted in 30% fewer newborn deaths and an 80% reduction in maternal mortality *(113)*. Giving patients information, advice and support can help them manage their health and co-develop treatment and health maintenance plans. Systematic, sustained community engagement mechanisms can also support programmes to improve quality of care. The need to secure or build trust in communities is also a priority. Without it there will be a fundamental barrier in willingness to access health care even when it is needed.

5.3.4 Information and education for health workers, managers and policy-makers

To be effective, information systems for quality improvement must meet the needs of caregivers, facility managers, health system leaders, policy-makers and regulators. This requires targeted information and educational methods for each respective audience. Health workers need comparative information about their own performance, especially benchmarked against best practices. Leaders, managers, policy-makers, regulators and funders also need comparative information. The format and focus will vary according to the area of quality being reviewed, whether it is a service (for example maternity care), a disease condition (for example the care of people with diabetes), a group within the population (for example older people), or an intervention (for example measles vaccination uptake). One of the commitments needed from leaders is to ensure that a proper level of investment in information systems is maintained. However, advances in accessibility and utility of information do not need to depend on high-technology solutions; for example, clinical decision support may be in the form of computer prompts or as simple as paper forms with boxes to tick the basic processes related to effective child care.

5.3.5 Use of continuous quality improvement programmes and methods

Quality improvement is not a static concept, but rather a continually emerging, dynamic system property. Many different methods are used to continuously assure and improve quality of health care, including broad clinical governance mechanisms; peer review and clinical audit; individual feedback; supervision and training; clinical decision support tools based on guidelines; and multidisciplinary learning collaboratives. A basic tenet underlying continuous quality improvement is activated learning mechanisms using iterative cycles of change. Further, an avoidance of "blaming and shaming" is central in avoiding the risk of promoting fear and resistance rather than

enthusiastic engagement in a shared pursuit of improved performance. There is no single effective method. Multiple interventions must be used in combination and with an understanding of the specific context. The role of institutional culture becomes a critical consideration in deciding the specific blend of quality improvement methods based on the capacity and capabilities that exist.

5.3.6 Establishing performance-based incentives (financial and non-financial)

Incentives can be either financial, such as payment, or non-financial, such as recognition and awards. Performance-based financing is a broad term for the payment of health providers based on some set of performance measures and is increasingly used as a quality lever. Models include value-based purchasing; readmission penalties; withholding payment for medical errors; and performance programmes focused on strengthening primary care. The amount contingent on performance is a subcomponent of the full payment, based on a range of financing modalities. Evidence remains mixed about the ability of pay-for-performance programmes to change health outcomes by themselves. However, incentives – both financial and increasingly recognized non-financial approaches – can serve an important motivating and sustaining function when used as part of a robust quality improvement programme. At the same time, attention is required in order to avoid disincentives for quality (such as payment systems that encourage excess medicine use).

5.3.7 Legislation and regulation

Governments use both legislation and regulation to achieve national health objectives. Legislation directed at improving quality of health services may address a wide range of issues, such as coverage and benefits; establishment of new (or empowerment of current) national bodies; payment reform; licensing of facilities and individual providers; and public performance reporting. Regulation is the range of factors outside clinical practice or the management of health care that influences behaviour in delivering or using health services *(114)*. Regulation usually targets the activities of institutional and individual providers; health insurance organizations; pharmaceutical and device manufacturers; and consumers or patients. Various regulatory interventions often fail to meet their intended objectives, in part because responsible agencies lack capacity for enforcement. Regulation of private sector activity is increasingly important, given the large proportion of total services delivered.

Box 5.4 provides a case study illustrating the use of legislation and regulation to support health care quality goals in Ontario, Canada.

Box 5.4 **Case study: Ontario, Canada – Excellent Care for All Act and Strategy**

With its large land mass and heterogeneous population of over 13.5 million, including First Nations, provision of equal access to high-quality care is challenging in Ontario. As with all Canadian provinces, Ontario has a single payer health system; about two thirds of health care expenditure is publicly funded, while one third is paid directly by patients or private insurance plans.

Various studies have found that the relationship between quality and funding is generally weak in Ontario, and a major goal of current health system reforms is to improve that linkage. The Excellent Care for All Act became law in 2010, with the Excellent Care for All Strategy forming the vehicle for implementation.

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The act mandates quality committees of the board in health sector organizations, and requires surveys of satisfaction for patients, families and employees. In addition, health care organizations must develop and publicly post a patient declaration of values and a quality improvement plan. The Excellent Care for All Act also created an expanded provincial quality agency, Health Quality Ontario, with a mandate to undertake health system performance monitoring and public reporting, support quality improvement, and promote the provision of best-quality health care. At the organizational level, regulations govern quality assurance and safety in hospitals, nursing homes, laboratories, and other health care settings, and health regulatory colleges have been established to ensure that health professionals provide services in a safe, responsible and ethical manner.

While 65% of Ontarians rate their health status as excellent or very good, this average masks significant geographical and population variations; for example, the poorest quintile is twice as likely to report having multiple chronic conditions than the richest quintile. In response, a continued focus on leadership, accountability, and alignment of incentives and goals for improvement will continue to be cornerstones of Ontario's strategy for a higher-quality health care system.

Source: ICES *(115)*, Ministry of Health and Long-term Care *(116)*.

5.4 CONSIDERATION AND SELECTION OF QUALITY INTERVENTIONS

While the seven categories of action provide a broad map of the performance improvement terrain, there is a further need to specify key quality interventions. Selecting the "right" intervention is seldom possible. No single intervention will satisfy all needs. Even interventions that are non-controversial, such as protocols for hand hygiene, are ineffective if not implemented by considering organizational culture and staff attitudes and motivation. Linkage with national goals – designed to withstand political changes – is central to long-term sustainability.

Any ambition to improve quality will require a multimodal approach, using a combination of interventions. Some approaches, like accreditation of facilities, may not have a direct impact on health outcomes but can be important in building public trust and in promoting a culture of quality within the health care system. Programmes that focus only on provider behaviour fail to recognize that the wider environment of health care is pivotal in facilitating or hindering best practice. For example, appropriate prescribing of antibiotics often depends on a physician whose behaviour can be influenced by practice guidelines, performance feedback, peer review, training and supervision, financial incentives, availability of a sufficient variety of antibiotics and patient expectation. The complexity of change becomes apparent.

The illustrative interventions in Table 5.1 have been identified for the following attributes: relevant in a wide variety of countries globally; commonly considered as options; having some evidence to guide selection and use; and implementable at multiple levels, from small primary care clinics to the level of a national programme.

The context within which these interventions are applied is pivotal in maintaining the credibility of quality improvement endeavours. For example, developing a multimodal quality intervention strategy for a health facility without adequate water supply provides an immediate reality check for quality enthusiasts – data on water, sanitation and hygiene from health facilities across the world provide a clear context for action on the structures required for quality.

The list presented is not exhaustive; other interventions could be included. This set of interventions has been selected for their potential impact on quality by reducing harm, improving front-line delivery of health care services, and building systemwide capacity for quality improvement. The illustrative interventions are not ranked by effectiveness but point to some of the options and possibilities available to health system leaders, managers, practitioners or policy-makers intent on advancing quality of care. The interventions are presented as simply as possible, highlighting the salient issues. However, none is simple to implement. The multiple interventions grouped under system environment touch on a number of the seven categories mentioned above.

Table 5.1   **Illustrative quality interventions**

Category	Interventions
System environment	• **Registration and licensing** of doctors and other health professionals, as well as health organizations, is often considered a key determinant and foundation of a well performing health system.
	• **External evaluation and accreditation** is the public recognition, by an external body (public sector, non-profit or for-profit), of an organization's level of performance across a core set of prespecified standards.
	• **Clinical governance** is a concept used to improve management, accountability and the provision of quality health care. It incorporates clinical audit; clinical risk management; patient or service user involvement; professional education and development; clinical effectiveness research and development; use of information systems; and institutional clinical governance committees.
	• **Public reporting and comparative benchmarking** is a strategy often used to increase transparency and accountability on issues of quality and cost in the health care system by providing consumers, payers, health care organizations and providers with comparative information on performance.
	• **Performance-based financing and contracting** is a broad term for the payment of health providers based on some set of performance measures and is increasingly used as a quality lever. The amount contingent on performance is often a subcomponent of the full payment, which may be based on a range of financing modalities.
	• **Training and supervision of the workforce** are among the most common interventions to improve the quality of health care in low- and middle-income countries.
	• **Medicines regulation** to ensure quality-assured, safe and effective medicines, vaccines and medical devices is fundamental to a functioning health system. Regulation, including post-marketing surveillance, is needed to eliminate substandard and falsified medicines based on international norms and standards.
Reducing harm	• **Inspection of institutions for minimum safety standards** can be used as a mechanism to ensure there is a baseline capacity and resources to maintain a safe clinical environment.
	• **Safety protocols**, such as those for hand hygiene, address many avoidable risks that threaten the well-being of patients and cause suffering and harm.
	• **Safety checklists**, such as the WHO Surgical Safety Checklist and Trauma Care Checklist, can have a positive impact on reducing both clinical complications and mortality.
	• **Adverse event reporting** documents an unwanted medical occurrence in a patient resulting from specific health services or during patient medical encounters in a medical care setting and should be linked to a learning system.

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Category	Interventions
Improvement in clinical care	• **Clinical decision support tools** provide knowledge and patient-specific information (automated or paper based) at appropriate times to enhance front-line health care delivery. • **Clinical standards, pathways and protocols** are tools used to guide evidence-based health care that have been implemented internationally for decades. Clinical pathways are increasingly used to improve care for diverse high-volume conditions. • **Clinical audit and feedback** is a strategy to improve patient care through tracking adherence to explicit standards and guidelines coupled with provision of actionable feedback on clinical practice. • **Morbidity and mortality reviews** provide a collaborative learning mechanism and transparent review process for clinicians to examine their practice and identify areas of improvement, such as patient outcomes and adverse events, without fear of blame. • **Collaborative and team-based improvement cycles** are a formalized method for hospitals or clinics to work together on improvement around a focused topic area over a fixed period of time with shared learning mechanisms.
Patient, family and community engagement and empowerment	• **Formalized community engagement and empowerment** refers to the active and intentional contribution of community members to the health of a community's population and the performance of the health delivery system, and can function as an additional accountability mechanism. • **Health literacy** is the capacity to obtain and understand basic health information required to make appropriate health decisions on the part of patients, families and wider communities consistently, and is intimately linked with quality of care. • **Shared decision-making** is often employed to more appropriately tailor care to patient needs and preferences, with the goal of improving patient adherence and minimizing unnecessary future care. • **Peer support and expert patient groups** link people living with similar clinical conditions in order to share knowledge and experiences. It creates the emotional, social and practical support for improving clinical care. • **Patient experience of care** has received significant attention as the basis of designing improvements in clinical care. Patient-reported measures are important unto themselves; patients who have better experience are more engaged with their care, which may contribute to better outcomes. • **Patient self-management tools** are technologies and techniques used by patients and families to manage health issues outside formal medical institutions and are increasingly viewed as a means to improve clinical care.

