MOBILE HEALTH CLINIC

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MEDICAL CONSULTATION

Theme issue: approaches to health system performance assessment

Abstracts in عربي,中文, Français, Русский and Español

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Front cover photo: a mobile health clinic in Marawi City, southern Philippines. (WHO/Faizza Tanggol)

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Policy approaches to health system performance assessment

Irene Papanicolas,[a] Dheepa Rajan,[b] Marina Karanikolos,[b] Dimitra Panteli,[b] Kira Koch,[c] Faraz Khalid,[c] Gerard Schmets,[c] Suraya Dalil[c] & Josep Figueras[b]

Improving health system performance is a priority for policy-makers. As the population ages and the burden of chronic disease grows, governments are spending more on health-care provision.[1] Unpredictable and catastrophic threats such as pandemics, extreme weather events and sociopolitical crises require resilient and adaptable health systems. Therefore, policy-makers need reliable and timely information to identify the strengths and weakness of health systems and a broad evidence base to help them shape policy approaches to achieve health system goals.

Health system performance assessment is a comprehensive evaluation process designed to measure how well a health system achieves its objectives and identify opportunities for improvement. The multifaceted nature of health systems, the diversity of data and stakeholders involved, and the dynamic and context-dependent environment in which health systems operate make these assessments a complex endeavour. While efforts to embed health system performance assessment in decision-making have recently intensified, innovative approaches that transform evidence into actionable policies are still needed.

Assessing performance requires identifying all components of a health system – and its boundaries. A clear framework for health system performance assessment can help identify which elements within the health system are important to measure, how these are linked to the system's ability to deliver objectives and what broader factors may affect performance.[2] In this theme issue, a perspective outlines the progress made in collecting information on the structure and functions of health systems, noting the gaps and arguing for more harmonization of information collected across health system performance assessment tools.[3] Another reveals the intersections with other sectors and advocates for a holistic view of these assessments, emphasizing that achieving health system goals can enhance overall societal well-being.[4] To understand the effects of multisectoral interventions on health system performance, an article explores available literature.[5] The specific challenges in using a health systems performance assessment framework to assess public health systems are also considered,[6] as well as how to adapt these frameworks to country contexts and policy cycles.[7]

A robust health system performance assessment is inextricably linked to data availability and quality. While measures of health inputs such as number of facilities may be broadly available across countries, quality metrics and patient-reported outcomes are not. A study reviews the indicator availability for primary care monitoring across five South Asian countries, highlighting existing data pockets and gaps, as well as issues with timeliness and harmonization.[8] Another examines the use of DHIS2 – a web-based health management information system platform used in over 80 countries – for health service evaluation in three regions in Ethiopia,[9] highlighting its potential for health system performance assessment at subnational level. A research study presents data from the People's Voice Survey to compare utilization, experience and confidence in health systems across 16 countries,[10] exploring how people's perspectives can inform health system performance assessments. The use of the Hospital Consumer Assessment of Health Providers and Systems survey for performance assessment in Odisha, India is explored in another article.[11] The paper finds that the factors influencing personal experience may vary even when the same tool is used, suggesting a need for caution in comparing such metrics across countries and even population groups within countries.

Health systems performance assessments can provide evidence that can inform policy, as explored by one article presenting a country-level assessment from Oman.[7] The complexities of health systems have led researchers to use analytic approaches to evaluate policies. An article outlines different methods that can be used, as well as promising new data sources, by leveraging digital technologies and big data for data collection and analysis.[12] Health system comparisons are often used as a tool for drawing insights on the relative performance of health systems; one of the perspectives[13] urges researchers to make better use of existing information on health system characteristics to identify the appropriate cross-country comparators for the questions being asked. Finally, an article[14] provides a useful illustration of cross-country analysis that can examine and compare health system resilience.

The articles in this issue highlight the importance of regular health systems performance assessment to inform policies that advance progress on health system objectives globally, and offer insights on associated data, methods and applications. ∎

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Available at: https://www.who.int/publications/journals/bulletin

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Public health round-up

Dengue surges

A mother and child await to be admitted to the dengue ward at Mugda Hospital in Dhaka, Bangladesh, one of many countries to be experiencing a sharp increase in dengue cases. As of 30 April 2024, over 7.6 million dengue cases had been reported to WHO worldwide.

Gaza crisis

The United Nations (UN) Security Council, on 10 June, adopted a resolution aimed at reaching a comprehensive, three-phase ceasefire deal to end the war in Gaza. At a 12 June World Health Organization (WHO) media briefing, Director-General Tedros Adhanom Ghebreyesus urged all parties to implement the resolution.

Drawing particular attention to the development of what he described as "famine-like" conditions in Gaza, the Director-General reported that malnutrition had already caused 32 deaths, including the deaths of 28 children. WHO has scaled up nutrition services in Gaza, diagnosing and treating over 8000 children for acute malnutrition as of 12 June.

The Director-General also drew attention to the situation in the West Bank, where the escalating health crisis is being exacerbated by attacks on health care and restrictions on movement of people.

https://bit.ly/4cfAwao
https://bit.ly/4cikZXr

Sudan famine

Three UN agencies issued a warning regarding a significant deterioration of the nutrition situation for children and mothers in war-torn Sudan. Issued on 30 May, the warning is based on a recent analysis by the United Nations Children's Fund, the World Food Programme and WHO, which describes ways in which the war is impacting access to nutrition, safe drinking water and sanitation, with serious implications for increased risk of disease.

Massive population displacement and disrupted humanitarian aid delivery have compounded the crisis, pushing Sudan towards a conflict-induced famine with potentially catastrophic consequences for young children. The agencies called for immediate action to prevent further deterioration and protect the lives of Sudan's vulnerable population.

The WHO Director-General also drew attention to the crisis in his 12 June media briefing, pointing out that Sudan is undergoing the world's largest humanitarian crisis.

https://bit.ly/3yyphv5
https://bit.ly/3Vweued

Infectious disease trends

Sexually transmitted infections (STIs) are on the rise in many regions, according to a new WHO report, *Implementing the Global Health Sector Strategies on HIV, Viral Hepatitis, and Sexually Transmitted Infections, 2022–2030*, published on 21 May.

The first biannual progress report reveals significant challenges and slow progress toward key health targets. Annual deaths from these diseases remain at 2.5 million, with hepatitis-related deaths increasing from 1.1 million in 2019 to 1.3 million in 2022. Over 1 million new infections occur daily, predominantly STIs, with cases rising in several WHO regions.

The report calls for an urgent acceleration of global health efforts to meet the 2025 and 2030 targets.

https://bit.ly/3WQASzZ

Dengue cases up sharply

There was a three-fold year-on-year surge in dengue cases in the Region of the Americas in the first four months of 2024. According to the 30 May issue of Disease Outbreak News, there had been more than seven million reported cases in the region by the end of April 2024, tripling the number reported during the same period in 2023, and surpassing the 4.6 million full-year figure for 2023.

As of 30 April 2024, over 7.6 million dengue cases had been reported to WHO including over 16 000 severe cases, and over 3000 deaths.

WHO has established a global dengue surveillance system with monthly reporting across all regions, to strengthen surveillance, monitor disease incidence and provide support to high-risk countries across affected regions.

https://bit.ly/45q5hHG

Amended international health regulations

The Seventy-seventh World Health Assembly (WHA77) passed amendments to the *International health regulations* (2005) (IHR) and committed to finalizing a global pandemic agreement within a year.

Cover photo

A mobile health clinic in Marawi City, southern Philippines.

(WHO/Faizza Tanggol)

The amendments focus on enhancing global preparedness, surveillance and response to public health emergencies. Key changes include establishing a definition for a pandemic emergency to improve international response and collaboration, and strengthening access to medical products through the creation of a coordinating financial mechanism.

In a 1 June media release, the WHO Director-General said the actions taken by the Assembly reflected a common desire by Member States to protect their own people and the world from the shared risk of public health emergencies and future pandemics.

https://bit.ly/3VknXDZ

Commercial determinants report

Tobacco, ultra-processed foods, fossil fuels and alcohol cause 2.7 million deaths annually in the European Region. A report produced by the WHO Regional Office for Europe describes how four industries are driving ill-health and premature deaths across Europe and central Asia.

Launched on 12 June by Belgian Deputy Prime Minister and Minister of Social Affairs and Public Health, Frank Vandenbroucke, in partnership with the WHO European Forum on Commercial Determinants of Noncommunicable Diseases, the report sheds light on the wide range of tactics industries employ to maximize profits and undermine public health, and identifies actions for governments, academia and civil society to reduce the disproportionate influence of the commercial sector in the health policy sphere.

https://bit.ly/3KEflmE

Resolution on climate and health

WHA77 passed a landmark resolution recognizing climate change as an imminent threat to global health. Backed by overwhelming support from Member States, the resolution highlights the critical need for urgent action to address the profound health risks posed by climate change.

WHO remains committed to leading the global health response to climate change, scaling up efforts to support Member States through leadership, awareness-raising, and capacity-building, while advocating for health-centric climate policies and evidence-based strategies.

https://bit.ly/3XrOq4W

WHO strategy approved

Delegates at WHA77 approved the Organization's Fourteenth General Programme of Work (GPW 14). A four-year strategy for global health to promote, provide and protect health and well-being for all people, GPW 14 puts the emphasis on climate change, aging, migration, pandemic threats and equity, and reflects the need to adapt to fast-moving science and technology.

According to a 28 May media release, the strategy targets 2025–2028 as a critical period in which to recover from the COVID-19 pandemic, get back on track to reach the health-related sustainable development goals, and to build resilient, fit-for-future health systems.

https://bit.ly/3V25VpP

Updated bacterial priority pathogens list

WHO released its updated Bacterial Priority Pathogens List (BPPL) 2024, identifying 15 families of antibiotic-resistant bacteria categorized as critical, high, or medium priority.

Published 17 May, the updated BPPL incorporates new evidence and expert insights to guide research, foster innovation and promote international coordination.

"This list is key to guiding investment and grappling with the antibiot-

ics pipeline and access crisis," said Dr Yukiko Nakatani, WHO's interim Assistant Director-General for Antimicrobial Resistance.

https://bit.ly/4elWwCa

Mpox prevention and control

WHO released a framework for the prevention and control of mpox on 24 May. The new framework is designed to guide health authorities, communities and stakeholders in preventing mpox outbreaks, eliminating human-to-human transmission and reducing spillover from animals to humans.

A major emergence of clade II mpox (one of two mpox clades or groups) began in 2017, and since 2022 has spread to all WHO regions, with reports suggesting that low-level transmission continues worldwide. A major outbreak of clade I mpox virus in the Democratic Republic of the Congo is ongoing, with over 6500 cases and 345 deaths reported since the beginning of the year.

https://bit.ly/4b1VmZY ◼

Looking ahead

Assessing health system performance

The post-pandemic era presents an opportunity to prioritize health system performance assessment. Adèle Sulcas reports.

What Professor Mushtaque Chowdhury most remembers about the first weeks of Bangladesh's COVID-19 epidemic was the response of the public health authorities.

"We were basically not ready," recalls the Founding Dean of the School of Public Health at BRAC University, Dhaka. "First, there was a general sense of denial, and when a response effort was finally initiated, screening was inadequate as were quarantine and lockdown measures, while there was insufficient personal protective equipment for health-care providers." Chowdhury also points to "inadequate communication regarding the risks of transmission."

By mid-July 2020, the authorities had reported 230 000 cases, and systemic inadequacies had been exposed, notably a lack of primary health-care capacity (including a capacity to source, distribute and administer medical grade oxygen) and what Chowdhury considers "a complete lack of coordination between key institutions."

Needless to say, Bangladesh was not the only country to struggle in the face of COVID-19. "The pandemic exposed the lack of resilience in health systems worldwide," says Dheepa Rajan, a health systems specialist at the European Observatory of Health Systems and Policies, a hosted partnership of the World Health Organization (WHO), based in Brussels.

For Rajan, while clearly cause for concern, that exposure has also created conditions in which governments are paying greater attention to the challenges their health systems confront in the face of emergencies.

Not for the first time. As Rajan points out, a comparable period of reflection followed the outbreak of severe acute respiratory syndrome coronavirus in 2002–2003, which also exposed health system resilience issues.

It was partly that exposure that led to the drafting of the 2005 *International health regulations* (IHR), which was accompanied – as Rajan also points out – by a tool for States Parties Self-Assessment Annual Reports (SPAR).

SPAR were designed to help health authorities assess their systems' capacity to detect, report on and respond to health emergencies. However, though laudable in intention, SPAR have faced challenges ranging from self-assessment bias (a tendency to under-count and under-report weakness) to lack of resources required to carry out assessment, including functioning health information systems.

Since 2016, WHO has been supporting countries with assessment focused on health emergency prevention, detection and response through voluntary, collaborative evaluation exercises known as Joint External Evaluations (JEEs). Over 100 countries have undertaken JEEs since 2016, but few have translated assessment findings into policy action.

Bangladesh is a case in point. The country was the fifth to complete the JEE process in 2016, and among its findings was weakness in coordination between and within ministries – a weakness which, according to Chowdhury, continues to be a problem.

Viet Nam also undertook a JEE in 2016. According to Angela Pratt, WHO Representative in Viet Nam since 2022, it helped the authorities identify critical gaps in its health system and generated 74 recommendations, including recommendations for emergency response.

> **"** The pandemic exposed the lack of resilience in health systems. **"**
>
> *Dheepa Rajan*

The latter were eventually fed into a draft national master plan in 2019. However, according to Pratt, the plan was never approved by the government because the COVID-19 pandemic hit soon after. She notes, nevertheless, that the plan did form an important input into how the country responded to COVID-19.

For Pratt, the Viet Nam experience highlights the fact that assessments take place in evolving political and economic contexts in which governments must weigh different priorities. "Health system assessment does not automatically lead to a national plan and then to a set of improvements," she says. "The political and policy context is usually more complex than that." According to Pratt, a second JEE is expected towards the end of 2024, when she hopes that health system issues raised during the pandemic will be addressed, including outbreak surveillance capacity.

Rajan would like to see more JEEs coordinated with full health system performance assessments, and vice versa.

WHO/Blink Media - Fabeha Monir

An infection prevention and control specialist inspects an isolation centre in Cox's Bazar, Bangladesh

"Ideally, health system performance assessments and evaluations of health emergency preparedness come together in a coordinated way with efforts to assess health system performance as a whole," she explains.

WHO has been encouraging such comprehensive assessment since the publication of the Health Systems Performance Assessment (HSPA) framework that was released as part of the 2000 world health report, *Health systems: improving performance.*

Rajan is hopeful that a new WHO HSPA framework, will help draw attention to the issue while providing essential guidance.

The 2022 framework includes the four original cornerstone 'functions' – governance, resource generation, financing and service delivery – along with their many sub-functions, as well as intermediate objectives (quality and access) and final goals (health improvement, financial protection and people-centredness).

Crucially, the new framework emphasizes connections across systems. "Assessment efforts in countries too often take place in a piecemeal way with a narrow focus on single issues, such as childhood vaccinations or disease-specific programme performance," says Rajan. "This not only encourages silo-oriented thinking, it fails to capture the vital connections across the system which impact performance just as strongly as individual components do."

Cross-sectoral assessment also needs to be embraced, in Rajan's view. "Comprehensive HSPA should provide a sense of how well health is working with other sectors, since so many of today's challenges within health are linked to things happening outside of it," she says.

Finally, Rajan is keen to see assessment capturing qualitative variables such as patient satisfaction as much as quantitative variables like patient beds.

That such an approach yields benefits is already being demonstrated. In Belgium, for example, after extensive preparation and consultation, the health authorities started this type of health system assessment in 2009 and, to date, have produced five comprehensive HSPA reports and six interim reports.

According to Pascal Meeus, a public health and health data management specialist who was instrumental in getting the Belgian health authorities to adopt HSPA, the initial intention was to determine whether the government was getting value for money. The scope of assessment subsequently expanded.

"Before the HSPA era in Belgium, as in other European Union countries, reports on the health system were mostly oriented towards costs," he explains. "Now we have a balance with other dimensions such as accessibility, quality, safety, equity, sustainability and resilience which helps to align stakeholders on common objectives."

Meeus emphasizes that it is not just a question of capturing a greater variety of information but of integrating the information to achieve a more comprehensive, holistic and actionable diagnosis.

> **We were basically not ready.**
>
> *Mushtaque Chowdhury*

Rajan would like to see others reap those benefits, but she is clear-eyed about the challenges faced, the first being a lack of agreement on what exactly HSPA is – a lack that explains, in part, the slow development and uptake of HSPA.

"The concept and practice of HSPA has evolved, with differing interpretations and methodologies," she says, noting the efforts of the Organisation for Economic Co-operation and Development, the United States Agency for International Development (USAID) and the World Bank, and calling on the different actors to work towards harmonization.

The paucity of health information captured in many countries is another major challenge but, as Rajan is quick to point out, many countries have made great strides in this regard.

Rwanda is a prime example. Since 2006, the government has focused on monitoring and surveillance as part of the regular performance-based contracting procedures implemented under

its Imihigo system – a national health systems strengthening project aimed at enhancing financial protection and access to quality health-care services.

According to Solange Hakiba, until recently Chief of Party for the USAID–Rwanda Integrated Health Systems Activity, the Imihigo system was developed to monitor the performance of public services with a view to improving them. "The Imihigo system has not only enhanced data capture," she says, "it has helped instil a culture of accountability and results-oriented management within the public sector."

Rwanda conducted its first JEE in 2018 to assess the country's capacity to implement IHR (2005). The JEE was multisectoral, identifying strengths and gaps in various technical areas essential for managing public health threats, including disease surveillance, response systems and laboratory capacities. According to Hakiba, progress has since been made in each of these areas. "We are in a region where outbreaks and other health emergencies can occur at any time," she says. "We have to be ready."

A final major challenge to broader uptake of HSPA is a reluctance to engage in what can seem like a daunting exercise. Even in countries with the capacity to carry out HSPA, adoption has not always been straightforward. In Belgium, for example, sceptics had to be convinced. "People didn't necessarily see the value of health system assessment as inputs into policy, and they doubted its sustainability," says Meeus. "That has changed."

Rajan would like to see others come to the same realization. "What we'd really like to see is a solid process of defining the objectives collectively with all the relevant stakeholders, orienting the actual assessment to be included into the policy cycle," she says. "Inclusivity is key to better policy uptake, and crucial to better implementation and impact on the ground." ∎

Githinji Gitahi: developing resilient health systems for universal coverage

Githinji Gitahi talks to Gary Humphreys about the value of cross-sectoral collaboration and health system assessment in the drive towards universal health coverage (UHC).

Q: You grew up in a small rural village in Kenya, the child of farmers. How did that upbringing inform your world view and career choices?

A: It made me acutely aware of the challenges faced by certain communities in accessing quality health care. And I would say that a desire to make a difference in the lives of people, particularly those who find themselves marginalized or excluded, has guided me in most of the projects I have worked on – certainly the work I do with Amref.

Q: What is Amref's core mission?

A: To catalyse and drive community-led and people-centred primary health-care systems development, while also addressing the social determinants of health. We are the largest Africa-based international health development organization, and deliver health services and training to over 30 million people across the continent annually. Tackling access issues is reflected in all our work going right back to 1957 when the Flying Doctors of East Africa first brought health services to remote communities.

Q: You have held positions of responsibility across companies and organizations in quite different sectors. How has that experience informed the work you do with Amref, particularly regarding UHC?

A: Well, I started out as a clinician, but I very quickly became interested in what was causing the diseases and conditions of my patients. That led me to look outside the walls of the clinic to explore what have come to be known as the social determinants of health. I'd go out into the community and into people's workplaces to try to understand the risks they faced. Early on in my career I also became very interested in how we, as a hospital, were meeting the needs of the communities we served. That steered me towards management roles, and eventually into hospital administration. I also worked in the health insurance arm of a health service provider, which gave me insights into the financing aspects of health service provision and got me thinking about

Courtesy of Githinji Gitahi

Githinji Gitahi

An advocate for health system strengthening as part of the drive towards universal health coverage (UHC), since 2015 Dr Githinji Gitahi has served as the Group Chief Executive Officer of Amref Health Africa (Amref) – an international organization dedicated to improving health care across the African continent. His career spans work in sectors ranging from health care and pharmaceuticals to media and communications, and from 2008 to 2015 he was Africa Vice President and Regional Director for Smile Train International, a non-profit organization that provides free surgery for children with cleft lips and palates. He was awarded the Moran of the Order of the Burning Spear by the Kenyan President in 2018 for his contributions to health. He holds a medical degree from the University of Nairobi (1996) and a Master of Business Administration from the United States International University-Africa (2004).

how to make sure that essential health services were affordable to people paying low premiums.

> **"**You can only assess what you can see.**"**

Q: You later worked with Glaxo SmithKline (GSK) in marketing and product management roles. What lessons did you learn there?

A: Principally, I learned about essential medicines from the manufacturer's side of the fence and developed an understanding of the marketplace. However, I also worked on access there and, during my tenure, the company developed a high-volume low-margin pricing policy. Between 2001 and 2007 there were price reductions of up to 70% in some products, including essential medicines like antibiotics.

But I'd like to stress the value of multisectoral experience in developing collaborative approaches to tackling public health challenges. A lot of the work we do at Amref involves bring-

ing people together, often people from different disciplines with different missions and imperatives. Having worked in different roles in different sectors I think helps me see the opportunities for collaboration and has also given me the tools to enable it. At GSK, for example, I worked on bridging research and clinical practice for better patient outcomes and served as a liaison between scientists, regulators and consumers. At Smile Train International, I focused on developing partnerships and programmes to provide corrective surgery for children with cleft lips and palates. One of the main challenges we faced with Smile Train was over-reliance on short-term, donor-driven medical missions. To address that issue, we focused on partnering with local hospitals and medical institutions to facilitate the training of local surgeons, building local capacity in countries such as the Democratic Republic of the Congo, Ethiopia, Ghana, Kenya, Nigeria and Uganda.

Lack of transportation was another big challenge. The annual surveys we did revealed that some patients had to travel up to 1000 kilometres, and often required overnight accommodation. That finding really brought home to me the fact that access challenges exist outside the physical health facilities and, as a result, our health system assessments started to be

more holistic, incorporating indicators such as availability of transportation and even societal permissions, such as husbands allowing wives to bring their children for treatments.

A: You mention health system assessment. What part does that play in your work at Amref?

A: Health system assessment, in the sense of taking a view of the whole, is obviously key. Without it, there is a tendency to fall into the kind of silo thinking that has hampered health system development in the past. This is often attributed to approaches taken by vertical programmes, but I would say that the policy positions developed under the MDGs (millennium development goals) also played a role. As many of your readers will remember, the MDGs focused on just eight goals, including three specific health goals: reducing child mortality, improving maternal health and combating HIV, malaria, and other diseases. When I joined Amref in 2015, the organization had a very vertical strategy in alignment with those goals. With the transition from the MDGs to the SDGs (sustainable development goals) it has become vital to consider the big picture and the connections between elements previously considered distinct, such as nutrition and climate change, to take just one example. Seeing the need for a shift in thinking, I attended a course on strategic perspectives for non-profit management at Harvard which helped me develop a more holistic, integrated approach, aligning with the UHC agenda. I also read *Health, Wealth, and the Origins of Inequality* by Angus Deaton, a book which profoundly influenced my understanding of UHC and equity, not least because of its insights regarding the way better data and a deeper understanding of the determinants of health can help frame more effective health and economic policies. These insights were pivotal in shaping Amref's new five-year strategy that is focused on strengthening community health systems and increasing access to primary health care, but also prioritizes improving the livelihoods of women and young people and improving the social and structural conditions that impact health outcomes.

Q: How does Amref approach health system assessment?

A: We have developed our own approach, drawing on different methods and resources, including the World Health Organization's Service Access and Coverage (SAC) index, which aims to provide a clear, quantifiable measure of how effectively health services are being delivered and accessed by populations. However, it is important to point out that you can only assess what you can see – what you have data on. In Kenya, the data gathered by community health workers and posted on what we refer to as Community Health Blackboards at health facilities have been extremely helpful, highlighting gaps in vaccination, antenatal care and affordability. Data compiled by the Ministry of Health have also been useful, revealing for example, that only one person in five in Kenya had health insurance in 2017.

Q: To what extent do the countries that Amref works with make use of health system assessment?

A: Significant assessment data and evidence are available country by country – such as the United Republic of Tanzania's data on facility financial autonomy, which revealed that facilities lacking financial autonomy struggle to provide quality care; or the data collected by Rwanda through its Imihigo initiative. However, challenges remain with regard to overall health system assessment in most countries.

Q: Did the COVID-19 pandemic raise awareness of the need to assess capacity gaps and shortfalls in service provision?

A: COVID-19 highlighted the shortcomings of the health systems, particularly in regard to vaccine distribution and oxygen provision. However, although there was a brief response to the situation, including an attempt to capture and compile information, things have since returned to 'normal', which is to say to underfunded systems which fail to meet the real needs of people, many of whom work in the informal sector.

Q: What needs to change to address these issues?

A: Several things, but one is the perennial issue of underfunding. In my role as co-chair of the UHC 2030 Steering Committee, I've witnessed the global push for countries to move towards UHC and it could not have been stronger. However, despite the progress in some countries, the drive towards UHC continues to be hampered by the limited resources made available. In Africa, for example, per capita expenditure on health reaches, at best, 50 United States dollars per capita, with many countries below that. This is in stark contrast with the thousands of dollars per capita spent in high-income countries. So there is clearly a need for greater resource mobilization but also a need to maximize the impact of the resources we have, starting with the provision of a limited range of services for the most vulnerable, providing a broader range of services as more resources become available. At Amref, we are assisting governments in learning how to make the most of their limited resources by purchasing health services strategically, to get more health for the money in the absence of more money for health. Rwanda has been particularly proactive in this area for some time, identifying the very poor and subsidizing them, integrating funds from the Global Fund into their health insurance plans, and maintaining a unified health financing strategy. Ethiopia, despite struggles with its community-based insurance system, has shifted focus to reducing disease severity by deploying community health extension workers, and establishing health posts to serve more people before their conditions worsen. Similar initiatives are seen in Malawi and Kenya, where there are efforts to support health system assistance through health insurance subsidies.

Q: How optimistic are you that the UHC 2030 targets will be met in the countries in which Amref works?

A: As assessed in the recent *WHO Results Report* for 2023, the world is off-track to meet the target of 1 billion more people benefiting from universal health coverage by 2025 and to meet the related sustainable development goals by 2030. The countries Amref works with are likely to be a part of that trend. Moving the needle on UHC requires leadership but it also requires governance structures that transcend electoral cycles. Implementing coherent UHC policies requires decades, while electoral cycles typically run for four or five years, disrupting long-term implementation and support. While Amref will continue to support its members in the certainty of making gains in certain areas, unless this short-term planning changes, they will continue to struggle. ∎

Routine data in a primary care performance dashboard, Ethiopia

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Objective To explore the feasibility of building a primary care performance dashboard using DHIS2 data from Ethiopia's largest urban (Addis Ababa), agrarian (Oromia) and pastoral (Somali) regions.

Methods We extracted 26 data elements reported by 12 062 health facilities to DHIS2 for the period 1 July 2022 to 30 June 2023. Focusing on indicators of effectiveness, safety and user experience, we built 14 indicators of primary care performance covering reproductive, maternal and child health, human immunodeficiency virus, tuberculosis, noncommunicable disease care and antibiotic prescription. We assessed data completeness by calculating the proportion of facilities reporting each month, and examined the presence of extreme outliers and assessed external validity.

Findings At the regional level, average completeness across all data elements was highest in Addis Ababa (82.9%), followed by Oromia (66.2%) and Somali (52.6%). Private clinics across regions had low completeness, ranging from 38.6% in Somali to 58.7% in Addis Ababa. We found only a few outliers (334 of 816 578 observations) and noted that external validity was high for 11 of 14 indicators of primary care performance. However, the 12-month antiretroviral treatment retention rate and proportions of patients with controlled diabetes or hypertension exhibited poor external validity.

Conclusion The Ethiopian DHIS2 contains information for measuring primary care performance, using simple analytical methods, at national and regional levels and by facility type. Despite remaining data quality issues, the health management information system is an important data source for generating health system performance assessment measures on a national scale.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

Functioning primary care is essential for improving population health. A greater emphasis on primary care in the health-care system can reduce costs, improve access and reduce inequities in population health. In Ethiopia, a country with great unmet health-care needs, the performance and quality of the primary health-care system are suboptimal.[1–3] The coronavirus disease 2019 (COVID-19) pandemic, as well as the ongoing armed conflict in the northern part of the country, have further threatened the resilience of the health-care system.[4–6]

Evidence on health system performance in Ethiopia has been limited by the availability and type of data used for assessment. Most studies have relied on data collected through household or health facility surveys, methods which are costly and infrequent.[7,8]

The government-owned health system is structured into three tiers: primary facilities such as health centres and, in rural areas, health posts and primary hospitals; secondary facilities (general hospitals); and tertiary facilities (specialized hospitals). The private health sector is present at all levels of care, ranging from primary care facilities to private for-profit hospitals and specialty centres.[9] Outpatient primary care is delivered across all levels of the health system but it remains unclear whether primary care performance varies according to the facility type where it is provided. In particular, the performance of the Ethiopian private sector has received only limited attention in literature.

The capacity to measure and use data for learning and improvement is a foundation of a high-quality health system.[2]

DHIS2 (formerly known as the District Health Information System 2) is an open-source, web-based health management information system platform designed to routinely generate health statistics to support decision-making. DHIS2 is a widely used platform, over 80 countries have adopted it, and DHIS2 supports routine health management for an estimated 3.2 billion people.[10] Motivated by a need to improve data use for health system improvement, the Ethiopian health ministry adopted DHIS2 in 2016 as part of its digital health plan, achieving national implementation in 2019. The use of DHIS2 offers various benefits, including global support, standardization and flexibility. The system's open-source nature allows customization to meet each country's specific needs. The Ethiopian DHIS2 contains regularly submitted data, typically monthly, by all 30 192 health facilities in the country. The system includes reports on health service activities and the conditions for which people seek care.[11]

Concerns about data quality have hampered use of DHIS2. As a result, its rapid and extensive scaling up has not been matched by a corresponding increase in data use by policy-makers and researchers.[12] DHIS2 data remain underrepresented in the scientific literature.[13] The Ethiopian health ministry conducts annual reviews of health system performance using DHIS2 data.[14] However, the majority of indicators monitored focus on coverage estimates (e.g. antenatal care coverage or immunization coverage) that do not reflect the quality of the services provided and rely on denominators that are sometimes inaccurate (e.g. estimated number of pregnant women, expected number of infants).

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Beyond coverage measures, it remains unclear whether DHIS2 data can be used to track health system performance and to compare performance by facility type. In this paper, we explore the feasibility of building a primary care performance dashboard using DHIS2 data in three regions of Ethiopia. We conduct a detailed assessment of DHIS2 data quality by region and facility type, and discuss the availability of indicators to assess primary care performance.

Methods

Our analysis includes all health facilities reporting at least one of the indicators of interest to DHIS2 in three regions of Ethiopia: the largest urban (Addis Ababa), agrarian (Oromia) and pastoral (Somali) regions in the country. We extracted the monthly data at the health facility level. We categorized the facilities as: health posts (Oromia and Somali); health centres, private clinics, public hospitals and private hospitals (Addis Ababa and Oromia). Ethiopia uses its own 13-month calendar (the *Ge'ez* calendar). However, for budgeting and planning purposes the government uses a 12-month fiscal year that corresponds to 1 July to 30 June of the Gregorian calendar. For this analysis, we extracted data for Ethiopian Fiscal Year 2015, which corresponds to 1 July 2022 to 30 June 2023, using the pivot table module in DHIS2. We exported the data as csv files for analysis using Stata version 18 (Stata Corp. LP, College Station, United States of America).

To select sentinel measures of primary care performance, we first reviewed all data elements included in the Ethiopian DHIS2. Following the health system performance assessment framework for universal health coverage, we selected indicators of primary care effectiveness, safety and user experience.[15] We aimed to include indicators that covered a range of primary care needs for different health conditions, including reproductive, maternal and child health indicators, human immunodeficiency virus (HIV), tuberculosis and noncommunicable disease care. We included measures of timely care (e.g. proportion of pregnant women who had their first antenatal care visit in the first trimester); appropriate care (e.g. proportion of pregnant women tested for syphilis and HIV during antenatal care); treatment effectiveness (tuberculosis treatment

success rate, viral load suppression in patients living with HIV, blood pressure and blood sugar control); and retention in care (proportion of women attending four antenatal care visits of those having at least one visit; proportion of children receiving the third dose of pentavalent vaccine of those receiving the first dose; or proportion of children receiving the second dose of rotavirus vaccine of those receiving the first dose; and proportion of patients living with HIV still on antiretroviral therapy [ART] 12 months after initiation). The proportion of patients receiving an antibiotic was also included as a measure of treatment effectiveness, but also relates to patient safety and antimicrobial resistance.[16] Care retention reflects the user's experience and their willingness to continue receiving care.

We assessed four dimensions of data quality: reporting completeness, presence of outliers, internal consistency and external validity. For each data element, we assessed reporting completeness over the year by calculating the proportion of facilities reporting each month relative to the total number of facilities reporting at least once during the year. We also checked each data element for the presence of extreme positive outliers. We defined outliers as any observation greater than three standard deviations from the facility-level mean over the year, among volumes that were greater than 100 clients.[17] We set any outlier found to be missing before describing the results. The statistical code used for the data quality assessment and removal of outliers is publicly available in an online repository.[18]

We assessed internal consistency by building the performance indicators (i.e. dividing one data element by the other) and ensuring that numerators did not surpass denominators at the regional and facility-type levels. To assess external validity, we triangulated the regional-level performance indicators with estimates from external sources, including the 2016 Ethiopia Demographic and Health Survey (DHS);[19] the 2019 Ethiopia Mini DHS;[7] the Ministry of Health Ethiopian Fiscal Year 2015 performance report;[14] the 2021–2022 Ethiopia Service Provision Assessment survey;[8] and estimates from World Health Organization (WHO) and Joint United Nations Programme on HIV/AIDS (UNAIDS).[19–22] The primary care performance dashboard was built using

the data elements aggregated annually for the Ethiopian fiscal year 2015. The primary care performance indicators were also disaggregated by region and facility type.

The Institutional Review Board of The George Washington University determined that this study is not human subjects research, and exempted the study from a full review.

Results

From DHIS2, we extracted a total of 26 data elements, which we used to calculate 14 primary care performance indicators (Box 1). A total of 15 578 facilities were listed in DHIS2 across the three regions. However, 3516 did not report any of the 26 data elements needed for analysis during the year. Our analytical data set therefore included 12 062 health facilities and 144 744 facility-month observations.

Reporting completeness for each data element and region is shown in Table 1 (available at: https://www.who.int/publications/journals/bulletin/). At the regional level, average completeness across all data elements was highest in Addis Ababa (82.9%), followed by Oromia (66.2%) and Somali (52.6%). Completeness was above 70% for all data elements in Addis Ababa except for tuberculosis. Previously, tuberculosis data elements were reported in Ethiopia on a quarterly basis. Some facilities may therefore be lagging in transitioning their reporting practices to a monthly frequency. In Oromia and Somali, seven and 11 data elements had completeness less than 50%, respectively. Facility deliveries and childhood vaccination had the highest reporting completeness (more than 75% in all three regions). Diabetes, hypertension and tuberculosis data elements had the lowest reporting completeness. Overall, we found few extreme outliers, less than 0.1% of observations (334/816 578).

Table 2 presents the primary care performance dashboard at the regional level as well as internal and external validity assessments. Only one indicator had poor internal consistency at the regional level, where the number of women receiving iron and folic acid during pregnancy in Oromia was slightly higher than the total number of first antenatal care visits, suggesting that iron and folic acid are delivered outside of antenatal care visits. Eleven out of 14

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indicators demonstrated strong external validity, as their estimates closely aligned with those obtained from external sources. Three indicators had poor external validity: 12-month ART retention rate, and proportions of patients with controlled diabetes or hypertension. The 12-month ART retention rate ranged from only 27% to 50% across the three regions. However, a systematic review of 45 studies from Ethiopia, with varying lengths of follow-up, found an average ART retention rate of 70.7%;[23] and a study in 22 sub-Saharan African countries also found the ART retention rate at year 1 to be 76.8%.[24] Our estimate from DHIS2 may be affected by unaccounted losses to follow-up or by poor reporting completeness. The low retention rate also does not coincide with the relatively high rate of viral suppression. The proportions for diabetes and hypertension control also had poor external validity and were substantially higher than expected, at 77.6% and 77.4% on average, respectively (Table 2) compared with 34.4% and 37.5%, according to a systematic review and the 2023 WHO Global Report on Hypertension.[22,25] DHIS2 reporting for hypertension and diabetes is fairly recent in Ethiopia, and the numbers of patients enrolled in care may be poorly captured.

When assessing the proportion of total outpatient visits reported by each facility type, 15.8% of all visits across all three regions were reported by hospitals. Private sector primary care was low (less than 3.8%) in both Oromia and Somali, but accounted for 14.4% of reported primary care in Addis Ababa (Fig. 1). We assessed reporting completeness and internal consistency by region and facility type (Fig. 2). Completeness across all data elements was highest in Addis Ababa health centres (92.9% on average), followed by public hospitals in Addis Ababa and Oromia. In contrast, completeness was low in private clinics in all regions, ranging from 38.6% in Somali to 58.7% in Addis Ababa (Fig. 2 and online repository).[18] The primary care performance indicators showed interesting trends by facility type (Table 3). For example, syphilis and HIV testing during antenatal care was not higher in hospitals compared with health centres, despite the former being generally better equipped. The 2021–2022 Service Provision Assessment survey also found that antenatal

syphilis testing was equivalent in health centres (76%) compared with hospitals (75%).[8] Furthermore, in Addis Ababa the ART retention rate was high (67.0%) in health centres, where reporting accuracy is notably high, compared with reported rates in other facility types (about 40.0%; Table 3). In the disaggregated analyses, two indicators had poor internal consistency. First, public hospitals in Addis Ababa saw twice as many women in their fourth or subsequent antenatal care visit compared with women in their first antenatal care visit (Table 3). This outcome is probably because some women were referred to public hospitals from the primary level for follow-up antenatal care. The primary care performance indicators by facility type may be biased if patients move to different levels of the health system throughout the year. Second, in health posts in Oromia, provision of iron and folic acid was six times the number of antenatal care visits, indicating that iron and folic acid are delivered outside of these visits

Box 1. Data elements extracted from DHIS2 and primary care performance indicators calculated, Ethiopia, July 2022 to June 2023

Data elements

(i) total no. of immediate postpartum contraceptive acceptors; (ii) total no. of births attended by skilled health personnel; (iii) no. of women attended first antenatal care visit; (iv) no. of first antenatal care visits in the first trimester;(v) no. of pregnant women attended four antenatal care visits; (vi) no. of pregnant women tested for syphilis; (vii) no. of pregnant women tested for HIV; (viii) no. of pregnant women who received iron and folic acid; (ix) no. of children with first dose of pentavalent vaccine; (x) no. of children with third dose of pentavalent vaccine; (xi) no. of children with first dose of rotavirus; (xii) no. of children with second dose of rotavirus; (xiii) no. of people still on ART 12 months after initiation; (xiv) no. of people initiated on ART; (xv) no. of ART patients with an undetectable viral load (< 50 copies/mL); (xvi) no. of ART patients for whom a viral load test was done at 12 months; (xvii) no. of tuberculosis patients cured; (xviii) total no. of tuberculosis patients on treatment; (xix) no. of hypertensive patients with controlled blood pressure at 6 months; (xx) no. of hypertensive patients enrolled in care 6 months prior; (xxi) no. of diabetic patients with controlled blood sugar at 6 months; (xxii) no. of diabetic patients enrolled in care 6 months prior; (xxiii) no. of patient encounters with one or more antibiotics; (xxiv) total no. of patient encounters at facilities; (xxv) total outpatient visits; and (xxvi) total number of new and repeat acceptor of oral contraceptives.

Performance indicators

Reproductive health: proportion of women accepting immediate postpartum contraceptive (counselling effectiveness)

Antenatal care: proportion of pregnant women receiving timely antenatal care (timely care); proportion attended four antenatal care visits (care continuity); syphilis testing coverage; HIV testing coverage; and iron and folic acid provision (appropriate care)

Routine immunization: retention to the third pentavalent vaccine dose; and retention to the second rotavirus vaccine dose (care continuity)

HIV: proportion of people living with HIV on ART after 12 months (care continuity); and % of people with a viral load suppression (treatment effectiveness)

Tuberculosis: treatment success rate (treatment effectiveness)

Hypertension: proportion of patients with controlled blood pressure (treatment effectiveness)

Diabetes: proportion of patients with controlled blood sugar (treatment effectiveness)

Antibiotic prescribing: Proportion of patients receiving antibiotics (appropriate care, safety)

Discussion

In this paper, we have explored the feasibility of building a primary care performance dashboard using DHIS2 data from 12 062 health facilities in Ethiopia, corresponding to 40.0% of the 30 192 health facilities in the country. A total of 26 data elements were used to build 14 primary care performance indicators, including indicators of timely care, appropriate treatment, treatment effectiveness, safety and patient retention, which are important dimensions of service quality and intermediate objectives of health systems.[15]

Our data quality assessment revealed that reporting completeness is low in the Somali region compared with Addis Ababa and Oromia. Somali is one of four regions in Ethiopia where the predominant occupation is pastoralism. Furthermore, this region also has one of the weakest infrastructures in the country, characterized by a scarcity of health facilities and a shortage of health-care providers.[8,27]

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Table 2. **A primary care performance dashboard in three regions of Ethiopia, July 2022 to June 2023**

Data element or indicator	Addis Ababa (405 facilities)[a]	Oromia (10 102 facilities)[a]	Somali (1 555 facilities)[a]	Average	External comparison
Reproductive health					
Women accepting immediate postpartum contraception, no.	23 295	141 120	3 367	NA	NA
Births attended by skilled health personnel, no.	153 626	1 107 606	82 554	NA	NA
Immediate postpartum contraceptive acceptance, %	15.2	12.7	4.1	10.7	8.0[14]
Antenatal care					
Pregnant women attending first antenatal care visit, no.	190 916	1 506 219	203 938	NA	NA
First antenatal care visits in the first trimester, no.	44 957	332 985	39 404	NA	NA
Women receiving timely antenatal care, %	23.5	22.1	19.3	21.7	22.0–37.7[7,14]
Pregnant women attending four antenatal care visits, no.	166 583	1 062 412	129 593	NA	NA
Women retained to fourth antenatal care visit, %	87.3	70.5	63.5	73.8	58.0–79.0[7,14]
Pregnant women tested for syphilis, no.	187 518	1 202 867	95 392	NA	NA
Syphilis testing coverage, %	98.2	79.9	46.8	75.0	65.0–74.0[8,14]
Pregnant women tested for HIV, no.	173 853	1 070 449	49 095	NA	NA
HIV testing coverage, %	91.1	71.1	24.1	62.1	59.0[19]
Pregnant women receiving iron and folic acid, no.	152 684	1 710 910	145 813	NA	NA
Iron and folic acid provision, %	80.0	113.6[b]	71.5	88.4	67.0–77.0[7,14]
Routine immunization					
Children with first dose of pentavalent vaccine, no.	144 678	1 546 208	203 460	NA	NA
Children with third dose of pentavalent vaccine, no.	142 194	1 466 519	180 964	NA	NA
Children receiving third pentavalent vaccine dose, %	98.3	94.8	88.9	94.0	80.3[7]
Children with first dose of rotavirus vaccine, no.	139 129	1 512 186	199 329	NA	NA
Children with second dose of rotavirus vaccine, no.	138 926	1 429 770	179 552	NA	NA
Children receiving second rotavirus vaccine dose, %	99.9	94.5	90.1	94.8	92.0[7]
HIV					
People still on ART 12 months after initiation, no.	6 188	43 140	537	NA	NA
People initiated on ART, no.	12 369	92 922	1 999	NA	NA
People on ART after 12 months[c], %	50.0	46.4	26.9	41.1	70.7–76.8[23,24]
ART patients with an undetectable viral load (< 50 copies/mL), no.	84 321	278 635	985	NA	NA
ART patients for whom a viral load test was done at 12 months, no.	91 895	311 931	1 203	NA	NA
People with a viral load of suppression, %	91.8	89.3	81.9	87.7	81.0–96.4[14,21]
Tuberculosis					
Tuberculosis patients cured, no.	2 648	19 216	1 168	NA	NA
Tuberculosis patients on treatment, no.	2 829	19 834	1 326	NA	NA
Tuberculosis treatment success, %	93.6	96.9	88.1	92.9	86.0[20]
Hypertension					
Hypertensive patients with controlled blood pressure at 6 months, no.	24 942	244 374	5 217	NA	NA
Hypertensive patients enrolled in care 6 months prior, no.	34 914	303 406	6 507	NA	NA
Patients with hypertension control[c], %	71.4	80.5	80.2	77.4	37.5[22]
Diabetes					
Diabetic patients with controlled blood sugar at 6 months, no.	15 078	83 226	2 638	NA	NA
Diabetic patients enrolled in care 6 months prior, no.	21 132	103 163	3 264	NA	NA
Patients with diabetes control[c], %	71.4	80.7	80.8	77.6	34.4[25]
Antibiotics					
Patient consultations with antibiotic prescriptions, no.	1 700 554	11 931 264	351 440	NA	NA
Patient consultations, no.	4 094 391	18 595 369	677 852	NA	NA
Patient consultations resulting in antibiotic prescription, %	41.5	64.2	51.8	52.5	60.0[26]

ART: antiretroviral therapy; HIV: human immunodeficiency virus; NA: not applicable.

[a] Number of facilities reporting varies for each data element.

[b] Number of prescriptions for iron and folic acid was higher than number of antenatal care visits in Oromia region.

[c] Indicators had poor external validity and results are likely inaccurate.

Notes: We obtained the data from the Ethiopian DHIS2. Inconsistencies arise in some values due to rounding.

Reporting completeness was also low in private facilities. Therefore, our estimate of the proportion of primary care provided by the private sector may be underestimated. The performance indicators in private facilities may also be biased downward if numerators had poorer completeness than denominators. Although we included all facilities reporting to DHIS2 over the year, some active facilities, particularly in the private sector, may still be missing from DHIS2. A Master Facility Registry, listing all existing facilities in Ethiopia, is being developed but is not currently integrated with DHIS2.[14] Therefore, we are unsure of the true number of private facilities operating in the country. Poor reporting in the private sector has been described in other countries, and will require targeted approaches to incentivize private facilities to improve their reporting practices.[28,29] Nonetheless, our findings on reporting completeness must be interpreted with caution. In DHIS2, low completeness may indicate true missing data, where facilities are failing to report, but can also mean that the facilities did not have any patients for a certain service in a particular month. Zero counts are not reported in DHIS2 and appear as missing in the data set, an important limitation of the platform that has been raised by others.[30] Some facilities may also aggregate data over several months and only report once (e.g. per quarter) if the internet is

not available in a given month, for example. Since we aggregated results over 12 months in our dashboard, only true missing data, where facilities are failing to report despite having patients, would bias the results.
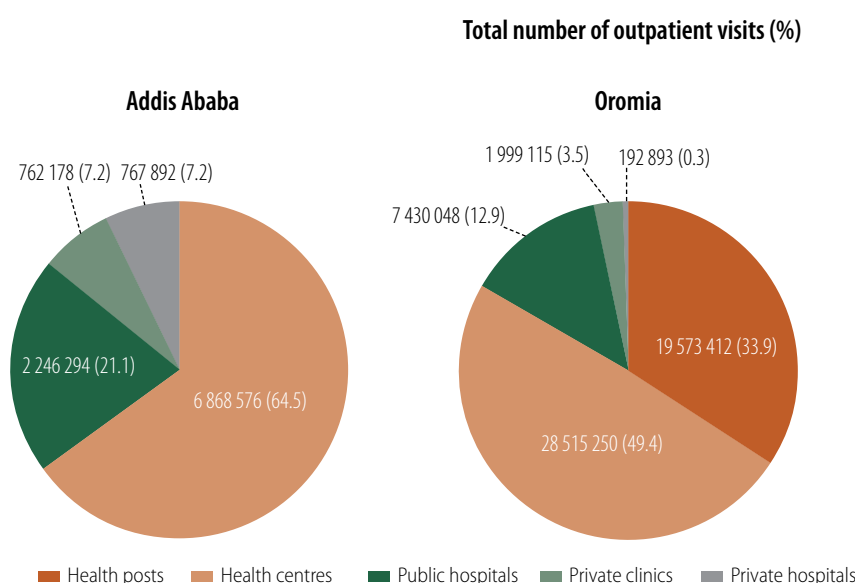
Our findings also reveal that although most primary care services were delivered in public health centres or health posts, between 13.2% (7 622 941/57 718 718) and 28.3% (3 014 186/10 644 940) of total outpatient visits took place in hospitals. The provision of primary care in hospitals is not always recommended due to gaps in continuity, poorer user experience and higher costs.[31] Studies have shown that an increasing number of people in low- and middle-income countries are opting for hospitals or private sector facilities to receive primary care.[31–35]

DHIS2 data offer important advantages and opportunities for improving the assessment of health system performance in low- and middle-income countries. First, unlike population- or facility-based surveys conducted only every 4–5 years, DHIS2 data are reported monthly by all health facilities in the country, allowing frequent assessments on a national scale.[19] For example, during the COVID-19 pandemic, many researchers turned to DHIS2 data to generate timely evidence on the magnitude of disruptions to health services.[4,5,10,12,36,37] The use of one health management information system across

all facility types and regions also facilitates standardized comparisons on a national scale. Moreover, unlike surveys, conducting performance assessments through DHIS2 does not require extra investments in data collection beyond the existing maintenance costs. Finally, DHIS2 data are locally led and government owned, decreasing reliance on international bodies for health system performance assessment.

Nonetheless, DHIS2 data continue to face limitations, including poor reporting completeness for some indicators, facilities or regions. This drawback will require improvements in data quality and reporting at the point of data collection. Upon reviewing all available data elements, we also observed certain ambiguities in indicator definitions. This issue has been documented in other countries as well.[30] Careful documentation of definitions and guidelines for reporting is crucial to improve data quality. To standardize reporting, WHO has collaborated with the health information systems programme at the University of Oslo, Norway, responsible for DHIS2, to create toolkits for specific programme areas (e.g. HIV and immunization) that include DHIS2 configuration packages.[38] WHO should also include health system performance measures in these toolkits. In Ethiopia, DHIS2 data are also currently limited to facility-level aggregates. Incorporating patient-level information through

Fig. 1. **Primary care service volume by facility type in three regions of Ethiopia, July 2022 to June 2023**

Total number of outpatient visits (%)

Addis Ababa

762 178 (7.2)   767 892 (7.2)
2 246 294 (21.1)
6 868 576 (64.5)

Oromia

1 999 115 (3.5)   192 893 (0.3)
7 430 048 (12.9)
19 573 412 (33.9)
28 515 250 (49.4)

Somali

3 807 (0.2)
396 363 (23.8)
824 490 (49.6)
437 349 (26.3)

■ Health posts ■ Health centres ■ Public hospitals ■ Private clinics ■ Private hospitals

Note: Data reported to the DHIS2 system over the year. Inconsistencies arise in some values due to rounding.

Fig. 2. **Average reporting completeness of data elements, by facility type, Ethiopia, July 2022 to June 2023**
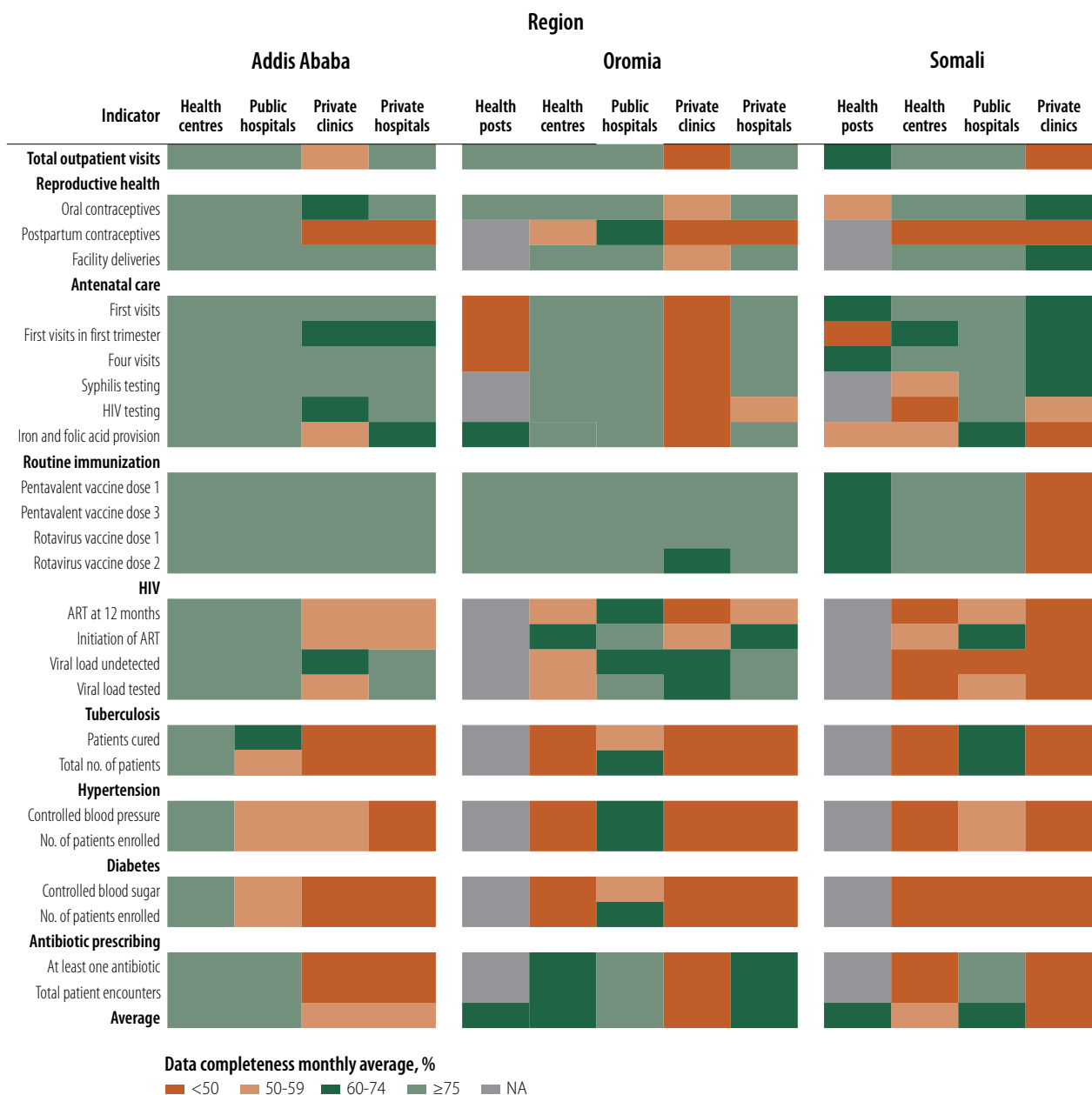
ART: antiretroviral therapy; HIV: human immunodeficiency virus; NA: not applicable.

Note: Data elements definitions are provided in Box 1. Number of facilities per type and region is given in Table 3. Data elements marked as NA are not reported by health posts. We obtained the data from the Ethiopian DHIS2. Completeness is defined as the number of facilities reporting each month divided by the total number of facilities that reported each data element at least once during the year. The table shows average completeness over 12 months.

electronic health records, for example, would allow more precise measures of care quality. Other countries have begun to incorporate individual-level data in DHIS2, including through the DHIS2 tracker module, which allows individual-based data processing and follow-up of people under different programmes, such as antenatal care, ART or routine immunizations. Concerning the availability of indicators, we found a large number pertaining to maternal and child health, whereas fewer were dedicated to noncommunicable disease care. Additionally, the Ethiopian DHIS2 lacks any indicator pertaining to mental health. Most data elements included in DHIS2 also aim to track service use and patient counts rather than service performance and quality of care. Finally, given the complexity and size of DHIS2 data sets, improving data use will also require the building of local data science skills.

We have shown that the DHIS2 system in Ethiopia contains important measures of primary care performance and that, despite some data limitations, 11 of the indicators presented had good external validity. Previously, DHIS2 has been primarily used to estimate health intervention coverage, such as proportion of deliveries conducted in facilities or the proportion of children vaccinated. These estimates were often limited by unreliable denominators estimating

Table 3. **Primary care performance indicators by region and facility type, Ethiopia July 2022 to June 2023**

Data element or indicator	Addis Ababa					Oromia				Somali			
	Health centres (97)	Public hospitals (12)	Private clinics (272)	Private hospitals (24)	Health posts (6 682)	Health centres (1 398)	Public hospitals (108)	Private clinics (1 904)	Private hospitals (9)	Health posts (1 314)	Health centres (218)	Public hospitals (18)	Private dinics (5)
Reproductive health													
Women accepting immediate postpartum contraception, no.	14 311	7 217	1 713	54	NA	117 012	17 012	2 632	1 051	NA	2 064	306	4
Births attended by skilled health personnel, no.	55 884	64 858	22 953	9 931	NA	876 622	213 838	12 864	4 282	NA	56 521	22 951	3 082
Immediate postpartum contraceptive acceptance, %	25.6	11.1	7.5	0.5	NA	13.3	8.0	20.5	24.5	NA	3.7	1.3	0.1
Antenatal care													
Pregnant women attending first antenatal care visit, no.	131 318	12 351	36 001	11 246	112 931	1 143 497	178 445	65 109	6 237	83 255	77 726	37 275	5 682
First antenatal care visits in the first trimester, no.	33 140	1 715	7 496	2 606	14 641	283 568	20 309	13 346	1 121	17 052	14 893	6 234	1 225
Women receiving timely antenatal care, %	25.2	13.9	20.8	23.2	13.0	24.8	11.4	20.5	18.0	20.5	19.2	16.7	21.6
Pregnant women attending four antenatal care visits, no.	105 165	25 712	27 975	7 731	75 001	851 089	89 855	40 980	5 487	58 718	56 316	9 371	5 188
Women retained to fourth antenatal care visit, %	80.1	208.2	77.7	68.7	66.4	74.4	50.4	62.9	88.0	70.5	72.5	25.1	91.3
Pregnant women tested for syphilis, no.	130 997	9 305	36 651	10 565	NA	998 201	149 173	51 340	4 153	NA	55 239	33 933	6 220
Syphilis testing coverage, %	99.8	75.3	101.8	93.9	NA	87.3	83.6	78.9	66.6	NA	71.1	91.0	109.5
Pregnant women tested for HIV, no.	129 171	6 276	28 451	9 955	NA	924 660	124 831	18 075	2 883	NA	18 591	26 114	4 390
HIV testing coverage, %	98.4	50.8	79.0	88.5	NA	80.9	70.0	27.8	46.2	NA	23.9	70.1	77.3
Pregnant women receiving iron and folic acid, no.	127 992	6 715	11 927	6 050	679 890	908 058	120 270	0	2 692	76 946	55 452	13 415	0
Iron and folic acid provision, %	97.5	54.4	33.1	53.8	602.0	79.4	67.4	0.0	43.2	92.4	71.3	36.0	0.0
Routine immunization													
Children with first dose of pentavalent vaccine, no.	116 301	1 474	20 263	6 640	1 036 570	443 092	53 000	13 474	72	111 628	72 153	17 676	2 003
Children with third dose of pentavalent vaccine, no.	117 499	1 318	17 308	6 069	996 363	413 576	43 973	12 541	66	99 411	65 484	14 392	1 677
Children receiving third pentavalent vaccine dose, %	101.0	89.4	85.4	91.4	96.1	93.3	83.0	93.1	91.7	89.1	90.8	81.4	83.7
Children with first dose of rotavirus vaccine, no.	111 966	1 378	19 450	6 335	1 015 717	433 562	49 716	13 117	74	108 964	70 939	17 489	1 937
Children with second dose of rotavirus vaccine, no.	114 418	1 322	17 549	5 637	967 613	405 647	44 060	12 380	70	98 259	65 123	14 588	1 582
Children receiving second rotavirus vaccine dose, %	102.2	95.9	90.2	89.0	95.3	93.6	88.6	94.4	94.6	90.2	91.8	83.4	81.7
HIV													
People still on ART 12 months after initiation, no.	3 205	820	170	652	NA	35 156	7 466	444	74	NA	14	523	NA
People initiated on ART, no.	4 786	2 037	207	1 823	NA	74 187	17 881	747	115	NA	323	1 676	NA
People on ART after 12 months[c], %	67.0	40.3	40.6	35.8	NA	47.4	41.8	59.4	64.3	NA	4.3	31.2	NA
ART patients with an undetectable viral load (<50 copies/mL), no.	41 790	28 351	7 450	6 730	NA	119 897	145 567	6 837	6 334	NA	33	952	NA
ART patients for whom a viral load test was done at 12 months, no.	45 027	30 917	8 178	7 773	NA	135 584	162 507	7 548	6 292	NA	53	1 150	NA
People with a viral load of suppression, %	92.8	91.7	91.1	86.6	NA	88.4	89.6	90.6	100.7	NA	62.3	82.8	NA
Tuberculosis													
Tuberculosis patients cured, no.	2 286	89	170	103	NA	16 663	2 289	206	58	NA	411	713	44
Tuberculosis patients on treatment, no.	2 418	96	207	108	NA	17 131	2 421	222	60	NA	486	796	44
Tuberculosis treatment success, %	94.5	92.7	82.1	95.4	NA	97.3	94.5	92.8	96.7	NA	84.6	89.6	100.0
Hypertension													
Hypertensive patients with controlled blood pressure at 6 months, no.	18 214	5 200	1 020	508	NA	169 322	67 752	6 680	620	NA	2 091	3 102	24
Hypertensive patients enrolled in care 6 months prior, no.	24 041	8 830	1 261	782	NA	205 383	88 839	8 410	774	NA	2 680	3 803	24
Patients with hypertension control[c], %	75.8	58.9	80.9	65.0	NA	82.4	76.3	79.4	80.1	NA	78.0	81.6	100.0

(*continues. . .*)

(...continued)

Data element or indicator	Addis Ababa				Oromia					Somali			
	Health centres (97)	Public hospitals (12)	Private clinics (272)	Private hospitals (24)	Health posts (6 682)	Health centres (1 398)	Public hospitals (108)	Private clinics (1 904)	Private hospitals (9)	Health posts (1 314)	Health centres (218)	Public hospitals (18)	Private clinics (5)
Diabetes													
Diabetic patients with controlled blood sugar at 6 months, no.	8 012	5 663	403	1 000	NA	25 389	52 787	4 243	807	NA	479	2 141	18
Diabetic patients enrolled in care 6 months prior, no.	11 220	8 066	528	1 318	NA	29 523	67 706	5 039	895	NA	720	2 526	18
Patients with diabetes control,[c] %	71.4	70.2	76.3	75.9	NA	86.0	78.0	84.2	90.2	NA	66.5	84.8	100.0
Antibiotics													
Patient consultations with antibiotic prescriptions, no.	1 350 937	297 953	42 361	9 303	NA	9 200 967	2 591 411	99 978	38 908	NA	85 924	264 864	652
Patient consultations, no.	2 983 719	1 028 499	57 846	24 327	NA	12 832 068	5 594 030	120 005	49 266	NA	108 352	567 085	2 415
Patient consultations resulting in antibiotic prescription, %	45.3	29.0	73.2	38.2	NA	71.7	46.3	83.3	79.0	NA	79.3	46.7	27.0

ART: antiretroviral therapy; HIV: human immunodeficiency virus; NA: not applicable.

[a] Indicators had poor internal consistency with values > 100%.

[b] Indicators had poor external validity.

Notes: Indicator definitions are provided in Box 1. We obtained the data from the Ethiopian DHIS2. Indicators marked as NA are not available in health posts.

the size of catchment populations. The indicators we present in this paper do not rely on these denominators. The primary care performance dashboard should be repeated on an annual basis across all regions to monitor changes in primary care performance. The primary care performance indicators could also be estimated at zonal or district levels for a more granular assessment of performance. Assuming similar indicators are available in the DHIS2 systems of other countries, the dashboard could be replicated elsewhere.[30]

Despite important investments in scaling up the DHIS2 system in recent years, this expansion has not been matched by a corresponding increase in information use.[12] Efforts to improve DHIS2 data demand and data use require improvements in DHIS2 data quality.[39] Governments and researchers should harness DHIS2 more effectively to generate performance assessment measures that are valuable for policymaking and improvement. The analyses presented here aim to contribute to this effort by providing a new framework to monitor primary care performance using DHIS2. ∎

ملخص

البيانات الروتينية في لوحة معلومات أداء الرعاية الأولية، إثيوبيا

الغرض استكشاف جدوى تأسيس لوحة معلومات لأداء الرعاية الأولية باستخدام بيانات DHIS2، من أكبر المناطق الحضرية (أديس أبابا)، والزراعية (أوروميا)، والرعوية (صومالي) في إثيوبيا.

الطريقة قمنا باستخراج 26 عنصرًا للبيانات من التي أبلغت عنها 12062 منشأة صحية لـ DHIS2، للفترة من 1 يوليو/تموز 2022 إلى 30 يونيو/حزيران 2023. وبالتركيز على مؤشرات الفعالية والسلامة وتجربة المستخدم، قمنا بوضع 14 مؤشرًا لأداء الرعاية الأولية تغطي كل من الصحة الإنجابية، والأمومة، وصحة الطفل، وفيروس نقص المناعة البشرية، والسل، ورعاية الأمراض غير المعدية، ووصف المضادات الحيوية. قمنا بتقييم مدى اكتمال البيانات من خلال حساب نسبة المنشآت التي تقدم تقاريرها كل شهر، وفحصنا وجود القيم المتطرفة، والصلاحية الخارجية.

النتائج على المستوى الإقليمي، كان متوسط الاكتمال عبر كل عناصر البيانات الأعلى في أديس أبابا (82.9%)، وتليها أوروميا

(66.2%)، ثم صومالي (52.6%). وبالنسبة لمدى اكتمال العيادات الخاصة عبر المناطق، فقد كانت منخفضة، حيث تراوحت من 38.6% في صومالي، إلى 58.7% في أديس أبابا. لقد عثرنا على عدد قليل فقط من القيم المتطرفة (334 من 816578 من الملاحظات)، ولاحظنا أن الصلاحية الخارجية كانت مرتفعة لعدد 11 من 14 مؤشرًا لأداء الرعاية الأولية. ومع ذلك، فإن معدل المداومة على العلاج المضاد للفيروسات القهقرية لمدة 12 شهرًا، ونسب المرضى الذين يعانون من مرض السكري أو ارتفاع ضغط الدم، الخاضع للسيطرة، فقد أظهروا صلاحية خارجية ضعيفة.

الاستنتاج يحتوي نظام DHIS2 الإثيوبي على معلومات لقياس أداء الرعاية الأولية، باستخدام طرق تحليلية بسيطة، على الصعيدين الوطني والإقليمي، وحسب نوع المنشأة. وعلى الرغم من المشكلات المتبقية المتعلقة بجودة البيانات، فإن نظام معلومات الإدارة الصحية يعد مصدرًا هامًا للبيانات لوضع مقاييس التقييم لأداء النظام الصحي على المستوى الوطني.

摘要

埃塞俄比亚初级保健绩效仪表板中的常规数据

目的 探讨利用埃塞俄比亚最大城市（亚的斯亚贝巴）、农业区（奥罗米亚）和牧区（索马里）的 DHIS2 数据构建初级保健绩效仪表板的可行性。

方法 我们提取了在 2022 年 7 月 1 日至 2023 年 6 月 30 日期间，12,062 家卫生机构向 DHIS2 报告的 26 种数据元素。以有效性、安全性和用户体验指标为重点，我们制定了涵盖生殖、母婴健康、人体免疫缺陷病毒、结核病、非传染性疾病护理和抗生素处方的 14 个初级保健绩效指标。我们通过计算每月进行报告的卫生机构比例评估了数据完整性，同时还研究了极端异常值的情况和外部有效性。

结果 在区域层面，亚的斯亚贝巴所有数据元素的平均完整性最高（82.9%），其次是奥罗米亚（66.2%）和索

马里（52.6%）。各区域私人诊所的完整性较低，介于 38.6%（索马里）和 58.7%（亚的斯亚贝巴）之间不等。我们仅发现了少数异常值（816,578 份观察结果中仅有 334 份存在异常），同时发现，在 14 项初级保健绩效指标中，共有 11 项的外部有效性较高。但是，在接受抗逆转录病毒治疗 12 个月后的药物留存率以及糖尿病或高血压患者病情控制率方面，显示外部有效性较低。

结论 通过利用埃塞俄比亚 DHIS2 系统提供的信息，我们仅需使用简单分析方法即可在国家和区域层面按卫生机构类型衡量初级保健绩效。尽管仍存在数据质量问题，但卫生管理信息系统始终是在全国范围内制定卫生系统绩效评估措施的重要数据来源。

Résumé

Données de routine dans un tableau de bord des performances de soins de santé primaires en Éthiopie

Objectif Déterminer s'il est possible de créer un tableau de bord des performances de soins de santé primaires en utilisant les données du DHIS2 issues des plus grandes régions urbaines (Addis-Abeba), agricoles (Oromia) et pastorales (Somali) d'Éthiopie.

Méthodes Nous avons extrait 26 éléments de données transmis au DHIS2 par 12 062 établissements de santé pour la période allant du 1er juillet 2022 au 30 juin 2023. En nous focalisant sur l'efficacité, la sécurité et l'expérience vécue par les   patients, nous avons défini 14 indicateurs de performances pour les soins de santé primaires, couvrant des domaines tels que la santé reproductive, maternelle et infantile, le

virus de l'immunodéficience humaine, la tuberculose, la prise en charge des maladies non transmissibles et la prescription d'antibiotiques. Nous avons évalué l'exhaustivité des données en calculant le pourcentage d'établissements produisant un rapport mensuel, avant d'examiner la présence de valeurs aberrantes extrêmes et la validité externe.

Résultats À l'échelle régionale, c'est à Addis-Abeba (82,9 %) que l'exhaustivité moyenne pour l'ensemble des éléments de données était la plus élevée, suivie d'Oromia (66,2 %) et de Somali (52,6 %). Dans toutes les régions, les cliniques privées affichaient un faible taux d'exhaustivité compris entre 38,6 % au Somali et 57,7 % à Addis-Abeba. Nous n'avons

trouvé que quelques valeurs aberrantes (334 sur 816 578 observations) et avons constaté un haut degré de validité externe pour 11 des 14 indicateurs de performances des soins de santé primaires. Toutefois, le degré de validité du taux de maintien du traitement antirétroviral sur 12 mois ainsi que de la proportion de patients avec une hypertension ou un diabète sous contrôle s'est révélé moindre.

Conclusion Le DHIS2 éthiopien contient des informations utiles pour mesurer les performances des soins de santé primaires à l'aide de

méthodes analytiques simples, tant au niveau national que régional et selon les types d'établissements. Malgré les quelques problèmes qui subsistent en termes de qualité, ce dispositif de gestion des informations sanitaires représente une précieuse source de données pour élaborer des outils permettant d'évaluer les performances du système de santé à l'échelle nationale.

Резюме

Стандартные данные на панели мониторинга эффективности оказания первичной медико-санитарной помощи, Эфиопия

Цель Изучить возможность создания панели мониторинга эффективности оказания первичной медико-санитарной помощи с использованием данных DHIS2 из крупнейших городских (Аддис-Абеба), аграрных (Оромия) и пастушеских (Сомали) регионов Эфиопии.