5.5 CONCLUSION

Improving health system performance requires choices and judgements during the promulgation of policy, prioritization of national quality goals, engagement of key stakeholders and selection of quality-related interventions. The infrastructure, context, culture and traditions of health care in a country and locality are central in deciding which levers to apply.

A successful national quality strategy is multifaceted and uses many interventions in concert (Table 5.2), from those that put the patient at the centre of the care process, to those that support health workers to set standards and work effectively in teams. Leaders, managers and policy-makers play a critical role in supporting and enabling environments in which standard setting, performance-based incentives, regulation and other interventions can flourish.

Table 5.2 **Quality-related interventions: engaging key actors**

Actors	Roles
Government	• Definition of national priorities and quality goals • Provision of essential quality infrastructure, e.g. information technology, utilities • Improvement of regulation • Reporting data for transparency and motivation • Inspection and licensing of health care providers
Health care facilities	• Clinical governance • Establishing care protocols and clinical pathways • Clinical decision support • Use of safety protocols • Inter-institutional learning mechanisms
Clinical providers	• Clinical standards and patient pathways • Monitoring adherence to standards of care • Peer review and clinical audit • Shared decision-making
Patients and public	• Patient, family and community engagement • Patient education and self-management • Participation in governance • Patient feedback on experience of care

One of the biggest obstacles to health care improvement is a reluctance to acknowledge the problems that exist *(117–119)*. Another is the difficulty of selecting effective interventions and competently implementing them. The importance of leadership is something of a mantra in the field of health care quality improvement, but without it there is no way to inspire belief that improvement is possible to catalyse collective action. Another key driver of success is proof that the intervention is working. It is here that data collection and feedback are indispensable. However, local teams may lack experience in collecting and interpreting data. They may struggle with data collection systems that are poorly designed for monitoring quality *(120)*. Excessively burdensome measures may be seen as a waste of time, while poorly chosen measures can provoke gaming and perverse incentives. Getting the monitoring aspect right from the start is vital, and this means integrating measurement systems into improvement and making sure that they are adequately resourced *(121, 122)*.

Developing national quality policy and strategies is a priority if improvement is to be an integral part of the way that the health care system operates. Nationally driven efforts are required to develop and implement a coherent approach to quality that uses multiple levers to secure the positive change being called for by populations across the world.

Box 5.5 outlines key actions that can be taken to ensure that levers to improve quality are fully utilized.

Box 5.5 Key actions: understanding levers to improve quality

To ensure that multiple levers are used to improve quality in health care, governments, policy-makers, health system leaders, patients and clinicians should work together to:

1. Develop, refine and execute a national quality policy and strategy, by:

- adopting a definition of quality that is applicable in the local context;
- conducting a situational analysis of the current state of quality;
- involving the range of key stakeholders in its formulation;
- identifying (or creating) organizational structures that can provide governance, leadership and technical capacity in quality;
- ensuring that quality is integrated across ministry of health functions.

2. Adopt and promote universal quality goals, by:

- setting realistic and measurable targets to reduce harm and improve care;
- working with professional bodies to establish areas of care to improve clinical effectiveness;
- engaging and empowering patients, families and communities;
- building systemic capacity for ongoing quality improvement activities;
- establishing and activating learning systems for continuous improvement.

3. Design a quality strategy that includes a set of quality interventions, by:

- examining carefully the evidence-based quality improvement interventions in relation to the systems environment, reducing harm, improvement in clinical care, and patient, family and community engagement and empowerment.

4. Monitor and report quality of care results for continuous improvement efforts

My Quality

Dr M. R. Rajagopal, palliative care specialist
Trivandrum, India

Today's hospitals are no place for the dying. Both culturally and clinically they are mostly unsuited to provide end-of-life care, according to Dr M. R. Rajagopal, the "father" of palliative care in India.

The former consultant anaesthetist has spent over 20 years developing care for the dying in the tiny green and fertile state of Kerala in the south-west of the country. Today, with 3% of India's population, Kerala has two thirds of the country's palliative care services.

His interest developed when he was working as an anaesthetist at Calicut Medical College in northern Kerala in the early 1990s. He recognized early on that tackling pain and supporting the dying could not be achieved by medical staff alone. The need was too great. It would depend on harnessing the commitment of volunteers.

"Pain is just the visible part of the iceberg of suffering. What is ignored is the part below the surface – feelings of hopelessness and despair, worries about children, about money. That is what palliative care is about."

The movement grew and today he estimates there are 300 voluntary groups across the state (there are no official figures), providing care to patients in their own homes, identifying those in need and helping direct limited medical resources to where they can do most good. The "Kerala model" now attracts attention from around the world.

After moving to Trivandrum in the south, in 2006 he founded Pallium India, which supports 11 voluntary groups and five mobile medical teams providing palliative care in the area, as well as campaigning to improve palliative care throughout India. Now aged 69, he still visits patients at home and teaches younger colleagues how to approach them.

"If I wear a tie, hold myself with muscular rigidity, and talk only about pain, I will not discover much. With a different, gentler approach, placing a hand on the patient's arm, they will talk about deeper problems."

He warns about the importance of language. "You can do harm with the wrong dose of a medicine – and equally with a wrong word."

As diagnosis and treatment have become increasingly dependent on technology, something has been lost, he says. The growth of the commercial health care industry, driven by profit, has compounded the sense of alienation. The result is that the disease has become more important than the person who has it. Most doctors believe they have a duty to prolong life, rather than ease death. Cure has come to matter more than care.

"The patient has become a bit of a stranger amidst the machines. The health care system seems to have forgotten that health is not just the absence of disease but the presence of physical, mental and social well-being."

He argues that every hospital must integrate palliative care with its disease-focused work. Most people, given the choice and the appropriate care, would choose to die at home, surrounded by their loved ones. But some feel more secure in a hospital environment, with their familiar doctor close at hand. It should be a personal choice, he says.

Having access to pain relief is vital to that choice but morphine is not easy to obtain. Figures show India uses 320 kilograms of morphine a year, just 1% of the amount required to meet the need.

It is not the cost that restricts access, but the law. Morphine has been highly restricted in India since 1985 because of fears about drug abuse. As a result, two generations of doctors have grown up unfamiliar with it, condemning millions of terminally ill patients to an unnecessarily painful death.

Here, too, Kerala has led the way. Since 1995, palliative care centres in Kerala have been permitted to administer morphine orally. Dr Raj's institution is now a WHO Collaborating Centre for Training and Policy on Access to Pain Relief and plays host to a stream of international visitors.

"Health care should be a partnership between the doctor, the patient and the family. Doctors should not work alone but with nurses and counsellors, volunteers from the community and social workers. My duty is to build a relationship with my patients and their families and care for them as human beings. Life is not just existence – there is more to it than that."

Chapter 6 The quality call to action

6.1 SUSTAINABLE DEVELOPMENT, QUALITY AND THE WAY FORWARD

The health-related SDGs cannot be achieved through reliance on disease-specific achievements or financial reforms alone. It requires a strong commitment to creating people-centred, high-quality health services. Achieving universal health coverage built on a firm foundation of safe, high-quality care, together with all that is necessary to sustain it, is the imperative facing policy-makers today.

Most past efforts at quality improvement have relied on project-based methodologies. They have shown little promise for scale-up and sustainability. More focus is needed on the foundations of high-quality health services across the care continuum. Offering high-quality health services also means linking financial reforms and reorientation of the delivery model to goals on quality of care. Finally, building on strong foundations, health systems offering sustainable improvements in quality must use national quality policy and strategy tools to create an environment where local, regional and national champions can extend and expand what is working to improve services. In such an environment, governments and providers will make locally appropriate choices on which quality improvement interventions could have the greatest impact on improving the system environment, on reducing harm, on improving clinical care and on engaging and empowering patients, families and communities.
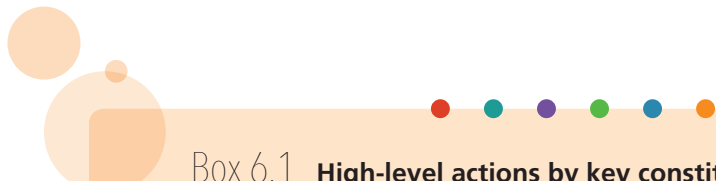
Advancing quality improvement, universal health coverage and people-centred approaches within the complexity of health systems requires systems thinking – a deliberate and comprehensive understanding of the dynamics of health systems in order to make them change for the better. By decoding the complexity of the health system, systems thinking helps foster systemwide implementation and evaluation of those interventions that are needed to support the achievement of health goals – equitably, sustainably and effectively.

6.2 CALL TO ACTION

This document, from the perspective of three global institutions concerned with health – OECD, the World Bank and WHO – proposes a way forward for health policy-makers seeking to achieve the goal of access to high-quality, people-centred health services for all. In this chapter, a series of high-level actions are called for from each of the key constituencies that needs to work together with a sense of urgency to enable the promise of the SDGs for better, safer health care to be realized (Box 6.1).

While no single actor will be able to effect all these changes, an integrated approach whereby different actors work together to achieve their part of the quality call to action will have a demonstrable effect on the quality of health services around the world.
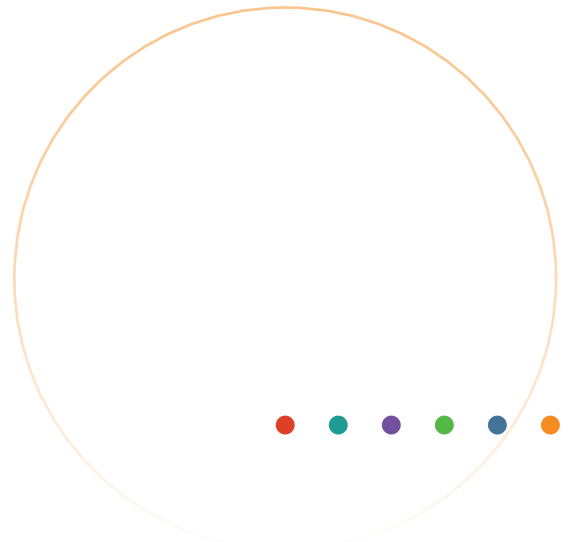
Box 6.1 **High-level actions by key constituencies for quality in health care**

All governments should:

- have a national quality policy and strategy;
- demonstrate accountability for delivering a safe high-quality service;
- ensure that reforms driven by the goal of universal health coverage build quality into the foundation of their care systems;
- ensure that health systems have an infrastructure of information and information technology capable of measuring and reporting the quality of care;
- close the gap between actual and achievable performance in quality;
- strengthen the partnerships between health providers and health users that drive quality in care;
- establish and sustain a health professional workforce with the capacity and capability to meet the demands and needs of the population for high-quality care;
- purchase, fund and commission based on the principle of value;
- finance quality improvement research.

All health systems should:

- implement evidence-based interventions that demonstrate improvement;
- benchmark against similar systems that are delivering best performance;
- ensure that all people with chronic disease are enabled to minimize its impact on the quality of their lives;
- promote the culture systems and practices that will reduce harm to patients;
- build resilience to enable prevention, detection and response to health security threats through focused attention on quality;
- put in place the infrastructure for learning;
- provide technical assistance and knowledge management for improvement.

All citizens and patients should:

- be empowered to actively engage in care to optimize their health status;
- play a leading role in the design of new models of care to meet the needs of the local community;
- be informed that it is their right to have access to care that meets achievable modern standards of quality;
- receive support, information and skills to manage their own long-term conditions.

All health workers should:

- participate in quality measurement and improvement with their patients;
- embrace a practice philosophy of teamwork;
- see patients as partners in the delivery of care;
- commit themselves to providing and using data to demonstrate the effectiveness and safety of the care.

References

1. Allemani C, Matsuda T, Di Carlo V, Harewood R, Matz M, Nikšić M et al. Global surveillance of trends in cancer survival 2000–14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. Lancet. 2018. doi:10.1016/S0140-6736(17)33326-3 [Epub ahead of print].

2. Health at a glance 2017: OECD indicators. Paris: Organisation for Economic Cooperation and Development; 2017 (http://dx.doi.org/10.1787/health_glance-2017-en, accessed 24 February 2018).

3. Tackling wasteful spending on health. Paris: Organisation for Economic Cooperation and Development; 2017 (http://dx.doi.org/10.1787/9789264266414-en, accessed 24 February 2018).

4. Pittet D, Donaldson L. Clean care is safer care: a worldwide priority. Lancet. 2005;366:1246–7.

5. McGlynn EA, Asch SM, Adams J, Keesy J, Hicks J, DeCristofaro A et al. The quality of health care delivered to adults in the United States. New England Journal of Medicine. 2003;348(26):2635–45.

6. Runciman WB, Hunt TD, Hannaford NA, Hibbert PD, Westbrook JI, Coiera EW et al. CareTrack: assessing the appropriateness of health care delivery in Australia. Medical Journal of Australia. 2012;197(2):100–5. doi:10.5694/mja12.10510.

7. Health at a glance 2015: OECD indicators. Paris: Organisation for Economic Cooperation and Development; 2015 (http://apps.who.int/medicinedocs/documents/s22177en/s22177en.pdf, accessed 24 February 2018).

8. WHO fact sheet on antimicrobial resistance. Geneva: World Health Organization; 2018 (http://www.who.int/mediacentre/factsheets/fs194/en, accessed 24 February 2018).

9. Advancing the responsible use of medicines: applying levers for change. IMS Institute for Health Care Informatics; 2013 (http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2222541, accessed 24 February 2018).

10. World health statistics 2016: monitoring health for the Sustainable Development Goals. Geneva: World Health Organization; 2016 (http://who.int/gho/publications/world_health_statistics/2016/EN_WHS2016_TOC.pdf, accessed 24 February 2018).

11. Lawn JE, Blencowe H, Waiswa P, Amouzou A, Mathers C, Hogan D et al. Stillbirths: rates, risk factors, and acceleration towards 2030. Lancet. 2016;387(10018)587–603. doi:10.1016/S0140–6736(15)00837–5.

12. Water, sanitation and health. Geneva: World Health Organization (http://www.who.int/water_sanitation_health/en/, accessed 24 February 2018).

13. Tracking universal health coverage: first global monitoring report. World Health Organization and World Bank; 2015 (http://www.who.int/healthinfo/universal_health_coverage/report/2015/en/, accessed 24 February 2018).

References

14. Slawomirski L, Auraaen A, Klazinga N. The economics of patient safety: strengthening a value-based approach to reducing patient harm at national level. OECD Health Working Paper No. 96. Paris: Organisation for Economic Cooperation and Development; 2017 (http://dx.doi.org/10.1787/5a9858cd-en, accessed 24 February 2018).

15. Caring for quality in health: lessons learnt from 15 reviews of health care quality. Paris: Organisation for Economic Cooperation and Development; 2017 (http://dx.doi.org/10.1787/9789264267787-en, accessed 24 February 2018).

16. Speakers and moderators at the Policy Forum on the Future of Health: statement by Donald M. Berwick. Paris: Organisation for Economic Cooperation and Development (http://www.oecd.org/health/ministerial/policy-forum/speakers.htm, accessed 24 February 2018).

17. Arah OA, Westert GP, Hurst J, Klazinga NS. A conceptual framework for the OECD Health Care Quality Indicators Project. International Journal for Quality in Health Care. 2006;Suppl 1:5–13.

18. Health workforce policies in OECD countries: right jobs, right skills, right places. Paris: Organisation for Economic Cooperation and Development; 2016 (http://dx.doi.org/10.1787/9789264239517-en, accessed 24 February 2018).

19. Braithwaite J, Herkes J, Ludlow K, Testa L, Lamprell G. Association between organisational and workplace cultures, and patient outcomes: a systematic review. BMJ Open. 2017;7(11).

20. Citizen Voice and Action: civic demand for better health and education services. World Vision International; 2012 (https://www.wvi.org/local-advocacy/publication/citizen-voice-and-action-project-model, accessed 24 February 2018).

21. OECD reviews of health systems: Costa Rica 2017. Paris: Organisation for Economic Cooperation and Development; 2017.

22. Monitoring health inequality: an essential step for achieving health equity. Geneva: World Health Organization; 2015.

23. Leslie HH, Ndiaye Y, Kruk ME. Effective coverage of primary care services in eight high-mortality countries. BMJ Global Health. 2017;e000424.

24. Kruk ME, Leslie HH, Verguet S, Mbaruku GM, Adanu RMK, Langer A. Quality of basic maternal care functions in health facilities of five African countries: an analysis of national health system surveys. Lancet Global Health. 2016;4(11):e845–55.

25. Leslie HH, Fink G, Nsona H, Kruk ME. Obstetric facility quality and newborn mortality in Malawi: a cross-sectional study. PLoS Medicine. 2016;13(10):e1002151.

26. Ng M, Misra A, Diwan V, Agnani M, Levin-Rector A, De Costa A. An assessment of the impact of the JSY cash transfer program on maternal mortality reduction in Madhya Pradesh, India. Global Health Action. 2014;7(1):24939.

27. Velenyi EV. Health care spending and economic growth. In: World scientific handbook of global health economics and public policy. 2016:1–154.

28. Stenberg K, Hanssen O, Tan-Torres Edejer T, Bertram M, Brindley C, Meshreky A 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. Lancet Global Health. 2017;5(9):e875–87.

29. Abegunde D. Inefficiencies due to poor access to and irrational use of medicines to treat acute respiratory tract infections in children. World health report 2010: Background Paper No. 52. Geneva: World Health Organization (http://www.who.int/healthsystems/topics/financing/healthreport/whr_background/en, accessed 25 February 2018).

30. Ministerial statement: the next generation of health reforms. OECD Health Ministerial Meeting, 17 January 2017. Paris: Organisation for Economic Cooperation and Development (http://www.oecd.org/health/ministerial/ministerial-statement-2017.pdf, accessed 27 February 2018).

31. Institute of Medicine. Medicare: a strategy for quality assurance, volume I. Washington (DC): National Academies Press; 1990 (https://doi.org/10.17226/1547, accessed 25 February 2018).

32. Institute of Medicine. Crossing the quality chasm: a new health system for the 21st century. Washington (DC): National Academies Press; 2001 (https://doi.org/10.17226/10027, accessed 25 February 2018).

33. Maternal, newborn, child and adolescent health: what is quality of care and why is it important? Geneva: World Health Organization (http://www.who.int/maternal_child_adolescent/topics/quality-of-care/definition/en/, accessed 25 February 2018).

34. Global Health Observatory data. Geneva: World Health Organization (http://www.who.int/gho, accessed 26 February 2018).

35. Data for measuring health care quality and outcomes: OECD Health Care Quality Indicators Project. Paris: Organisation for Economic Cooperation and Development (http://www.oecd.org/els/health-systems/health-care-quality-indicators.htm, accessed 26 February 2018).

36. DataBank: Service Delivery Indicators. Washington (DC): World Bank (http://databank.worldbank.org/data/reports.aspx?source=service-delivery-indicators, accessed 26 February 2018).

37. Demographic and Health Surveys. DHS Program (https://dhsprogram.com/, accessed 26 February 2018).

38. Donabedian A, Wheeler JR, Wyszewianski L. Quality, cost, and health: an integrative model. Medical Care. 1982;10:975–92.

39. Das J, Holla A, Das V, Mohanan M, Tabak D, Chan B. In urban and rural India, a standardized patient study showed low levels of provider training and huge quality gaps. Health Affairs. 2012;31(12):2774–84.

40. Martin GH, Pimhidzai O. Kenya service delivery indicators. Washington (DC): World Bank; 2013.

41. Peabody JW, Tozija F, Muñoz JA, Nordyke RJ, Luck J. Using vignettes to compare the quality of clinical care variation in economically divergent countries. Health Services Research. 2004;39(6 Pt 2):1951–70.

42. Leonard KL, Melkiory CM, Vialou A. Getting doctors to do their best: the roles of ability and motivation in health care. Journal of Human Resources. 2007;42(3):682–700.

43. Rethans JJ, Sturmans F, Drop R, Van der Vleuten CPM, Hobus P. Does competence of general practitioners predict their performance? Comparison between examination setting and actual practice. BMJ. 1991;303(6814):1377–80.

References

44. Das J, Hammer J, Leonard K. The quality of medical advice in low-income countries: facts and economics. Journal of Economic Perspectives. 2008;22(2):93–114.

45. Graversen L, Christensen B, Borch-Johnsen K, Lauritzen T, Sandbaek A. General practitioners' adherence to guidelines on management of dyslipidaemia: ADDITION-Denmark. Scandinavian Journal of Primary Health Care. 2010;28(1):47–54.

46. Kingston-Riechers J, Ospina M, Jonsson E, Childs P. McLeod L, Maxted JM. Patient safety in primary care. Edmonton, AB: Canadian Patient Safety Institute and BC Patient Safety and Quality Council; 2010.

47. Levinson DR. Adverse events in skilled nursing facilities: national incidence among Medicare beneficiaries. Department of Health and Human Services, United States of America; 2014.

48. Etchells E, Koo M, Shojania K, Matlow A. The economics of patient safety in acute care. Canadian Patient Safety Institute; 2012.

49. Wilson RM, Michel P, Olsen S, Gibberd RW, Vincent C, El-Assady R et al. Patient safety in developing countries: retrospective estimation of scale and nature of harm to patients in hospital. BMJ. 2012;344:e832.

50. Patient experience with ambulatory care. In: Health at a glance 2015: OECD indicators. Paris: Organisation for Economic Co-operation and Development; 2015.