Методы В период с 1 июля 2022 года по 30 июня 2023 года было получено 26 элементов данных, представленных 12 062 медицинскими учреждениями в DHIS2. Сосредоточив внимание на показателях эффективности, безопасности и удобства использования, авторы разработали 14 показателей оценки эффективности оказания первичной медико-санитарной помощи, охватывающих репродуктивное здоровье, здоровье матери и ребенка, вирус иммунодефицита человека, туберкулез, помощь при неинфекционных заболеваниях и назначение антибиотиков. Для оценки полноты данных рассчитывалась доля учреждений, представивших отчеты за каждый месяц, а также проверялось наличие экстремальных значений и внешняя обоснованность.

Результаты На региональном уровне средний показатель полноты данных по всем элементам был самым высоким

в Аддис-Абебе (82,9%), за ним следуют Оромия (66,2%) и Сомали (52,6%). Частные клиники в разных регионах отличались низкой полнотой охвата: от 38,6% в Сомали до 58,7% в Аддис-Абебе. Было обнаружено лишь несколько отклонений (334 из 816 578 наблюдений), и отмечается, что внешняя обоснованность была высокой для 11 из 14 показателей оценки эффективности первичной медико-санитарной помощи. Однако показатели продолжительности 12-месячного антиретровирусного лечения и доля пациентов с контролируемым сахарным диабетом или артериальной гипертензией были недостаточно достоверными с точки зрения внешней обоснованности**.**

Вывод В ПО DHIS2 Эфиопии представлена информация для оценки эффективности первичной медико-санитарной помощи с помощью простых аналитических методов на национальном и региональном уровнях и по типам учреждений. Несмотря на сохраняющиеся проблемы с качеством данных, информационная система управления здравоохранением является важным источником данных для разработки показателей оценки эффективности системы здравоохранения в национальном масштабе.

Resumen

Datos de rutina en un tablero de rendimiento de atención primaria en Etiopía

Objetivo Explorar la viabilidad de crear un tablero de rendimiento de la atención primaria utilizando datos DHIS2 de las principales regiones urbanas (Addis Abeba), agrarias (Oromia) y pastorales (Somali) de Etiopía.

Métodos Se extrajeron 26 elementos de datos notificados por 12 062 centros sanitarios a DHIS2 para el periodo comprendido entre el 1 de julio de 2022 y el 30 de junio de 2023. A partir de indicadores de eficacia, seguridad y experiencia de los usuarios, se elaboraron 14 indicadores del rendimiento de la atención primaria que abarcan la salud reproductiva, materna e infantil, el virus de la inmunodeficiencia humana, la tuberculosis, la atención de enfermedades no transmisibles y la prescripción de antibióticos. Se evaluó la exhaustividad de los datos al calcular el porcentaje de centros que informaban cada mes y se examinó la presencia de valores atípicos y de la validez externa.

Resultados A nivel regional, el nivel medio de exhaustividad de todos los datos fue más alto en Addis Abeba (82,9%), seguida de Oromia

(66,2%) y Somalia (52,6%). Las clínicas privadas de todas las regiones presentaban un bajo nivel de exhaustividad, que oscilaba entre el 38,6% en Somalia y el 58,7% en Addis Abeba. Solo se encontraron unos pocos valores atípicos (334 de 816 578 observaciones) y se observó que la validez externa era alta para 11 de los 14 indicadores de rendimiento de la atención primaria. Sin embargo, la tasa de retención del tratamiento antirretroviral a los 12 meses y los porcentajes de pacientes con diabetes o hipertensión controladas mostraron una escasa validez externa.

Conclusión El DHIS2 etíope contiene información para medir el rendimiento de la atención primaria, utilizando métodos analíticos sencillos, a escala nacional y regional y por tipo de centro. A pesar de los problemas de calidad de los datos que aún persisten, el sistema de información sobre la gestión sanitaria es una fuente de datos importante para generar medidas de evaluación del rendimiento del sistema sanitario a escala nacional.

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Assessing the WHO-UNICEF primary health-care measurement framework; Bangladesh, India, Nepal, Pakistan and Sri Lanka

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Objective To assess the availability of information on indicators of the World Health Organization and United Nations Children's Fund primary health-care measurement framework in Bangladesh, India, Nepal, Pakistan and Sri Lanka and to outline the opportunities for and challenges to using the framework in these countries.

Methods We reviewed global and national data repositories for quantitative indicators of the framework and conducted a desk review of country documents for qualitative indicators in February–April 2023. We assessed data sources and cross-sectional survey tools to suggest possible sources of information on framework indicators that were not currently reported in the countries. We also identified specific indicators outside the framework on which information is collected in the countries and which could be used to measure primary health-care performance.

Findings Data on 54% (32/59) of the quantitative indicators were partially or completely available for the countries, ranging from 41% (24/59) in Pakistan to 64% (38/59) in Nepal. Information on 41% (66/163) of the qualitative subindicators could be acquired through desk reviews of country-specific documents. Information on input indicators was more readily available than on process and output indicators. The feasibility of acquiring information on the unreported indicators was moderate to high through adaptation of data collection instruments.

Conclusion The primary health-care measurement framework provides a platform to readily assess and track the performance of primary health care. Countries should improve the completeness, quality and use of existing data for strengthening of primary health care.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

Health is central to the 2030 agenda of the United Nations (UN) sustainable development goals (SDG), and primary health care is a strategy to achieve most of the SDG health targets.[1] The success of primary health care depends on consistent evaluation and performance review of service delivery, which provides strategic information for decision-making and builds accountability.[2] Therefore, performance monitoring is essential to identify gaps, determine priorities, set targets, track progress, and guide actions and investments for overall improvement in population health, service coverage and financial risk protection against out-of-pocket expenditure.

Several frameworks have been developed to track the performance of primary health care in different regions of the world. The primary care assessment tool, developed between 1990 and 1999, provided a framework to evaluate service delivery processes.[3] At the same time, the project Primary Health Care Activity Monitor for Europe assesses primary health-care structures such as governance, financing and workforce, along with processes and outcomes.[4] However, these tools and other frameworks, such as the World Health Organization (WHO) European primary health-care impact, performance and capacity tool; the quality and outcomes framework (United Kingdom of Great Britain and Northern Ireland); and the results-based logic model for primary health care (Canada), have been designed for high-income countries and require modifications for use in low- and middle-income countries.[5,6]

In addition, while most of these frameworks capture the core primary health-care attributes of continuity, coordination, comprehensiveness, patient-centredness and quality of care, community engagement and multisectoral action are given limited attention.[7]

To bridge the gaps, the Primary Health Care Performance Initiative introduced a framework to assess primary health care in the low- and middle-income countries. This framework is built on a model specifying key inputs, processes, outputs and outcomes, and provides a scoring system for measuring primary health-care performance.[8] Although the framework has adequate measures for components such as primary health-care spending, access, quality, service coverage and health outcomes, a few subdomains required improved validity of the indicators.[9–11] A review of the literature on measurement of primary health-care performance in low- and middle-income countries highlighted the limited scope of existing primary health-care measurement frameworks. The review recommended the validation of existing indicators and the development of concise measures for the neglected dimensions of primary health care.[12]

In this regard, WHO and the United Nations Children's Fund (UNICEF) developed an operational framework for measurement of primary health care through a technical review of existing frameworks and indicators, followed by multiple stages of stakeholder consultations.[13] The framework has three components: integrated service delivery and essential public health functions; multisectoral policy and action; and

empowered people and communities. The framework provides 87 indicators (59 quantitative and 28 qualitative), which are further classified as tier 1 (39 indicators) or tier 2 (48 indicators) based on the feasibility of their measurement. Tier 1 indicators are feasible to collect, monitor and track in most contexts, while tier 2 indicators are desirable to collect but acquiring the needed information may not be practicable in all contexts. Most of the indicators are composite indicators, information on which should be disaggregated by the sociodemographic drivers of equity. The novelty of the framework lies in the large set of lever-specific indicators, which can be tailored to national and subnational country contexts. The framework also provides guidance for measurement of particular areas, such as policy and governance, community engagement, organization, management of health services, and purchasing and payment systems.[14]

We aimed to assess first-hand experience of using the framework in five countries – Bangladesh, India, Nepal, Pakistan and Sri Lanka – to show the opportunities and challenges in evaluating primary health care. First, we assessed the availability of data on the indicators for evaluating primary health care in the countries. Second, we identified the data sources for the indicators and the level of disaggregation in these sources to track the equity drivers. Third, we identified opportunities to expand the scope of the existing data sources to provide information on the indicators for primary health-care monitoring that were not currently available. Finally, we propose a set of primary health-care monitoring indicators that can be added to the WHO-UNICEF primary health-care measurement framework based on information available in existing data sources in these countries.

Methods

We used an exhaustive secondary data review complemented by stakeholder consultation. Based on the WHO-UNICEF primary health-care measurement framework, we assessed the availability of indicators for primary health-care monitoring in Bangladesh, India, Nepal, Pakistan and Sri Lanka. We searched for framework indicators in global data repositories during March–April 2023. These repositories included the WHO

Global Health Observatory, WHO global health expenditure database, WHO health inequality monitor, World Bank indicator database, UN SDG indicator database, WHO national health workforce accounts, WHO state party assessment reports and WHO–UNICEF reports.[15–23]

We also searched national data repositories including national health accounts reports, health facility surveys, demographic and health surveys, noncommunicable disease monitoring surveys, national sample survey (India), national income and expenditure survey (Bangladesh) and multiple indicator cluster surveys (Bangladesh, Nepal and Pakistan), as well as the annual reports generated from data captured through the health management information systems.

We shared the list of indicators with relevant officials from the health ministry and development partners in India, Pakistan and Sri Lanka to identify the framework indicators on which information was being collected through some systems but which were not available in the public domain. We had access to tools used in routine information systems in Bangladesh and Nepal. We also conducted a desk review of country-specific documents. Finally, we organized a stakeholder consultation with 33 national and international experts from academia, government ministries, nongovernmental organizations and development partners, to ensure that we identified and included all relevant data sources to assess the availability of information on quantitative indicators as well as potential sources of information on the availability of qualitative indicators.

We analysed the percentage of quantitative indicators for which information was available by tier classification (feasibility of measurement) and the three components in the framework for each country. We also assessed the frequency of reporting of the data sources (cross-sectional surveys and routine management information systems), the proportion of reported indicators available, and the level of disaggregation of indicators compared with the level suggested by the primary health-care measurement framework.

In addition, we evaluated the country-specific cross-sectional survey tools, such as the service provision assessment tool, service availability and readiness assessment tool, demographic and

health survey tools and noncommunicable disease monitoring survey tools, to identify potential framework indicators and subindicators that were unreported in the data repositories and reports. We further classified these indicators and subindicators into three categories according to the feasibility of data collection (easy, moderate and difficult). Data collection was considered easy if the question relevant to the indicator could be identified in the survey tools, but the information on the value of the indicator was not reported in the associated report. Moderately difficult data collection meant that the tool in its present form did not capture information on subindicators and would require modifications. Data collection was considered difficult if special surveys were required to collect information on the indicator. Indicators for which the feasibility of acquiring information on their subindicators varied were categorized according to the level of feasibility for at least half of the subindicators.

Finally, while reviewing the survey questionnaires, we also identified a set of indicators that are not currently included in the primary health-care measurement framework, but on which information is being collected and reported in the countries and which could be used to measure primary health-care performance in the region.

Ethical approval

The Institute Ethics Committee at the Post Graduate Institute of Medical Education and Research, Chandigarh, India approved the study (PGI/IEC/2023/EIC000289).

Results

Availability of indicators

On average, 54% (32/59) of the quantitative indicators were completely or partially available for the five countries, ranging from 41% (24/59) in Pakistan to 64% (38/59) in Nepal. Complete or partial information was available from the existing data sources for 79% (22/28) of tier 1 indicators, ranging from 57% (16/28) to 93% (26/28). For tier 2 indicators, information was available for 31% (10/31; inconsistency is due to rounding), ranging from 26% (8/31) to 39% (12/31; Fig. 1). Overall, information was available on 54% (32/59) of indicators related to integrated health services, ranging

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from 41% (24/59) to 64% (38/59), and 77% (10/13) of indicators related to multisectoral plan and action, ranging from 69% (9/13) to 85% (11/13). For empowered people and communities, information was available on 42% (4/9; inconsistency is due to rounding) of indicators, ranging from 33% (3/9) to 56% (5/9).

Bangladesh, Nepal and Sri Lanka reported information on more than 80% of tier 1 indicators, while the feasibility of obtaining information on tier 2 indicators using available data sources was highest for Nepal (39%; 12/31). Nepal had the highest percentage of quantitative indicators for which information was available: 64% (38/59) for integrated health services and 56% (5/9) for em-

powered people and communities. Bangladesh reported the highest percentage of indicators of multisectoral policy and action for which information was available (85%; 11/13; Fig. 1). Information on most of the input indicators was available for financing, physical infrastructure, health workforce, medicines and other health products (Fig. 2 and online repository).[24] Limited information was available for models of care and output indicators, especially indicators measuring quality of care (Fig. 2; online repository).[24]

The framework divides the 28 qualitative indicators into 163 subindicators, of which information on 41% (66/163) could be acquired through desk reviews of country-specific documents, while

42% (69/163) required key informant interviews and 17% (28/163) needed both desk reviews and key informant interviews (online repository).[24] Information on 61% (33/54) of the subindicators in the governance domain could be obtained from desk reviews of policy documents. Information on only 19% (8/42) of the subindicators for models of care could be acquired through the review of existing country-specific documents (online repository).[24]

Data sources for quantitative indicators

Indicators on inputs and processes were mostly available from health facility surveys or facility censuses conducted by the countries. Data on outputs (utilization of services) were captured through the routine health information system in the countries. Global data repositories collated data to compute 11 quantitative indicators, while national surveys and routine information systems provided information for 29, 28, 33, 18 and 28 indicators in Bangladesh, India, Nepal, Pakistan and Sri Lanka, respectively.

Health facility surveys were the source of information on the greatest number of indicators in all countries, except for India, followed by routine health information report, namely: annual health report in Nepal; annual health statistics in Sri Lanka; health management information system report in India; health information system in Pakistan; and annual health bulletin in Bangladesh (Fig. 3). Other surveys with large samples, such as demographic and health surveys and the national sample

Fig. 1. **Proportion of available quantitative indicators of the WHO–UNICEF primary health care measurement framework, by country**
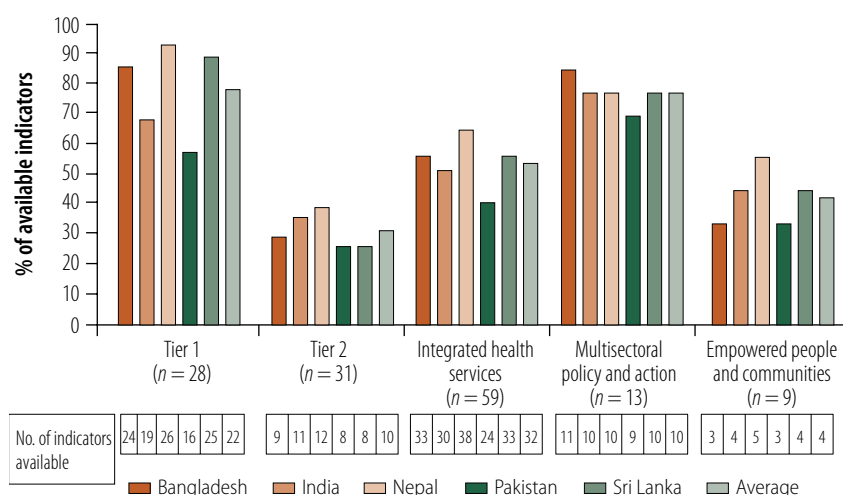
UNICEF: United Nations Children's Fund; WHO: World Health Organization.

Fig. 2. **Available quantitative indicators of the WHO–UNICEF primary health care measurement framework, by domain**
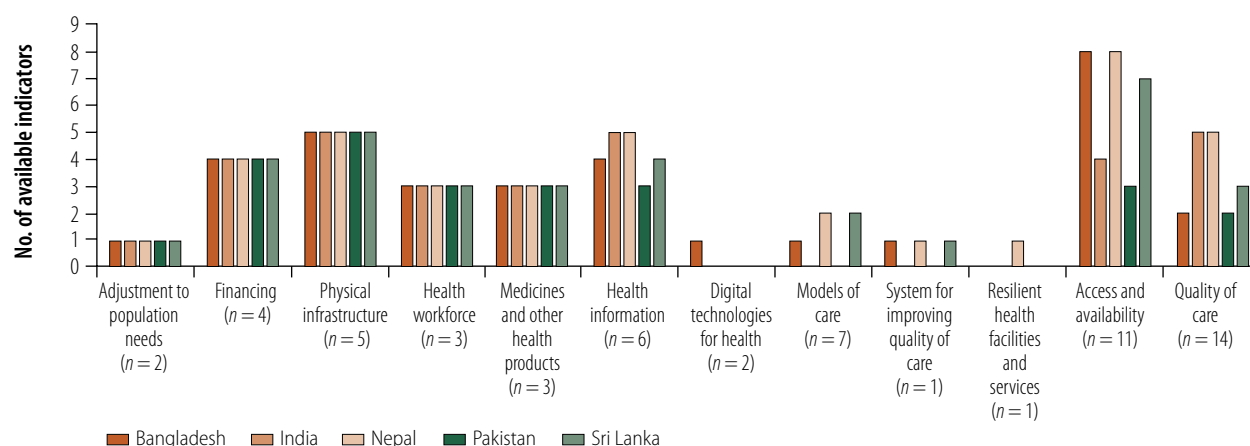
UNICEF: United Nations Children's Fund; WHO: World Health Organization.
Note: *n* is the total number of indicators in each domain.

survey (India) provided information on only 2–5 quantitative indicators.

The methods or sources adopted by the countries to track indicators were similar in some cases and varied in others. For example, all the countries used national health accounts to track the finance-related indicators (Box 1; available at https://www.who.int/publications/journals/bulletin). Nepal and Sri Lanka recorded information on hospital discharges per 1000 population through the health information system, but Bangladesh and India captured this information through population-based surveys. While the information on indicators related to physical infrastructure and availability of human resources are collected annually in India through collation of information from government health facilities, other countries acquire these data through facility-based surveys. Box 1 provides the complete list of country data sources used for measuring various indicators.

Reporting and disaggregation

The average time between survey reports varied between countries. The average duration between rounds of demographic and health surveys ranged between 2 years for Bangladesh and 13.5 years for Sri Lanka (online repository).[24,25] Similarly, health facility assessments were reported every 2 years for Bangladesh, 5 years for Nepal and 8 years for Pakistan.[26–29] Additionally, the reporting of consecutive rounds was not consistent in the countries. For example, for the WHO STEPS (STEPwise approach to noncommunicable disease risk factor surveillance) surveys, while the first three rounds in Nepal had a gap of 1 year, the fourth and fifth rounds had a gap of 4 and 6 years, respectively.

Health facility surveys in Bangladesh and Nepal disaggregate almost all the indicators according to facility type, managing authority, province or division and location (urban or rural), in line with the requirement of the framework (Fig. 4). The district health information system gathers information at the facility level which is later collated at district, provincial and national levels in the five countries. The routine information systems in all the countries do not collect data from private health providers, and do not report stratified results based on the location of the facilities.

Fig. 3. **Proportion of available quantitative indicators of the WHO–UNICEF primary health care measurement framework, by data source and country**
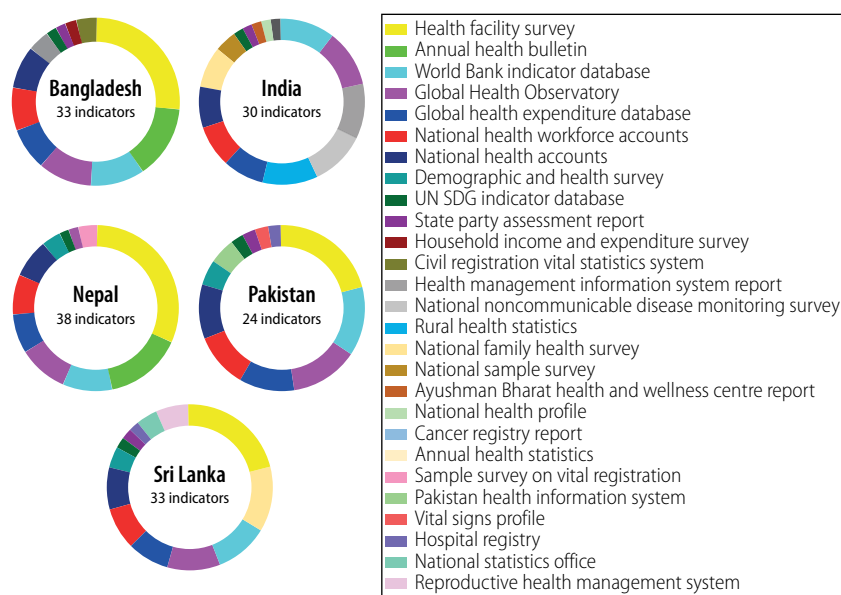
UNICEF: United Nations Children's Fund; UN SDG: United Nations sustainable development goals; WHO: World Health Organization.

Note: the number of indicators is the total number of available indicators.

Potential data sources

Of 34 quantitative indicators on which information was unavailable, data on nine (26%) indicators can be acquired easily because of their inclusion in standard survey tools (Table 1). Overall, 59% (20/34) of the indicators were classified in the moderate category because data could be acquired by inclusion of related questions in the tools of existing surveys. The health systems in the countries are just starting to include some indicators, such as facilities using comprehensive patient records, facilities using electronic health records and subindicators (online repository).[24]

The framework suggests that data be collected on a few subindicators of the quantitative indicator called multidisciplinary team-based service delivery. However, some components, such as team identity, clearly defined roles and responsibilities that are uniformly understood by all team members, shared goals of providing quality care, and mutual accountability structures, require a qualitative investigation in the region (online repository).[24] Additionally, the framework recommends both qualitative and quantitative assessment for a few indicators, including access to telemedicine, existence of an empanelment system and facilities with systems to support quality improvement. We

found that these indicators were being evaluated quantitatively through existing data repositories in at least one of the five countries.

Extending the framework

Information on some indicators related to multisectoral coordination is readily available in the five countries, such as: number of people stopped and checked by traffic police for drink–driving in the past 12 months in Nepal; number of training programmes conducted for ministry of health and non-ministry of health personnel in Bangladesh; population being taught in school and college about the ill-effects of tobacco and alcohol, and the benefits of physical activity and diet in India; and use of safety helmets by motorcycle drivers and passengers in Nepal and Pakistan (Box 2; available at https://www.who.int/publications/journals/bulletin). Additionally, several indicators related to community links and engagement, such as number of committee meetings held with at least 60% of members, awareness of community outreach activities, and population with recent contacts with health workers, were collected by the countries on a regular basis (Box 2; online repository).[24]

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Discussion

Our paper presents information on the current availability of indicators within the primary health-care measurement framework in five countries and suggests the extension of existing surveys to obtain information, especially related to process and output indicators. Overall, complete or partial information was available for four fifths and one third of the of the tier 1 and tier 2 quantitative indicators, respectively, from the existing data sources. Most of the information was available for quantitative indicators related to multisectoral plan and action, and integrated health services. However, information on the indicators related to empowered people and communities need to be strengthened to compute the indicator. Data availability was skewed towards input indicators, in comparison to process, and output indicators in all the countries. Information was not available for about a quarter of the quantitative indicators, even though this information is included in standard survey tools and the data could be easily obtained. Thus, countries have data on such indicators, which, with adequate reporting, can be used for performance evaluation.

Countries used different approaches to track certain indicators, using either surveys or routine information systems. Both methods of data collection have advantages as well as limitations. While data collected through management information systems are timely and present a more sustainable option for performance monitoring of primary health care, they depend on the completeness of reporting by facilities and currently do not include information from private entities. Moreover, ensuring the quality of data from management information systems is important for estimating performance. On the other hand, evidence collected from cross-sectional surveys is reliant on self-reported information. While these surveys may not have problems of over-reporting or lack of representation of the private sector, their sample sizes generally do not permit district-level analysis. Stakeholders may prioritize data sources based on available resources and local capacities; however, robust mechanisms should be in place to ensure data quality.

Fig. 4. **Level of disaggregation of indicators of the WHO–UNICEF primary health care measurement framework in the data sources**
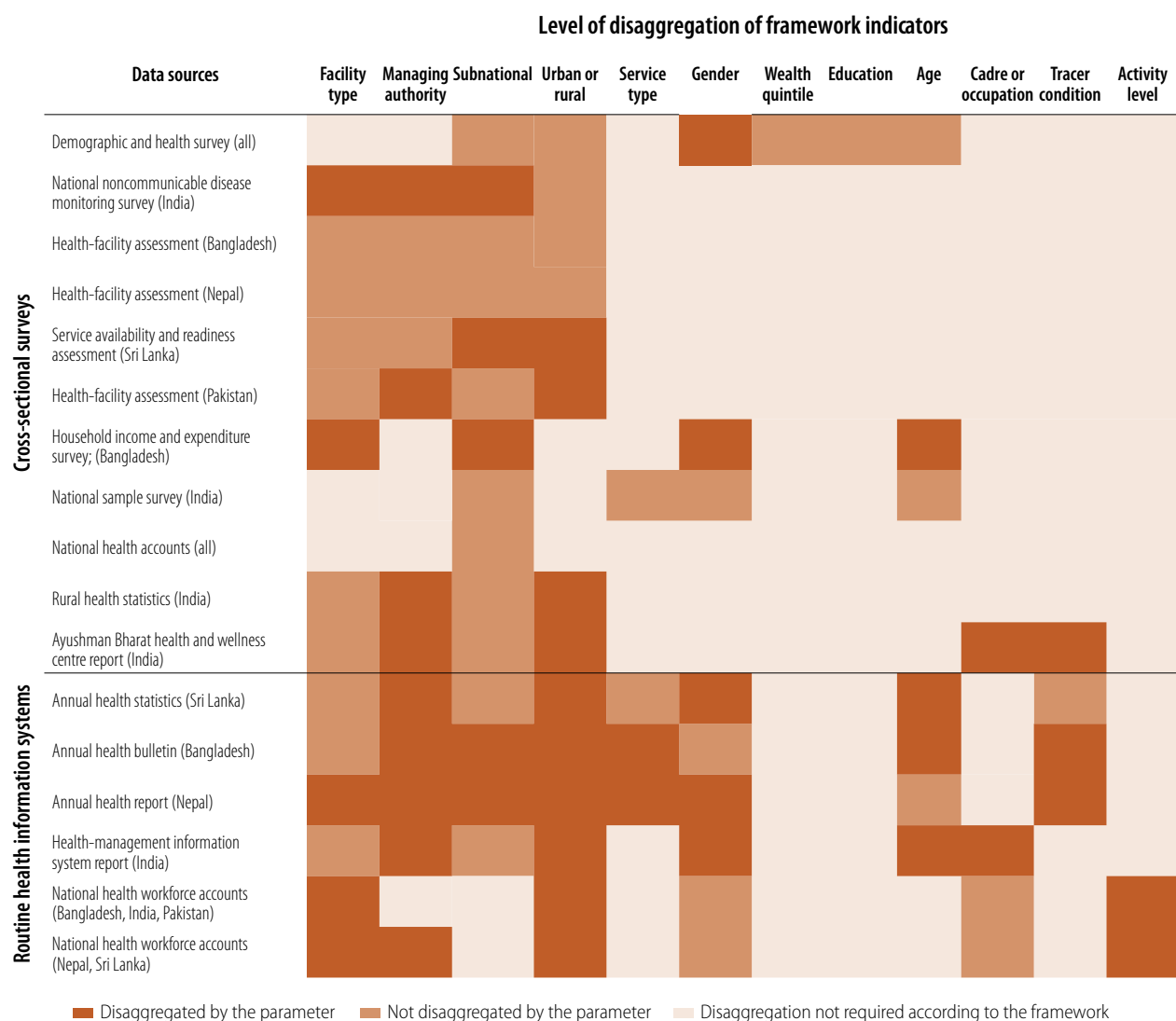
UNICEF: United Nations Children's Fund; WHO: World Health Organization.
Note: details available in online repository.[24]

Governments should not only consider building systems for improvement in availability of standardized data for monitoring primary health-care performance, but also adapt the framework and use indicators on which information is readily available to ensure context-specific monitoring systems. The countries have adopted similar approaches to establish community participation through institutionalization of health committees and peer groups, and through community health workers.[30–32] Therefore, indicators already being tracked in the countries may be useful to assess the level of community engagement in service planning and organization after consideration of their appropriateness.

Furthermore, with the increasing burden of noncommunicable diseases,[33] the success of primary health care will be contingent on the continuum of care provided. In this regard, the framework suggests assessment of the existence of comprehensive patient records and the availability of protocols for referrals, back-referrals, and emergency transfer, but does not include output indicators for assessment of the care continuum. However, in Bangladesh and India, authorities have started to track the number of upward and downward referrals through routine management information systems. In one of the surveys on primary health-care facilities in India, the population-level compliance rate with referrals made by the primary health-care teams was also assessed.[34]

The so-called leave no-one behind principle requires monitoring of indicators with detailed disaggregation across population subgroups, regions and levels of care. Most of the sample surveys presented disaggregated data on certain parameters, as suggested by the framework. However, the reports of management information systems contained limited disaggregation. The framework recommends disaggregation of 58% of quantitative indicators by facility type, which implies measurement of primary health care delivered at primary, secondary and tertiary level facilities. The measurement of indicators at secondary and tertiary level facilities should be analysed with caution in the studied countries as no formal gatekeeping mechanism exists at primary health-care facilities. Thus, the aggregated measurement of primary health care at all three levels of health care is likely to

Table 1. **Quantitative indicators of the WHO–UNICEF primary health care measurement framework, on which information is currently not available, potential data sources and ease of access of the data**

Indicator	Potential data sources	Ease of data collection
Percentage of public research funding for primary research	National health accounts	Difficult
Health-worker density and distribution	National health workforce accounts	Moderate
Accreditation mechanisms for education and training institutions	National health workforce accounts, regulatory councils	Moderate
National system for continuing professional development	National health workforce accounts, regulatory councils	Moderate
Availability of medicines	Health facility surveys	Easy
Availability of essential in vitro diagnostics	Health facility surveys	Moderate
Availability of priority medical equipment and other medical devices	Health facility surveys	Moderate
Percentage of facilities using comprehensive patient records	Health facility surveys	Difficult
Functional national human resources information system and national health workforce accounts	Desk reviews of policy documents	Easy
Percentage of facilities using electronic health records	Health facility surveys	Difficult
Management capability and leadership: percentage of facilities with managers or teams that have decision-making responsibilities	Health facility surveys	Easy
Multidisciplinary team-based service delivery[a]	Health facility surveys, key informant interviews, routine health information systems	Difficult
Existence of facility budgets and expenditures meeting criteria	Health facility surveys	Moderate
Collaboration between facility-based and community-based service providers[a]	Policy reviews, health facility surveys, routine health information systems	Moderate
Proactive population outreach	Health facility surveys	Moderate
Services for self-care and health literacy in primary care	Health facility surveys	Moderate
Percentage of health facilities with systems to support improvements in quality[a]	Health facility surveys	Easy
Percentage of facilities meeting criteria for resilient health facilities and services[a]	Health facility surveys	Moderate
Geographical access to services	Geographic information system mapping	Easy
Access to emergency surgery	Population-based surveys	Easy
Percentage of facilities offering services according to a national service package	Health facility surveys	Moderate
Provider availability (absence rate)	Health facility surveys	Moderate
Percentage of facilities meeting minimum standards to deliver tracer services	Health facility surveys	Moderate
Percentage of facilities compliant with infection prevention and control measures	Health facility surveys	Moderate
Patient-reported experiences[a]	Population-based surveys, health facility surveys	Moderate
People's perception of health system and services	Population-based surveys, health facility surveys	Easy

(continues. . .)

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Indicator	Potential data sources	Ease of data collection
Diagnostic accuracy (provider knowledge)	Health facility survey	Easy
Adherence to clinical standards for tracer conditions	Health-facility surveys	Easy
30-day hospital case fatality rate (acute myocardial infarction or stroke)	Routine health information systems	Moderate
Avoidable complications (lower limb amputation in diabetes)	Routine health information systems	Moderate
Hospital readmission rate for tracer conditions	Routine health information systems	Moderate
Prescribing practices for antibiotics	Prescription audit, health facility surveys	Moderate
Proportion of people 65 years and older prescribed antipsychotics	Prescription audit, health facility surveys	Moderate
Waiting time for elective surgery	Population-based surveys, health facility surveys	Difficult

ᵃ Indicator has subindicators that had different levels of feasibility of data collection (online repository).[24]

overestimate the actual availability of resources for primary health-care service delivery and primary health-care performance at the designated primary health-care facilities. This situation is likely to promote an inefficient model of primary health-care service delivery.[35,36] Disaggregation of these data may be useful to monitor care-seeking patterns and to quantify the effectiveness of any gatekeeping mechanism in strengthening primary health care. Moreover, the private sector in the region provides an estimated 50–69% of the outpatient care. Therefore, creating a mechanism for collecting data from private providers is crucial to increase the representativeness of data.

To improve the availability and accessibility of information across countries, global repositories are consistently being updated. The expansion of information in the national health workforce accounts and global health expenditure database, and the launch of a health inequality online repository in April 2023 are a few examples of the efforts being made globally to improve transparency and tracking of primary health-care performance.[16,17,20] In addition, it is important to strengthen civil registration and vital statistics systems to capture, among other information, reliable data on cause of death for effective primary health-care service planning and delivery.[37] Additionally, strengthening coordination and interoperability within and between different levels of care will also be essential to measure continuity of care and care coordination.

Our study has some limitations. First, the five countries have vertical programmes for certain diseases, with isolated reporting lines, which may not be integrated into a regular management information system. We did not evaluate reports of such programmes to identify domain-specific indicators not mentioned in the framework but being tracked in the countries. Second, reports of health information systems for Pakistan could not be directly accessed for the analysis, which may have resulted in under-representation of information on indicators outside the framework. Third, because information on data sources for qualitative indicators across the countries varied in rigour, the availability of information on qualitative indicators could not be analysed by country and requires further exploration. Finally, our assessment focused specifically on the five countries; however, extending such analyses to other countries in the region would help determine the generalizability of the findings.

In conclusion, the WHO–UNICEF primary health-care measurement framework provides an opportunity to set up a unified monitoring system for tracking the performance of primary health care. With different health system structures in urban areas and a substantial amount of care delivered by private providers in the region, data on the indicators should be collected and analysed according to these parameters. The focus of the countries in future should not only be to establish mechanisms for collection of information on the indicators for measurement of primary health-care performance, but also to work on improving the completeness, quality and use of existing data for strengthening of primary health care. ∎

Competing interests: None declared.

ملخص
تقييم إطار عمل قياس الرعاية الصحية الأولية الخاص بمنظمة الصحة العالمية واليونيسيف؛ بنغلاديش والهند ونيبال وباكستان وسري لانكا

الغرض تقييم مدى توفر المعلومات عن مؤشرات إطار العمل الخاص بقياس الرعاية الصحية الأولية لمنظمة الصحة العالمية، وصندوق منظمة الأمم المتحدة للطفولة، في كل من بنغلاديش والهند ونيبال وباكستان وسري لانكا، وتحديد الفرص والتحديات التي تواجه استخدام إطار العمل هذا في تلك الدول.

الطريقة قمنا بمراجعة مستودعات البيانات العالمية والوطنية لفحص المؤشرات الكمية لإطار العمل، كما قمنا بمراجعة مكتبية للوثائق القطرية للمؤشرات النوعية خلال الفترة من فبراير/شباط إلى أبريل/نيسان 2023. وقمنا بتقييم مصادر البيانات وأدوات المسح متعددة القطاعات بهدف اقتراح مصادر ممكنة للمعلومات عن مؤشرات إطار العمل هذا، والتي لم يتم الإبلاغ عنها حاليًا في الدول. قمنا أيضًا بتحديد مؤشرات محددة خارج إطار العمل، والتي يتم وفقًا لها جمع المعلومات في الدول، والتي يمكن استخدامها لقياس أداء الرعاية الصحية الأولية.

النتائج كانت البيانات المتعلقة بنسبة 54% (59/32) من المؤشرات الكمية متوفرة بشكل جزئي أو كلي للدول، وتراوحت من 41% (59/24) في باكستان إلى 64% (59/38) في نيبال. ويمكن الحصول على معلومات عن 41% (163/66) من المؤشرات الفرعية النوعية من خلال المراجعات المكتبية للوثائق الخاصة بكل دولة. وكانت المعلومات المتعلقة بمؤشرات المدخلات متوفرة بشكل أكثر جاهزية من المعلومات المتعلقة بمؤشرات العمليات والمخرجات. وبالنسبة للحصول على معلومات حول المؤشرات غير المبلغ عنها، كانت الجدوى من ذلك متوسطة إلى عالية من خلال تكييف أدوات جمع البيانات.

الاستنتاج إن إطار العمل الخاص بقياس الرعاية الصحية الأولية، يقدم منصة لتقييم وتتبع أداء الرعاية الصحية الأولية بشكل سهل. ينبغي على الدول تحسين اكتمال البيانات القائمة، وجودتها، واستخدامها من أجل تعزيز الرعاية الصحية الأولية.

摘要
评估世界卫生组织 (WHO) 和联合国儿童基金会 (UNICEF) 初级卫生保健衡量框架在巴基斯坦、孟加拉国、尼泊尔、斯里兰卡和印度的使用情况

目的 旨在评估世界卫生组织和联合国儿童基金会初级卫生保健衡量框架指标相关信息在巴基斯坦、孟加拉国、尼泊尔、斯里兰卡和印度的可用性，并概述在这些国家使用该框架的机会及相关挑战。

方法 我们仔细研究了全球和国家数据资源库以了解该框架的定量指标，并于 2023 年 2 月至 4 月针对国家文件进行了案头审查以了解定性指标。我们评估了数据来源和横断面调查工具，以推测当前在这些国家未报告的框架指标相关信息的可能来源。我们还确定了这些国家收集信息所依赖且可用于衡量初级卫生保健绩效的框架外具体指标。

结果 54% (32/59) 的定量指标相关数据部分或完全可供这些国家使用，使用率从巴基斯坦的 41% (24/59) 到尼泊尔的 64% (38/59) 不等。可通过对国别文件进行案头审查获得 41% (66/163) 的定性子指标相关信息。投入指标相关信息比过程和产出指标相关信息更容易获得。通过调整数据收集工具，获取未报告指标相关信息的可行性介于一般和较高之间。

结论 初级卫生保健衡量框架为有效评估和跟踪初级卫生保健绩效提供了平台。各国应提高现有数据的完整性、质量和利用率，以加强初级卫生保健。

Résumé

Analyse du cadre d'évaluation des soins de santé primaires OMS-UNICEF au Bangladesh, en Inde, au Népal, au Pakistan et au Sri Lanka

Objectif Étudier la disponibilité des informations concernant les indicateurs du cadre d'évaluation des soins de santé primaires de l'Organisation mondiale de la Santé et du Fonds des Nations Unies pour l'enfance au Bangladesh, en Inde, au Népal, au Pakistan et au Sri Lanka, mais aussi présenter les opportunités et enjeux de l'application d'un tel cadre dans ces pays.

Méthodes Nous avons exploré les référentiels de données nationaux et internationaux à la recherche d'indicateurs liés au cadre, puis nous avons effectué un examen préliminaire des documents de chaque pays pour y trouver des indicateurs qualitatifs entre février et avril 2023. Nous avons évalué la provenance des données et les outils d'enquête transversale en vue de suggérer des sources potentielles d'informations sur certains indicateurs relatifs au cadre qui n'apparaissaient pas encore dans les pays susmentionnés. Nous avons par ailleurs identifié des indicateurs spécifiques en dehors du cadre, sur lesquels les pays collectent des informations et qui pourraient servir à mesurer les performances des soins de santé primaires.

Résultats Des données sur 54% (32/59) des indicateurs quantitatifs étaient partiellement ou entièrement disponibles dans les différents pays, allant de 41% (24/59) au Pakistan à 64% (38/59) au Népal. Des examens préliminaires de documents propres à chaque pays ont permis de recueillir des informations sur 41% (66/163) des sous-indicateurs qualitatifs. Il était plus facile d'obtenir des précisions sur les indicateurs de moyens que sur les indicateurs de processus et de résultats. Enfin, le degré de faisabilité de l'acquisition d'informations sur les indicateurs non mentionnés était modéré à élevé, à condition d'adapter les instruments de collecte de données.

Conclusion Le cadre d'évaluation des soins de santé primaires offre une plateforme permettant d'évaluer et de suivre aisément les performances en la matière. Les pays devraient améliorer l'exhaustivité, la qualité et l'utilisation des données existantes pour renforcer les soins de santé primaires.

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Резюме

Оценка системы измерения эффективности первичной медико-санитарной помощи ВОЗ-ЮНИСЕФ; Бангладеш, Индия, Непал, Пакистан и Шри-Ланка

Цель Оценить наличие информации о показателях системы измерения эффективности первичной медико-санитарной помощи Всемирной организации здравоохранения и Детского фонда Организации Объединенных Наций в Бангладеш, Индии, Непале, Пакистане и Шри-Ланке и обозначить возможности и проблемы использования этой системы в этих странах.

Методы С февраля по апрель 2023 года был проведен обзор глобальных и национальных хранилищ данных по количественным показателям структуры и аналитический обзор документов по странам по качественным показателям. Авторы проанализировали источники данных и инструменты проведения перекрестных исследований и сделали предположение о возможных источниках информации для рамочных показателей, которые в настоящее время не включаются в отчеты в указанных странах. Кроме того, были определены конкретные показатели, не входящие в рамочную схему, по которым в этих странах собирается информация и которые могут использоваться

для оценки эффективности первичного медико-санитарного обслуживания.

Результаты Данные по 54% (32/59) количественных показателей были частично или полностью доступны по странам: от 41% (24/59) в Пакистане до 64% (38/59) в Непале. Информация по 41% (66/163) качественных подпоказателей была получена в результате анализа документов по конкретным странам. Информация о показателях затрат является более доступной, чем информация о показателях процессов и результатов. Возможность получения информации по показателям, не включенным в отчетность, оценивалась как умеренная или высокая в случае адаптации инструментов сбора данных.

Вывод Система статистического измерения показателей первичной медико-санитарной помощи обеспечивает платформу для удобной оценки и отслеживания эффективности первичного медико-санитарного обслуживания. В целях усиления первичной медико-санитарной помощи странам необходимо улучшить полноту, качество и использование доступных данных.

Resumen

Evaluación del marco de medición de la atención primaria de salud de la OMS y el UNICEF en Bangladesh, India, Nepal, Pakistán y Sri Lanka

Objetivo Evaluar la disponibilidad de información sobre los indicadores del marco de medición de la atención primaria de salud de la Organización Mundial de la Salud y el Fondo de las Naciones Unidas para la Infancia en Bangladesh, India, Nepal, Pakistán y Sri Lanka, y exponer las oportunidades y los desafíos que plantea la aplicación del marco en estos países.

Métodos Se revisaron los repositorios de datos mundiales y nacionales para los indicadores cuantitativos del marco y se realizó una revisión preliminar de los documentos de los países para los indicadores cualitativos entre febrero y abril de 2023. Se evaluaron las fuentes de datos y las herramientas de encuestas transversales para sugerir posibles fuentes de información sobre los indicadores del marco que actualmente no se comunican en los países. También se identificaron indicadores específicos ajenos al marco sobre los que se recopila información en los países y que se podrían aplicar para medir los resultados de la atención primaria.

Resultados Los datos sobre el 54% (32/59) de los indicadores cuantitativos estaban parcial o totalmente disponibles para los países, oscilando entre el 41% (24/59) de Pakistán y el 64% (38/59) de Nepal. La información sobre el 41% (66/163) de los subindicadores cualitativos se pudo obtener mediante revisiones preliminares de documentos específicos de cada país. La información sobre los indicadores de insumos fue más fácil de obtener que sobre los indicadores de procesos y productos. La viabilidad de adquirir información sobre los indicadores no declarados fue de moderada a alta mediante la adaptación de los instrumentos de recopilación de datos.

Conclusión El marco de medición de la atención primaria proporciona una plataforma para evaluar y seguir fácilmente el rendimiento de la atención primaria. Los países deben mejorar la exhaustividad, la calidad y el uso de los datos existentes para reforzar la atención primaria.

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Population assessment of health system performance in 16 countries

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Objective To demonstrate how the new internationally comparable instrument, the People's Voice Survey, can be used to contribute the perspective of the population in assessing health system performance in countries of all levels of income.

Methods We surveyed representative samples of populations in 16 low-, middle- and high-income countries on health-care utilization, experience and confidence during 2022–2023. We summarized and visualized data corresponding to the key domains of the World Health Organization universal health coverage framework for health system performance assessment. We examined correlation with per capita health spending by calculating Pearson coefficients, and within-country income-based inequities using the slope index of inequality.

Findings In the domain of care effectiveness, we found major gaps in health screenings and endorsement of public primary care. Only one in three respondents reported very good user experience during health visits, with lower proportions in low-income countries. Access to health care was rated highest of all domains; however, only half of the populations felt secure that they could access and afford high-quality care if they became ill. Populations rated the quality of private health systems higher than that of public health systems in most countries. Only half of respondents felt involved in decision-making (less in high-income countries). Within countries, we found statistically significant pro-rich inequalities across many indicators.

Conclusion Populations can provide vital information about the real-world function of health systems, complementing other system performance metrics. Population-wide surveys such as the People's Voice Survey should become part of regular health system performance assessments.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

The notion that health systems should be people-centred seems unexceptional. Health systems are occupied with serving people, are funded by people and aim to improve people's health as their primary objective. However, concerns have grown in the past two decades that health systems have not matched the steadily rising expectations of patients, and are not delivering optimal outcomes or user experience.[1–7] The global drive towards universal health coverage (UHC) also relies on a social compact that presumes the population finds health services to be of high value.

The integrated people-centred health services framework developed by the World Health Organization (WHO) calls for engaging communities and reorienting models of care to put people at the centre of health systems by expanding voice, co-production and choice.[8–10] However, rhetoric on people-centredness has exceeded reality.[9] The recently developed UHC framework for health system performance assessment (Fig. 1) highlights the need to evaluate health systems based

on how they function for people and the outcomes they generate.[11] Building on a body of literature that is arguing for a shift from measuring inputs to assessing health system function and health improvement,[12–14] this emphasis on performance is especially relevant today with many health systems struggling in the aftermath of the coronavirus disease 2019 (COVID-19) pandemic. Incorporating people's perspective in evaluating and steering health systems will require a robust and comparable set of measures obtained from the population.[15]

In this paper we describe the evaluation of health system performance by 16 different populations using the People's Voice Survey (data publicly available in mid-2024),[16] a new internationally comparable instrument.[17] We hypothesize that the survey captures many of the domains in the WHO framework for health system performance assessment, and that it can provide unique insights into performance to complement other data sources. We report and discuss data from 16 countries on performance domains, and examine income-related inequality by analysing differences between income groups within each country.

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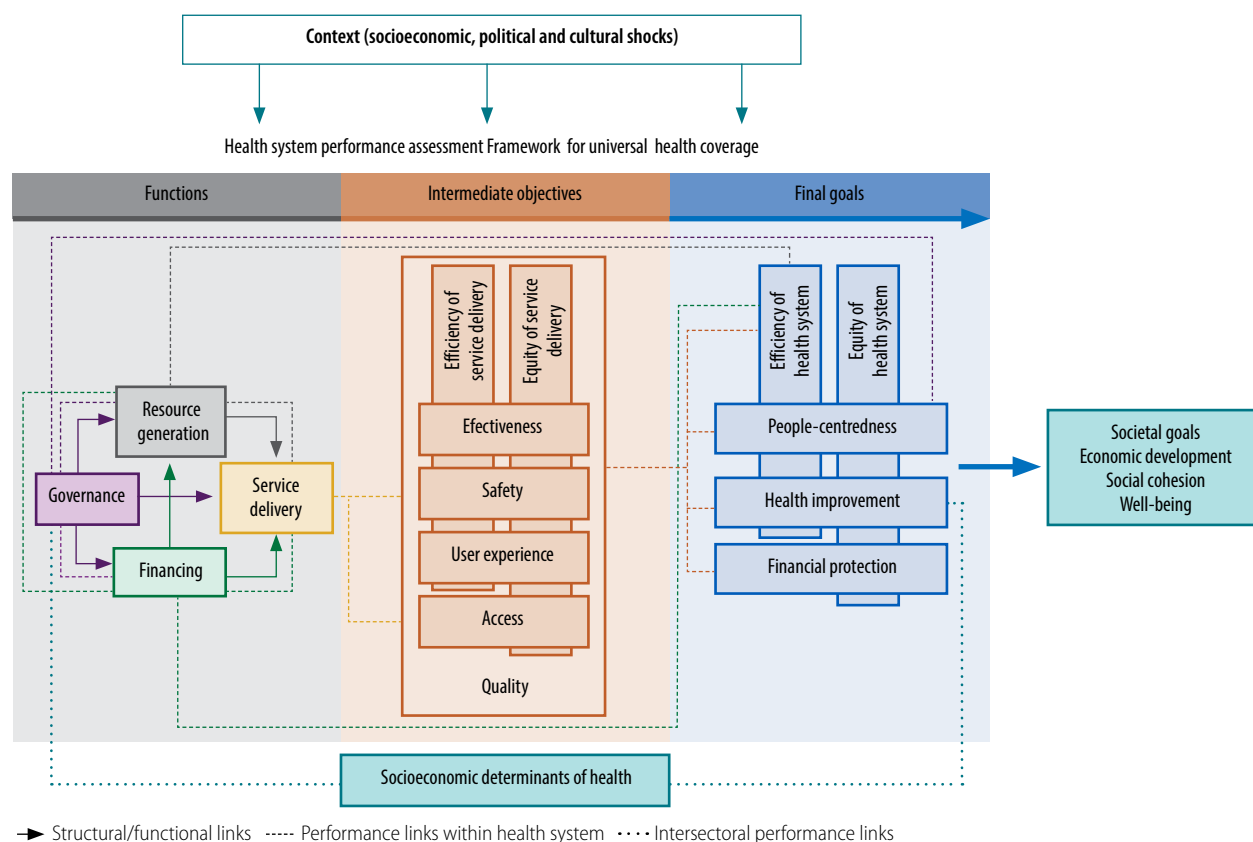[k] Seoul National University College of Medicine, Seoul, Republic of Korea.

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Fig. 1. **WHO framework used to define indicators in a study on the use of People's Voice Survey indicators in a 16-country assessment of health system performance**

Context (socioeconomic, political and cultural shocks)

Health system performance assessment Framework for universal health coverage

| Functions | Intermediate objectives | Final goals |

Efficiency of service delivery
Equity of service delivery
Effectiveness
Safety
User experience
Access
Quality

Resource generation
Governance
Service delivery
Financing

Efficiency of health system
Equity of health system
People-centredness
Health improvement
Financial protection

Societal goals
Economic development
Social cohesion
Well-being

Socioeconomic determinants of health

→ Structural/functional links   ---- Performance links within health system   · · · Intersectoral performance links

Source: Adapted from World Health Organization, 2022.[11]

Methods

The research presented here was undertaken by the Quality Evidence for Health System Transformation (QuEST) Network, a global research consortium on high-quality health systems.

Data source

We acquired data via the People's Voice Survey, a new instrument to measure experience and assessment of health system performance by people. The survey includes data describing demographics and health, utilization of care and system competence, care experience and quality, and confidence in a health system. The development and validation of the survey have been previously described.[17] We adapted and translated the standard questionnaire for each health system context, and assessed our country-specific questionnaires for comprehension via cognitive interviews and/or pilot tests.

Research teams affiliated with the QuEST Network contracted survey research firms Ipsos and Social science research services (SSRS) to administer most of the surveys during May 2022 to July 2023. We obtained responses from population-representative samples of adults (age ≥ 18 years) in Argentina (Mendoza province only), Colombia, Ethiopia, Greece, India, Italy, Kenya, Lao People's Democratic Republic, Mexico, Nigeria, Peru, Republic of Korea, South Africa, United Kingdom of Great Britain and Northern Ireland, United States of America and Uruguay. In most countries, we conducted surveys using computer-assisted telephone interviewing with a live interviewer. Respondents were sampled through random digit dial or known-list sampling. In Ethiopia and Kenya, where mobile phone penetration was less than 80%, we included supplemental face-to-face samples. In the Republic of Korea, the United Kingdom and the USA, we used nationally representative probability-based panels.

Indicators

We based our survey indicators on the WHO UHC framework for health system performance assessment (Fig. 1),[11] which has core areas of service delivery, intermediate objectives and final goals. The domains within these core areas are broadly consistent with many widely used frameworks.[11,14,18,19] We identified survey data that corresponded to the concepts in the framework, and were able to quantify all intermediate objectives (except for safety) and all final goals (Fig. 1). We define the indicators used in our analysis in Box 1, mapping them to the framework constructs. Where possible, to better capture the core construct and to reduce statistical noise, we combined multiple variables from the survey.

In the intermediate objectives area of the framework, care effectiveness refers to the ability of the overall health-care system to provide essential and clinically effective services to those who need them.[19] User experience

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Box 1. WHO health system performance assessment framework domains and corresponding People's Voice Survey indicators

Intermediate objectives

- Care effectiveness: (i) public health effectiveness: percentage of respondents aged ≥ 40 years who had both a blood pressure and blood sugar test in the past year; (ii) quality of own care: percentage of respondents rating quality of care of most recent visit in past 12 months as very good or excellent; and (iii) quality of primary care services: average percentage of respondents rating three core primary care services (child, maternal, chronic disease) as very good or excellent.
- User experience: (i) respect: percentage of respondents rating respect that provider showed them and courtesy of office staff in most recent visit as very good or excellent, and who experienced no discrimination in health care; (ii) voice: percentage of respondents rating their desired level of involvement in their health care and their health-care provider's explanation as very good or excellent; and (iii) customer service: percentage of respondents rating wait time and time spent with provider (as well as time waiting for appointment in six countries with appointment systems) as very good or excellent.
- Access: (i) connection to health system: percentage of respondents with usual source of care; (ii) use of needed health care: percentage of respondents with chronic disease who used care at least once in past year; and (iii) no unmet need: percentage of respondents with no unmet health care needs in past year.

Final goals

- People-centredness: (i) quality of public health system: percentage of respondents rating quality of the country's public health system as very good or excellent; (ii) quality of private health system: percentage of respondents rating quality of the country's private health system as very good or excellent; (iii) endorsement: percentage of respondents reporting that the health system works well as it is/needs only minor change; and (iv) involvement in decision-making: percentage of respondents rating that government considers public opinion as very good or excellent.
- Health improvement: (i) self-rated health: percentage of respondents reporting their overall health as very good or excellent; (ii) self-rated mental health: percentage of respondents reporting their mental health as very good or excellent; and (iii) absence of disease: percentage of respondents who do not have a chronic/longstanding condition.
- Financial protection: (i) insurance: percentage of respondents with any health insurance (public, private, other); and (ii) health security (affordability): percentage of respondents who are somewhat or very confident they can get and afford good care if they are sick.

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refers to the provision of care that is respectful and aligns with individual preferences, needs and values.[20] Access is the availability and timely delivery of health-care services.[21]

In the final goals area of the framework, people-centredness encompasses the ability of systems to capture the public's input, perceptions of quality, choice of provider, engagement in care and trust in the system.[10,11] Health improvement includes morbidity and mortality.[19] For financial protection we included the weighted proportion of respondents with health insurance[22] as well as perceived health security, developed as a people-reported measure of UHC.[23]

We also calculated domain score averages and plotted these against national health spending per capita; we used Excel (Microsoft, Redmond, USA) to calculate Pearson correlation coefficients (r).

Statistical analysis

We constructed post-stratification weights according to country-specific demographic variables to account for differences in sample design and probability of selection. Numbers of respondents and percentages presented are therefore weighted. We captured demographic data to allow an equity analysis (online repository).[24] We performed all analyses using Stata version 15.0 (StataCorp, College Station, USA). We created the

circumplex plots (coxcombs) using R (R Core Team, Vienna, Austria) and the scatter plots using Excel.

To assess income-related inequalities within countries, we calculated the slope index of inequality (online repository).[25] The slope index expresses the absolute percentage point difference in health system outcome between the predicted poorest and wealthiest in the income distribution, assuming a linear relation between income rank and the outcome.[26] We used logistic regression and estimated the marginal effects using the lincom post-estimation command in Stata. We used within-country income group categories (online repository)[27] to construct the equiplots.

Ethics

The QuEST hub at Harvard, Boston, USA, and collaborators in participating countries obtained ethical clearance for the People's Voice Survey as required by local regulations. As the survey presented minimum risk to participants, the Harvard Human Research Protection Program determined the research to be exempt from human subjects considerations. We provide details in the online repository.[28]
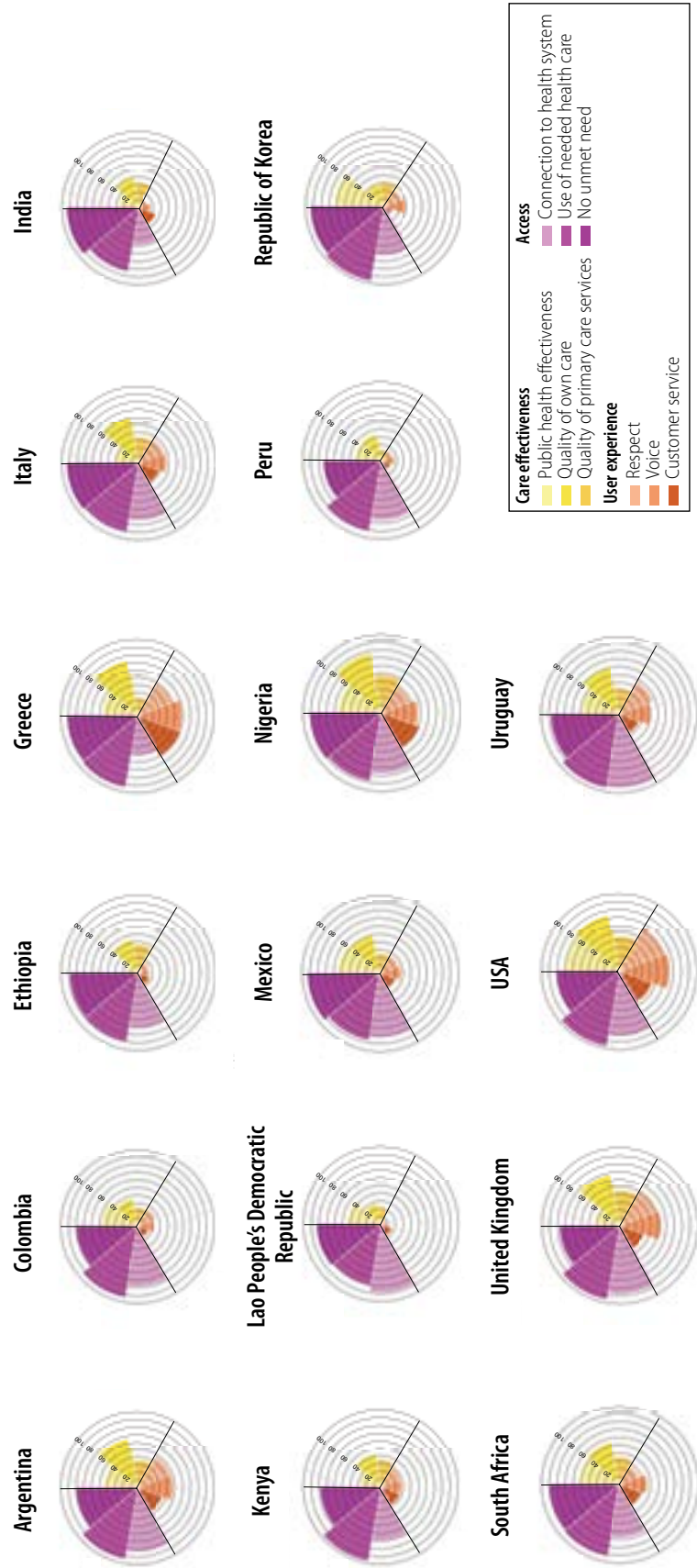
Results

The number of participants in the 16 countries included in the survey totalled

27 795, ranging from 1001 (Italy) to 2779 (Ethiopia; Table 1 available at https://www.who.int/publications/journals/bulletin). We provide the weighted survey results for intermediate objectives and final goals in both data format (Table 1) and in coxcomb plots for visual interpretation (Fig. 2 and Fig. 3).
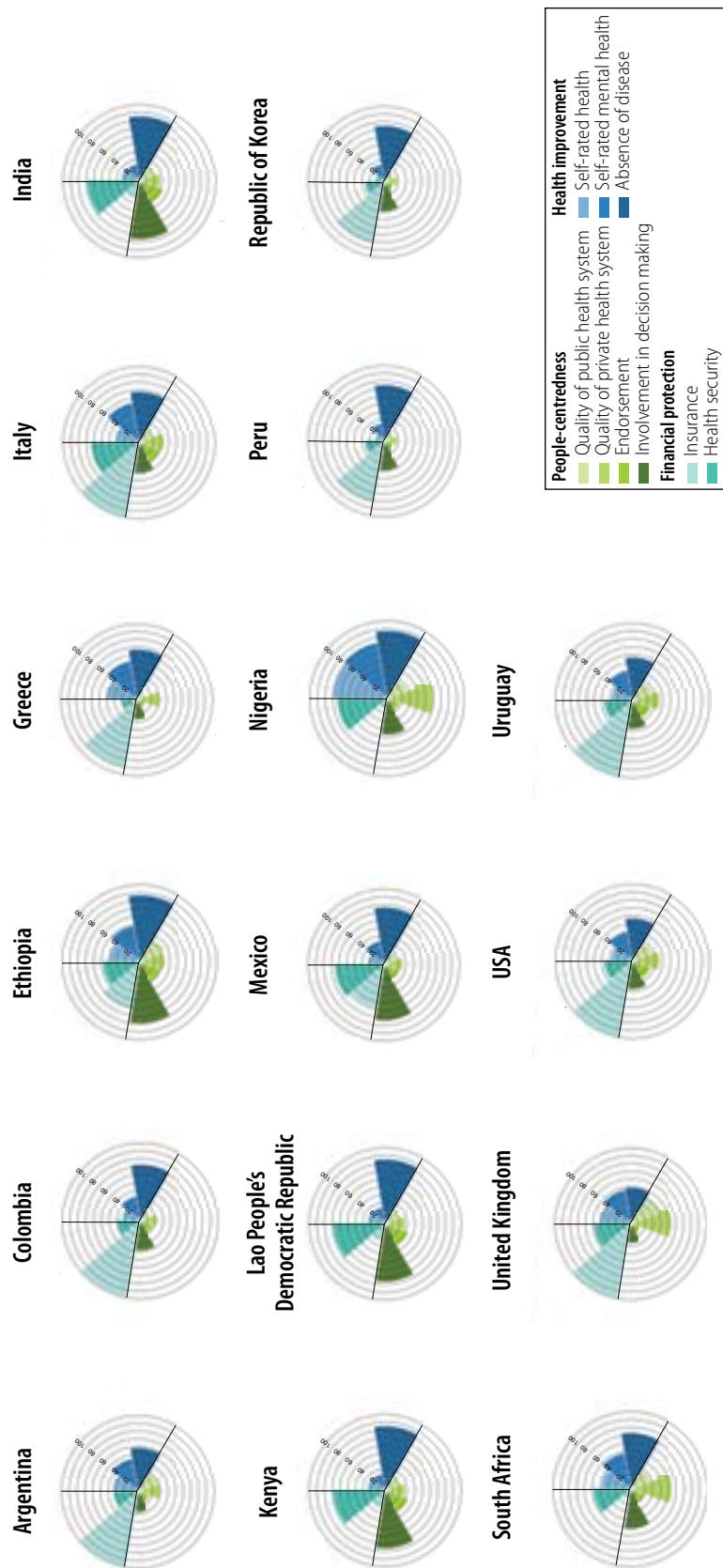
Intermediate objectives

We observed that the weighted proportion of people aged 40 years or older, who reported having had their blood pressure and blood sugar checked within the past year (public health effectiveness) was an average of 43.7% (6166/27 795) across all countries, with the highest weighted proportion in the USA (69.5%; 623/1500), followed by the Republic of Korea (63.0%; 860/2000), Nigeria (55.3%; 510/2555) and Mexico (54.5%; 279/1002). An average of 52.7% (11 232/27 795) rated their last visit as very good or excellent, from 27.5% (356/2007) in Lao People's Democratic Republic to 76.6% (1444/2555) in Nigeria. Only 33.0% (4735/27 795) of respondents across all countries rated primary care services as high quality, with the highest weighted proportion in Nigeria (47.6%; 678/2555), followed by the United Kingdom (43.2%; 443/1677) and the USA (44.6%; 431/1500).

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Fig. 2. **Survey responses to intermediate objectives indicators of health systems performance assessment: care effectiveness, user experience and access, 2022–2023**

Care effectiveness
- Public health effectiveness
- Quality of own care
- Quality of primary care services

User experience
- Respect
- Voice
- Customer service

Access
- Connection to health system
- Use of needed health care
- No unmet need

Note: See Box 1 for definitions of survey indicators.

Fig. 3. **Survey responses to final goals indicators of health systems performance assessment: people-centredness, health improvement and financial protection, 2022–2023**

People-centredness
- Quality of public health system
- Quality of private health system
- Endorsement
- Involvement in decision making

Financial protection
- Insurance
- Health security

Health improvement
- Self-rated health
- Self-rated mental health
- Absence of disease

Note: See Box 1 for definitions of survey indicators.

In the domain of user experience, the indicators respect, voice and customer service demonstrated similar ratings between countries; approximately one-third of respondents rated their last health-care visit as very good or excellent for these items. The highest endorsement of voice was observed in the USA (65.6%; 983/1500), followed by Greece (59.0%; 1184/2010), the United Kingdom (53.5%; 897/1677) and Argentina (47.6%; 567/1190). We noted the highest ratings for customer service in Greece (60.7%; 1023/2010), followed by Nigeria (51.6%; 974/2555) and the USA (45.7%; 629/1500).

Measures for access received the highest endorsement of all the indicators in this study. The percentage of people with a usual source of care (i.e. connection to a health system) was 73.2% (20 265/27 795) across all countries, with the highest weighted proportion in Uruguay (93.8%; 1154/1237) followed by Lao People's Democratic Republic (88.5%; 1740/2007) and the United Kingdom (87.6%; 1448/1677). We observed that use of needed health care among people with chronic illness was reported as greater than 80% in all countries. The percentage of people reporting no unmet need was also very high across all countries, and ranged from the lowest in Peru (74.2%; 931/1255) to the highest in the Republic of Korea (94.0%; 1881/2000; Table 1 and Fig. 2).

Final goals

In the domain of health improvement, we observed that self-rated health and self-rated mental health received average ratings of 34.9% (9689/27 795) and 43.9% (12 183/27 795), respectively. The weighted proportion of respondents reporting an absence of disease was higher overall at an average of 73.0% (20 257/27 795) across countries, with the highest percentage in Nigeria (87.6%; 2235/2555), followed by Ethiopia (86.9%; 2414/2779), India (85.4%; 1710/2004) and Kenya (84.3%; 1944/2305).

With regards to people-centredness, the survey revealed that the quality of the public or government health system and the private health system was perceived as very good or excellent by only 26.2% 7208/27 795) and 38.5% (10 197/27 795) of respondents, respectively. We observed the highest percentage of people rating the government health system highly in the

Republic of Korea (42.4%; 847/2000), closely followed by the United Kingdom (42.3%; 703/1677); in all other countries, around one third or less of respondents did not rate their country's health system as being of good quality. Agreement that the health system is working well as it is (i.e. endorsement) received the lowest scores of all indicators in this analysis; we note an average value for this indicator of only 24.6% (6758/27 795). Overall, an average of 52.1% (14 192/27 795) of survey respondents agreed that their government considers the opinion of the public in health system decisions. This indicator was the most highly endorsed in Ethiopia (79.6%; 2180/2779), followed by Lao People's Democratic Republic (79.0%; 1553/2007) and India (76.5%; 1440/2004).

Within the domain of financial protection, we note that an average of 67.4% (18 631/27 795) of respondents across all countries had insurance, with more than 90% of respondents in nine countries reporting to be covered by health insurance (Argentina, Colombia, Greece, Italy, Lao People's Democratic Republic, Republic of Korea, United Kingdom, USA and Uruguay). The lowest level of insurance coverage was reported in South Africa (13.3%; 269/2036) and Nigeria (14.5%; 370/2555). Overall, an average of 50.3% (13 711/27 795) of people said that they could access and afford care if they were very sick (i.e. health security), with the highest scores for this indicator reported in Lao People's Democratic Republic (71.3%; 1424/2007) and India (69.2%; 1293/2004; Table 1 and Fig. 3).

Correlation with health spending

We calculated how several of the performance indicators were correlated with national health spending per capita. We noted the strongest correlation with health spending for user experience ($r = 0.62$), followed by care effectiveness ($r = 0.57$), financial protection ($r = 0.51$) and access ($r = 0.37$; Fig. 4). We observed no association between total health expenditure per capita and health improvement ($r = -0.03$), and a negative correlation between spending and people-centredness ($r = -0.24$).

Income-based inequity

Fig. 5 shows that people with the lowest incomes within any specific country were less positive across the majority of the intermediate objective indicators. The results of final goals by income group are available in the online repository.[29] We observe the greatest pro-rich inequities within Italy, Kenya, Lao People's Democratic Republic, Mexico, Republic of Korea, South Africa and Uruguay in the domain of financial protection (online repository).[25]

Income-related inequities were also substantial within countries, with all countries except India and Peru showing a pro-rich difference of 25% or more between the richest and poorest respondents for at least one of the indicators (see slope index of inequality data in online repository).[25] Our data highlight pro-poor differences for India for connection to health system (access) by 27%, and for Peru for endorsement (people-centredness) by 28%. The largest pro-rich inequalities were found for self-rated physical and mental health, and insurance. For example, compared with the lowest-income respondents, the weighted proportion of highest-income people reporting health insurance in Mexico was 54% higher, and the weighted proportion of highest-income people rating their health as very good or excellent in the United Kingdom was 47% higher (online repository).[25]

Discussion

Despite efforts to improve the accountability of health systems to populations, assessments of health system performance have not prioritized people's experiences and perspectives.[15] Many of the aspects of performance obtained in the People's Voice Survey are uniquely available from people, while other results provide complementary insights to other data sources. Data from the People's Voice Survey highlighted several positive aspects of health system performance, but also uncovered major deficits.