51. Rosen HE, Lynam PF, Carr C, Reis V, Ricca R, Bazant ES et al. on behalf of the Quality of Maternal and Newborn Care Study Group of the Maternal and Child Health Integrated Program. Direct observation of respectful maternity care in five countries: a cross-sectional study of health facilities in East and Southern Africa. BMC Pregnancy and Childbirth. 2015;15(1):306.

52. Asefa A, Bekele D. Status of respectful and non-abusive care during facility-based childbirth in a hospital and health centres in Addis Ababa, Ethiopia. Reproductive Health. 2015;12(1):33.

53. Andaleeb SS. Service quality perceptions and patient satisfaction: a study of hospitals in a developing country. Social Science and Medicine. 2001;52(9):1359–70.

54. Dansky KH, Miles J. Patient satisfaction with ambulatory healthcare services: waiting time and filling time. Journal of Healthcare Management. 1997;42(2):165.

55. Bar-dayan Y. Waiting time is a major predictor of patient satisfaction in a primary military clinic. Military Medicine. 2002;167(10):842.

56. Calvello EJ, Skog AP, Tenner AG, Wallis LA. Applying the lessons of maternal mortality reduction to global emergency health. Bulletin of the World Health Organization. 2015;93(6):417–23.

57. Banerjea K, Carter AO. Waiting and interaction times for patients in a developing country accident and emergency department. Emergency Medicine Journal. 2006;23(4):286–90.

58. Oche MO, Adamu H. Determinants of patient waiting time in the general outpatient department of a tertiary health institution in north western Nigeria. Annals of Medical and Health Sciences Research. 2013;3(4):588–92.

59. United States National Healthcare Disparities Report. United States Department of Health and Human Services, Agency for Healthcare Research and Quality; 2015.

60. Hospital care for heart attacks among First Nations, Inuit and Métis. Canadian Institute for Healthcare Information; 2013 (https://secure.cihi.ca/free_products/HeartAttacksFirstNationsEn-Web.pdf, accessed 26 February 2018).

61. Sharma J, Leslie HH, Kundu F, Kruk ME. Poor quality for poor women? Inequities in the quality of antenatal and delivery care in Kenya. PLoS ONE. 2017;12(1):e0171236.

62. Das J, Mohpal A. Socioeconomic status and quality of care in rural India: new evidence from provider and household surveys. Health Affairs. 2016;35(10):1764–73.

63. Schoen C, Osborn R, Squires D, Doty MM, Pierson R, Applebaum S. New 2011 survey of patients with complex care needs in 11 countries finds that care is often poorly coordinated. Health Affairs (Millwood). 2011;30(12):2437–48.

64. Barker I, Steventon A, Deeny SR. Association between continuity of care in general practice and hospital admissions for ambulatory care sensitive conditions: cross-sectional study of routinely collected, person-level data. BMJ. 2017;356:j84http://dx.doi.org/10.1136/bmj.j84.

65. World health report 2010. Health systems financing: the path to universal coverage. Geneva: World Health Organization; 2010.

66. Brownlee S, Chalkidou K, Doust J, Elshaug AG, Glasziou P, Heath I et al. Evidence for overuse of medical services around the world. Lancet. 2017;390(10090):156–68.

67. Health care systems: efficiency and policy settings. Paris: Organisation for Economic Co-operation and Development; 2010 (http://dx.doi.org/10.1787/9789264094901-en, accessed 26 February 2018).

68. Strengthening integrated, people-centred health services. Resolution WHA69.24, adopted at the World Health Assembly, 28 May 2016. Geneva: World Health Organization; 2016.

69. Global Strategy on Human Resources for Health: Workforce 2030. Geneva: World Health Organization; 2016 (http://www.who.int/hrh/resources/globstrathrh-2030/en/, accessed 26 February 2018).

70. Perry HB, Zulliger R, Rogers MM. Community health workers in low-, middle-, and high-income countries: an overview of their history, recent evolution, and current effectiveness. Annual Review of Public Health. 2014;35(1):399–421.

71. Gilmore B, McAuliffe E. Effectiveness of community health workers delivering preventive interventions for maternal and child health in low-and middle-income countries: a systematic review. BMC Public Health. 2013;13:847.

72. Thapa A, Chaudhary P, Schwarz R. Embracing global standards for community health care on Nepal's path towards universal health coverage. The Lancet Global Health Blog, 26 January 2018 (http://globalhealth.thelancet.com/2018/01/26/embracing-global-standards-community-health-care-nepals-path-towards-universal-health, accessed 26 February 2018).

73. Andrabi T, Das J, Khwaja AI. Delivering education: a pragmatic framework for improving education in low-income countries. Policy Research Working Paper No. WPS 7277. Washington (DC): World Bank; 2015 (http://documents.worldbank.org/curated/en/439891468001164200/Delivering-education-a-pragmatic-framework-for-improving-education-in-low-income-countries, accessed 26 February 2018).

References

74. Frenk J, Chen L, Bhutta ZA, Cohen J, Crips N, Evans T et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. Lancet. 2010;376(9756):1923–58.

75. Guidelines on transforming and scaling up health professionals' education and training. Geneva: World Health Organization; 2013 (http://whoeducationguidelines.org/content/about-guidelines, accessed 26 February 2018).

76. Increasing access to health workers in remote and rural areas through improved retention: global policy recommendations. Geneva: World Health Organization; 2010.

77. Cristobal F, Worley P. Can medical education in poor rural areas be cost-effective and sustainable: the case of the Ateneo de Zamboanga University School of Medicine. Rural and Remote Health. 2012;12:1835.

78. Leslie HH, Spiegelman D, Zhou X, Kruk ME. Service readiness of health facilities in Bangladesh, Haiti, Kenya, Malawi, Namibia, Nepal, Rwanda, Senegal, Uganda and the United Republic of Tanzania. Bulletin of the World Health Organization. 2017;95:738–48.

79. Spurring improvements in primary health care. Primary Health Care Performance Initiative (https://www.phcperformanceinitiative.org, accessed 26 February 2018).

80. Brubakk K, Vist GE, Bukholm G, Barach P, Tjomsland O. A systematic review of hospital accreditation: the challenges of measuring complex intervention effects. BMC Health Services Research. 2015;15:280.

81. Flodgren G, Gonçalves-Bradley DC, Pomey MP. External inspection of compliance with standards for improved healthcare outcomes. Cochrane Database of Systematic Reviews. 2016;12:CD008992. doi:10.1002/14651858.CD008992.pub3.

82. Antimicrobial resistance: policy insights. Paris: Organisation for Economic Cooperation and Development; 2016 (http://www.oecd.org/health/antimicrobial-resistance.htm, accessed 27 February 2018).

83. Lewis PJ, Dornan T, Taylor D, Tully MP, Wass V, Ashcroft DM. Prevalence, incidence and nature of prescribing errors in hospital inpatients: a systematic review. Drug Safety. 2009;32:379–89.

84. The world medicines situation 2011: rational use of medicines. Geneva: World Health Organization; 2011 (http://www.who.int/medicines/areas/policy/world_medicines_situation/WMS_ch14_wRational.pdf, accessed 27 February 2018).

85. WHO baseline country survey on medical devices. Geneva: World Health Organization; 2013 (http://www.who.int/medical_devices/safety/en/, accessed 27 February 2018).

86. Cruz JR. Seeking a safer blood supply. Lancet. 2005;365(9469):1463–64.

87. Management of patient information: trends and challenges in Member States, based on the findings of the second Global Survey on eHealth. Geneva: World Health Organization; 2012.

88. Hagen TP, Häkkinen U, Belicza E, Fatore G, Goude F, and on behalf of the EuroHOPE study group. Acute myocardial infarction, use of percutaneous coronary intervention, and mortality: a comparative effectiveness analysis covering seven European countries. Health Economics. 2015;24:88–101.

89. European Collaboration for Healthcare Optimization (http://echo-health.eu, accessed 27 February 2018).

90. Data for health and sustainable development. Health Data Collaborative (https://www.healthdatacollaborative.org, accessed 27 February 2018).

91. Recommendation of the OECD Council on health data governance. Paris: Organisation for Economic Co-operation and Development; 2017 (http://www.oecd.org/health/health-systems/Recommendation-of-OECD-Council-on-Health-Data-Governance-Booklet.pdf, accessed 27 February 2018).

92. Case study on narrowing the gaps for equity, Uganda. Right to identity: using mobile technologies to improve delivery of, and access to, birth registration services for all children. UNICEF Eastern and Southern Africa Regional Office; 2012.

93. Better ways to pay for health care. Paris: Organisation for Economic Co-operation and Development; 2016 (http://dx.doi.org/10.1787/9789264258211-en, accessed 27 February 2018).

94. Recommendations to OECD ministers of health from the High Level Reflection Group on the Future of Health Statistics: strengthening the international comparison of health system performance through patient-reported indicators. Paris: Organisation for Economic Co-operation and Development; 2017 (https://www.oecd.org/els/health-systems/Recommendations-from-high-level-reflection-group-on-the-future-of-health-statistics.pdf, accessed 27 February 2018).

95. Deepening health reform in China: building high-quality and value-based service delivery. World Bank, World Health Organization, Ministry of Finance of China, National Health and Family Planning Commission of China, Ministry of Human Resources and Social Security of China; 2016.

96. Mills KT, Bundy JD, Kelly TN, Reed JE, Kearney PM, Reynolds K et al. Global disparities of hypertension prevalence and control: a systematic analysis of population-based studies from 90 countries. Circulation. 2016;134:441–50.

97. Bitton A, Ratcliffe HL, Veillard JH, Kress DH, Barkley S, Kimball M et al. Primary health care as a foundation for strengthening health systems in low- and middle-income countries. Journal of General Internal Medicine. 2017;32(5):566–71.

98. Eklund K, Wilhelmson K. Outcomes of coordinated and integrated interventions targeting frail elderly people: a systematic review of randomised controlled trials. Health and Social Care in the Community. 2009;17(5):447–58.

99. Leichsenring K. Developing integrated health and social care services for older persons in Europe. International Journal of Integrated Care. 2004;4:e10.

100. Patients for Patient Safety. Geneva: World Health Organization (http://www.who.int/patientsafety/patients_for_patient, accessed 27 February 2018).

101. Laverack G. Improving health outcomes through community empowerment: a review of the literature. Journal of Health, Population and Nutrition. 2006;24(1):113–20.

102. World health report 2008. Primary health care: now more than ever. Geneva: World Health Organization; 2008.

103. WHO Framework on Integrated, People-centred Health Services. Geneva: World Health Organization (http://www.who.int/servicedeliverysafety/areas/people-centred-care/en/, accessed 27 February 2018).

References

104. Quality of care: making strategic choices. Geneva: World Health Organization; 2006.

105. Leatherman S, Sutherland K. Designing national quality reforms: a framework for action. International Journal for Quality in Health Care. 2007;19(6):334–40.

106. Ethiopian National Health Care Quality Strategy 2016–2020: transforming the quality of health care in Ethiopia. Government of Ethiopia: Ministry of Health.