Care effectiveness is a key signal of health system function. For example, fewer than half of respondents across countries (age ≥ 40 years) had received a blood pressure and blood glucose check in the past year. Screening and regular monitoring of these parameters in older adults is critical

Fig. 4. Correlation between average performance on care effectiveness, user experience and people-centredness and national health spending per capita, 2022–2023
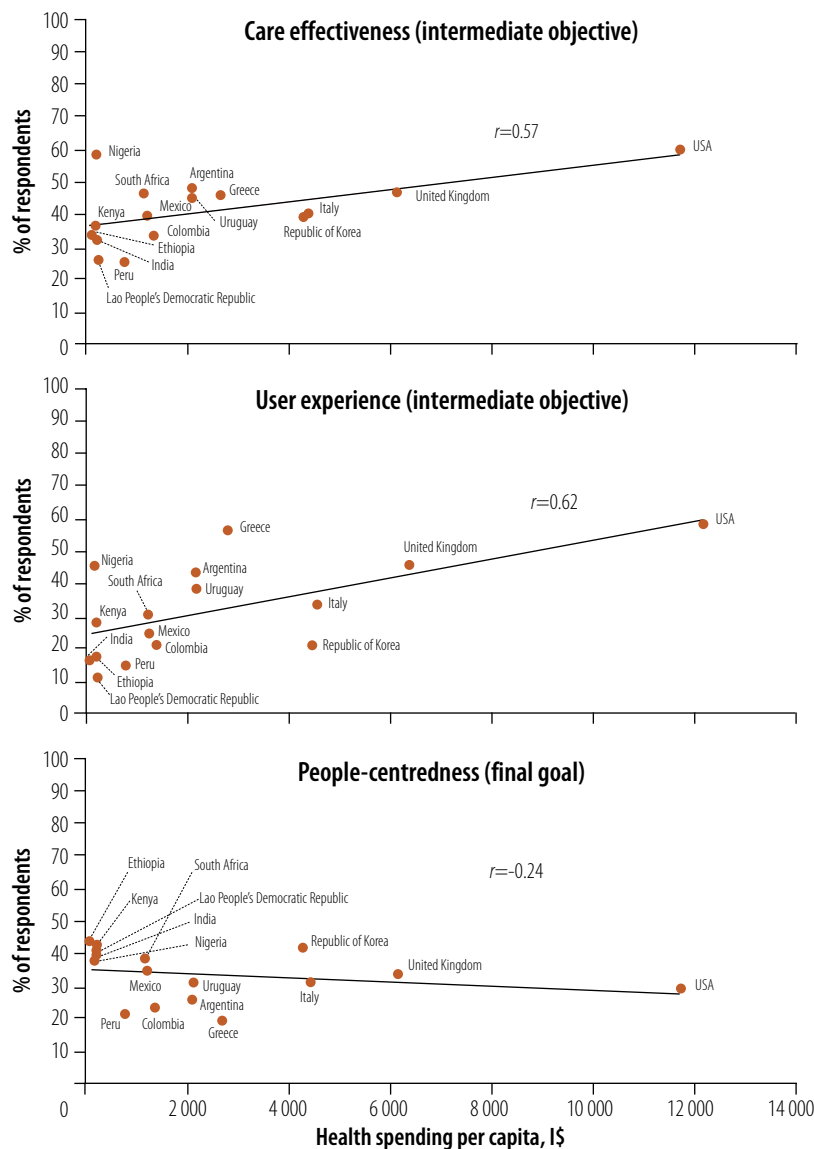
I$: international dollars.
Notes: Points indicate average performance across all indicators within each domain. See Box 1 for definitions of survey indicators.

for early initiation of prevention and control measures for cardiovascular disease and diabetes, now the leading causes of disease, death and disability in most low- and middle-income countries.[30,31] No country achieved over 50% positive ratings in the three core primary care services (maternal, child, chronic disease care). This result is consistent with objective evaluations of primary care quality in many settings.[32–36] The low primary care ratings and the large divergence between people's ratings of their own care and overall primary care may indicate a perception that good care is

only available through the individual's own efforts.[37,38]

Poor user experience can reduce care seeking and adherence, and undermine health outcomes and confidence.[39,40] We found that respect, voice and customer service were rated positively by an average of only one in three respondents across countries studied. Ratings tended to be lower in lower income countries, and the correlation with national health spending was highest of all the domains. Historically, user experience has had more policy attention in wealthier countries.[41] The findings here should provide motiva-

tion to policy-makers in all countries to pursue solutions, including via medical education, management, supervision and more responsive user feedback.

The domain of access demonstrated the best performance of all the intermediate objectives, although there is still work to be done to achieve universal coverage. In most countries, at least three quarters of people reported no unmet need for health care; similarly high proportions of people with chronic disease had at least one health-care visit in the past year. We observed greater variation in respondents reporting a usual source of care. Having a usual source of care is a (inexact) proxy for primary care, and is associated with a higher uptake of preventive services and a positive experience of care.[42,43] However, although achieving high levels of access to care is important, high levels of effective coverage are required to improve health outcomes.[44–46] The high levels of reported access in India, sub-Saharan African countries and parts of Latin America contrast with the substantial excess mortality from treatable conditions in these regions because of poor-quality care.[1,47]

In terms of people-centredness, feedback on the quality of public health systems was overall rather negative; only one in four respondents across the 16 countries rated their government health systems highly. In all countries, except Ethiopia and the Republic of Korea, private health systems outperformed public health systems. Health systems across the 16 countries are predominantly public, government-owned or based on social security. The exceptions are the Republic of Korea and the USA, where most health care is provided by the private sector. The gap between private and public health system approval serves as a measure of how far public services are lagging behind private services; if large, this gap can indicate a need for policy-makers to learn about what works in the private sector. On average, only half of respondents felt their governments considered their opinions when making health policies. Other studies found that users in both low- and high-income countries are dissatisfied with their health systems.[14,48]

Our observation that people-centredness measures are negatively correlated with health spending is a result of lower endorsement and poor government responsiveness to user feedback

in wealthier countries. This finding requires further study, but suggests that spending on health does not prevent populations from feeling alienated from their health systems. One implication is that policy-makers should more meaningfully involve the population in system reform, and should increase their efforts to better communicate the work and achievements of the health system to the population.[49]

The health improvement measures in the People's Voice Survey (self-rated health, self-rated mental health and no chronic disease) reflect social determinants of health and public health, as well as health systems. These indicators are therefore not as well-suited to measuring health system performance as other more specific health system metrics, such as amenable mortality.[1,2,50]

With regards to financial protection, we observe that insurance does not buy health security. Although an average of two thirds of the respondents had health insurance, only half of the respondents felt they could access and afford good-quality care if very sick. This perceived poor health security could be considered a measure of the effectiveness of UHC.[23] Although financial protection received higher ratings in wealthier countries, there were still major shortcomings. In the nine countries with universal health insurance (> 90% coverage), less than half of respondents felt health-secure. These findings are consistent with data on high out-of-pocket spending in countries with universal or near-universal health insurance, and with a recent rise in the purchase of private insurance in some high-income countries.[51–53] These findings have important implications for the design of health benefit packages, and for timely and effective delivery of insured services.

We observed that perceived and/ or experienced health system performance varied by respondents' incomes. Although access ratings were consistent between the various income groups within most countries, we found poorer ratings of care effectiveness among lower-income respondents in four countries. We noted the largest inequities in user experience, with around one half of the countries showing a pro-rich pattern. Similar wealth inequities in respectful treatment have been found in other studies.[54–56] These data may underestimate inequities as poorer and
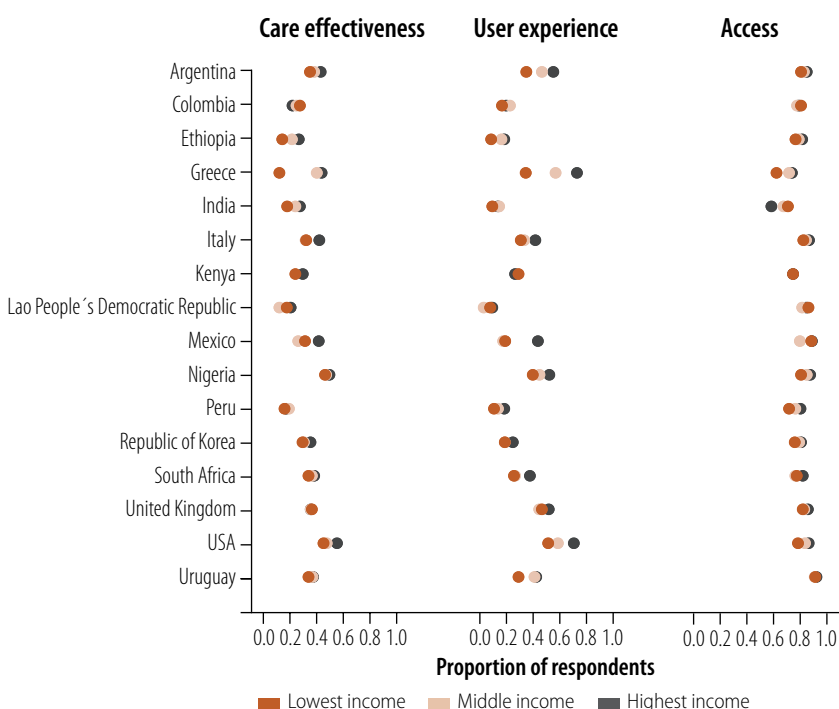
less educated respondents may have lower expectations and positively rate low-quality care.[57]

Our study had several limitations. First, the People's Voice Survey was developed using the conceptual framework of the *Lancet Global Health* Commission on High Quality Health Systems and did not contain all indicators within the WHO framework (e.g. safety).[17] Second, people's perceptions of health systems are influenced by various cultural, political, social and personal factors, including education level, as well as individual health and the effect of any health care received.[58] Because the recent COVID-19 pandemic may have influenced people's responses, the survey should be repeated every 2 years to gain an understanding of performance and trajectory. Third, in some countries the prevailing low quality of health care may reduce people's expectations and therefore inflate ratings, complicating cross-country comparison. Comparisons are therefore most valid for countries with similar income levels and health systems.[57] Fourth, the survey sampled the entire population and did not have sufficient resolution to reflect the experiences of potentially vulner-

able subgroups (e.g. recent migrants, homeless or older populations), who may have very different perceptions and experiences of a health system; to begin to address this limitation, QuEST collaborators are currently pursuing studies focused on migrants and adolescents.

We found that the elements of the WHO framework were relevant and measurable (except for safety) from the survey responses. One area that could be further refined in the framework is people-centredness. Since this element is at the core of the health system, the concept might be integrated throughout the other dimensions of the framework (e.g. voice as part of user experience). Further, given the central role of trust in the health system, confidence (including health system endorsement and health security) could be added as an impact indicator of system performance.[23]

To conclude, we have shown that populations can provide rich and nuanced information about the function of their health systems. These data not only describe health system performance but also provide signals of strength and weakness to guide policy. We found that in all countries people are generally unsatisfied with their current health

Fig. 5. **Ratings of intermediate objectives indicators by income category within each country, 2022–2023**

Notes: Points indicate average performance across all indicators within each domain, in each income category. See Box 1 for definitions of survey indicators. Country-specific income categories are defined in online repository.[27] Kenya includes the lowest and highest income groups only.

ملخص

التقييم السكاني لأداء النظام الصحي في 16 دولة

الغرض توضيح كيف يمكن استخدام الأداة الجديدة القابلة للمقارنة دولياً؛ People's Voice Survey (مسح أصوات الناس)، للمساهمة بوجهة نظر السكان في تقييم أداء النظام الصحي في الدول على جميع مستويات الدخل.

الطريقة قمنا بمسح عينات تمثيلية من السكان في 16 من الدول ذات الدخل المنخفض والمتوسط والمرتفع، بشأن الاستفادة من الرعاية الصحية، والخبرة، والثقة خلال الفترة 2022 إلى 2023. قمنا بتلخيص وتصور البيانات المتعلقة بالمجالات الرئيسية لإطار التغطية الصحية الشاملة التابع لمنظمة الصحة العالمية، وذلك بغرض تقييم أداء النظام الصحي. قمنا بدراسة الارتباط مع نصيب الفرد من الإنفاق على الصحة من خلال حساب معاملات Pearson، وأشكال التفاوت القائم على الدخل داخل الدولة باستخدام مؤشر منحدر التفاوت.

النتائج في مجال فعالية الرعاية، وجدنا فجوات واسعة في الفحوصات الصحية، والمصادقة على الرعاية الأولية العامة. أبلغ

واحد فقط من كل ثلاثة مشاركين عن تجربة مستخدم جيدة للغاية أثناء الزيارات الصحية، مع نسب أقل في الدول ذات الدخل المنخفض. تم تصنيف الحصول إلى الرعاية الصحية على أنه الأعلى بين كل المجالات؛ ومع ذلك، شعر نصف السكان فقط بالأمان بأنهم يستطيعون الحصول على رعاية عالية الجودة، وتحمل تكاليفها إذا أصيبوا بالمرض. قام السكان بتصنيف جودة الأنظمة الصحية الخاصة بأنها أعلى من جودة أنظمة الصحة العامة في معظم الدول. شعر نصف المشاركين فقط بالمشاركة في صنع القرار (أقل في الدول ذات الدخل المرتفع). وجدنا داخل الدول تفاوتات ذات دلالة إحصائية لصالح الأغنياء عبر العديد من المؤشرات.

الاستنتاج يمكن للسكان توفير معلومات حيوية حول وظيفة الأنظمة الصحية في العالم الحقيقي، مما يكمل مقاييس أداء النظام الأخرى. إن المسوح السكانية، مثل People's Voice Survey، يجب أن تصبح جزءًا من التقييمات المنتظمة لأداء النظام الصحي.

摘要

对 16 个国家的卫生系统绩效进行的民众评估

目的 展示如何利用具有国际可比性的新工具"大众之声调查"从民众角度评估不同收入水平的国家的卫生系统绩效。

方法 在 2022-2023 年期间，我们从 16 个低收入、中等收入和高收入国家选取具有代表性的民众样本进行了调查，以了解其医疗保健服务使用情况和体验及其对此类服务的信任程度。我们基于世界卫生组织全民健康覆盖框架的各个关键领域进行了数据汇总和可视化处理，以用于卫生系统绩效评估。我们通过计算皮尔逊系数 (Pearson coefficient) 来衡量绩效与人均卫生支出的相关性，并使用不平等斜率指数来衡量各国国内收入的不平等程度。

结果 在医疗保健有效性领域，我们发现在健康体检和对公共初级医疗保健服务的认可方面存在很大差距。只有三分之一的受访者表示，在就诊期间拥有非常好的就医体验，而低收入国家的这一比例更低。在所有领域中，对医疗保健服务可获得性的评分最高；然而，只有一半的受访者确信，他们生病时可以获得并负担得起高质量的保健服务。在大多数国家，人们对私营卫生系统的质量评分高于公共卫生系统。只有一半的受访者认为自己参与了相关决策（高收入国家的这一比例更低）。根据统计数据，我们发现这些国家的许多指标具有不平等性，即明显对富人更有利。

结论 民众提供的卫生系统实际运行情况相关重要信息可有效补充说明其他系统绩效指标。应将全民调查（例如大众之声调查）作为定期进行的卫生系统绩效评估的一部分。

Résumé

Évaluation des performances des systèmes de santé par la population dans 16 pays

Objectif Montrer comment l'enquête People's Voice Survey, un nouvel instrument comparable au niveau international, peut être utilisé pour nourrir la perspective d'une évaluation des performances du système de santé par la population dans des pays de tous les niveaux de revenus.

Méthodes Nous avons interrogé des échantillons représentatifs d'habitants de 16 pays à revenu faible, intermédiaire et élevé sur leur recours aux soins de santé, leur expérience en la matière et la confiance qu'ils y accordent sur la période 2022–2023. Nous avons ensuite résumé et visualisé les données correspondant aux principaux domaines du cadre de l'Organisation mondiale de la Santé relatif à la couverture sanitaire universelle pour évaluer les systèmes de santé. Enfin, nous avons examiné la corrélation avec les dépenses individuelles en soins de santé en calculant les coefficients Pearson, ainsi que les disparités de revenus au sein de chaque pays à l'aide de l'indice de pente de l'inégalité.

Résultats Dans le domaine de l'efficacité des soins, nous avons décelé des lacunes considérables au niveau des examens médicaux et de l'approbation envers l'offre publique de soins de santé primaires. Seul un répondant sur trois a fait état d'une excellente expérience en tant que patient lors des visites sanitaires, le pourcentage étant moins élevé dans les pays à revenu faible. Tous domaines confondus, c'est l'accès aux soins de santé qui a reçu la meilleure note; toutefois, à peine la moitié des personnes interrogées avaient la conviction de pouvoir bénéficier de soins de qualité à prix abordable si elles venaient à tomber malades. La qualité des systèmes de santé privés a été jugée supérieure à celle des systèmes de santé publics dans la plupart des pays. Enfin, la moitié seulement des répondants se sent impliquée dans la prise de décisions (voire moins dans les pays à revenu élevé). Par ailleurs, nous avons trouvé au sein de chaque pays des inégalités statistiquement significatives en faveur des catégories les plus aisées et ce, pour de nombreux indicateurs.

Conclusion Les populations peuvent fournir des informations vitales sur le fonctionnement réel des systèmes de santé, ce qui permet de compléter les autres mesures de performances. Les enquêtes telles que People's Voice Survey, menées auprès de l'ensemble des habitants, devraient désormais être intégrées aux évaluations périodiques des performances des systèmes de santés.

Резюме

Оценка населением эффективности системы здравоохранения в 16 странах

Цель Продемонстрировать, как новый, сопоставимый на международном уровне инструмент – опрос общественного мнения – может использоваться для учета мнения населения при оценке эффективности системы здравоохранения в странах с любым уровнем дохода.

Методы В период 2022–2023 гг. был проведен опрос репрезентативных выборок населения в 16 странах с низким, средним и высоким уровнем дохода по вопросам использования ресурсов здравоохранения, опыта и доверия к ним. Для оценки эффективности системы здравоохранения были обобщены и визуализированы данные, соответствующие ключевым областям всеобщего охвата населения услугами здравоохранения Всемирной организации здравоохранения. Кроме того, исследовалась корреляция с расходами на здравоохранение на душу населения путем расчета коэффициентов Пирсона, а также неравенство внутри страны по уровню дохода с помощью индекса ухудшения показателя неравенства.

Результаты В области эффективности оказания медицинской помощи были выявлены серьезные недостатки в проведении медицинских обследований и одобрении государственной первичной медицинской помощи. Только один из трех респондентов сообщил об очень хороших впечатлениях от посещения врача, причем в странах с низким уровнем дохода этот показатель ниже. Из всех областей доступ к медицинскому обслуживанию получил наивысшую оценку, однако только половина населения чувствовала уверенность в том, что в случае болезни сможет получить и оплатить высококачественное лечение. В большинстве стран качество частных систем здравоохранения оценивается населением выше, чем качество государственных систем здравоохранения. Только половина респондентов чувствует себя вовлеченной в процесс принятия решений (в странах с высоким уровнем дохода этот показатель ниже). Внутри стран наблюдается статистически значимое неравенство в пользу богатых по многим показателям.

Вывод Население может предоставить важную информацию о реальном функционировании систем здравоохранения, дополняя другие показатели эффективности системы. Опросы населения, такие как опрос общественного мнения, должны стать частью регулярных оценок эффективности системы здравоохранения.

Resumen

Evaluación poblacional del funcionamiento de los sistemas sanitarios en 16 países

Objetivo Demostrar cómo el nuevo instrumento de comparación internacional, la *People's Voice Survey*, se puede utilizar para aportar la perspectiva de la población al evaluar el desempeño del sistema sanitario en países de todos los niveles de ingresos.

Métodos Se encuestaron muestras representativas de poblaciones de 16 países de ingresos bajos, medios y altos sobre la utilización de la atención sanitaria, la experiencia y la confianza durante 2022 y 2023. Se resumieron y visualizaron los datos correspondientes a los ámbitos clave del marco de cobertura sanitaria universal de la Organización Mundial de la Salud para la evaluación del desempeño de los sistemas sanitarios. Se examinó la correlación con el gasto sanitario per cápita calculando los coeficientes de Pearson y las desigualdades basadas en los ingresos dentro de los países utilizando el índice de desigualdad de la pendiente.

Resultados En el ámbito de la eficacia de la atención, se encontraron importantes deficiencias en los exámenes de salud y en la aprobación de la atención primaria pública. Solo uno de cada tres encuestados declaró tener una experiencia de usuario muy buena durante las visitas sanitarias, con porcentajes más bajos en los países de ingresos bajos. El acceso a la atención sanitaria fue el mejor valorado de todos los ámbitos; sin embargo, solo la mitad de las poblaciones se sentían seguras de poder acceder y costearse una atención de alta calidad en caso de enfermar. En la mayoría de los países, la población valoró más la calidad de los sistemas sanitarios privados que la de los públicos. Solo la mitad de los

encuestados se sentían implicados en la toma de decisiones (menos en los países de ingresos altos). Dentro de los países, se encontraron desigualdades estadísticamente significativas a favor de los más ricos en muchos indicadores.

Conclusión Las poblaciones pueden proporcionar información vital sobre el funcionamiento real de los sistemas sanitarios, como complemento de otras métricas de desempeño del sistema. Las encuestas poblacionales, como la *People's Voice Survey*, deberían formar parte de las evaluaciones periódicas del funcionamiento de los sistemas sanitarios.

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Resilience dimensions in health system performance assessments, European Union

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Objective To explore the definition and operationalization of resilience in health system performance assessments in European Union countries.

Methods We conducted multiple empirical case study analyses. We identified relevant cases through a literature review from 2014 to 2023 using Google Scholar and through a snowball technique to retrieve additional information. We included only documents that explicitly mentioned resilience in health system performance assessments. We performed a content analysis to identify common patterns in defining resilience.

Findings The final sample consisted of six countries: Belgium, Croatia, Czechia, Estonia, Ireland and Italy. Each country adopted a distinct approach to conceptualizing resilience, with countries prioritizing specific aspects based on lessons learnt from the coronavirus disease 2019 (COVID-19) pandemic. Some countries focused on maintaining essential health-care services and protecting vulnerable groups. Other countries prioritized management capacity, staff preparedness, digital health utilization and strengthening of primary health care. Content analysis revealed six resilience definitions derived from the key performance indicators: addressing unmet needs and maintaining outcomes; protecting vulnerable groups; acquiring and using resources; having trained and prepared staff in place; using digital health; and strengthening primary health care.

Conclusion Integration of resilience into the health profiles of European Union countries preceded its inclusion in national health system performance assessments, the latter of which became more prominent after the COVID-19 pandemic. Variations in interpretations within health system performance assessments reflect differences in indicators and policy responses.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

The coronavirus disease 2019 (COVID-19) pandemic posed a considerable challenge for governments, affecting health, the economy and citizens' well-being.[1] The pandemic exposed weaknesses in health systems, such as insufficient workforce capacity[2] and critical care resources.[3] This crisis highlighted the necessity for a resilience-centred approach to equip health systems to deal with a wider spectrum of future shocks,[2] particularly given the varying levels of preparedness among countries.[4,5] Failing to prepare for a shock may result in costly interventions with lasting repercussions.[3] In some cases, these repercussions can permanently alter the status quo of health-care systems, creating a legacy of new challenges. Systems measuring performance, such as health system performance assessments, can support governments in evaluating preparedness, shock management and capacity-building for learning and recovery.[6] Resilience can be seen as a cross-cutting dimension of the intermediate and ultimate goals of health systems, as well as a factor influencing the performance of the health system.[7]

Although broad consensus exists on the need to bolster health system resilience, questions persist about a shared definition and vision.[8] One proposal stated that resilience evaluates a system's ability to maintain performance under major stresses.[9] The World Bank added other elements by calling for health systems to be alert to threats, responsive to evolving needs, adaptable to minimize disruptions, and capable of post-crisis transformation based on lessons learnt.[10] The definition used in our study is the one proposed by the European Union (EU) expert panel on effective ways of investing in health.[11]

The panel defined resilience as "the capacity of a health system to (a) proactively foresee, (b) absorb, and (c) adapt to shocks and structural changes in a way that allows it to (i) sustain required operations, (ii) resume optimal performance as quickly as possible, (iii) transform its structure and functions to strengthen the system, and (possibly) (iv) reduce its vulnerability to similar shocks and structural changes in the future."[11]

Resilience has been measured with different tools such as the United States Agency for International Development (USAID) tool, the World Health Organization (WHO) Joint External Evaluation tool, the Global Health Security Index, or the proposed resilience index,[9,12–14] as well as numerous dashboards set up during the COVID-19 emergency to provide real-time data.[15] Some of these tools are based on standalone systems using key informant surveys or ad hoc and temporary surveillance data, with limited use of established health information systems. In contrast to this specialized approach, scholars have suggested introducing resilience into a broader framework for health system performance assessment,[7,9] especially after the 2013–2016 Ebola virus disease outbreak in West Africa.[8,16] Such a framework allows resilience to be monitored within a comprehensive assessment of health system performance. Given that the objectives and functions of health system performance assessment may vary over time, this assessment should be flexible and adaptable.[6] Moreover, no single universal approach exists that suits every system.[17] The health system performance assessment can be seen as a country-owned, participatory process that allows the health system to be assessed as a whole and linked to national health strategies whenever possible.[18,19] Although the overarching objectives in different countries are the same, such as the improvement

of population health, strategic accountability for health system actions needs to be strengthened and policy-makers and other stakeholders should be engaged in articulating health system objectives and priorities. In this way, actions can be harmonized, progress in attainment of goals gauged and informed decision-making stimulated.[20,21]

Despite numerous attempts to conceptualize resilience, many efforts have remained at the theoretical level. Therefore, we aimed to investigate how countries are putting resilience into practice by measuring key performance indicators, in effect demonstrating which priority areas are considered essential components of each country's concept of resilience.

Methods

We performed empirical case study analyses to explore how different countries have integrated the concept of resilience into their health system performance assessment frameworks. At the same time, we investigated whether countries have developed any measurable criteria for assessing resilience.

The case study selection process followed a systematic approach. First, we limited the scope of the analysis to the EU Member States and investigated health system performance assessments to countries with available data. We chose to limit our analysis to the EU for several reasons. First, the EU has played a central role in endorsing initiatives on health system performance assessment since 2014, when it established an expert group on health system performance assessment[21] to facilitate knowledge exchange among member states.[22] Additionally, the European Commission, through the technical support instrument,[23] has assisted health authorities in different countries in implementing health system performance assessment frameworks tailored to the country. Second, publicly disclosing health system information is standard practice in the EU through initiatives such as the European Commission's biennial country health profiles, which also include resilience measures.[24] Thus, a supranational organization already exists that guides the incorporation of resilience into health system performance assessment. Finally, with the EU moving towards a European Health Union,[25] which aims to facilitate health-care delivery across

internal EU borders,[26] a culture of coordination is growing within the union, extending partially to the health-care sector, despite member states retaining sovereignty over health care.[26]

We conducted a literature review using Google Scholar to identify relevant documents drawn from scientific and grey literature sources published from January 2014 to February 2024, with no language restrictions applied. We chose Google Scholar because of its extensive coverage of peer-reviewed articles, books, conference papers and other reports, including official and institutional documents. We selected 2014 as a reference year because it marked the global recognition of resilience in health-care systems after the Ebola virus disease outbreak. In addition, the European Commission emphasized the importance of resilience in its 2014 publication *Communication from the Commission on effective, accessible and resilient health systems.*[27]

After screening the titles and abstracts of the documents, we integrated the initial sample with information drawn from the websites of health ministries, health boards and health agencies. We examined websites and reports of international organizations, with attention to the countries that received support from the European Commission in developing their health system performance assessment.[23] We took this precautionary step to prevent the inadvertent omission of these countries as their national authorities may have not yet published any information, possibly due to ongoing programme activities. We identified additional articles and reports using a snowball technique,[27] starting with the references of seminal studies.

We excluded documents that did not focus on assessment of national health system performance; additionally, we excluded publications that examined specific health-care topics without adopting a comprehensive system-wide perspective. We selected only those health system performance assessments where the resilience dimension was reported (14 documents). In the chosen case studies, we performed a content analysis,[28,29] examining all pertinent documents and websites for the countries starting from the first year resilience was explicitly introduced. In our content analysis, we used a deductive approach[30] to measure resilience, based

on the definition provided by the EU expert panel on effective ways of investing in health.[11] We initially categorized the key performance indicators documented within the health system performance assessments of the countries in line with the four points outlined in the EU expert panel's definition of resilience, namely: (i) sustaining operations; (ii) resuming optimal performance swiftly; (iii) transforming structure and functions to strengthen the system; and (iv) reducing vulnerability to future shocks.[11] After expanding on these four points, we were able to better classify the concept of resilience through the way the key performance indicators operationalized resilience.

Results

We retrieved 886 documents with the review of the literature and the snowball procedure. We excluded most of these documents as they considered health system performance assessment only at a theoretical level without analysing country-owned health system performance assessments. The final sample comprised 40 documents, excluding repeated references, websites and platforms (Fig. 1 and Table 1; Albreht et al., unpublished report, 2023).[17,31–68]

Table 2 summarizes EU countries' population, economic and health system profiles. We identified 18 countries that had adopted comprehensive system-wide health system performance assessments. Seven countries explicitly included resilience: Belgium, Croatia, Czechia, Estonia, Ireland, Italy and Lithuania. In Italy, as a decentralized system, we identified and considered the health system performance evaluations conducted at the regional level of government. Four countries had EU support in their health system performance assessments. This limited number of countries may be due to the slow reaction and inertia of complex organizations to change.[56]

Table 3 outlines how health system resilience is conceptualized and operationalized into key performance indicators across six of the seven countries. We omitted Lithuania due to the unavailability of documents that could elucidate how resilience had been interpreted. Italy is repeated in the table due to the periodic release of its health system performance assessments. As highlighted in the year column of Table 3, health system performance assessment
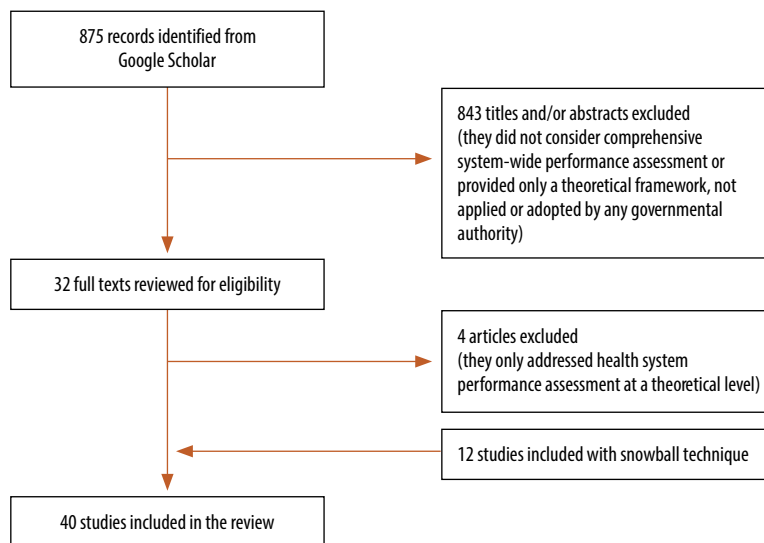
frameworks explicitly incorporating the resilience dimension predominantly emerge in updates after 2019, reflecting a trend after the COVID-19 pandemic.

Table 4 summarizes our content analysis, which revealed six resilience definitions derived from the key performance indicators in selected health system performance assessments. These definitions are compared with the EU expert panel's theoretical four-category definition.[11]

Address unmet needs and maintain outcomes

Three health system performance assessments incorporated key performance indicators related to the ability to maintain essential health services and quickly resume optimal performance, particularly in scenarios involving treatment restrictions or limitations (Italy in 2020 and 2022[55] and Belgium in 2023;[35] Table 3). Resilience was defined in relation to the COVID-19 pandemic. Italian regions assessed their capacity to sustain the same level of urgent treatments and follow-up visits to avert potential unmet needs,[55] while Belgium examined the number of new invasive cancer cases as a direct adverse impact on the health of the population.[35] This operationalization covers the first two aspects of the definition of resilience proposed by the EU's expert panel on effective ways of investing in health, namely sustaining required operations and resuming optimal performance.[11]

Protect vulnerable groups

Belgium (2023),[35] Estonia (2023)[42] and Italy (2021)[55] introduced resilience measures aimed at reducing vulnerabilities to better withstand current and future shocks (Table 3). These countries considered key performance indicators that evaluated reducing health system vulnerability through COVID-19 vaccination coverage. Some national health system performance assessments broadened this concept by including indicators to assess the health system's ability to protect vulnerable groups through preventive efforts. Estonia (2023)[42] incorporated indicators measuring seasonal vaccination coverage rates and the incidence of vaccine-preventable diseases per 100 000 population. Italy (2022)[55] integrated metrics of influenza vaccination coverage for older people and health workers. Czechia (2023)[41] and Italy (2022)[55] developed measures that gauge the health system's capacity to provide mental health services. This operationalization overlaps with the last category of the EU's expert panel, that is, reducing vulnerability to future shocks.[11]

Acquire and use resources

A more nuanced conceptualization of resilience emerged in some countries which placed greater emphasis on structure-related elements, which is consistent with the EU's 2016 and 2018 interpretation of resilience.[72,73] Key performance indicators included generic pharmaceutical usage, public

health, long-term care expenses and bed occupancy rates (Belgium, 2023);[35] and average waiting time between tests and results and surge capacity (Ireland, 2023).[54] Croatia (2023; Albreht et al., unpublished report, available on request from the corresponding author) and Czechia (2023)[41] focused on the enhancement of investment and the promotion of policy reform, with the aim of strengthening technological and infrastructure capabilities (Table 3). This operationalization overlaps with the third aspect of the definition of resilience of the EU's expert panel, namely transforming health system structure and functions to enhance the system's strength.[11]

Trained and prepared staff

Resilience can also be assessed through measures related to the health-care workforce, as their dedication and well-being are integral to maintaining resilient health-care systems. Indicators can be either quantitative, such as the number of medical doctors and nurses or beds (Belgium 2023,[35] Czechia 2023[41] and Ireland 2023);[54] or qualitative, which focuses on well-being of health professionals. This latter aspect involves evaluating job satisfaction through metrics such as intention to leave and absenteeism, as adopted by Belgium (2023),[35] Croatia (2023)[39] and Ireland (2023).[54] Ireland (2023)[54] incorporated key performance indicators to monitor specific policies on human resources such as establishing helplines for professionals (Table 3). This operationalization crosses two dimensions of the definition of resilience of the EU's expert panel, that is, sustaining required operations and transforming health-care structure and functions to enhance the system's strength.[11]

Utilize digital health

Some countries have incorporated digital channels into their resilience dimension, driven by the accelerated digitalization of health care in response to the COVID-19 pandemic. Belgium in 2023[35] and Italy in 2021 and 2022[55] integrated these supply-side indicators into the health system performance assessments to monitor whether health-care systems succeeded in reducing backlogs and ensuring continuity of care by delivering services through digital channels (Table 3). This operationalization crosses two dimensions

of the definition of resilience of the EU's expert panel, namely, sustaining required operations and transforming its structure and functions to enhance the system's strength.[11]

Strengthen primary health care

Resilience is sometimes construed as the capacity to strengthen primary care as a form of preparedness. Significant links existed between the core functions of primary care in non-health emergencies and a country's ability to effectively respond to and recover from the COVID-19 pandemic.[3] Some countries incorporated indicators of primary health care into the resilience dimension to highlight the correlation between the capacity to provide care during outbreaks. Indicators related to primary health care often relate to investments in structural aspects, such as long-term care (e.g. Croatia in 2023,[39] Czechia in 2023[41] and Italy in 2022).[55] Some indicators emphasize the reinforcement of access, such as the number of contacts with general practitioners and mental health services provided (e.g. Czechia in 2023[41] and Italy in 2022);[55] and vaccination coverage for vulnerable populations (Italy, 2021 and 2022),[55] which in some instances are included in other dimensions (Belgium, 2023).[35] In a broader context, all the health system performance assessments examined incorporated primary health-care indicators either within specific domains or as cross-cutting factors. These indicators assess the effectiveness of primary health care through measures such as ambulatory-related conditions, access, coordination and service continuity. Some countries included primary health-care indicators within other dimensions directly tied to resilience, such as expanding the primary health-care workforce and allocating health expenditure to primary care (Ireland[54] and Croatia[39] in 2023). Additionally, the catchment index (i.e. the number of visits or diagnostic examinations in relation to those prescribed) contributes to resilience by revealing potential unmet needs (Table 3). This holistic vision of primary health care aligns with the aim of resilience to ensure systems can bounce back, adapt, learn and improve in crises, potentially spanning all dimensions of resilience as defined by the EU's expert panel on effective ways of investing in health.[11]

Table 1. **References for each country for health system performance assessment, European Union**

Country	First year of assessment	Sources
Austria	2013	Bachner et al., 2018[31]
		Bachner et al., 2018[32]
Belgium	2012	European Commission, 2016[17]
		Devos et al., 2019[33]
		Gerkens et al., 2020[34]
		Gerkens et al., 2023[35]
Bulgaria	Not a comprehensive health system performance assessment	Rohova et al., 2017[36]
		Dimova et al., 2018[37]
Croatia	2023	Sagan et al., 2021[38]
		Croatian Ministry of Health, 2023[39]
		Albreht et al., unpublished report, 2023 (available on request from the corresponding author)
Cyprus	NA	NA
Czechia	Ongoing process (expected in 2025)	Bryndová et al., 2023[40]
		OECD, 2023[41]
Denmark	NA	NA
Estonia	2023	OECD, 2023[42]
Finland	2004	European Commission, 2016[17]
		Kilpeläinen et al., 2016[43]
		Keskimäki et al., 2019[44]
		National websites and platforms
France	2004	European Commission, 2016[17]
		Or et al., 2023[45]
		Autorité de Santé, 2024[46]
		National websites and platforms
Germany	Not a comprehensive health system performance assessment	European Commission, 2016[17]
		Blümel et al., 2020[47]
		Röttger et al., 2018[48]
		National websites and platforms
Greece	NA	NA
Hungary	2016	Szigeti, et al., 2017[49]
		Brito Fernandes et al., 2022[50]
		National websites and platforms
Ireland	2023	Brito Fernandes et al., 2021[51]
		Kringos et al., 2021[52]
		Kringos et al., 2021[53]
		Government of Ireland Department of Health, 2023[54]
		National websites and platforms
Italy	2008	European Commission; 2016[17]
		Vola et al., 2022[55]
		Vainieri & Vola, 2023[56]
		Regional websites and platforms
Latvia	2019	Noto et al., 2019[57]
		Brigis et al., 2020[58]
		Albreht et al., unpublished report, 2023 (available on request from the corresponding author)
Lithuania	2019[a]	NA
Luxembourg	NA	NA
Malta	2014	Azzopardi Muscat et al., 2014[59]
		Grech et al., 2015[60]
		European Commission, 2016[17]
		Grech, 2018[61]
Netherlands, Kingdom of the	2006	Van den Berg et al., 2014[62]
		Van den Berg et al., 2014[63]
Poland	NA	NA

(*continues...*)

(*. . .continued*)

Country	First year of assessment	Sources
Portugal	2009	European Commission, 2016[17] de Almeida Simões et al., 2017[64]
Romania	NA	Cojoaca et al., 2022[65] Vladescu et al., 2010[66]
Slovakia	NA	NA
Slovenia	2019	Perko et al., 2019[67]
Spain	2003	Spain Ministry of Health, 2022[68]
Sweden	2003	European Commission, 2016[17]

EU: European Union; NA: not available; OECD: Organisation for Economic Cooperation and Development.