107. Juran J. Overcoming resistance to organizational change. Quality and Safety in Health Care. 2006;15:380–82. doi:10.1136/qhsc.2006.020016.

108. The INDICAS system. Government of Mexico: Ministry of Health (http://dgces. salud.gob.mx/INDICASII/index2.phpm accessed 2 March 2018).

109. Sarabia-González O, García-Saisó S, Cabrero-Castro E, Moreno-Sánchez P, Mayer-Rivera FJ, Delgado-Bernal M. Política de calidad en México [Quality policy in Mexico]. In: García-Saisó S, Hernández-Torres F, editors. La calidad de la atención a la salud en México a través de sus instituciones [The quality of health care in Mexico across its institutions], second edition. Government of Mexico, Ministry of Health; 2015:283–304 (in Spanish).

110. Ruelas E, Gómez-Dantés O, Morales W. Mexico. In: Braithwaite J, Matsuyama Y, Mannion R, Johnson J. Healthcare reform, quality and safety: perspectives, participants, partnerships and prospects in 30 countries. Ashgate; 2015:193–202.

111. Health care-associated infections: fact sheet. Geneva: World Health Organization; 2011 (http://www.who.int/gpsc/country_work/gpsc_ccisc_fact_ sheet_en.pdf, accessed 28 February 2018).

112. Standards for improving quality of maternal and newborn care in health facilities. Geneva: World Health Organization; 2016.

113. Morrison J, Thapa R, Hartley S, Osrin D, Manandhar M, Tumbahangphe K et al. Understanding how women's groups improve maternal and newborn health in Makwanpur, Nepal: a qualitative study. International Health. 2010;2(1):25–35.

114. Brennan TA, Berwick DM. New rules: regulation, markets, and the quality of American health care. BMJ. 1996;312:1108.

115. Payments to Ontario physicians from Ministry of Health and long-term care sources 1992/93 to 2009/10. ICES investigative report, February 2012 (https:// www.ices.on.ca/Publications/Atlases-and-Reports/2012/Payments-to-Ontario- Physicians, accessed 2 March 2018).

116. Excellent Care for All: legislation, regulations and policy. Government of Ontario, Ministry of Health and Long-term Care (http://www.health.gov.on.ca/ en/pro/programs/ecfa/legislation/, accessed 2 March 2018).

117. Dixon-Woods M, McNicol S, Martin G. Ten challenges in improving quality in healthcare: lessons from the Health Foundation's programme evaluations and relevant literature. BMJ. 2012;21:10.

118. Safer Patients Initiative phase one: mixed method evaluation of a large-scale organisational intervention to improve patient safety in four UK Hospitals. London: Health Foundation; 2011.

119. Ling T, Soper B, Buxton M, Hanney S, Oortwijn W, Scoggins A et al. How do you get clinicians involved in quality improvement? An evaluation of the Health Foundation's Engaging with Quality Initiative: a programme of work to support clinicians to drive forward quality. London: Health Foundation; 2010.

120. Learning report, Safer Patients Initiative: lessons from the first major improvement programme addressing patient safety in the UK. London: Health Foundation; 2011.

121. Needham DM, Sinopoli DJ, Dinglas VD, Berenholtz SM, Korupolu R, Watson SR et al. Improving data quality control in quality improvement projects. International Journal for Quality in Health Care. 2009;21(2):145–50.

122. Pronovost PJ, Nolan T, Zeger S, Miller M, Rubin H. How can clinicians measure safety and quality in acute care? Lancet. 2004;363(9414):1061–7.

Annex — **Improvement interventions**

This annex defines and presents further information and research on a selection of improvement interventions.

1. Licensing of health care providers is a key determinant of a well performing health system. However, emerging work looking at performance differences between licensed and unlicensed practitioners suggests that licensing alone is not enough to assure quality care. For example, a World Bank study on a rural area of India – where there are 15 times as many unqualified providers as those with a medical degree – found that formal training is not a guarantor of high quality. The study observed minor differences between trained and untrained doctors in adherence to safety checklists and no differences in the likelihood of providers giving the diagnosis or providing the correct treatment *(1)*. These findings suggest that formally trained doctors may know what they should be doing clinically but that further interventions are needed to ensure compliance with higher-quality standards of care *(2)*. Systematic monitoring of quality and individual feedback to providers, as well as patient education on provider competence, are other methods for improving quality of care *(3)*.

2. Accreditation is the public recognition, by an external body, of an organization's level of performance against a set of prespecified standards *(4)*. Accreditation can be granted by public sector, non-profit and for-profit bodies. Historically, metrics used to assess accreditation have been structural and process oriented, such as the presence of adequate medical equipment, staffing ratios and adherence to programmatic standards. Minimal research has been conducted on the relationship between accreditation and clinical outcomes. In one study in Egypt, mean patient satisfaction scores were significantly higher for accredited nongovernmental health units across a few domains: cleanliness, waiting area, waiting time, unit staff and overall satisfaction *(5)*. At least theoretically, accreditation offers some benefits, such as increased public trust and confidence, self-regulating behaviour on the part of health care institutions, and a basis for incentives and sanctions for performance management. Maintenance of an effective accreditation programme may be challenging, for several reasons: the need for additional resources to address structural and performance deficiencies of facilities in preparation for accreditation, continual adaptation to ensure standards are up to date with the evidence, and sustained funding for national or international accreditation *(6, 7)*. In many circumstances, a period of targeted technical assistance will be necessary prior to the implementation of an accreditation programme *(6)*.

3. Clinical governance includes the systematic promotion of activities such as clinical audit; clinical risk management; patient or service user involvement; professional education and development; clinical effectiveness research and development; use of information systems; and institutional clinical governance committees *(8)*. Clinical governance is a concept used to improve management, accountability and the provision of quality care. The National Health Service in the United Kingdom has pioneered large-scale implementation of clinical governance activities *(9)*. Although literature from low- and middle-income countries remains limited, a case study from Indonesia showed that clinical governance was used to improve maternal and newborn health in 22 hospitals *(10)*. The most acceptable mechanisms to drive clinical governance are

those that recognize professional leadership and are perceived as being locally relevant and allowing reflection on personal professional practice *(11)*.

4. Public reporting is a strategy used to increase transparency and accountability on issues of quality and cost in the health care system by providing consumers, payers, health care organizations and providers with comparative information on performance. It includes a broad range of approaches, such as report cards on hospital performance, comparative prices and costs in a community, and benchmarking on clinical indicators for providers. Public reporting has been implemented in several high-income countries, including Canada, the United Kingdom and the United States, where evidence shows that it catalyses improvement. In low-resource countries less has been published, but several cases are illustrative of potential impact. In Afghanistan, the Ministry of Public Health produced and released publicly a balanced scorecard *(12)*, using household survey and annual hospital survey data, which showed progressive improvement in the national scores between 2004 and 2008 in all six domains, including patient and community satisfaction, capacity for service provision, overall quality of services, and reduction of user fees *(13)*.

5. Performance-based financing is a broad term for remuneration provided to health care providers based on performance measures. Often the amount contingent on performance is a subcomponent of the full payment, which may be based on fee for service, capitation or other calculations. Payment can be allocated at the individual level or group level (for example hospital, department or care team). Evidence shows mixed success, depending on factors such as substantial buy-in from stakeholders, institutional capabilities, and the competency of the financing scheme or fund holder *(14–17)*. A field experiment from Rwanda suggests that performance-based financing may be feasible (and preferable to input-based financing) in sub-Saharan Africa *(15)*. The study found improvement across a number of access and knowledge indicators, for example 62% reduction in out-of-pocket costs, 144% increase in deliveries by skilled persons, and 23% increase in knowledge of HIV transmission risks through skin-piercing objects, but found no impact on clinical outcomes *(15)*. Similarly, results from a pilot in Nigeria found an increase in antenatal care visits, and the use of skilled delivery *(17)*.

6. Training and supervision of health workers are among the most common interventions to improve the quality of health care in low- and middle-income countries. Despite extensive investments from donors, evaluations of the long-term effect of these two interventions are scarce. One study found that training and supervision did not meaningfully improve quality of care for pregnant women or sick children in sub-Saharan Africa *(18)*. Another study from Benin found that workers who had received integrated management of childhood illness training plus study supports provided better care than those with training plus usual supports, and both groups performed better than untrained workers *(19)*. In a related project in Benin to strengthen supervision of health workers, after some initial success, many obstacles were encountered at multiple levels of the health system that led to a breakdown in supervision, including poor coordination, inadequate management skills, ineffective management teams, lack of motivation, decentralization, health worker resistance, less priority given to programme-specific supervision, supervision workload, non-supervision activities, incomplete implementation of project interventions, and loss of leadership and effective supervisors *(20)*. The study concluded that support from leaders is crucial, and that donors and politicians thus need to make supervision a priority *(20)*.

7. Medicines regulation improves the quality of medicines, both produced and available. While between 5% and 15% of WHO Member States report cases of

counterfeit medicines, this is probably a considerable underestimate. Globally, medicine regulation capacity is limited; WHO estimates that 30% of countries have no medicine regulation or a regulatory entity that does not function properly *(21)*. A study in Uganda assessed the effectiveness of national standard treatment guidelines on rational medicine prescribing and found significant improvement in the treatment of general cases, malaria and diarrhoea *(22)*. Due to the extent to which medicine regulatory authorities are both financially and human resource intensive, it can be challenging to ensure that guidelines are followed. This is noted to be the case especially in poorer countries *(21)*. It has been argued that resource-constrained countries should rely on the assessment of major medicine regulatory authorities, such as those in the United States and Europe, when assessing certain categories of medicines *(23)*. This does not solve the problem of enforcement, and high-income country guidelines may not align with the attributes other countries identify as most important. Best-practice prescribing strategies that have had proven success in both developing and industrialized countries include standard treatment guidelines, essential medicine lists, pharmacy and therapeutic committees, professional training, and targeted in-service education *(24)*.

8. Inspection of institutions for minimum safety standards can be used as a mechanism to ensure there is baseline capacity and resources to maintain a safe clinical environment. Although there is little formal literature on the inspection of institutions for minimum safety standards at the hospital or health centre level *(25)*, inspection factors known to improve safety practices include consistency between standards, approval of standards by a country's ministry, and proper supervision to communicate standards and help practitioners use them in everyday practice *(26)*. At the minimum, inspection standards can identify structural elements that are foundational for quality: a clean water source, reliable power and backup capacity, adequate coverage by skilled health care workers, clear management responsibility, complete medical records and accountability.

9. Safety protocols, such as those for hand hygiene, address many of the avoidable risks that threaten the well-being of patients and cause suffering and harm *(27)*. Health care-associated infections are the most frequent adverse event in health care delivery worldwide *(28)*, the most common being infections of surgical wounds, the blood stream, the urinary tract and the lower respiratory tract *(29)*. Yet, hand hygiene is a worldwide problem, with compliance rates averaging less than 40% *(30)*. Hand hygiene studies have shown an impact on hand hygiene rates ranging from 10% to almost 50% *(31, 32)*. Twenty hospital-based studies published between 1977 and 2008 showed an association between improved hand hygiene practices and reduced infection *(33)*. Additionally, hand hygiene programmes can be cost-effective: one study in Viet Nam calculated that for every health care-associated infection averted, the hospital saved US$ 1000 *(32)*. Behaviour change requires multifaceted approaches focusing on system change, administrative support, motivation, availability of alcohol-based hand sanitizers and safe, reliable water and soap, training and intensive education of health care workers, and reminders in the workplace *(30, 34, 35)*. Compliance is a pervasive problem dependent on many structural factors, including professional position (doctor, nursing assistant, physiotherapist technician), department or type of care delivered, staffing ratios, and the presence of relevant safety equipment such as gloves *(33)*. Moreover, programmes need to be context sensitive (for example, alcohol-based sanitizers should be used where clean water is not reliably available) *(31, 35)*.

10. Safety checklists, such as surgical safety checklists, can have a positive impact on reducing both clinical complications and mortality. In one study performed in eight diverse hospitals in a mixture of high- and low-income settings, postoperative

complication rates fell on average by 36% and death rates fell by a similar amount following increased adherence to six core safety processes covered by a provided checklist *(36)*. Moreover, if during the first year of instituting a checklist major complications are prevented, a hospital will realize a return on its investment *(37)*. However, evidence suggests that the successful uptake of checklists requires education of clinical staff, material resources, and integration into broader institutional efforts and clinical context *(38–40)*. These factors have been shown to be particularly relevant in low- and middle-income countries *(38)*. Poor checklist implementation in low-income settings might not only fail to reduce patient safety risks, but may also introduce new risks such as gaming, disengagement and other behaviours harmful to patient care *(38)*. Implementation of surgical checklists is more likely to be optimized in established, multifaceted patient safety programmes *(38)*.

11. Adverse event reporting documents an adverse or unwanted medical occurrence resulting from specific health services or during a patient encounter *(41)*. Reporting of adverse events is a strategy to raise awareness, increase transparency and foster accountability regarding unsafe care. Adverse events due to medical care represent a major source of morbidity and mortality globally. A study looking at the global burden of unsafe medical care estimated that there are 421 million hospitalizations in the world annually, with approximately 42.7 million adverse events occurring resulting in 23 million disability-adjusted life-years (DALYs) lost per year *(42)*. Approximately two thirds of all adverse events occurred in low- and middle-income countries. Unsafe medical care may lead patients, especially in low-income countries, to opt out of using the formal health care system, thereby making unsafe care a significant barrier to access for many of the world's poor. Consumption of resources due to prolonged stay and extra care, as well as loss of wages and productivity, is a further consequence of unsafe care.

12. Clinical decision support (CDS) is the provision of knowledge and patient-specific information presented at appropriate times to enhance front-line health care delivery. CDS encompasses a variety of tools to enhance decision-making, such as clinical guidelines, condition-specific order sets, computerized alerts and reminders, documentation templates, and diagnostic support. CDS can be automated (embedded within electronic health records or mobile devices) or paper based. Although electronic CDS has many advantages, it does require ongoing technical assistance and may be subject to challenges of poor infrastructure, such as limited access to the Internet or unreliable power supply *(43)*. A number of studies have examined the feasibility of implementing CDS in low- and middle-income countries, but there is only minimal evidence on its impact on health so far *(43, 44)*. Studies note the need to balance CDS prompts that are in place to standardize care for better quality with the physician's autonomy to make decisions based on context, clinical expertise, and unique patient needs *(43–45)*.

13. Clinical standards, pathways and protocols are tools to guide evidence-based health care that have been implemented internationally since the 1980s *(46)*. In high-income settings, clinical pathways have been used to improve care for diverse conditions, including acute myocardial infarction and stroke. For example, a study from Australia showed that after introduction of a clinical pathway programme with checklists and reminders, an additional 48% of acute myocardial infarction patients received beta blockers within 24 hours of admission *(47)*. Similarly, following introduction of a clinical pathway programme, an additional 55% of ischaemic stroke patients received aspirin or clopidogrel within 24 hours of admission *(47)*. Another study from the United States incorporated "best of care" clinical protocols into clinician's workflow via care provider order entry and showed that the decision support tool significantly increased the number of patients receiving aspirin for acute myocardial infarction *(48)*.

Clinical pathways and protocols are also used in low- and middle-income settings, where national guidelines are published periodically and serve as an important source of reference for clinicians and public health officials, particularly for vertical disease-focused programmes such as tuberculosis and HIV/AIDS *(49, 50)*.

14. Clinical audit and feedback is a strategy to improve patient care through tracking adherence to explicit standards and guidelines coupled with provision of actionable feedback. A common usage worldwide is to foster implementation of clinical practice guidelines, whereby audit and feedback is used to identify unjustified variation and increase guideline adherence. Audit at both individual and hospital levels is a key part of the Catalonian Cancer Strategy (Spain) for promoting equity *(51)*. Even in rural, resource-limited settings, for example in the United Republic of Tanzania, clinical audit has been associated with a decrease in maternal mortality and morbidity *(52)*. Research in higher-income countries has demonstrated that higher-performing facilities tend to deliver more timely, individualized and non-punitive feedback to providers than lower-performing facilities *(53)*. While most studies do not quantify the extent to which audit and feedback concretely impacts adherence to standards, they do highlight the frequency of medical errors and provide a descriptive account of care quality in a given setting, helping clinical staff to identify and address areas for needed improvement. Noted challenges to successful implementation include resource availability, provider buy-in and leadership support for the process, consistency in understanding and implementation of guidelines, the accuracy of information in clinical records, and the effectiveness of continuing feedback mechanisms *(51, 54)*.

15. Morbidity and mortality reviews provide a collaborative learning mechanism and transparent review process for clinicians to examine their practice and identify areas of improvement, such as patient outcomes and adverse events, without fear of blame *(55)*. Morbidity and mortality reviews are used to bring together clinical staff to review, for learning purposes, what contributed to complications or a patient's death *(55)*. As such, they promote active recognition of mistakes or errors, and are an opportunity to learn as well as to identify needed process improvements. They have been shown to improve collaboration and communication, aid team-based learning, and result in changes in record keeping and governance relevant to patient safety *(55–57)*. Historically they have been popular in higher-resourced contexts, but studies are emerging that demonstrate potential in low- and middle-income countries. Descriptive work from Nepal suggests that they are feasible in rural, low-resource contexts *(56)*. Research across geographical and economic contexts points to the importance of senior administrative participation, engagement of both clinical and non-clinical staff, clear identification of goals, selection of cases based on their potential for improvement and coordinated follow-up for improvement activities as key success factors *(55–57)*.

16. Collaborative and team-based improvement cycles are a formalized method that brings together multiple teams from hospitals or clinics to work together on improvement around a focused topic area over a defined period of time. Several of the common features of collaboratives are the sharing of ideas for improvement, iterative testing of actions leading to improvement, and mutual learning across multiple health care organizations. Studies from high-income settings, such as the National Surgical Infection Prevention Collaborative or the collaborative to decrease caesarean delivery rates, have shown that collaboratives can be very effective, reducing infection rates from 27% to 1.7% and caesarean section rates by 30% in a matter of months *(58–60)*. Collaboratives have also been used in low-income settings. For example, the Ethiopian Hospital Alliance for Quality was a national collaborative sponsored by Ethiopia's Federal Ministry of Health. It included 68 hospitals, of which 44 showed a 10% improvement in a 10-point measure of patient satisfaction from the beginning to the end of the study period *(61)*.

USAID funded 54 collaboratives in 14 low- and middle-income countries during the period 1998–2008. A meta-analysis of 27 of these collaboratives in 12 low- and middle-income countries showed that high-level performance was maintained for an average of 13 months and the average time to reach 80% performance was 9.2 months, while the average time to reach 90% performance was 14.4 months *(62)*.

17. Formalized community engagement and empowerment refers to the active and intentional contribution of community members to the health of a community's population and the performance of the health delivery system. Community involvement in health has many forms and approaches, including the adoption of behaviours to prevent and treat diseases; effective participation in disease control activities; contribution to the design, implementation and monitoring of health programmes; and provision of resources for health. Participation and input to health systems can occur through various means, such as needs analysis, high-level priority setting or participation on governing boards. Many case examples can be found; for example, in Eritrea and Senegal, strengthened community participation in malaria control led to a decrease in severe malaria cases *(63)*, and preliminary analysis of the Ebola outbreak indicates that more formalized community participation efforts resulted in a significant impact on the identification and tracing of cases and broader trust in local Ebola treatment units *(64)*. Health system reform processes have increasingly recognized the essential contribution of communities; in Kenya, feasibility was tested in district-level annual health sector planning where community participation did influence target and priority setting. Challenges of formalized community involvement include building capacity to empower communities, providing tools and products to support community involvement, and appropriate follow-up and supervision by health professionals.

18. Health literacy is the capacity to obtain and understand basic health information required to make appropriate health decisions on the part of patients, families and wider communities *(65)*. Poor health literacy is a challenge for health care quality; for example, patients with low literacy have difficulty following medical instructions, interacting with the health care system, and reading or complying with medicine prescriptions *(65)*. Additionally, patients with low disease-specific knowledge report lower quality of life and have poorer health-related outcomes *(65)*. Studies show educational interventions can have an impact on both knowledge improvement and clinical care seeking. For example, an intervention in Malawi led to a significant improvement in knowledge pertaining to mental health literacy *(66)*, and a study in India found a positive association between health literacy programming and child vaccination rates *(67)*. However, literacy gains lessen with time, so follow-up programming is key. Research suggests targeting influencers, such as teachers, to extend programmatic reach and ensure long-term impact *(66, 67)*. Other considerations include the integration of health literacy curricula into required schooling, which is especially common with sexual health education *(68)*.

19. Shared decision-making between providers and patients is often employed to tailor care to the patient's needs and preferences, with the goal of achieving better patient outcomes. There is considerable evidence that patients want more information and greater involvement *(69)*, but few studies have evaluated the impact on clinical outcomes, particularly in low- and middle-income countries. Inadequate communication between providers can result in missed services *(70)*. Barriers to patient activation, however, exist in many public health sector settings, such as in clinics, which are often congested and overstretched *(71)*. One study on adherence to antiretroviral therapy and shared decision-making or "patient activation" found that after diagnosis, patients actually preferred provider-led decision-making, but as they gained comfort with their HIV diagnosis, they were more open to a shared decision-making approach

to HIV treatment *(71)*. There is no evidence that shared decision-making negatively impacts clinical care, though there may be limitations to what can be addressed in a single clinical visit, given such factors as local concepts of illness or historically grounded distrust of "Western" medicine, which may motivate patients to seek traditional medicines *(70)*.