ª Estimation based on the EU support programme.

Discussion

We investigated how resilience has been defined and integrated into various European health system performance assessment frameworks. We sought to clarify the conceptual framing of resilience by examining the key performance indicators in these health system performance assessments. Although the EU recommended including resilience in health system performance assessments as early as 2014,[27] all the countries analysed in our study only incorporated this dimension after the COVID-19 pandemic.

Resilience refers to a health system's capacity to adapt and maintain control over its structure and functions, even when confronted with significant stresses.[74] Traditionally, the focus has been on risk-management strategies to prevent and mitigate threats, but the complexities of contemporary systems make this approach insufficient.[75] The COVID-19 pandemic led to a paradigm shift that acknowledged the unpredictability of systemic threats and emphasized the need to enhance health system resilience.[76] This perspective highlights the importance of a health system's ability to anticipate, absorb, recover from and adapt to a wide range of disruptions.[76,77]

Table 2. **Country profiles and national health system performance assessments, European Union**

Country	Country profile					Health system performance assessment		
	Population sizeª	% of population aged > 65 yearsª	GDP per capita, PPPª,ᵇ	Health expenditure, US$ per capitaᶜ	Health-care system	Assessment retrieved	EU support	Included section on resilience
Austria	8 978 929	19.4	44 065	5585	Mixed model	Yes	No	No
Belgium	11 617 623	19.5	42 213	5009	Social health insurance	Yes	No	Yes
Bulgaria	6 838 937	21.7	20 709	857	Social health insurance	No	No	No
Croatia	3 862 305	22.5	25 732	1095	Social health insurance	Yes	Yes	Yes
Cyprus	904 705	16.5	32 349	2245	National health system	No	No	No
Czechia	10 516 707	20.6	31 953	2120	Social health insurance	Yes	Yes	Yes
Denmark	5 873 420	20.3	48 114	6438	National health system	No	No	No
Estonia	1 331 796	20.4	30 671	1788	Social health insurance	Yes	Yes	Yes
Finland	5 548 241	23.1	38 679	4726	National health system	Yes	No	No
France	67 871 925	21.0	35 769	4769	Social health insurance	Yes	No	No
Germany	88 237 124	22.1	41 246	5930	Social health insurance	No	No	No
Greece	10 459 782	22.7	23 934	1675	Social health insurance	No	No	No
Hungary	9 689 010	20.5	27 259	1163	Social health insurance	Yes	No	No
Ireland	5 060 004	15.0	82 100	6092	National health system	Yes	Yes	Yes
Italy	59 030 133	23.8	33 688	3057	National health system	Yes	No	Yes
Latvia	1 875 757	20.9	25 939	1313	Social health insurance	Yes	Yes	No
Lithuania	2 805 998	20.0	31 481	1522	Social health insurance	Yes	Yes	Yes
Luxembourg	645 397	14.8	91 870	6757	Social health insurance	No	No	No
Malta	520 971	19.2	35 992	3135	National health system	Yes	No	No
Netherlands, Kingdom of the	17 590 673	20.0	46 093	5846	Social health insurance	Yes	No	No
Poland	37 654 247	19.1	28 044	1026	Social health insurance	No	No	No
Portugal	10 352 042	23.7	27 237	2342	National health system	Yes	No	No
Romania	19 042 455	19.5	27 073	810	National health system	No	No	No
Slovakia	5 234 712	17.4	24 061	1394	Social health insurance	No	No	No
Slovenia	2 107 180	21.1	32 546	2417	Social health insurance	Yes	Yes	No
Spain	47 432 893	20.1	29 808	2901	National health system	Yes	No	No
Sweden	10 452 326	20.3	42 264	6028	National health system	Yes	No	No

EU: European Union; GDP: gross domestic product; PPP: purchasing power parity; US$: United States dollars; WHO: World Health Organization.

ª Sources: (i) WHO, 2023[69] (ii) European Commission, 2021.[70]

ᵇ GDP per capita is expressed in euros, adjusted by PPP.

ᶜ Source: WHO, 2023.[71]

Incorporating resilience as an element within national and regional health system performance assessments[78] is a practical strategy to enhance the ability of health systems to withstand and recover from disruptions efficiently.

The findings of a recent analysis of health system performance assessments[7] have been partially integrated by most national health system performance assessments, demonstrating the ability of measurement systems to adapt to contemporary environments. This adaptation is particularly evident in the case of Italy, where resilience indicators dominated during the pandemic, both in system delivery (e.g. testing for COVID-19 and COVID-19 vaccination) and final goals of the health system (e.g. pandemic mortality rate). In contrast, in non-pandemic periods, key performance indicators of resilience mainly related to primary health care, particularly in the domains of system delivery and intermediary outcomes. This finding aligns with the broader understanding that resilient health-care systems require robust primary health-care foundations[7] to ensure accessibility, equity and continuity of care, even in the face of unprecedented challenges.[79,80] The concept of resilience seems to have evolved, as shown by the changes in the key performance indicators within the Belgian and Italian health system performance assessments. This shift underscores the importance of adaptability in implementing resilience strategies in response to changing environments.[56]

Overall, most countries have adopted a definition of health system resilience that emphasizes the ability to anticipate, absorb and adapt to shocks through the following dimensions: (i) capacity to address unmet needs and maintain outcomes; (ii) capacity to protect vulnerable groups; (iii) capacity of management to acquire and use resources; (iv) capacity to have trained and prepared staff in place; (v) capacity to utilize digital health; and (vi) capacity to strengthen primary health-care services. However, each country has tailored this definition to suit its unique health-care landscape and lessons learnt from the pandemic. Some countries have prioritized maintaining essential health services and quickly resuming optimal performance during a pandemic, while others have focused on reducing vulnerabilities within their health-care system. Our analysis indicates that health system performance assessment frameworks incorporating resilience emerged in updated post-pandemic assessments. Initially, countries with pre-existing health system performance assessments introduced resilience metrics in response to the COVID-19 pandemic with a focus on maintaining essential services during critical phases. Later, these countries assessed the resilience of their health-care systems to future shocks by introducing key performance indicators related to the health workforce, digital health and strengthening of primary health care. In particular, investments in digital technologies, such as digital consultations and telehealth services, can streamline

Table 3. Domain of resilience in national health system performance assessments, Belgium, Croatia, Czechia, Estonia, Ireland, Italy and Lithuania

Country	Year	Resilience		
		Short definition	Dimension in the health system performance assessment framework	Type of key performance indicators considered
Belgium	2023	Health system capacity to proactively foresee, absorb and adapt to shocks, only in relation to the COVID-19 pandemic	Yes	Human resource indicators (e.g. intention to leave by professionals, shortages); capacity to provide services; efficiency in acute care beds management; use of digital health; prompt response to COVID-19 testing; and % COVID-19 vaccination coverage
Croatia	2023	Capacity to respond to shocks and enhance efficiency amid growing health-care demands with constrained resources. This definition emphasizes structure-related investments	Yes	Capital expenditure; generic pharmaceutical usage; ambulatory surgery; medical and nursing workforce; public health and long-term care expenses; and diagnostic imaging procedures
Czechia	Forthcoming	Ability of the health system to absorb, respond to and adapt to unexpected events	Yes	Mental health care; early detection of drug shortages; primary care capacity; efficiency in acute care beds management; and number of beds for acute care and long-term care per inhabitant
Estonia	2023	Capacity to proactively adapt and quickly respond to challenges ensuring resilience, continuity and quality of service delivery	Yes	Preparedness; and vaccination
Ireland	2023	Adaptability of the national health system in response to diverse situations and needs, primarily focusing on its capacity and workforce motivation and support	Yes	Health worker job satisfaction; health worker absenteeism; use of staff support mechanisms (e.g. helplines); and surge capacity; capacity to scale up and down resources and volumes of services
Italy	2020	Capacity to ensure the service and resume optimal performance as quickly as possible	Yes	Compared with the last pre-pandemic year, differences in volumes for a selected list of: oncological treatments; outpatients visits; and drugs and primary health-care services
Italy	2021	Capacity to ensure the service, resume optimal performance as quickly as possible and reduce health system vulnerability	Yes	Same indicators as 2020 above, plus vaccination against COVID-19 and use of digital health
Italy	2022	A more systematic approach was adopted based on 2020 and 2021 definitions to ensure the system is ready to face future crises	No specific domain but reported as indicators to measure preparedness	Vaccination coverage of fragile groups; residential and long-term care; health worker absenteeism; mental health; and digital health

COVID-19: coronavirus disease 2019.

Table 4. **Overlap of theoretical and operational definitions of resilience in national health system performance assessments, Belgium, Croatia, Czechia, Estonia, Ireland, Italy and Lithuania**

Operational definitions of resilience	Theoretical definition of resilience[a]			
	Sustain required operations	Resume optimal performance	Transform health-care structure and functions to enhance system strength	Reduce vulnerability to future shocks
Capacity to address unmet needs and maintain outcomes	Yes	Yes	No	No
Capacity to protect vulnerable groups	No	No	No	Yes
Capacity of management to acquire and use resources	No	No	Yes	No
Capacity to have trained and prepared staff in place	Yes	No	Yes	No
Capacity to utilize digital health	Yes	No	Yes	No
Capacity to strengthen primary health-care services	Yes	Yes	Yes	Yes

ᵃ Source: European Commission; 2022.[11]

Note: Yes indicates that the operational and theoretical definitions of resilience overlap; no indicates that the operational and theoretical definitions of resilience do not overlap.

patient pathways, minimizing the need for in-person doctor visits.[3] While vital for resilience of health-care systems, these investments necessitate integrated information systems and care models to enhance patient-care coordination and decision-making.

The concept of resilience has been addressed to a lesser extent in wider health system performance assessments. This concept has evolved from addressing immediate outbreak responses during the initial phases of a pandemic, to a stronger focus on proactive preparedness measures aimed at mitigating future epidemic impacts through strengthening health-care systems. The implementation and scaling up of these measures depends on the availability of data. Some data, such as using digital health and strengthening primary health care, could be easily collected and included in health system performance assessments. However, other data, such as preparedness measures, are not systematically monitored. Finally, while some key performance indicators may have a broader scope, such as job satisfaction of health workers, they can be classified under resilience. The inclusion of such key indicators as a measure of resilience was identified in the case studies analysed as a predictor of health-care systems' readiness for future shocks.

Our study has some limitations. First, our inclusion criteria were restricted to health system performance assessments explicitly mentioning the term resilience. Countries using different terminologies, such as preparedness and responsiveness, were not included. However, the objective of our analysis was to examine resilience and how it was defined and operationalized into key performance indicators. Future studies could investigate how countries adopted different terms to refer to the concept of resilience. Additionally, we limited the geographical scope to the EU, for reasons outlined in the methods section. Nevertheless, it is important to acknowledge global heterogeneity in health system performance assessment frameworks and to provide perspectives beyond Europe. Thus, the study may only partially capture the diversity in health system performance assessments globally. ■

Competing interests: None declared.

ملخص

أبعاد المرونة في تقييمات أداء النظام الصحي، الاتحاد الأوروبي

الغرض استكشاف تعريف وتفعيل المرونة في تقييمات أداء النظام الصحي في دول الاتحاد الأوروبي.

الطريقة قمنا بإجراء العديد من التحليلات التجريبية لدراسة الحالة. وحددنا الحالات ذات الصلة من خلال مراجعة المنشورات من عام 2014 إلى عام 2023 باستخدام Google Scholar، ومن خلال تقنية كرة الثلج لاسترجاع معلومات إضافية. قمنا فقط بتضمين الوثائق التي ذكرت المرونة بشكل صريح في تقييمات أداء النظام الصحي. وأجرينا تحليلاً للمحتوى لتحديد الأنماط الشائعة في تعريف المرونة.

النتائج تكونت العينة النهائية من ست دول: بلجيكا، كرواتيا، والتشيك، وإستونيا، وأيرلندا، وإيطاليا. وانتهجت كل دولة أسلوبًا مختلفا لوضع تصور للمرونة، حيث منحت الدول الأولوية لجوانب محددة استنادا إلى الدروس المستفادة من جائحة مرض فيروس كورونا 2019 (كوفيد 19). وركزت بعض الدول على الحفاظ

على خدمات الرعاية الصحية الأساسية، وحماية الفئات المهمشة. منحت دول أخرى الأولوية للقدرة الإدارية، ودرجة استعداد فريق العمل، والاعتماد على الصحة الرقمية، وتعزيز الرعاية الصحية الأولية. كشف تحليل المحتوى عن ستة تعريفات للمرونة مشتقة من مؤشرات الأداء الرئيسية: التعامل مع الاحتياجات غير المحققة والحفاظ على النتائج؛ وحماية الفئات المهمشة؛ والحصول على الموارد واستخدامها؛ وتدريب وإعداد فرق العمل في الموقع؛ واستخدام الصحة الرقمية؛ وتعزيز الرعاية الصحية الأولية.

الاستنتاج إن دمج المرونة في الجوانب الصحية لدول الاتحاد الأوروبي، قد سبق إدراجها في تقييمات أداء النظام الصحي الوطني، وتلك الأخيرة أصبحت أكثر ظهورًا بعد جائحة كوفيد 19. إن الاختلافات في تفسيرات تقييمات أداء النظام الصحي إنها يعكس الاختلافات في المؤشرات واستجابات السياسات.

摘要

欧盟卫生系统绩效评估中的复原力维度

目的 探讨在欧盟国家卫生系统绩效评估中对复原力的定义和相关操作流程。

方法 我们开展了多次实证案例研究分析。通过使用谷歌学术 (Google Scholar) 检索 2014 年至 2023 年期间的文献综述，以及采用滚雪球方法检索更多信息，我们找到了许多相关案例。我们仅选取了在卫生系统绩效评估中明确提及了复原力的文件。我们采用内容分析方法确定了定义复原力的常规模式。

结果 最终选取了六个国家作为研究样本：爱尔兰、爱沙尼亚、比利时、捷克、克罗地亚和意大利。每个国家采取了不同的方法来定义复原力，且这些国家根据新型冠状病毒肺炎 (COVID-19) 大流行期间总结的经验教训，针对各项具体情况进行了优先排序。有些国

家将维持基本的卫生保健服务和保护弱势群体视为工作重点。其他国家则将管理能力、人员配备、数字医疗的利用和加强初级卫生保健列为优先考虑事项。通过采用内容分析方法，我们发现可根据关键绩效指标推导出六种复原力定义：解决未满足需求和维持成果；保护弱势群体；获取和利用资源；安排经培训的储备人员上岗；利用数字医疗；以及加强初级卫生保健。

结论 最初是将复原力纳入了欧盟国家的卫生系统概况，之后又将其纳入了国家卫生系统绩效评估，后者在 COVID-19 大流行后变得尤为重要。卫生系统绩效评估中概念解释的差异反映了指标和政策响应情况存在差异。

Résumé

Dimensions liées à la résilience dans l'évaluation des performances des systèmes de santé au sein de l'Union européenne

Objectif Explorer la définition et la mise en œuvre de la résilience dans l'évaluation des performances des systèmes de santé au sein des pays de l'Union européenne.

Méthodes Nous avons effectué plusieurs analyses d'études de cas empiriques. Nous avons identifié les cas pertinents en procédant à une revue de la littérature publiée entre 2014 et 2023 sur Google Scholar et en appliquant la technique de type «boule de neige» pour obtenir des informations supplémentaires. Nous n'avons retenu que les documents qui mentionnaient explicitement la résilience dans les évaluations des performances des systèmes de santé. Enfin, nous avons examiné les contenus afin de repérer les modèles les plus courants dans la définition de la résilience.

Résultats L'échantillon final était composé de six pays : la Belgique, la Croatie, l'Estonie, l'Irlande, l'Italie et la République tchèque. Chacun de ces pays a adopté une approche différente dans sa conceptualisation de la résilience, certains ayant donné la priorité à des aspects spécifiques en fonction des leçons qu'ils ont tirées de la pandémie de maladie

à coronavirus 2019 (COVID-19). Quelques-uns se sont concentrés sur le maintien des services de santé essentiels et la protection des groupes vulnérables. D'autres ont privilégié les capacités de gestion, la préparation du personnel, l'utilisation des technologies numériques et le renforcement des soins de santé primaires. L'analyse des contenus a révélé six définitions de la résilience dérivées des indicateurs clés de performance : répondre aux besoins non satisfaits et assurer le maintien des résultats ; protéger les groupes vulnérables ; acquérir et exploiter les ressources ; disposer de personnel formé et préparé ; déployer des technologies numériques ; et enfin, consolider les soins de santé primaires.

Conclusion La résilience figurait dans les profils sanitaires de certains pays de l'Union européenne avant d'être intégrée dans les mécanismes d'évaluation des performances des systèmes de santé nationaux, ayant gagné en importance après la pandémie de COVID-19. Les divergences d'interprétation observées dans le cadre de ces évaluations reflètent les variations au niveau des indicateurs et des solutions politiques.

Резюме

Параметры жизнестойкости в оценках эффективности систем здравоохранения, Европейский союз

Цель Изучить определение и практическую реализацию принципа жизнестойкости при оценке эффективности систем здравоохранения в странах Европейского союза.

Методы Было проведено несколько эмпирических анализов конкретных случаев. Для поиска релевантных случаев был проведен обзор литературы с 2014 по 2023 год с помощью Google Scholar, а также был использован метод формирования выборки для получения дополнительной информации. При оценке эффективности системы здравоохранения учитывались только те документы, в которых прямо упоминалась жизнестойкость. Для выявления общих закономерностей в определении жизнестойкости был проведен контент-анализ.

Результаты В окончательную выборку вошли шесть стран: Бельгия, Ирландия, Италия, Хорватия, Чехия и Эстония. В каждой стране был принят свой подход к пониманию жизнестойкости системы, при этом страны определили приоритетность конкретных аспектов на основе уроков, извлеченных из пандемии коронавирусной инфекции 2019 года (COVID-19). Некоторые страны сосредоточились на сохранении основных услуг здравоохранения и защите уязвимых групп населения. Другие страны уделяли первоочередное внимание управленческому потенциалу, готовности персонала, использованию цифровых технологий в здравоохранении и укреплению службы оказания первичной медико-санитарной помощи. По результатам контент-анализа было выявлено шесть определений жизнестойкости, полученных на основе ключевых показателей эффективности: удовлетворение неудовлетворенных потребностей и поддержание результатов, защита уязвимых групп, приобретение и использование ресурсов, наличие обученного и подготовленного персонала, использование цифрового здравоохранения, укрепление службы оказания первичной медико-санитарной помощи.

Вывод Включение понятия «жизнестойкость» в профили здравоохранения стран Европейского союза предшествовало его включению в оценки эффективности национальных систем здравоохранения, которые стали более заметными после пандемии COVID-19. Различия в интерпретации оценок эффективности системы здравоохранения отражают различия в показателях и политических мерах реагирования.

Resumen

Dimensiones de la resiliencia en las evaluaciones del rendimiento de los sistemas sanitarios en la Unión Europea

Objetivo Explorar la definición y la puesta en práctica de la resiliencia en las evaluaciones del rendimiento de los sistemas sanitarios en los países de la Unión Europea.

Métodos Se realizaron múltiples análisis de estudios de casos empíricos. Se identificaron casos relevantes mediante una revisión bibliográfica de 2014 a 2023 utilizando Google Scholar y mediante una técnica de bola de nieve para recuperar información adicional. Se incluyeron solo los documentos que mencionaban explícitamente la resiliencia en las evaluaciones del rendimiento del sistema sanitario. Se realizó un análisis de contenido para identificar patrones comunes en la definición de resiliencia.

Resultados La muestra final estaba formada por seis países: Bélgica, Croacia, Chequia, Estonia, Irlanda e Italia. Cada país adoptó un enfoque distinto para conceptualizar la resiliencia, dando prioridad a aspectos específicos basados en las lecciones aprendidas de la pandemia de la enfermedad por coronavirus de 2019 (COVID-19). Algunos países se centraron en mantener los servicios sanitarios esenciales y proteger a los grupos vulnerables. Otros países priorizaron la capacidad de gestión, la preparación del personal, la utilización de la salud digital y el fortalecimiento de la atención primaria. El análisis de contenido reveló seis definiciones de resiliencia derivadas de los indicadores clave de rendimiento: abordar las necesidades insatisfechas y mantener los resultados; proteger a los grupos vulnerables; adquirir y utilizar recursos; contar con personal capacitado y preparado; utilizar la salud digital; y fortalecer la atención primaria de salud.

Conclusión La integración de la resiliencia en los perfiles sanitarios de los países de la Unión Europea precedió a su inclusión en las evaluaciones del rendimiento de los sistemas sanitarios nacionales, estas últimas más destacadas tras la pandemia de la COVID-19. Las variaciones en las interpretaciones dentro de las evaluaciones del rendimiento de los sistemas sanitarios reflejan diferencias en los indicadores y las respuestas políticas.

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Patient satisfaction and value based purchasing in hospitals, Odisha, India

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Objective To examine how a general inpatient satisfaction survey functions as a hospital performance measure.

Methods We conducted a mixed-methods pilot study of the Hospital Consumer Assessment of Health Providers and Systems survey in Odisha, India. We divided the study into three steps: cognitive testing of the survey, item testing with exploratory factor analysis and content validity indexing. Cognitive testing involved 50 participants discussing their interpretation of survey items. The survey was then administered to 507 inpatients across five public hospitals in Odisha, followed by exploratory factor analysis. Finally, we interviewed 15 individuals to evaluate the content validity of the survey items.

Findings Cognitive testing revealed that six out of 18 survey questions were not consistently understood within the Odisha inpatient setting, highlighting issues around responsibilities for care. Exploratory factor analysis identified a six-factor structure explaining 66.7% of the variance. Regression models showed that interpersonal care from doctors and nurses had the strongest association with overall satisfaction. An assessment of differential item functioning revealed that patients with a socially marginalized caste reported higher disrespectful care, though this did not translate into differences in reported satisfaction. Content validity indexing suggested that discordance between experiences of disrespectful care and satisfaction ratings might be due to low patient expectations.

Conclusion Using satisfaction ratings without nuanced approaches in value-based purchasing programmes may mask poor-quality interpersonal services, particularly for historically marginalized patients. Surveys should be designed to accurately capture true levels of dissatisfaction, ensuring that patient concerns are not hidden.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

In 2018, the Indian government launched the world's largest health insurance scheme, *Pradhan Mantri Jan Arogya Yojana*.[1] The scheme aims to cover secondary and tertiary care for 500 million newly insured citizens, corresponding to 40% of the country's most vulnerable population.[2–4] The government has focused on the quality of care covered through the scheme, including patient satisfaction as a key quality metric in several accountability programmes.[5,6] A proposed nationwide programme would formally tie hospital performance to payment with up to 15% of reimbursement depending on the quality of services delivered.[7] Satisfaction is the programme's primary proposed measure of patient-centred care, similar to many value-based purchasing programmes in high-income countries that incentivize high-quality care by linking hospital payments to performance.[8] Hence, poor performance on patient satisfaction measures may represent a substantial financial risk for hospitals.

The Ministry of Health and Family Welfare of India has long prioritized measuring patients' satisfaction with secondary and tertiary care. For example, *Mera Aspataal* (My Hospital) is a health ministry digital platform used to capture patient feedback on services received from both public and private health facilities.[9] To develop this platform, the health ministry used a review of validated patient surveys.[6] *Mera Aspataal* data have informed three policy efforts: a public reporting programme, the national hospital accreditation programme, and a results-based incentives effort focused on hospital cleanliness and physical infrastructure.[6] Alternate sources of information, such as insurance claims data, on the quality of health services delivered in inpatient settings across India are scarce.[10,11] However, the use of patient satisfaction measures within payment programmes has been controversial[8] and there are debates on how best to interpret and value satisfaction ratings.[12,13] Implicit in any survey-based measure is the assumption that tools are consistently understood by the patient and that variation represents the underlying construct being assessed, as opposed to differences in how people understand or interpret a concept or tool.[14] Critics argue that due to information asymmetry, some patients may rate the superficial aspects of the visit (for example, an imposing lobby) rather than the technical or interpersonal quality of care provided by health workers.[15] This issue may be particularly relevant as low- and middle-income countries improve access to hospital-based care, and newly insured patients may use secondary and tertiary services for the first time.[2,16] While the health ministry already prioritizes patient satisfaction, we lack an in-depth understanding of how patients understand and value aspects of the care interaction, and how those understandings inform satisfaction reporting in the context of a value-based purchasing programme.[7]

To better understand how satisfaction ratings function within an Indian inpatient setting, we conducted a pilot study using a comprehensive survey tool that assesses both patients' experiences with a given clinical interaction and their overall satisfaction rating. Considering the proposed value-based purchasing programme, we posed the following research questions: what aspects of patient experience do patients value when rating their satisfaction with care? Does the tool function

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Table 1. **Methods used to pre-test and pilot the Hospital Consumer Assessment of Health Providers and Systems survey, Odisha, India, 2020**

Step[a]	Purpose	Process	No. of participants[b]
1. Cognitive testing	To refine translation of survey tool. To ensure variation in responses do not reflect differences in understanding of a given question, we aimed to identify how individuals interpret each survey item and how their cognitive processing relates to the construct intended by the researcher and original survey instrument	Focus groups discuss all survey items to assess if framing is logical and answerable, if response options are adequate, etc. We paired each item with structured verbal probes to elicit participants' cognitive processes and assess their understanding and interpretation of each survey item	50
2. Item testing and exploratory factor analysis	Quantitively assess how survey items relate and if exposure to quality of care informs our overall variable of interest: patient satisfaction	Hospital-based exit interviews with eligible patients; responses anonymized and analysed using an exploratory factor analysis and series of ordinary least squares models with overall satisfaction posed as a dependent variable, controlling for patient complexity and interview characteristics, for example privacy and enumerator ID	507
3. Content validity indexing	Assess to which extent the tool items represent facets of the construct patient experience, that is, do the survey items represent what is important to patient-centredness in Odisha, India	One hour-long individual interviews, conducted in non-clinical settings with five patients, five health workers and five health-system experts. For each survey item, each interviewee rates the relevance to patients' satisfaction and relevance given hospital environment, using a four-point Likert scale. Subsequently, interviewees describe the reasons for their ratings	15

[a] Steps were conducted consecutively.
[b] Participants partook only in one step, that is each group was distinct.

similarly across different patient types? What factors might drive differences in reporting and to what extent might they be systematic?

Methods

We conducted a mixed-methods assessment of a comprehensive patient experience survey tool, focusing on how patients report overall satisfaction with general inpatient care.[7] We employed methods similar to those used in the development of the tool (Table 1).[17] We divided the study into three steps: cognitive testing of the survey; item testing and exploratory factor analysis; and content validity indexing. We built on prior work on patient satisfaction in Indian clinical settings.[5,18] We used the Hospital Consumer Assessment of Health Providers and Systems survey, due to its use in the nationwide value-based purchasing programme in the United States of America[19] and its relevance to India's proposed programme.[7] The survey includes a direct overall measure of patient satisfaction and has been tested in nine countries worldwide.[20–24] In India, the tool and its derivatives have been used to assess hospital qual-

ity and inform digital health platforms.[6] The survey includes questions assessing aspects of the patients' experience across six domains: interpersonal care from nurses; interpersonal care from doctors; the hospital environment; general experience; after-discharge care; and understanding of care.[25] These patient experience questions employ a four-point Likert scale, and additional questions collect demographic information, such as age and gender.

Step 1

To ensure that observed variation reflects real differences and is not the result of heterogeneity in how the questions are interpreted,[14] we used cognitive testing.[17,26–29] In this assessment, respondents discussed what each survey item meant to them with the goal of exploring the processes by which respondents answer survey questions. We followed the protocol developed for the Hospital Consumer Assessment of Health Providers and Systems survey.[17] Participants included 50 convenience-sampled Odia-speaking individuals, 27 women and 23 men (gender was self-reported). We conducted the cognitive testing in Bhubaneswar, India, with all assessments

in Odia, and clarifying discussions in Odia, Hindi and English. During a day-long session, participants reviewed each survey question in full, working in focus groups of 7 to 12 individuals to discuss their understanding of each question. We reimbursed the individuals for their participation. We used scripted probes to elicit additional insights into cognitive processes and conceptual equivalence in processing survey items.[30] We used deductive qualitative analysis to categorize identified issue types.

Step 2

We administered the Odia-translated Hospital Consumer Assessment of Health Providers and Systems survey to patients at the time of discharge who had been hospitalized for at least 24 hours. We sampled five public hospitals across Odisha from purposively selected districts. Districts were first grouped according to administrative units, then selected to represent the diversity of the state in terms of tribal population, urbanization, coastal and mining areas, which are believed to influence health, health-care utilization and health-related expenditure. For each hospital, we surveyed approximately 100 patients

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Table 2. **Cognitive testing issues identified in items in the Hospital Consumer Assessment of Health Providers and Systems survey, Odisha, India, 2020**

Survey domain and item	Full item text	Cognitive testing issue	
		Brief description	Type[a]
Interpersonal care from nurses			
Courtesy and respect	During this hospital stay, how often did nurses treat you with courtesy and respect?	No issues raised	NA
Listen carefully	During this hospital stay, how often did nurses listen carefully to you?	Listening carefully may not be seen as distinct from being treated with respect	Construct
Explain	During this hospital stay, how often did nurses explain things in a way you could understand?	Patient must define "how often," as the concept often lacks a point of reference	Construct
Interpersonal care from doctors			
Courtesy and respect	During this hospital stay, how often did doctors treat you with courtesy and respect?	No issues raised	NA
Listen carefully	During this hospital stay, how often did doctors listen carefully to you?	Doctors are often not responsible for listening to patients	Relevance
Explain	During this hospital stay, how often did doctors explain things in a way you could understand?	Doctors are often not responsible for explaining care to patients	Relevance
Hospital environment			
Room clean	During this hospital stay, how often were your room or ward and bathroom kept clean?	Families, not providers, are often responsible for cleanliness	Relevance
Quiet	During this hospital stay, how often was the area around your room/ward quiet at night?	Lack of clarity on the concept quiet. In open hospital wards, it may not be possible to maintain quiet	Construct and relevance
General experience			
Bathroom help	How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?	Families, not providers, are often responsible for bedpans	Relevance
Talk about pain	During this hospital stay, how often did hospital staff talk with you about how much pain you had?	Patient must define "how often," as the concept often lacks a point of reference	Construct
Talk about pain treatment	During this hospital stay, how often did hospital staff talk with you about how to treat your pain?	Patient must define "how often," as the concept often lacks a point of reference	Construct
Explain medication purpose	Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?	Lack of clarity on what constitutes new medicine. External purchase of medication most common and doctors rarely provides the medicine	Information and relevance
Explain side-effects of medication	Before giving you any new medicine, how often did hospital staff describe possible side-effects in a way you could understand?	Lack of clarity on what constitutes new medicine. External purchase of medication most common and doctors rarely provides the medicine	Information and relevance
After discharge			
Assessment of post-discharge	During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?	Understood as: when you go home will you get the help that you need	Construct
Receipt of discharge guidance	During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?	Written guidance may be irrelevant if patients are illiterate	Relevance
Understanding of care			
Taking preferences seriously	During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.	The doctors may not concern themselves with care after discharge, as it is not within the scope of the doctor's professional role	Relevance
Understand responsibilities	When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.	Lack of clarity on what the patient is told versus what the patient understands	Construct
Understand purpose of medications	When I left the hospital, I clearly understood the purpose for taking each of my medications?	No issues raised	NA

NA: not applicable

[a] Construct issues were raised when the item was understood differently than its intended construct. Information issues were raised when there was unclear or inadequate information for a patient to answer the question reliably. Relevance issues were when there was something about the question that raised concern, e.g. relevance in the Odisha inpatient setting.

(20 female obstetrics inpatients, 40 general female and male inpatients each) with an average survey duration of 35 minutes. When the number of patients being discharged exceeded the number of patients the enumerators were able to survey, we used a stratified random sampling strategy with a list frame approach to reduce bias. We set the target sample to 500 respondents, which exceeds recommendations for quantitative validation involving patients (250–350 patients)[31] and meets the threshold of very good for factor analysis.[32]

With the resulting survey data, we conducted an exploratory factor analysis using principal-component factors (assuming no unique factors), and calculated the average of all correlations between each item and the total score (Cronbach's α). Additionally, we ran three models examining the relationship between individual survey items and overall patient satisfaction. Model I is an unadjusted bivariate ordinary least squares regression where overall satisfaction is the dependent variable, and each patient experience survey item is treated as a separate independent variable. Model II adds the patient's age and gender, as well as variables relevant to clinical complexity: if the patient was admitted through the emergency department; the patient's self-reported rating of health; length of stay; and facility type. Model III adds variables relevant to the interview: interviewer ID and an enumerator rating of interview privacy. Finally, we assessed differential item functioning by disaggregating results by caste, assessing differences in means with a two-sample t-test, and producing a Spearman's rank correlation coefficient for each subgroup to assess the strength of the relationship between exposure to disrespectful care and odds of reporting dissatisfaction. Dissatisfaction is shown as an unweighted proportion, with the four most negative response options (of 10) combined to generate one negative rating.