20. Peer support and expert patient groups link people living with similar clinical conditions in order to share knowledge and experiences. The approach complements and enhances other health care services by creating the emotional, social and practical support necessary for managing health problems and staying as healthy as possible. The extensive literature supporting the effectiveness of peer support and patient groups in HIV-infected adults provides insight into what is both feasible and achievable as a strategy for improving quality of care. A systematic review of the impact of support groups on people living with HIV showed that support groups were associated with reduced mortality and morbidity, increased retention in care and improved quality of life *(72)*. Group visits have shown promise in providing individual patients with a peer support network to maximize adherence, improve patient retention, provide patient education, monitor side effects, and achieve therapeutic gains *(73)*. In a South African support group, participants were significantly more likely to have an undetectable viral load and a CD4 cell count greater than 200 cells/mL at 12 months than those who did not participate in a support group *(72)*. Given the severe human resource challenges worldwide, specifically the shortage of trained health care providers, support groups can play a larger role in improving the effectiveness of models of care *(72)*.

21. Patient feedback and experience of care as a strategy to better understand and improve health service quality has risen dramatically, primarily in high-income countries. In these contexts there is a growing body of evidence that self-reported experience correlates with other, more objective, measures of clinical quality *(74)*. Patient-reported measures are associated with better patient experience, adherence to treatment, greater engagement with their care, and better outcomes *(75, 76)*. A few studies in low- and middle-income countries have shown that patients can adequately judge certain aspects of their care. For example, a study based in the United Republic of Tanzania found that patients proactively sought care based on their clinical needs, as judged by the type and severity of symptoms, as well as the perceived value of previously received care *(77)*. Audit-based evidence from primary care settings in India found that patients have a good idea of what they both want and need from doctors and are willing to pay for it *(78)*. Some critics are concerned that the main determinants of patient experience may be driven by factors such as the attractiveness of the environment or amicability of staff; however, it has been shown that patients are able to differentiate superficial comforts from more meaningful engagement.

22. Patient self-management tools are technologies and techniques used by patients and families to manage their health issues outside formal medical institutions. They are increasingly studied as quality improvement tools in the context of growing empowerment of patients worldwide. Given the increasing prevalence of chronic disease globally, diabetes self-management serves as a good example. Diabetic patients involved with self-management education programmes demonstrated significant reductions in glycosylated haemoglobin levels; in Uganda, patient outcomes included decreases in HbA1c percentage and diastolic blood pressure, and in Honduras, reports of self-care demonstrated improvements in over 50% of patients in blood sugar levels, diet and medication adherence *(79)*. One economic analysis of interventions for diabetes found that diabetes self-management training reduces medical costs in developing countries in the short term *(80)*. Because mobile phones are widely available, mHealth interventions for self-management can be a cost-effective tool *(79)*.

Challenges to widespread implementation include both geographical and financial access to such self-management programmes, trained human resources at central and peripheral levels, and access to education *(81)*.

23. Health technology assessment (HTA) is conducted to find out how health care technologies help maintain and improve health. HTA is used to inform policy and clinical decision-making related to both the introduction and diffusion of a wide spectrum of health technologies *(82, 83)*. Assessing whether HTA affects quality involves looking at the long-term pay-off of policies that have been implemented and demonstrated success. HTA has many different applications, such as policy-making for influenza vaccination of children, informing the development of reimbursement schemes in Sweden (which resulted in decreased annual costs), influencing characteristics of health benefit packages in Thailand or Chile *(84–86)*, or defining the role of specific laparoscopic surgery techniques in Kazakhstan *(87)*. Cohesion amongst and between stakeholders is necessary for the successful implementation of HTA with participation from health care professionals, patient advocacy groups, and the industry, such as medical technology or pharmaceutical firms *(88)*. Transparency in analytics, costs and outcomes (real-life patient data) is key for HTA assessment to be successful *(83)*. Because timely and appropriate access to health care products, procedures and medicines can often impact patient outcomes, HTA represents an important mechanism for improving quality of care for both individuals and populations.

Annex references

1. Das J, Holla A, Das V, Mohanan M, Tabak D, Chan B. In urban and rural India, a standardized patient study showed low levels of provider training and huge quality gaps. Health Affairs (Millwood). 2012;31(12):2774–84.

2. Das J, Hammer J. Money for nothing: the dire straits of medical practice in Delhi, India. Policy Research Working Paper No. 3669. Washington (DC): World Bank; 2005.

3. Das J, Hammer J. Location, location, location: residence, wealth, and the quality of medical care in Delhi, India. Health Affairs (Millwood). 2007;26(3):w338–51.

4. Smits H, Supachutikul A, Mate KS. Hospital accreditation: lessons from low- and middle-income countries. Globalization and Health. 2014;10(1):65.

5. Al Tehewy M, Salem B, Habil I, El Okda S. Evaluation of accreditation program in non-governmental organizations' health units in Egypt: short-term outcomes. International Journal for Quality in Health Care. 2009;21(3):183–9.

6. Bukonda N, Tavrow P, Abdallah H, Hoffner K, Tembo J. Implementing a national hospital accreditation program: the Zambian experience. International Journal for Quality in Health Care. 2002;14(Suppl 1):7–16.

7. Hinchcliff R, Greenfield D, Moldovan M, Westbrook JI, Pawsey M, Mumford V et al. Narrative synthesis of health service accreditation literature. BMJ Quality and Safety. 2012; 21(12):979–91.

8. Scott I. What are the most effective strategies for improving quality and safety of health care? Internal Medicine Journal. 2009;39(6):389–400.

9. Scally G, Donaldson LJ. Clinical governance and the drive for quality improvement in the new NHS in England. BMJ. 1998;317(7150):61–5.

10. Amelia D, Suhowatsky S, Baharuddin M, Tholandi M, Hyre A, Reena S. Case study: clinical governance as an approach to improve maternal and newborn health in 22 hospitals in Indonesia. World Health and Population. 2015;16(2):16–23.

11. Phillips CB, Pearce CM, Hall S, Travaglia J, de Lusignan S, Love T et al. Can clinical governance deliver quality improvement in Australian general practice and primary care? A systematic review of the evidence. Medical Journal of Australia. 2010;193(10):602–7.

12. Peters DH, Noor AA, Singh LP, Kakar FK, Hansen PM, Burnham G. A balanced scorecard for health services in Afghanistan. Bulletin of the World Health Organization. 2007;85(2):146–51.

13. Edward A, Kumar B, Kakar F, Salehi AS, Burnham G, Peters DH. Configuring balanced scorecards for measuring health system performance: evidence from 5 years' evaluation in Afghanistan. PLoS Medicine. 2011;8(7):e1001066.

14. Ssengooba F, McPake B, Palmer N. Why performance-based contracting failed in Uganda: an "open-box" evaluation of a complex health system intervention. Social Science and Medicine. 2012;75(2):377–83.

15. Soeters R, Habineza C, Peerenboom PB. Performance-based financing and changing the district health system: experience from Rwanda. Bulletin of the World Health Organization. 2006;84(11):884–9.

16. Soeters R, Peerenboom PB, Mushagalusa P, Kimanuka C. Performance-based financing experiment improved health care in the Democratic Republic of Congo. Health Affairs (Millwood). 2011;30(8):1518–27.

17. Ashir GM, Doctor HV, Afenyadu GY. Performance based financing and uptake of maternal and child health services in Yobe Sate, northern Nigeria. Global Journal of Health Science. 2013;5(3):34–41.

18. Leslie HH, Gage A, Nsona H, Hirschhorn LR, Kruk ME. Training and supervision did not meaningfully improve quality of care for pregnant women or sick children in sub-Saharan Africa. Health Affairs (Millwood). 2016;35(9):1716–24.

19. Rowe AK, Onikpo F, Lama M, Osterholt DM, Rowe SY, Deming S. A multifaceted intervention to improve health worker adherence to integrated management of childhood illness guidelines in Benin. American Journal of Public Health. 2009;99(5):837–46.

20. Rowe AK, Onikpo F, Lama M, Deming MS. The rise and fall of supervision in a project designed to strengthen supervision of integrated management of childhood illness in Benin. Health Policy and Planning. 2010;25(2):125–34.

21. Newton PN, Green MD, Fernández FM. Impact of poor-quality medicines in the "developing" world. Trends in Pharmacological Sciences. 2010;31(3):99–101.

22. Kafuko J. Rational drug use in rural health units of Uganda: effect of national standard treatment guidelines on rational drug use. Geneva: World Health Organization, Essential Medicines and Policy Department.

23. Gray A. Access to medicines and drug regulation in developing countries: a resource guide for DFID. United Kingdom Department for International Development, Health Systems Resource Centre; 2014.

24. Laing R, Hogerzeil HV, Ross-Degnan D. Ten recommendations to improve use of medicines in developing countries. Health Policy and Planning. 2001;16(1):13–20.

25. Gershon RRM, Karkashian CD, Grosch JW, Murphy LR, Escamilla-Cejudo A, Flanagan PA et al. Hospital safety climate and its relationship with safe work practices and workplace exposure incidents. American Journal of Infection Control. 2000;28(3):211–21.

26. Ovretveit J. Formulating a health quality improvement strategy for a developing country. International Journal of Health Care Quality Assurance Incorporating Leadership in Health Services. 2004;17(7):368–76.

27. A guide to the implementation of the WHO multimodal hand hygiene improvement strategy. Geneva: World Health Organization; 2009.

28. Friedman C, Newsom W, editors. IFIC basic concepts of infection control, 2nd edition. Portadown, Northern Ireland: International Federation of Infection Control; 2011.

29. Core components for infection prevention and control programmes: report of the second meeting, Informal Network on Infection Prevention and Control in Health Care, Geneva, Switzerland, 26–27 June 2008. Geneva: World Health Organization; 2009.

30. Raka L. Prevention and control of hospital-related infections in low- and middle-income countries. Open Infectious Diseases Journal. 2010;4(1):125–31.

31. Budd A, Lukas S, Hogan U, Priscille K, Fann K, Hill P et al. A case study and the lessons learned from in-house alcohol-based hand sanitizer production in a district hospital in Rwanda. Journal of Service Science and Management. 2016;9:150–9.

32. Thi Anh Thu L, Thi Hong Thoa V, Thi Van Trang D, Phuc Tien N, Thuy Van D, Thi Kim Anh L et al. Cost-effectiveness of a hand hygiene program on health care-associated infections in intensive care patients at a tertiary care hospital in Vietnam. American Journal of Infection Control. 2015;43(12):e93–9.

33. Allegranzi B, Pittet D. Role of hand hygiene in healthcare-associated infection prevention. Journal of Hospital Infection. 2009;73(4):305–15.

34. Allegranzi B, Sax H, Bengaly L, Richet H, Minta DK, Chraiti MN et al. Successful implementation of the World Health Organization hand hygiene improvement strategy in a referral hospital in Mali, Africa. Infection Control and Hospital Epidemiology. 2010;31(2):133–41.

35. Mathur P. Hand hygiene: back to the basics of infection control. Indian Journal of Medical Research. 2011;134(5):611–20.

36. Haynes AB, Weiser TG, Berry WR, Lipsitz SR, Breizat AH, Dellinger EP et al. A surgical safety checklist to reduce morbidity and mortality in a global population. New England Journal of Medicine. 2009;360(5):491–9.