Step 3

To assess the degree to which questionnaire items constitute an adequate operational definition of our construct of interest,[33] that is, patients' overall satisfaction, we used item-level content validity indexing.[21] We interviewed 15 individuals, purposively sampled across three categories – patients, health

workers and experts. Patients were people familiar with public hospital care in Odisha and included hospital patients on the day of discharge; health workers were currently providing clinical care in Odisha; and experts were researchers experienced in collecting patient data from inpatient settings in Odisha. Each interview was in-person and lasted approximately one hour. The interviews involved providing verbal instructions on how to use the Likert scale (1: not relevant; 2: somewhat relevant; 3: relevant; and 4: highly relevant) to evaluate the relevance of survey items, followed by questions to explain why they did, or did not, think the item was relevant. Two separate scores were captured: (i) the item's relevance to patient satisfaction; and (ii) the item's

relevance given the clinical setting. By allowing interviewees to provide two distinct scores, we were able to address concerns regarding care expectations identified during cognitive testing. This approach helped us better distinguish whether low ratings were due to concerns with the item's relevance to patient satisfaction, or other factors, such as feasibility and structural constraints in the study setting.

Disaggregating expectations

Finally, to outline policy-relevant implications of this work, we used Thompson and Sunol's framework to organize sources of variation into four categories: ideal expectations, predicted expectations, normative expectations and patient expression.[34]

Table 3. **Characteristics of public hospital-based exit interviewees, Odisha, India, 2020**

Characteristic	No. of respondents (%)[a]		
	Male inpatients (n = 193)	Female inpatients (n = 209)	Inpatients of obstetrics–gynaecology departments (n = 105)
Age in years, mean (SD)	47.2 (17.6)	45.2 (17.4)	25.5 (5.3)
Highest educational attainment			
Illiterate	13 (6.7)	32 (15.3)	0 (0.0)
No formal schooling	32 (16.6)	62 (29.7)	11 (10.5)
Under primary	11 (5.7)	22 (10.5)	13 (12.4)
Primary	39 (20.2)	21 (10.1)	15 (14.3)
Upper primary and middle	38 (19.7)	24 (11.5)	18 (17.1)
Secondary	29 (15.0)	25 (12.0)	23 (21.9)
Higher secondary	19 (9.8)	13 (6.2)	21 (20.0)
Graduate	7 (3.6)	7 (3.4)	4 (3.8)
Caste			
Scheduled tribe	34 (17.6)	40 (19.1)	28 (26.7)
Scheduled caste	23 (11.9)	36 (17.2)	25 (23.8)
Otherwise backward class	74 (38.3)	64 (30.6)	22 (20.9)
General[b]	61 (31.6)	67 (32.1)	29 (27.6)
Religion			
Hindu	189 (97.9)	205 (98.1)	100 (95.2)
Muslim	4 (2.1)	4 (1.9)	1 (1.0)
Christian	0 (0.0)	0 (0.0)	4 (3.8)
Primary language[c]			
Odia	171 (88.6)	193 (92.3)	78 (74.3)
Hindi	4 (2.1)	4 (1.9)	1 (1.0)
Telugu	0 (0.0)	2 (1.0)	3 (2.9)
Tribal dialect	16 (8.3)	9 (4.3)	21 (20.0)

SD: standard deviation.

[a] Values are no. (%) if not otherwise given.

[b] No historically marginalized caste designation.

[c] Languages spoken by less than 1% of respondents not included, hence the sum does not equal 100%.

Note: we limited the sampling to public hospitals which are slated to be incorporated within the proposed value-based purchasing programme.

Table 4. **Results of exploratory factor analysis and of overall satisfaction models, Odisha, India, 2020**

Category and experience item	Mean item value (SE)	Exploratory factor analysis and item-level testing		Coefficient, by level					
				Model I[b]		Model II[c]		Model III[d]	
		Item uniqueness	Cronbach's a[a]	Item	Category	Item	Category	Item	Category
Interpersonal care from nurses (λ: 3.5)[e]									
Courtesy and respect	3.4 (0.034)	0.221	0.785	0.65***	0.76***	0.58***	0.69***	0.59***	0.70***
Listen carefully	3.4 (0.032)	0.218	0.781	0.79***		0.74***		0.75***	
Explain	3.3 (0.036)	0.371	0.780	0.81***		0.75***		0.77***	
Interpersonal care from doctors (λ: 1.9)[e]									
Courtesy and respect	3.5 (0.031)	0.359	0.785	0.91***	0.82***	0.84***	0.74***	0.86***	0.76***
Listen carefully	3.3 (0.033)	0.556	0.779	0.82***		0.73***		0.75***	
Explain	3.3 (0.033)	0.319	0.785	0.72***		0.65***		0.66***	
Hospital environment (λ: 1.7)[e]									
Room clean	2.9 (0.040)	0.293	0.798	0.47***	0.33***	0.39***	0.25**	0.38***	0.23**
Quiet	2.5 (0.044)	0.287	0.807	0.18***		0.10		0.08	
General experience (λ: 1.3)[e]									
Talk about pain	2.6 (0.056)	0.445	0.790	0.90***	0.68***	0.81***	0.60***	0.87***	0.62***
Talk about pain treatment	2.9 (0.036)	0.310	0.786	0.64***		0.56***		0.57***	
Explain medication purpose	2.8 (0.055)	0.330	0.802	0.50***		0.42***		0.42***	
After discharge (λ: 1.3)[e]									
Assessment of post-discharge	0.9 (0.022)	0.345	0.811	0.26*	0.54**	0.09	0.34**	0.09	0.33**
Receipt discharge guidance	1.6 (0.017)	0.542	0.801	0.81***		0.59***		0.57***	
Understanding of care (λ: 1.1)[e]									
Taking preferences seriously	3.6 (0.024)	0.300	0.804	0.69***	0.69***	0.55***	0.58***	0.54***	0.57***
Understand responsibilities	3.6 (0.023)	0.171	0.801	0.72***		0.59***		0.58***	
Understand purpose of medications	3.6 (0.026)	0.277	0.804	0.67***		0.59***		0.58***	

SE: standard error; *$P \leq 0.05$; **$P \leq 0.01$; ***$P \leq 0.001$.

[a] A typical exclusion threshold for a coefficient is 0.70. The higher the a coefficient, the more the items have shared covariance and may measure the same underlying concept. Highly correlated items will also produce a high coefficient and can therefore be interpreted as a sign of redundancy. As we did not conduct the analysis to shorten the Hospital Consumer Assessment of Health Providers and Systems survey, we retain all items regardless of performance.

[b] Model I represents the unadjusted results of a bivariate ordinary least square regression where overall satisfaction is the dependent variable and each row represents a different patient experience item posed to patient.

[c] Adjusted for patient age, gender and clinical complexity.

[d] Adjusted for Model II factors plus interview characteristics.

[e] Eigenvalues (λ) shown for retained factors. Corresponding item categories are discrete and align with factor loadings most relevant to defining each factor's dimensionality.

Note: we excluded two items (bathroom help and explanation of medicine side-effects) from this table because fewer than 50 respondents needed support with the bathroom or were prescribed medicines.

Ethical considerations

Institutional Review Board approval was provided through Harvard TH Chan School of Public Health, Boston, United States of America (IRB18–1675); Research and Ethics Committee of the Directorate of Health Services, Government of Odisha ID: 60/PMU/187/17; and Sigma, registered with the Division of Assurance and Quality Improvement of the Office for Human Research Protections, USA (IRB00009900). All participants gave informed consent to participate in the study before taking part.

Results

Participants in the cognitive testing surfaced several fundamental concerns. They flagged six out of 18 questions as having relevance issues to the Odisha inpatient setting. These issues centred around responsibility for care. For example, families, not health workers, may be responsible for cleanliness. Furthermore, participants thought that doctors were responsible for communicating clinical information, but did not think they were responsible for explaining the information. These concerns informed conversations about which tasks were the responsibilities of health-care professionals (Table 2).

In step 2, enumerators surveyed 507 patients. Educational backgrounds varied, with most male inpatients having completed a primary or middle school education (77/193), while most female inpatients had no formal schooling (62/209). The majority identified as Hindu (494/507) and most spoke Odia (442/507) as their primary language (Table 3).

The exploratory factor analysis yielded six eigenvalues greater than 1, indicating a six-factor structure. These results explained 66.7% of the variance within the model. All Cronbach's α values exceeded the threshold of 0.7. Uniqueness at the item-level, variance not shared with other variables, ranged from 17.1% (understand responsibilities) to 55.6% (doctors listen carefully). Regression models revealed that the hospital environment category had the weakest association with overall satisfaction (Model III coefficient: 0.23), whereas interpersonal care from doctors and nurses had the strongest association (Model III coefficients: 0.76 and 0.70, respectively; Table 4).

Disaggregating results by patient characteristics, we identified differential functioning of survey items based on caste. Patients who identified as part of a scheduled caste, otherwise backward class or scheduled tribe were significantly more likely to report receiving disrespectful care compared to patients with no marginalized class designation (P-value: > 0.05; Fig. 1; Table 5). In contrast, there was no statistical difference in reporting dissatisfaction between the groups. Only patients who identified as part of an otherwise backward class had a significant correlation between exposure to disrespectful care and reporting dissatisfaction (ρ: 0.19; P-value: 0.02). Moreover, all values fall well below the 15% satisfaction threshold set within the proposed value-based purchasing

Fig. 1. **Share of patients reporting receipt of disrespectful treatment and share reporting overall dissatisfaction with care, by caste, Odisha, India, 2020**
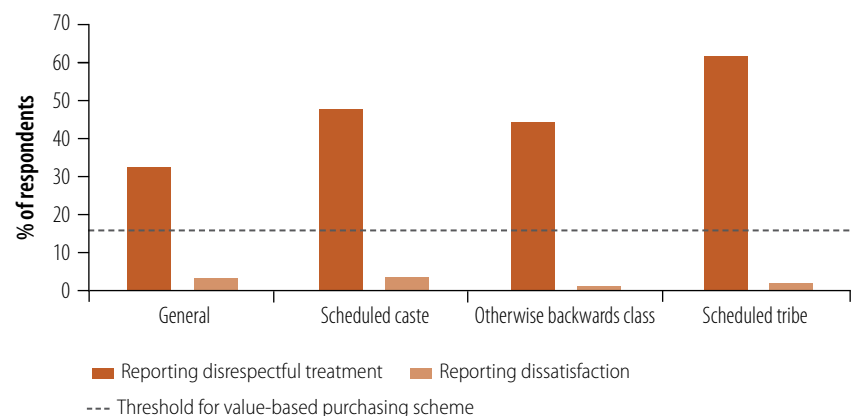
Notes: the proposed value-based purchasing programme in India sets an initial threshold of 85% satisfaction (15% dissatisfaction). We combined the four most negative response options (of 10) to generate a combined negative rating. We used this interpretation of dissatisfaction because the satisfaction ratings in India's proposed value-based purchasing programme will be evaluated using a 5-point Likert scale of which the two least favourable responses will be combined to a negative rating. Difference is assessed with a two-sided t-test comparing to the base group, individuals with no historically marginalized designation.

Table 5. **Share of patients reporting receipt of disrespectful treatment and share reporting overall dissatisfaction with care, by caste, Odisha, India, 2020**

Caste group	Reporting disrespectful treatment	Reporting dissatisfaction	Spearman's ρ^a (P)
General[b] ($n = 157$)			0.34 (< 0.01)
% of respondents (no.)	32.5 (51)	3.2 (5)	
Scheduled caste ($n = 84$)			0.14 (0.19)
% of respondents (no.)	47.6 (40)	3.6 (3)	
Difference from general group, % points (P)	15.1 (< 0.01)	0.4	
Otherwise backward class ($n = 160$)			0.19 (0.02)
% of respondents (no.)	44.4 (71)	1.3 (2)	
Difference from general group, % points (P)	11.9 (0.01)	−1.9	
Scheduled tribe ($n = 102$)			0.17 (0.09)
% of respondents (no.)	61.8 (63)	2.0 (2)	
Difference from general group, % points (P)	29.3 (< 0.01)	−1.2	

[a] Spearman's ρ assessing the relationship between reporting disrespectful treatment and reporting dissatisfaction.

[b] The general group refers to individuals with no historically marginalized class designation.

programme, meaning the difference in exposure to disrespectful care by caste would not translate to a difference in hospital payment.

Finally, our content validity indexing results suggest that reporting discordance (that is, experiencing disrespectful care but not reporting dissatisfaction) may be due to low expectations rather than a difference in what patients value. When participants were asked about item relevance, hospital environment relevance scored lower (Fig. 2) than relevance to patients' satisfaction in 13 of 18 questions. These results align with cognitive testing results; for example, participants valued doctors listening carefully, but did not expect this to occur in practice because they did not believe it was a physician's responsibility within the Odisha inpatient setting.

Interviews revealed that understandings of clinical responsibilities and

corresponding expectations informed patients' overall ratings. For example, a patient participant stated:

"I do feel the doctors were disrespectful, but they are the boss and this is how it is, no? So I think disrespect is important to me and my family, but if this is the same treatment I got last time, why complain? This is why my [satisfaction] score is still high."

These pilot study findings raise concerns regarding the use of an overall satisfaction rating within provider payment programmes and how we interpret traditional quantitative approaches to validation, which may assume low item functioning means low importance to the patient or satisfaction. Potential sources of variation in patient satisfaction ratings and considerations for value-based purchasing policies are presented in Table 6. These sources

suggest a need to consider predicted expectations in addition to other sources of variation.

Discussion

In this pilot study, we find aspects of the care interaction beyond the physical environment, such as the quality of interpersonal care, had a strong relationship with overall satisfaction. However, these results raise concerns for the use of satisfaction ratings within a nationwide performance policy. Observed differences in care ratings may not reflect true differences in patients' satisfaction, which may vary between sociocultural groups. These findings are timely as the Indian government considers using satisfaction ratings to hold hospitals accountable to patients.

Satisfaction ratings, as a single metric, are appealing in that they theoretically capture a wide range of underlying preferences. Conversely, absent of clini-

Fig. 2. **Mean content validity indexing scores assessing items' relevance to patient satisfaction and hospital environment, Odisha, India, 2020**
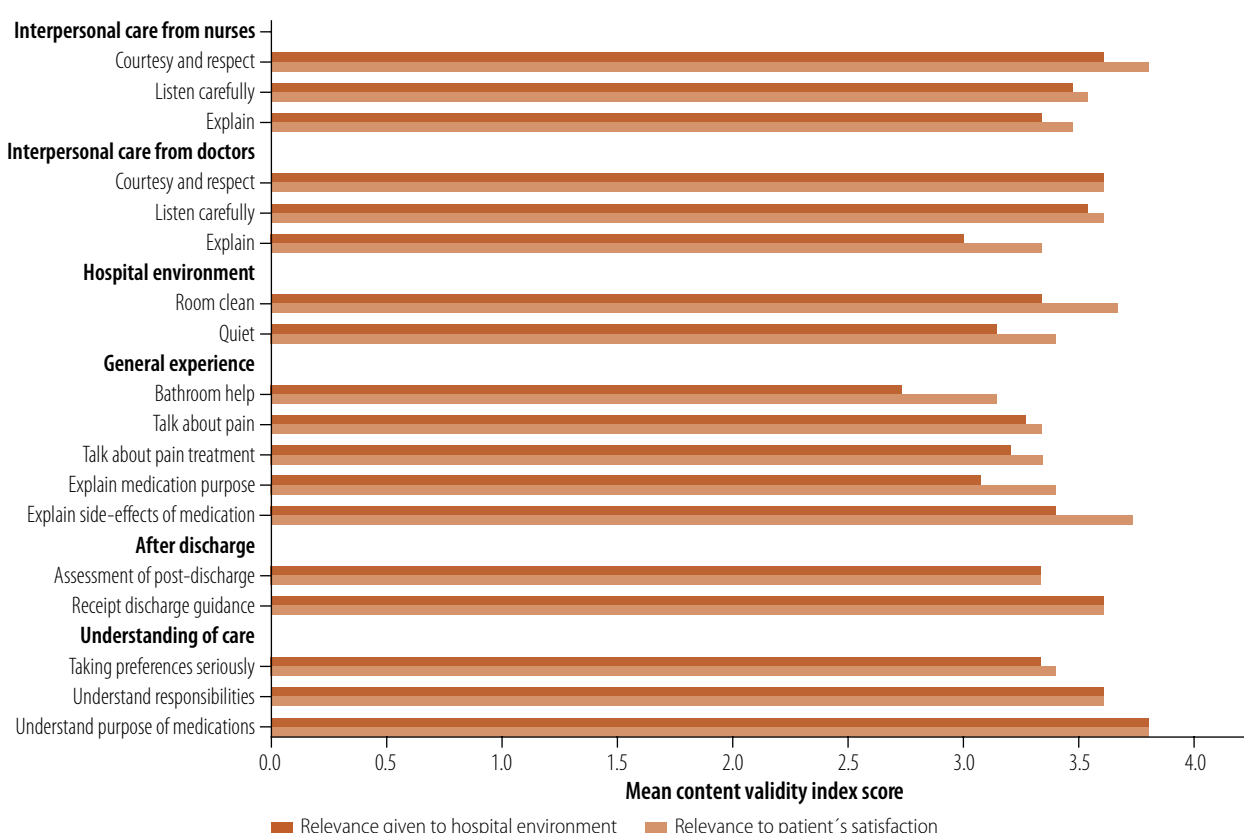
Notes: we interviewed five patients, five health workers and five health-system researchers, who rated the relevance of survey item to either patient satisfaction or the hospital environment, including feasibility or likelihood of an event occurring in the inpatient setting. Rating scale for each individual question was 1: not relevant; 2: somewhat relevant; 3: relevant; 4: highly relevant.

cal expertise, patients may place undue value on more superficial aspects of the care interaction – aspects more subject to manipulation to improve ratings.[35] Contrary to this concern, we found the physical environment had a weak relationship with satisfaction. Patients did appear to value interpersonal aspects of care, for example, being listened to carefully and having care explained adequately. Even when examining questions that did not perform well in the factor analysis or regression models, such as receipt of post-discharge guidance, content validity indexing suggested this guidance was valued, but participants did not anticipate it to occur in practice. Traditionally, in tool validation studies, low item performance in quantitative approaches indicates that the item is not an important driver of patient satisfaction. As a result, the item may be excluded. However, our results indicate that low coefficients may result from low predicted expectations rather than low ideal expectations.

The proposed value-based purchasing programme sets an 85% satisfaction rating threshold, with facilities scoring below facing reduced health insurance scheme reimbursement.[7] In our study, despite a high proportion of respondents reporting disrespectful care, reimbursement would not be affected since dissatisfaction ratings fell well below 15%. As such, the currently designed programme may not adequately surface low-quality interpersonal care provided to marginalized patients. This type of variation in reporting, which results from differences in predicted expectations, is problematic particularly if certain patients or groups of patients have been systematically subjected to lower quality of care than others. Different thresholds for reporting satisfaction raise concern for the use of overall ratings within value-based purchasing.[36] Many public reporting and payment programmes treat satisfaction as a stand-alone measure, which is both a feasible and simple approach, particularly if variation results from differences in ideal expectations. However, this approach may fail to surface low-quality interpersonal care experienced by individuals unlikely to report overall dissatisfaction – either due to low predicted expectations or issues of expression. Scheduled tribe patients, for example, may have lower expectations of the system due to experiences of

disrespect. Furthermore, patients with higher education may have unreasonable predicted expectations of the health system and/or a lower threshold for the

expression of dissatisfaction.[37] Researchers developing the World Health Surveys coined the term universally legitimate expectations, which refers to a norma-

Table 6. Sources of variation in patient satisfaction ratings and considerations for value-based purchasing policies, Odisha, India, 2020

Source of variation	Description[a]	Policy considerations for value-based purchasing
Values	Ideal expectations are similar to aspirations, desires or preferred outcomes; what a person ultimately values, that is, in a situation without limitation	Values can, and likely do, vary between patients and contexts; expectations represent an anticipated source of variation, allowing satisfaction ratings to reflect a diverse range of patient values
Expectations	Predicted expectations are realistic, practical or anticipated outcomes that result from personal experiences, reported experiences of others and sources of knowledge such as the media	Addressing variation that results from differences in predicted expectations may include the following: - Collecting basic demographic information about patients that are potentially associated with historical marginalization, for example, religious identity, caste and educational attainment. These data can be used to better understand hospitals' baseline population as well as augment clinically-focused risk adjustment, which is often used within value-based purchasing programmes and focuses on case mix, i.e. morbidity type and severity
	Normative expectations are based on what should or ought to happen, often based on a mutually agreed upon threshold for what constitutes patient-centred care (similar to human rights standards)	Addressing variation that results from differences in normative expectations may include the following: - Pair subjective satisfaction ratings with more objective assessments of what a patient is experiencing during a given clinical interaction (that align with normative guidance) and look for discordance in patient ratings, that is, when patients give positive ratings to potentially inadequate care[b] - Due to low and variable thresholds for reporting dissatisfaction when exposed to low quality care, do not use a satisfaction rating to trigger sub-items, which are sometimes only posed to dissatisfied patients
Expression	Expression is how patients convey or report their satisfaction with care to others, which may differ for patients regardless of ideal, predicted, or normative expectations of care and inform reporting bias,[c] that is, how satisfaction is expressed may differ among patients with a similar level of true satisfaction	Addressing variation that results from differences in expression may include the following: - Consider the addition of variables within surveys used for value-based purchasing that may inform reporting bias. For example, interview privacy and interviewer ID. Consider these factors when analysing data to address underreporting, which may be more prevalent for marginalized patients. - If resources allow, follow up with a random subset of interviewed patients to assess if there is a variation in responses once they left the hospital

[a] Adapted from Thomson & Sunol, 1995.[34]

[b] For example, being yelled at by a provider is generally seen as unacceptable by both national and international standards. It is important to understand if patients consistently give positive feedback to such care, as this helps ensure that these forms of poor-quality care are challenged, particularly among marginalized patients.

[c] Thomson & Sunol[34] include a related concept, which they call "unformed expectations," which is when individuals are unable to articulate their expectations because they do not have expectations, have difficulty expressing their expectations or do not wish to reveal their expectations due to fear, anxiety or conforming to social norms.

tive set of expectations.[37] Accordingly, we provide actionable considerations for improving satisfaction ratings within value-based purchasing programmes (Table 6).

This work extends the existing literature assessing patient experience and satisfaction in Indian clinical settings.[5,38,39] We build on this work by focusing on general inpatient care, instead of specific conditions or specialties, and consider policy applications given the proposed value-based purchasing programme. While some studies have used the Hospital Consumer Assessment of Health Providers and Systems tool in India as an outcome measure,[40] we were unable to find any documentation of formal adaptation or pre-testing processes that might be useful in informing the tool's use in payment policies. Our work also extends the patient vignette literature, which aims to understand differences in how individuals judge care for a fixed clinical example.[41,42] This literature exposes differences in ratings based on patient characteristics, but cannot disentangle why ratings differ. By using a formative mixed-methods approach, we were able to assess patients' values and expectations.

This study has several limitations. First, the sample size is small and we lacked a reliable sampling frame. For example, due to the small sample, we were unable to examine how patient characteristics interact with one another. However, the results and concerns raised should inform larger studies. Second, we conducted this pilot study

in a rural state with a large tribal population, which may pose challenges to generalizing these findings. However, researchers have estimated that the largest increases in hospital utilization will likely occur in states like Odisha, and we lack research on survey tools that assess health system performance in the state.[43] Third, the study was run as a hospital exit interview as opposed to a non-hospital-based setting, which is considered best practice in mitigating reporting bias.[44–46] For example, the likelihood of reporting disrespectful or abusive delivery of care in the United Republic of Tanzania increased nearly 10 percentage points in a post-discharge survey compared to an exit interview.[47] However, almost half of the women in our study had at most a primary school education, which made the enumerators administer the tool verbally. In addition, only 82.1% (416/507) of patients could provide a phone number and for 70.0% (291/416) of them, the phone belonged to a family member or neighbour. These findings reaffirmed the reliance on exit interviews as the most practical method. The limitation of using an exit interview tool motivated us to adjust for interview characteristics in one of our regression models. Finally, the sample sizes for the cognitive testing and content validity indexing are small and not necessarily representative of the final populations that would be surveyed. In our study, the sample sizes exceeded those published in the pre-testing of the Hospital Consumer Assessment of Health Providers and Systems tool in 2005 (cognitive

testing: 41 versus 50 participants; and content validity indexing: 12 versus 15 participants).

In conclusion, increased access to health care does not always guarantee better health outcomes,[48] potentially due to low-quality services.[49] Therefore, improving the quality of care is crucial, but measuring it can be challenging. Patient-reported measures offer a promising opportunity for assessment. However, without a nuanced approach to identify sources of systematic reporting error, using satisfaction ratings within value-based purchasing programmes may obscure poor-quality interpersonal care for marginalized patient populations. ■

ملخص

رضا المرضى والشراء على أساس القيمة في المستشفيات، أوديشا، الهند

الغرض فحص كيفية عمل المسح العام لرضا المرضى في العيادات الداخلية كمقياس لأداء المستشفى.

الطريقة قمنا بإجراء دراسة تجريبية مختلطة الأساليب لمسح تقييم المستهلك في المستشفيات لمقدمي الرعاية الصحية والأنظمة في أوديشا، الهند. كما قمنا بتقسيم الدراسة إلى ثلاث خطوات: الاختبار الإدراكي للمسح، واختبار العناصر مع تحليل العوامل الاستكشافية، وفهرسة صلاحية المحتوى. شمل الاختبار الإدراكي 50 مشاركًا يناقشون تفسيرهم لبنود المسح. تم بعد ذلك إجراء

المسح على 507 مريضًا بالعيادات الداخلية في خمسة مستشفيات عامة في أوديشا، وتم بعده تحليل العوامل الاستكشافية. وفي النهاية، قمنا بإجراء مقابلات شخصية مع 15 فرداً لتقييم صلاحية محتوى عناصر المسح.

النتائج كشف الاختبار الإدراكي أن ستة من أصل 18 سؤالاً من أسئلة المسح لم تكن مفهومة بشكل متسق داخل بيئة المرضى في العيادات الداخليين في أوديشا، مما يركز على المشكلات المتعلقة بمسؤوليات الرعاية. أدى تحليل عوامل الاستكشاف إلى تحديد بنية

بين تجارب الرعاية التي تخلو من الاحترام، وتقييمات الرضا، قد يكون بسبب انخفاض توقعات المرضى.

الاستنتاج إن استخدام معدلات الرضا دون اتباع أساليب دقيقة في برامج الشراء القائمة على القيمة، قد يؤدي إلى إخفاء الخدمات ذات الجودة الرديئة بين الأشخاص، وخاصة بالنسبة للمرضى المهمشين لفترات طويلة. ويجب تصميم المسوح بحيث تلتقط بدقة المستويات الحقيقية لعدم الرضا، مما يضمن عدم إخفاء مخاوف المرضى.

مكونة من ستة عوامل تشرح 66.7% من التباين. أظهرت نماذج التحوف أن الرعاية بين الأشخاص من الأطباء والممرضات كان لها ارتباط وثيق بالرضا العام. كشف تقييم عمل العناصر المتباينة أن المرضى الذين ينتمون لطبقة مهمشة اجتماعيًا أبلغوا عن رعاية أعلى تخلو من الاحترام، على الرغم من أن هذا لم يُفسّر بأنه اختلافات في الرضا المبلغ عنه. تشير فهرسة صلاحية المحتوى إلى أن الاختلاف

摘要

印度奥里萨邦医院的患者满意度情况和基于价值的购买项目

目的 研究住院患者满意度普查作为医院绩效衡量标准的表现如何。

方法 我们在印度奥里萨邦开展了一项基于混合方法的试点研究，以调查医院消费者对卫生保健提供者和系统的评价情况。我们将研究分为三个步骤：对调查的认知测试、包括探索性因素分析的项目测试和内容效度指数评估。认知测试纳入了 50 名参与者，以讨论他们对调查项目的理解。然后，我们对奥里萨邦五家公立医院的 507 名住院患者进行了调查，随后又进行了探索性因素分析。最后，我们采访对 15 人进行了，以评估调查项目的内容效度。

结果 认知测试结果显示，在针对奥里萨邦住院部的 18 个调查问题中，受访者对其中 6 个问题的理解不一致，这突出了护理责任方面存在的问题。通过探索性

因素分析，我们确立了一个，该模型解释存在 66.7% 的方差六因素结构模型。回归模型显示，医生和护士对患者的照护情况与总体满意度的相关性最强。差异项目评估结果显示，属于社会边缘化种姓群体的患者报告受到不尊重照护的情况较多，然而这并非造成所报告满意度方面差异的主要原因。内容效度指数评估表明，受到不尊重照护与满意度评分之间的不一致性可能是由于患者期望值较低造成的。

结论 针对基于价值的购买项目，使用满意度评分而不采用细致入微的评估方法，可能会掩盖低质量的患者照护情况，特别是对历史上属于边缘化群体的患者而言。调查的设计应能保证准确了解真实的不满意程度，从而确保患者的担忧不会被隐藏。

Résumé

Satisfaction des patients et achats basés sur la valeur dans les hôpitaux d'Odisha, Inde

Objectif Examiner le fonctionnement d'une enquête générale de satisfaction des patients hospitalisés en tant que mesure de la performance des hôpitaux.

Méthodes Nous avons mené une étude pilote mixte de l'enquête Hospital Consumer Assessment of Health care Providers and Systems à Odisha, en Inde. Nous avons subdivisé l'étude en trois étapes: tests cognitifs de l'enquête, test par items avec analyse factorielle exploratoire et indexation de la validité du contenu. Les tests cognitifs concernaient 50 personnes, qui ont discuté de leur interprétation des questions de l'enquête. L'enquête a ensuite été soumise à 507 patients hospitalisés dans cinq hôpitaux publics d'Odisha, puis a fait l'objet d'une analyse factorielle exploratoire. Enfin, nous avons interrogé 15 personnes pour évaluer la validité du contenu des questions de l'enquête.

Résultats Les tests cognitifs ont révélé que six des 18 questions de l'enquête n'étaient pas toujours comprises par les patients hospitalisés à Odisha, ce qui met en évidence les problèmes liés aux responsabilités en matière de soins. Une analyse factorielle exploratoire a permis d'identifier une structure à six facteurs expliquant 66,7% de la variance. Des modèles

de régression ont mis en évidence que les soins interpersonnels prodigués par des médecins et des infirmières avaient le plus grand impact sur la satisfaction globale. Une évaluation du fonctionnement différentiel des items a révélé que les patients appartenant à une caste socialement marginalisée signalaient davantage d'irrespect dans les soins, bien que cela ne se traduise pas par des différences au niveau de la satisfaction déclarée. L'indexation de la validité du contenu a suggéré que la discordance entre les expériences d'irrespect dans les soins et les évaluations de satisfaction pourrait être due à la faiblesse des attentes des patients.

Conclusion L'utilisation d'évaluations de la satisfaction sans approches nuancées dans les programmes d'achat basés sur la valeur est susceptible de masquer des services interpersonnels de mauvaise qualité, en particulier pour les patients historiquement marginalisés. Les enquêtes doivent être conçues de manière à saisir avec précision les véritables niveaux d'insatisfaction, en évitant de masquer les préoccupations des patients.

Резюме

Удовлетворенность пациентов и закупки на основе ценностей в больницах, Одиша, Индия

Цель Изучить, как общий опрос пациентов стационара с целью выявить степень удовлетворенности качеством обслуживания используется в качестве показателя эффективности работы больницы.

Методы Было проведено поисковое исследование с использованием смешанных методов в рамках опроса потребителей медицинских услуг и систем медицинского обслуживания в больницах, Одиша, Индия. Исследование было разделено на три этапа: когнитивное тестирование

опросника, тестирование элементов с помощью эксплораторного факторного анализа и определение валидности содержания. Когнитивное тестирование включало в себя обсуждение 50 участниками своей интерпретации пунктов опросника. Затем опрос был проведен среди 507 стационарных пациентов в пяти государственных больницах штата Одиша, после чего был проведен эксплораторный факторный анализ. Наконец, было проведено интервью с 15 лицами для оценки валидности содержания пунктов опроса.

Результаты Результаты когнитивного тестирования свидетельствуют о том, что шесть из 18 вопросов анкеты не всегда были понятны в условиях стационара в Одише. Это указывает на проблемы, связанные с ответственностью за уход. В результате эксплораторного факторного анализа была выявлена шестифакторная структура, объясняющая 66,7% дисперсии. Регрессионные модели показали, что межличностная забота

со стороны врачей и медсестер наиболее сильно связана с общей удовлетворенностью. Оценка дифференцированного функционирования пунктов показала, что пациенты из социально маргинализированной касты отмечали более неуважительное отношение к себе, хотя это не отражалось на различиях в показателях удовлетворенности. Проверка валидности содержания показала, что несоответствие между впечатлениями от неуважительного отношения и оценками удовлетворенности может быть связано с низкими ожиданиями пациентов.

Вывод Использование оценок удовлетворенности без учета нюансов в программах закупок, основанных на ценностях, может скрыть низкое качество межличностных услуг, особенно для исторически маргинализированных пациентов. Опросники необходимо разрабатывать таким образом, чтобы точно фиксировать истинный уровень неудовлетворенности, гарантируя, что проблемы пациентов не будут скрыты.

Resumen

Satisfacción de los pacientes y compras basadas en el valor en hospitales de Odisha (India)

Objetivo Examinar el funcionamiento de una encuesta general de satisfacción de los pacientes hospitalizados como medida de rendimiento de los hospitales.

Métodos Se realizó un estudio piloto de métodos mixtos de la encuesta de Evaluación del consumidor hospitalario sobre proveedores y sistemas de atención sanitaria en Odisha (India). Se dividió el estudio en tres pasos: prueba cognitiva de la encuesta, prueba de elementos con análisis factorial exploratorio e indexación de la validez del contenido. La prueba cognitiva consistió en que 50 participantes discutieran su interpretación de los elementos de la encuesta. A continuación, se administró la encuesta a 507 pacientes ingresados en cinco hospitales públicos de Odisha, tras lo cual se realizó un análisis factorial exploratorio. Por último, se entrevistó a 15 personas para evaluar la validez de contenido de los elementos de la encuesta.

Resultados Las pruebas cognitivas revelaron que seis de las 18 preguntas de la encuesta no se comprendían de forma coherente en el entorno hospitalario de Odisha, lo que evidenciaba problemas relacionados con las responsabilidades de la atención. El análisis factorial

exploratorio identificó una estructura de seis factores que explicaban el 66,7% de la varianza. Los modelos de regresión mostraron que la atención interpersonal por parte de médicos y personal de enfermería presentaba la mayor asociación con la satisfacción general. Una evaluación del funcionamiento diferencial de los elementos reveló que los pacientes de una casta socialmente marginada informaron de una atención más irrespetuosa, aunque esto no se reflejó en diferencias en la satisfacción declarada. La indexación de la validez de contenido sugirió que la discordancia entre las experiencias de atención irrespetuosa y los índices de satisfacción podría deberse a las bajas expectativas de los pacientes.

Conclusión El uso de índices de satisfacción sin enfoques matizados en los programas de compras basadas en el valor puede enmascarar servicios interpersonales de mala calidad, en particular para pacientes históricamente marginados. Las encuestas deben diseñarse para captar con precisión los verdaderos niveles de insatisfacción, de forma que no se oculten las preocupaciones de los pacientes.