37. Semel ME, Resch S, Haynes AB, Funk LM, Bader A, Berry WR et al. Adopting a surgical safety checklist could save money and improve the quality of care in U.S. hospitals. Health Affairs (Millwood). 2010;29(9):1593–9.

38. Aveling EL, McCulloch P, Dixon-Woods M. A qualitative study comparing experiences of the surgical safety checklist in hospitals in high-income and low-income countries. BMJ Open. 2013;3(8):e003039.

39. Arriaga AF, Bader AM, Wong JM, Lipsitz SR, Berry WR, Ziewacz JE et al. Simulation-based trial of surgical-crisis checklists. New England Journal of Medicine. 2013;368(3):246–53.

40. Dixon-Woods M. The problem of context in quality improvement. Health Foundation; 2014.

41. Classen DC, Resar R, Griffin F, Federico F, Frankel T, Kimmel N et al. "Global trigger tool" shows that adverse events in hospitals may be ten times greater than previously measured. Health Affairs (Millwood). 2011;30(4):581–9.

42. Jha AK, Larizgoitia I, Audera-Lopez C, Prasopa-Plaizier N, Waters H, Bates DW. The global burden of unsafe medical care: analytic modelling of observational studies. BMJ Quality and Safety. 2013;22(10):809–15.

43. Ali MK, Shah S, Tandon N. Review of electronic decision-support tools for diabetes care: a viable option for low- and middle-income countries? Journal of Diabetes Science and Technology. 2011;5.

44. Raghu A, Praveen D, Peiris D, Tarassenko L, Clifford G. Engineering a mobile health tool for resource-poor settings to assess and manage cardiovascular disease risk: SMARThealth study. BMC Medical Informatics and Decision Making. 2015;15(1):36.

45. Praveen D, Patel A, Raghu A, Clifford GD, Maulik PK, Mohammad Abdul A et al. SMARTHealth India: development and field evaluation of a mobile clinical decision support system for cardiovascular diseases in rural India. JMIR mHealth and uHealth. 2014;2(4):e54.

46. Kinsman L, Rotter T, James E, Snow P, Willis J. What is a clinical pathway? Development of a definition to inform the debate. BMC Medicine. 2010;8:31.

47. Wolff AM, Taylor SA, McCabe JF. Using checklists and reminders in clinical pathways to improve hospital inpatient care. Medical Journal of Australia. 2004;181(8):428–31.

48. Ozdas A, Speroff T, Waitman LR, Ozbolt J, Butler J, Miller RA. Integrating "best of care" protocols into clinicians' workflow via care provider order entry: impact on quality-of-care indicators for acute myocardial infarction. Journal of the American Medical Informatics Association. 2006;13(2):188–96.

49. Jassal MS, Bishai WR. The epidemiology and challenges to the elimination of global tuberculosis. Clinical Infectious Diseases. 2010;50(Suppl 3):S156–S64.

50. Suharlim C. National TB guidelines implementation: challenges, deviations, and strategies. 2014.

51. Manchon-Walsh P, Borras JM, Espinas JA, Aliste L. Variability in the quality of rectal cancer care in public hospitals in Catalonia (Spain): clinical audit as a basis for action. European Journal of Surgical Oncology. 2011;37(4):325–33.

52. Nyamtema AS, de Jong AB, Urassa DP, van Roosmalen J. Using audit to enhance quality of maternity care in resource limited countries: lessons learnt from rural Tanzania. BMC Pregnancy and Childbirth. 2011;11(1):94.

53. Hysong SJ, Best RG, Pugh JA. Audit and feedback and clinical practice guideline adherence: Making feedback actionable. Implementation Science. 2006;1(1):9.

54. Hysong SJ, Teal CR, Khan MJ, Haidet P. Improving quality of care through improved audit and feedback. Implementation Science. 2012;7(1):45.

55. Higginson J, Walters R, Fulop N. Mortality and morbidity meetings: an untapped resource for improving the governance of patient safety? BMJ Quality and Safety. 2012;21:7.

56. Schwarz D, Schwarz R, Gauchan B, Andrews J, Sharma R, Karelas G et al. Implementing a systems-oriented morbidity and mortality conference in remote rural Nepal for quality improvement. BMJ Quality and Safety. 2011;20(12):1082–8.

57. François P, Prate F, Vidal-Trecan G, Quaranta J-F, Labarere J, Sellier E. Characteristics of morbidity and mortality conferences associated with the implementation of patient safety improvement initiatives: an observational study. BMC Health Services Research. 2016;16(1):35.

58. Boushon B, Provost L, Gagnon J, Carver P. Using a virtual breakthrough series collaborative to improve access in primary care. Joint Commission Journal on Quality and Patient Safety. 2006;32(10):573–84.

59. Dellinger EP, Hausmann SM, Bratzler DW, Johnson RM, Daniel DM, Bunt KM et al. Hospitals collaborate to decrease surgical site infections. American Journal of Surgery. 2005;190(1):9–15.

60. Flamm BL, Berwick DM, Kabcenell A. Reducing cesarean section rates safely: lessons from a "breakthrough series" collaborative. Birth. 1998;25(2):117–24.

61. Linnander E, McNatt Z, Sipsma H, Tatek D, Abebe Y, Endeshaw A et al. Use of a national collaborative to improve hospital quality in a low-income setting. International Health. 2016;8(2):148–53.

62. Franco LM, Marquez L. Effectiveness of collaborative improvement: evidence from 27 applications in 12 less-developed and middle-income countries. BMJ Quality and Safety. 2011;20(8):658–65.

63. Community involvement in health. Geneva: World Health Organization; 2006.

64. Fallah M, Dahn B, Nyenswah TG, Massaquoi M, Skrip LA, Yamin D et al. Interrupting Ebola transmission in Liberia through community-based initiatives. Annals of Internal Medicine. 2016;164(5):367–9.

65. Sampson UK, Amuyunzu-Nyamongo M, Mensah GA. Health promotion and cardiovascular disease prevention in sub-Saharan Africa. Progress in Cardiovascular Diseases. 2013;56(3):344–55.

66. Kutcher S, Gilberds H, Morgan C, Greene R, Hamwaka K, Perkins K. Improving Malawian teachers' mental health knowledge and attitudes: an integrated school mental health literacy approach. Global Mental Health. 2015;2(10).

67. Johri M, Subramanian SV, Sylvestre M-P, Dudeja S, Chandra D, Koné GK et al. Association between maternal health literacy and child vaccination in India: a cross-sectional study. Journal of Epidemiology and Community Health. 2015; 69(9):849–57.

68. Chandra-Mouli V, McCarraher DR, Phillips SJ, Williamson NE, Hainsworth G. Contraception for adolescents in low- and middle-income countries: needs, barriers, and access. Reproductive Health. 2014;11(1):1.

69. Coulter A. Partnerships with patients: the pros and cons of shared clinical decision-making. Journal of Health Services Research and Policy. 1997;2(2):112–21.

70. Merten S, Kenter E, McKenzie O, Musheke M, Ntalasha H, Martin-Hilber A. Patient-reported barriers and drivers of adherence to antiretrovirals in sub-Saharan Africa: a meta-ethnography. Tropical Medicine and International Health. 2010;15(Suppl 1):16–33.

71. Roy M, Czaicki N, Holmes C, Chavan S, Tsitsi A, Odeny T et al. Understanding sustained retention in HIV/AIDS care and treatment: a synthetic review. Current HIV/AIDS Reports. 2016;13(3):177–85.

72. Bateganya MH, Amanyeiwe U, Roxo U, Dong M. Impact of support groups for people living with HIV on clinical outcomes: a systematic review of the literature. Journal of Acquired Immune Deficiency Syndromes. 2015;68(Suppl 3):S368–74.

73. Gupta N, Bukhman G. Leveraging the lessons learned from HIV/AIDS for coordinated chronic care delivery in resource-poor settings. Healthcare. 2015;3(4):215–20.

74. Doyle C, Lennox L, Bell D. A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. BMJ Open. 2013;3:1–18.

75. Jha AK, Orav EJ, Zheng J, Epstein AM. Patients' perception of hospital care in the United States. New England Journal of Medicine. 2008;359(18):1921–31.

76. Glickman SW, Boulding W, Manary M, Staelin R, Roe MT, Wolosin RJ et al. Patient satisfaction and its relationship with clinical quality and inpatient mortality in acute myocardial infarction. Circulation: Cardiovascular Quality and Outcomes. 2010;3:188–95.

77. Gilson L, Alilio M, Heggenhougen K. Community satisfaction with primary health care services: an evaluation undertaken in the Morogoro region of Tanzania. Social Science and Medicine. 1994;39(6):767–80.

78. Das J, Holla A, Mohpal A, Muralidharan K. Quality and accountability in healthcare delivery: audit-study evidence from primary care in India. American Economic Review. 2013;106(12):3765–99.

79. Esterson YB, Carey M, Piette JD, Thomas N, Hawkins M. A systematic review of innovative diabetes care models in low-and middle-income countries (LMICs). Journal of Health Care for the Poor and Underserved. 2014;25(1):72–93.

80. Klonoff DC, Schwartz DM. An economic analysis of interventions for diabetes. Diabetes Care. 2000;23(3):390–404.

81. Debussche X, Balcou-Debussche M, Besançon S, Traore SA. Challenges to diabetes self-management in developing countries. Diabetes Voice. 2009;54.

82. Oortwijn W, van der Wilt GJ. Challenges in contemporary health technology assessment: a view from the outside. International Journal of Technology Assessment in Health Care. 2016;32(1–2):1–2.

83. Kennedy-Martin T, Mitchell BD, Boye KS, Chen W, Curtis BH, Flynn JA et al. The health technology assessment environment in mainland China, Japan, South Korea, and Taiwan: implications for the evaluation of diabetes mellitus therapies. Value in Health Regional Issues. 2014;3:108–16.

84. Pettersson B, Hoffmann M, Wandell P, Levin LA. Utilization and costs of lipid modifying therapies following health technology assessment for the new reimbursement scheme in Sweden. Health Policy. 2012;104(1):84–91.

85. Mohara A, Youngkong S, Velasco RP, Werayingyong P, Pachanee K, Prakongsai P et al. Using health technology assessment for informing coverage decisions in Thailand. Journal of Comparative Effectiveness Research. 2012;1(2):137–46.

86. Implementation of the universal access with explicit guarantee (AUGE) reform: Chile case study. Geneva: World Health Organization; 2015.

87. Kosherbayeva L, Hailey D, Kurakbaev K, Tsoy A, Zhuzzhanov O, Donbay A et al. Implementation of health technology assessment work in a hospital in Kazakhstan. International Journal of Technology Assessment in Health Care. 2016;32(1–2):78–80.

88. O'Donnell JC, Pham SV, Pashos CL, Miller DW, Smith MD. Health technology assessment: lessons learned from around the world – an overview. Value in Health. 2009;12:S1–S5.

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