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Multisectoral interventions and health system performance: a systematic review

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Objective To conduct a systematic review on the effects of multisectoral interventions for health on health system performance.

Methods We conducted a systematic review according to the preferred reporting items for systematic review and meta-analysis protocols. We searched for peer-reviewed journal articles in PubMed®, Scopus, Web of Science, Cumulated Index to Nursing and Allied Health Literature, and the Cochrane Database of Systematic Reviews on 31 August 2023 (updating on 28 February 2024). We removed duplicates, screened titles and abstracts, and then conducted a full-text eligibility and quality assessment.

Findings We identified an initial 1118 non-duplicate publications, 62 of which met our inclusion and exclusion criteria. The largest proportions of reviewed studies focused on multisectoral interventions directly related to specific health outcomes (66.1%; 41 studies) and/or social determinants of health (48.4%; 30 studies), but without explicit reference to overall health system performance. Most reviewed publications did not address process indicators (83.9%; 52/62) or discuss sustainability for multisectoral interventions in health (72.6%; 45/62). However, we observed that the greatest proportion (66.1%; 41/62) considered health system goals: health equity (68.3%; 28/41) and health outcomes (63.4%; 26/41). Although the greatest proportion (64.5%; 40/62) proposed mechanisms explaining how multisectoral interventions for health could lead to the intended outcomes, none used realistic evaluations to assess these.

Conclusion Our review has established that multisectoral interventions influence health system performance through immediate improvements in service delivery efficiency, readiness, acceptability and affordability. The interconnectedness of these effects demonstrates their role in addressing the complexities of modern health care.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

There is unequivocal recognition that health and well-being are determined by non-medical factors, including structural, social and commercial determinants of health.[1] Addressing those determinants is a task for actors both within and outside the health system; creating robust health systems therefore requires health system actors to engage in active collaboration, outreach and partnership with non-health sectors. Such multisectoral collaborations link the health sector with other sectors and entities wielding different forms of influence, such as financial control of integrated budgeting, or educational influences that strengthen community participation and empowerment.

Multisectoral approaches are vital for addressing health issues that extend beyond traditional sectoral boundaries, fostering cross-sectoral accountability and shared responsibility.[2] These strategies are crucial for achieving equity and the health-related United Nations sustainable development goals (SDGs).[2,3]

The terms multisectoral and intersectoral are equivalent and frequently used interchangeably, denoting collaborative partnerships across ministries, government agencies, non-governmental actors and stakeholders with common goals on specific issues. This review focuses on multisectoral action for health, which specifically refers to actions by non-health sectors that address health issues, determinants, equity or protection.[4,5] These approaches can occur in collaboration with the health sector, and be either horizontal (between health and non-health actors at the same government level) or vertical (between different government levels). Multisectoral actions are particularly crucial for promoting health amid intersecting economic, social and environmental forces.

Globally, the aim of implementing multisectoral action for health is to leverage health system-strengthening interventions; such interventions would aim to address issues that extend beyond the health system but significantly influence population health and health disparities.[5,6] Multisectoral actions are necessary to address some of those influencing factors, including poverty and equity[7] or zoonotic diseases.[8] Simultaneously, these approaches can contribute positively to health sector-specific operational issues for addressing complex health problems,[9,10] as well as enhance staff satisfaction and professional capacity in primary health care.[2]

Universal health coverage (UHC), a key SDG target, requires strong health systems to provide a broad range of health services, including preventive care and health promotion.[11] It also needs strong health governance that leverages multisectoral action to enhance access to care, promote health, prevent disease and strengthen community engagement.[2,9] For example, health actors' collaboration with transportation sectors could address accessibility issues by providing transport to health facilities.[12] Effective synergy between education and health sectors can lead to integration of health promotion into school curriculums, facilitating healthy lifestyles and better long-term health benefits for the population.[13] Collaboration between finance, social and health sectors may increase investment in health infrastructure and programmes.[14] Involving

Box 1. **Search strategy for systematic review of the effect of multisectoral interventions for health on health system performance**

Multisectoral OR intersectoral OR multisectorial OR intersectorial OR collaboration OR integration OR partnership* OR coordinat* OR "joined-up" OR synerg* "health in all polic*" OR HiAP OR HEiAP OR "healthy cit*" OR "One Health" OR "healthy public polic*" OR "national health assembly" OR "whole system approach*" OR "whole of government*" OR "whole of city" OR "whole of society" OR "health for all" OR "health in all" OR "health equity in all" OR "health impact assessment" OR HIA OR "system* change" OR "system* transformation" OR "cash transfer"

AND

"health system*" OR "health care" OR "health equity" OR "social determinant* of health" OR "commercial determinant* of health"

AND

efficiency OR responsiveness OR quality OR safety OR "risk protection" OR access* OR equit* OR morbidit* OR mortalit*

AND NOT

"inter-professional" OR "interprofessional"

various sectors in health planning, implementation and evaluation facilitates resource sharing, including funding and expertise.[14,15]

Although, to our knowledge, a synthesis of these studies has not been recently undertaken and the impact of multisectoral action on health system performance has not been analysed.

To synthesize the evidence from previous studies that have examined the effects of multisectoral actions on health system performance, we conducted a systematic review. Findings from this review will provide evidence for policy-makers to design interventions that can translate into improvements in health system performance.

Methods

Design and search strategy

Our systematic review adhered to the preferred reporting items for systematic review and meta-analysis protocols.[16] We listed our review in the International Prospective Register of Systematic Reviews (protocol ID CRD42023438975) on 3 July 2023. For this review, we adopted a broad definition of multisectoral collaboration for health, defined as "actions undertaken by non-health sectors, possibly but not necessarily in collaboration with the health sector, addressing health issues, determinants of health, health equity, or protecting the health of the population."[5]

We included peer-reviewed journal articles from PubMed®, Scopus, Web of Science, Cumulated Index to Nursing and Allied Health Literature, and the Cochrane Database of Systematic Reviews. We adopted a three-step approach to develop the final search strategies, aiming for a balance between breadth and comprehensiveness. First, we identified articles that represented good examples of multisectoral approaches for health and health system performance, governance and strengthening. These papers were identified through a structured search of the Scopus database and a manual search of cross-references cited in the articles used to prepare the review protocol. This initial step allowed precise development of specific search terms for the review. Searches were conducted with no time or language restrictions across these databases, using search terms outlined in Box 1.

Second, we searched for peer-reviewed articles from the same databases, applying a combination of keywords and terms that optimized relevant results. The initial searches were performed on 31 August 2023, and an updated search was conducted on 28 February 2024. Our search strategies encompassed all published papers until the end of February 2024. Third, we conducted a manual search of references of included papers to identify any critical additional literature.

Selection processes

We removed duplicates from search results using EndNote™ Version 20 I(Clarivate, Philadelphia, United States of America) and manually confirmed these removals. We transferred non-duplicate records to Covidence (Veritas Health Innovation, Melbourne, Australia) for screening and data management. We used a two-tiered approach for study selection, involving title and abstract screening and then full-text screening with predetermined inclusion and exclusion criteria.

Publications were reviewed if they included an assessment of multisectoral or intersectoral collaboration for health on health system performance indicators or on health system strengthening or performance; or if they evaluated the impacts of such collaborations on health systems, equity and health determinants. We considered all study designs, settings and participant types. We excluded publications that focused primarily on interprofessional collaboration in clinical care and telemedicine; that only examined collaborations within the health sector or multisectoral collaborations that did not include the health sector; that did not report any primary data; or were only published in abstract form or in conference proceedings. Two authors independently assessed titles and abstracts, and four authors (two per publication) conducted a full-text review. Disagreements were resolved through consensus and, if needed, a third reviewer.

Data collection

We extracted review data from included studies using a standardized data charting form, which included bibliographic details, study type, participant information, settings or contexts, collaboration type, evidence of impact, barriers and facilitators for implementation, and proposed mechanisms (online repository).[17] Four authors undertook data extraction, with each study evaluated by a single author. Discrepancies were resolved through discussion or moderation by a second reviewer. All data were transferred to Excel (Microsoft, Redmond, USA) for further analysis.

Quality appraisal

We assessed individual study quality using the mixed methods appraisal tool, version 2018.[18] We rated each study on a nominal scale (online repository),[19] providing a descriptive account of the quality of included studies, with difficulties resolved by another reviewer. We used two screening and five methodology questions tailored to the study design to assess the quality of each study; we tabulated assessments and considered these during analysis, interpreting study

data carefully while considering any risk of bias.

Data synthesis

We conducted a narrative synthesis of individual studies to address the review objective, summarizing study and intervention characteristics, reported effects and proposed mechanisms. Because of heterogeneity among the reviewed publications, as well as the complex nature of interventions and broad range of possible effects, we classified and reported intermediate and ultimate effects using tables, narrative descriptions and pooled data when appropriate to present the data.

Results

We identified a total of 1118 unique studies and conducted a full-text eligibility assessment of 161 studies. We excluded 99 studies following full-text assessment and based our analysis on the remaining 62 studies (Fig. 1).

We list the characteristics of the 62 reviewed studies[20–81] in Table 1 (available at: https://www.who.int/publications/journals/bulletin/) which were conducted in 30 countries across all World Health Organization (WHO) regions (Table 2). Two studies are published in languages other than English: one in Spanish[20] and one in German.[21] The publication years of the studies, spanning 2010–2023, indicate an emerging body of evidence.

We observe that the reviewed studies employed a variety of study designs, with the largest proportions using quantitative (30.6%; 19 studies), qualitative (24.2%; 15 studies) and mixed (21.0%; 13 studies) methods. A small number of publications described randomized controlled trials (RCTs), non-RCT designs and case study methods. The largest proportion of studies focused on multisectoral interventions directly related to specific health outcomes (66.1%; 41 studies) and/or social determinants of health (48.4%; 30 studies) without explicit reference to overall health system performance. We provide more details on data collection and analysis methods in Table 3.

Characteristics of multisectoral collaborations

In Table 3 we list the characteristics of the multisectoral collaborations described in the reviewed publications,

Fig. 1. **Flowchart of the selection of studies on the effects of multisectoral interventions for health on health system performance**
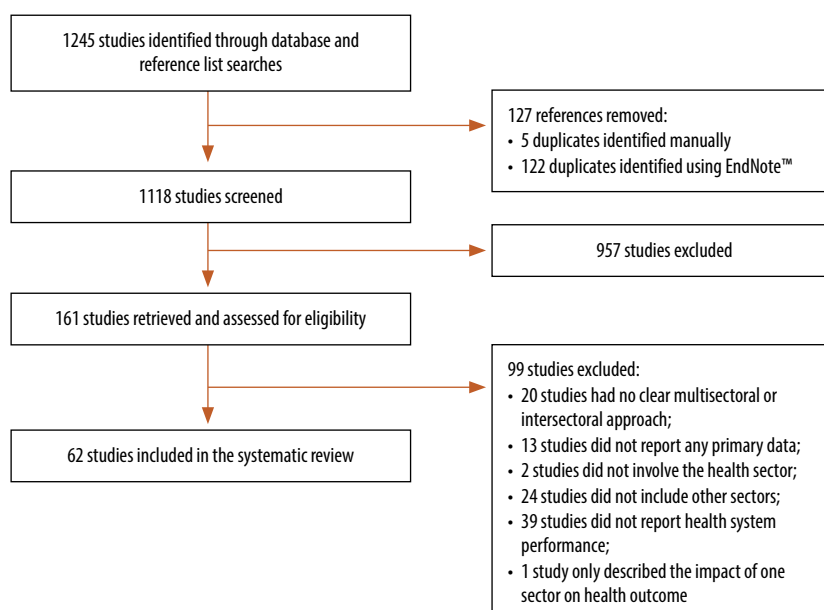
Table 2. **Distribution of studies included in a systematic review of the effect of multisectoral interventions for health on health system performance, according to WHO region and design**

Characteristics	No. of studies (%) (n = 62)
WHO region	
African Region	12 (19.4)
Region of the Americas	27 (43.5)
South-East Asia Region	7 (11.3)
European Region	6 (9.7)
Eastern Mediterranean Region	1 (1.6)
Western Pacific Region	8 (12.9)
Multiple regions	1 (1.6)
Income level (World Bank classification)	
High	22 (35.5)
Upper middle	23 (37.1)
Lower middle	5 (8.1)
Low	11 (17.7)
Multiple countries of different income levels	1 (1.6)
Primary data collection strategies[a]	
Secondary data analysis	28 (45.2)
Semi-structured or in-depth interviews	28 (45.2)
Quantitative surveys	17 (27.4)
Policy document analysis	16 (25.8)
Focus group discussion or workshop	10 (16.1)
Observation	4 (6.5)
Primary data analysis methods[a]	
Quantitative data analysis (e.g. descriptive, inferential and predictive)	32 (51.6)
Qualitative analysis (both thematic and content)	29 (46.8)
Mixed analysis	10 (16.1)
Social network analysis	3 (4.8)

WHO: World Health Organization.
[a] Some studies may have used more than one data collection or analysis method.

including types of collaboration and sector involvement. The studies reported on various key objectives of multisectoral collaborations for health, which we attempted to categorize into five themes as far as possible (Box 2); not all studies could be categorized as a single theme or, in some cases, any of the themes.

Most (83.9%; 52) of reviewed publications did not address process indicators; only 10 studies provided such descriptions. The process indicators addressed included improved access to multisector services through social protection programmes; fund transfer agreements for quality and

accountability; integrated monitoring and evaluation;[22] or the importance of strengthening relationships between government agencies to address child nutrition issues.[23] Others advocated measures of suitability of partners, functioning of the coalition, agreement about mission or perceived interpersonal relations between coalition members;[24] or the active involvement of partners.[25,40] One study proposed that a strong indicator for a successful collaboration is an increased perceived importance of intersectoral collaboration (in this case, health in all policies).[25] Other studies included other indicators: fostering collaboration among One Health stakeholders and increasing One Health advocacy activities;[33] enhancing collaboration among actors to address neglected tropical diseases and improving integrated actions;[39] improving cross-sector engagement;[41] building capacity across sectors;[53] and strengthening network relationships.[78]

A large proportion (72.6%; 45) of reviewed publications did not address or discuss sustainability for multisectoral interventions in health. Some authors proposed sustainability mechanisms, including strengthening government commitment to multisectoral approaches;[26] promoting good governance practices, community participation and capacity-building;[24,27,28] and institutionalization of the intervention with increased budget allocation from the national government.[22,29–32] Other strategies involved strengthening national ownership along with donor investment and cooperation,[33–35] sustaining network managers and public officials,[36] and promoting the involvement of volunteer labour.[37]

Effects on health system performance

Although most studies were not designed to assess the impacts of multisectoral interventions on overall health system performance, many addressed partial, more proximate components of health system functions that were perceived as directly related effects. Crucially, none of the included studies explicitly incorporated health system design (from building blocks to health outcomes) when attributing observed effects on health system performance to multisectoral collaborations. We provide a summary of the effects of multisectoral approaches on health

Table 3. **Characteristics of multisectoral collaborations described in systematic review of the effect of multisectoral interventions for health on health system performance**

Characteristic	No. of studies (%) ($n = 62$)
Type of collaboration[a]	
Joined-up government (health and non-health sectors)	10 (16.1)
Health in all policies or whole-of-government approach	7 (11.3)
Integrated health and social services (including poverty reduction)	17 (27.4)
Collaborative governance	4 (6.5)
Social determinants of health and sustainable development	8 (12.9)
Public and private partnership	4 (6.5)
Formal and informal partnership	4 (6.5)
Health impact assessment	2 (3.2)
Policy and/or community networks	1 (1.6)
Collaboration on specific issues: One Health and zoonosis	5 (8.1)
Collaboration on specific issues: maternal and child health	13 (21.0)
Collaboration on specific issues: mental health	4 (6.5)
Sector involvement[a]	
Health sector (including health facilities and providers)	62 (100.0)
Non-health government sector (e.g. education, agriculture, water and environment, social and welfare, transportation or telecommunication)	57 (91.9)
Nongovernmental organization	14 (22.6)
Informal sector	3 (4.8)
Community organization	15 (24.2)
Academia or university	8 (12.9)
International bodies	4 (6.5)
Donor agency	4 (6.5)
Private sector	4 (6.5)
Police department or security	2 (3.2)
Indicators of collaboration	
Yes	10 (16.1)
Sustainability issues	
Yes	17 (27.4)

[a] Some studies may be of more than one collaboration type; all studies involve multiple sectors.

Box 2. **Key categories of multisectoral collaborations studied in systematic review of the effect of multisectoral interventions for health on health system performance**

1. Improving cross-collaboration between ministries or government departments to enhance health, social and education services;[22,28,33,38–40]
2. promoting the effectiveness of governance;[20,33,41]
3. enhancing access to health services, population health outcomes and reducing health and/or social inequities;[21–25,32,35,36,42–64]
4. providing evidence-based strategies and policy recommendations to address social determinants of health and mutual goals across government sectors;[26,30,47,65–74] and
5. strengthening programme implementation.[29,37,47,75–81]

system performance, as described by included studies and guided by the WHO framework for health system performance assessment,[83] in Table 4. From the intermediate perspective, most studies (80.6%; 50) focused on the service delivery function of health systems or on environments that enabled access to care. We provide some examples of these effects (intermediate and final or ultimate goals) in Box 3.

Intermediate objectives

Many of the reviewed publications focused on improving access to care,[22,27,29–32,43,53,55,58,62,65,69,70,73,76–78] service delivery,[22,32,45,52,53,57,74] affordability,[27,30,57,62,67–69,76] acceptability,[30,32,56,65,69,70,77,79] and service readiness and availability.[41,45,53,59,74,79] Other indicators such as improving efficiency of services,[29] adequacy of funding,[30,57,69] and safety and quality of health services[30] were only studied in a small number of publications; cost and productivity, and administrative efficiency, were not discussed in any of the reviewed publications. The selection of short-term outcome indicators was closely related to the nature of interventions. For instance, many papers focused on conditional cash transfers with mandatory school enrolment and health attendance, allowing families to afford health services.[42–44,46,58,61,65,69] Similarly, studies addressing specific issues such as maternal and child health,[23,53,73,77] One Health or zoonotic diseases,[33,39,41,79] and mental health[71,78] contributed to health system preparedness, resulting in improved acceptability, availability and readiness. Interventions aimed at enhancing the skills of health workers in providing maternal and child services were found to improve leadership skills, fostering a more efficient and effective environment for delivering maternal health services.[53]

Reviewed publications also focused strongly on examining enabling environments for health,[26–28,30–32,35,38,40,45,48, 50,54,55,57,61,66,67,69–72,76,80,81] strengthening support systems for health[24,27,28,33,37,38,41,47,51,52,61,67,68,74–76] and community participation.[31,37–39,48,53,78,79] These studies underscored the pivotal role of non-health sectors or actors in reducing access barriers to health services and preventive health measures by tackling social determinants of health.[26,27,45,66,80] Active participation of non-health actors in

addressing health issues can provide a fertile foundation for resource sharing and health programme implementation, as seen in health preparedness for disasters.[47] Collaborations around zoonotic diseases also facilitated mutual interest across government agencies, strengthening the supportive environment for health interventions.[33] Attention to the enabling environment for health emerged as a crucial aspect, with multisectoral efforts contributing to the development of policies and frameworks that promote health and well-being.

Table 4. **Effects on health system performance noted in systematic review of multisectoral interventions for health**

Description of effects	No. of studies (%) (n = 62)
Intermediate objective: access and service delivery[a]	
Improved access to health services, such as screening for early developmental delay, preventive measures, maternal and child health services, mental health services	18 (29.0)
Improved collaboration across health services and delivery	7 (11.3)
Improved service availability and readiness for addressing zoonotic diseases, enhanced staff skills in the provision of maternal and child health, pandemic preparedness	6 (9.7)
Improved acceptability of services	8 (12.9)
Improved affordability of services	8 (12.9)
Improved adequacy of funding	3 (4.8)
Improving safety and quality of health services	1 (1.6)
Improved efficiency of service	1 (1.6)
Intermediate objective: enabling environment for promoting access to services[a]	
Improved enabling of environments for health (e.g. improved social economic conditions, improved Gini Index, school enrolments, increased productivity, stable family income, food security, addressing maternal health determinants)	25 (40.3)
Strengthening support systems for health by leveraging expertise and capacity from allied sectors, commitment from stakeholders for health, policy processes that support health	16 (25.8)
Ultimate health system goals[a]	
Improved access equity for developmental screening, other health services (tuberculosis, nutrition, vaccination, access to healthy food, social equity), addressing barriers of a low-resource setting, allowing equitable access for mental health care	28 (45.2)
Improved health outcomes such as treatment success for developmental disorders, reduced hospitalization or mortality, reduced morbidity (from malnutrition or infections, tuberculosis incidence), improved quality of life from ministerial perspective (number of disability-adjusted life years averted), maternal mortality, tuberculosis treatment compliance	26 (41.9)
Improving fair financing and financial risk protection for vulnerable populations (e.g. reducing out-of-pocket payments for rural communities)	1 (1.6)
Supporting community participation and/or capacity (e.g. for maternal and child health services, mental health care, co-design or bottom-up approaches)	8 (12.9)
Reported harms or unintended consequences such as increasing rural and urban digital health divide, reduced economic benefit from donor's perspective, bureaucratic barriers because of multiple governance levels	3 (4.8)

[a] Some studies may have more than one objective or health system goal.

Effects on ultimate health system goals

Most of the reviewed publications (66.1%; 41) considered health system goals. Of these studies, the majority focused on improving health equity (68.3%; 28) and health outcomes (63.4%; 26). A small number of studies explored patient centredness,[23,32,53,56,62,71,74,78] or fair financing or financial risk protection.[76] No studies reported on satisfaction levels for patients or health providers. The single publication addressing financial risk

Box 3. **Examples of effects of reviewed multisectoral interventions for health on intermediate and ultimate goals of health systems**

An impact evaluation of a food-assisted maternal and child health and nutrition programme (*Tubaramure*) targeting Burundian women and children found that, using language and motor developments as indicators, the first 1000 days of the programme positively affected health outcomes of children.[45]

An impact evaluation of the Nutritional Improvement for Children in Urban Chile and Kenya (NICK) intervention, involving various government agencies including health, education, water, agriculture and social development sectors, along with many local stakeholders, found that the programme reduced child stunting.[48]

An intersectoral ecosystem management intervention with and without community participation in Uruguay, involving health ministry, social development ministry, community, and local government and stakeholders, reported reduced vector densities in intervention clusters (i.e. decreased in the intervention clusters 11 times and in the control clusters only four times). The programme also promoted community acceptability and participation. A cost analysis of the programme found that the costs of the intervention activities in the scaling-up process (without community participation) were 45.6% lower compared with the estimated costs of the routine activities executed by the health ministry and the Salto municipality.[50]

The maternal and neonatal implementation for equitable system (MANIFEST) project was implemented in three rural Ugandan districts using a participatory multisectoral intervention to improve utilization of maternal and newborn services and care practices. The intervention increased: early antenatal clinic attendance by 8% and facility delivery by 7%; improved clean cord care by 20%; and delayed bathing by 8%.[53] Additionally, the project improved the birth preparedness practices and knowledge of obstetric danger signs, critical for improving maternal services utilization.[73]

A quasi-experimental study compared a group who participated in a cash transfer intervention (*Programa Bolsa Família*) with those who did not. The study found that beneficiaries had lower suicide rate than non-beneficiaries. The intervention could possibly help to prevent suicide by intervening in factors related to poverty, which can lead to suicide.[68]

An impact evaluation of household cash transfers and community cash transfers on determinants of maternal mortality in Indonesia found that community cash transfers had a more positive impact on determinants such as maternal health knowledge, financial barriers, utilization among higher-risk women, *Posyandu* (integrated health post) equipment and nutritional intake. The effects of household cash transfers were only observed in utilization of health services.[55]

protection was conducted in India, exploring the implementation of the National Rural Health Mission to address social determinants of health and strengthen health systems.[76] This case study found that the mission reduced mortality rates for both infants and mothers, bridging inequities between urban and rural settings, and decreasing out-of-pocket payments for rural communities.[76] Collaborations between health and non-health sectors play a pivotal role in promoting health and social equities. By addressing the social determinants of health, these interventions contribute to a more equitable distribution of health-care resources and outcomes. Concurrently, improvements in overall health outcomes signify the enduring success of multisectoral interventions, reflecting a holistic and sustained approach to health system performance.

Potential unintended consequences

Three studies reported potential unintended consequences from multisectoral interventions for health.[37,49,81] The implementation of digital health for all in India created barriers to accessing digital health services, particularly for people residing in rural settings and poor families,[49] further exacerbating the digital health divide between affluent and poorer areas. An economic evaluation of a social cash transfer programme in Malawi found that, although the intervention brought economic benefits from the government perspective (increased total number of averted disability-adjusted life years), it offered less economic value for donors who were more inclined to invest in disease-specific models rather than social cash transfer programmes.[81] Various governance models for multisectoral

interventions can also create confusion and bureaucratic barriers before implementation of system-wide strategies, thereby delaying well-intended health programmes.[37]

Potential mechanisms

Of the included publications, 40 studies (64.5%) proposed mechanisms explaining how multisectoral interventions for health could lead to the intended outcomes, such as improved access to health services, promotion of health equity and improved health outcomes. The reviewed publications referred to collaborative participation and engagement of various frontline actors,[23,27,28,30–32,36,37,48,50,53,56,57,59,65,66,70,71,74,76,77] collaborative leadership and governance,[22,24–29,33,35,37,40,48,57,59,76,79,80] governance arrangements,[23,27,29,33,37,39,40,54,78,79] and informed sectors or actors[26,27,37,40,71,74,75,81] as possible mechanisms. Only five publications acknowledged power dynamics or relations as having an explanatory effect.[27,32,33,40,76]

Discussion

Our systematic review contributes a comprehensive understanding of the current state of knowledge regarding multisectoral interventions and their impact on health system performance. We have described how multisectoral interventions can promote robust health system performance, yet also highlighted how many of these effects remain assumed rather than substantiated. Reviewed publications have demonstrated that multisectoral health interventions can enable integrated service models by fostering partnerships between health and non-health sectors, streamlining service delivery and enhancing coordinated care for target populations.

We identified key types of collaboration, but found little emphasis on process measures, sustainability or potential harms. We also found limited assessment of overall health system performance goals, with assumptions about generalized effectiveness and a focus on measurement of proximate and intermediate outcomes. We noted a relative emphasis on speculative mechanisms of effect, but little direct evidence.

Previous studies have provided similar descriptions of features of multisectoral interventions that enhance

acceptability and affordability of health services, such as cross-sectoral training, resource sharing and joint planning.[15] Involving non-health sectors allows for diverse community participation, addresses social determinants and financial barriers, advocates improved health outcomes and enhances the overall health system readiness to address emerging challenges.[84,85] Collaboration across sectors provides opportunities for integrated information systems, improving service delivery accuracy and efficiency for informed decision-making.[86,87] A review examining the effects of multisectoral collaboration on health and well-being also found improvements in service delivery, efficiency and effectiveness, but limited evidence for change in health outcomes.[88] Others have also speculated that by reducing barriers between health and non-health sectors, multisectoral collaborations streamline service delivery mechanisms, ensuring that resource utilization is increased and optimized.[9,10,89]

In our reviewed publications, we noted a common theme of the facilitation of community participation. Multisectoral interventions empower communities to engage in their health and well-being[85] by breaking down barriers between sectors and taking an active role in shaping their health outcomes.[90,91] This approach contributes to immediate improvements in service acceptability and fosters a sense of ownership and agency among community members. Community participation becomes a driving force behind the sustained success of multisectoral interventions, enhancing health system performance over time.[85]

Fundamental to our findings is the recognition that building a robust health system necessitates collaborative efforts that transcend traditional health sector boundaries. The inclusion of non-health sectors is paramount in driving inter-ventions that address the multifaceted determinants of health. This multisectoral approach acknowledges that health outcomes are not solely contingent upon medical interventions, but are profoundly influenced by social, economic and environmental factors.[1,84,89] Fostering partnerships between health and non-health sectors is therefore imperative for comprehensive and effective health system performance.[2,92] Consequently, our review underscores the imperative of the health sector to collaborate with diverse stakeholders, each wielding unique influence and power. For example, collaborative actions between health and education are crucial for community participation,[13] and partnerships with the social and welfare sector can address financial barriers for accessing health services.[42,43] These partnerships signal shared responsibility across sectors for promoting population health outcomes, challenging traditional silos in health interventions.[9,10,89] Multisectoral collaboration for health is essential for health system strengthening to promote health improvement and equity.[15,85]

Our systematic review has some limitations. Although the geographic diversity of included studies suggests global interest in and relevance of such interventions, the predominance of studies from high- and upper-middle-income countries raises questions about the generalizability of findings to low-resource settings, and flags a potential research gap in understanding the dynamics of these interventions in low-income countries. Additionally, because of heterogeneity in the reviewed publications, as well as the complex nature of interventions and the broad range of possible effects, pooled synthesis is not always possible.

Our review highlights significant research gaps that warrant future investigation. The paucity of studies explic-itly incorporating health system design suggests a possible conceptual gap and the need for a more holistic understanding of the effects of multisectoral collaborations on health system performance, at a range of measurement levels. Most papers lacked a systematic exploration of process indicators, and intermediate effects primarily targeted proximate outcomes. Relatively under-researched aspects of health system performance – such as cost and productivity, quality and safety, or unintended consequences – offer areas for further exploration and vigilance in response to implementation. We identified some differential effects for different actors within health systems; however, the lack of a realistic evaluation among the reviewed publications may highlight a theoretical gap in comprehensively exploring the contextual factors and mechanisms that contribute to the success or failure of multisectoral interventions.

To conclude, multisectoral interventions influence health system performance by improving service delivery efficiency, readiness, acceptability and affordability. Although multisectoral interventions for health can improve health equity and outcomes, evidence remains limited in relation to financial risk protection and satisfaction levels. The holistic benefits of these interventions underscore the essential role of multisectoral collaborations in addressing the complexities of modern health-care challenges and strengthening health systems through coordinated service delivery, healthy policies, and addressing social determinants and financial barriers. ■

Competing interests: None.

ملخص

التدخلات متعددة القطاعات وأداء النظام الصحي: مراجعة منهجية

الغرض إجراء مراجعة منهجية على آثار التدخلات الصحية متعددة القطاعات على أداء النظام الصحي.

الطريقة قمنا بإجراء مراجعة منهجية وفقاً للعناصر المفضلة لإعداد التقارير لدى بروتوكولات المراجعة المنهجية والتحليل التلوي. قمنا بالبحث عن مقالات صحفية تمت مراجعتها بواسطة الأقران في قواعد البيانات PubMed®، وScopus، وWeb of Science، وCumulated Index to Nursing (الفهرس التراكمي للتمريض)، وAllied Health Literature (المؤلفات الصحية المساعدة)، وقاعدة بيانات Cochrane للمراجعات المنهجية، في 31 أغسطس/آب 2023 (تم تحديثها في 28 فبراير/شباط 2024). وقمنا بإزالة التكرارات، والعناوين والملخصات التي تم فحصها، ثم أجرينا تقييماً لجودة النص الكامل ومدى توفر الشروط فيه.

النتائج قمنا بتحديد 1118 منشوراً أولياً غير مكرر، استوفت 62 منها معايير الإدراج والاستبعاد لدينا. ركزت النسب الأكبر من الدراسات التي تمت مراجعتها على التدخلات متعددة القطاعات المرتبطة بشكل مباشر بنتائج صحية محددة (66.1%؛ 41 دراسة)

و/أو المحددات الاجتماعية للصحة (48.4%؛ 30 دراسة)، ولكن دون إشارة صريحة إلى الأداء العام للنظام الصحي. لم تتناول معظم المنشورات التي تمت مراجعتها مؤشرات العملية (83.9%؛ 52/62)، ولم تناقش استدامة التدخلات متعددة القطاعات في الصحة (72.6%؛ 45/62). ومع ذلك، فقد لاحظنا أن النسبة الأكبر (66.1%؛ 41/62) وضعت في اعتبارها أهداف النظام الصحي: العدالة الصحية (68.3%؛ 28/41) والنتائج الصحية (63.4%؛ 41/26). وعلى الرغم من أن النسبة الأكبر (64.5%؛ 62/40) قد اقترحت آليات تشرح كيف يمكن للتدخلات الصحية متعددة القطاعات أن تؤدي إلى النتائج المنشودة، إلا أنه لم يكن من بين هذه الآليات ما يعتمد على التقييمات الواقعية لتقييم هذه النتائج.

الاستنتاج أثبتت المراجعة التي قمنا بها أن التدخلات متعددة القطاعات تؤثر على أداء النظام الصحي من خلال التحسينات الفورية في كفاءة تقديم الخدمة، ودرجة الاستعداد، ودرجة القبول، وإمكانية تحمل تكاليفها. إن الترابط الداخلي بين هذه التأثيرات يوضح دوره في معالجة تعقيدات الرعاية الصحية الحديثة.

摘要

多部门干预措施与卫生系统绩效：系统评价

目的 针对多部门卫生干预措施对卫生系统绩效的影响开展系统评价。

方法 根据适用于系统评价和荟萃分析方法的首选报告项目，我们开展了系统评价。2023 年 8 月 31 日，我们在 PubMed®、斯高帕斯 (Scopus)、Web of Science、护理和联合卫生文献累积索引 (CINAHL) 以及 Cochrane 系统评价数据库中搜索了经同行评审的期刊文章 (2024 年 2 月 28 日更新)。我们删除了重复项，筛选了标题和摘要，然后实施了全文合格性和质量评估。

结果 我们初步确定了 1,118 份不重复的期刊文章，其中有 62 份符合我们的纳入和排除标准。在接受系统评价的研究资料中，绝大部分侧重于与特定健康结果直接相关的多部门干预措施 (占 66.1%；41 项研究) 和 / 或健康社会决定因素 (占 48.4%；30 项研究)，但并

未明确提及卫生系统的总体绩效。大多数接受系统评价的期刊文章并未提及过程指标 (占 83.9%；52/62)，或未讨论多部门卫生干预措施的可持续性 (占 72.6%；45/62)。但是，据我们观察，绝大部分期刊文章考虑了卫生系统目标 (占 66.1%；41/62)：卫生公平 (占 68.3%；28/41) 和健康结果 (占 63.4%；26/41)。尽管绝大部分期文章 (占 64.5%；40/62) 建议采用解释多部门卫生干预措施如何实现预期结果的机制，但所有文章均未使用现实评估方法来评估这些机制。

结论 通过开展系统评价我们可以确定的是，多部门干预措施可立竿见影地提高服务提供效率、推动准备工作、提高可接受性和可负担性，从而影响卫生系统的绩效。这些影响的相互关联性表明了其在解决现代卫生保健复杂性方面所起的作用。

Résumé

Interventions multisectorielles et performance des systèmes de santé: revue systématique

Objectif Réaliser une revue systématique consacrée à l'impact des interventions multisectorielles sur la performance des systèmes de santé.

Méthodes Nous avons procédé à une revue systématique en appliquant les éléments de rapport privilégiés dans les protocoles de revues systématiques et méta-analyses. Nous avons exploré PubMed®, Scopus, Web of Science, Cumulated Index to Nursing and Allied Health Literature, ainsi que la Base de données Cochrane des revues systématiques le 31 août 2023 (mise à jour le 28 février 2024), à la recherche d'articles de revue évalués par des pairs. Ensuite, nous avons supprimé les doublons, passé les titres et résumés au crible, puis déterminé la qualité et l'admissibilité des articles complets.

Résultats Nous avons initialement identifié 1118 publications non dupliquées; 62 d'entre elles répondaient à nos critères d'inclusion et d'exclusion. Une grande partie des études examinées portaient sur des

interventions multisectorielles en lien direct avec des résultats de santé spécifiques (66,1%; 41 études) et/ou des déterminants sociaux de la santé (48,4%; 30 études), sans toutefois faire explicitement référence à la performance globale des systèmes de santé. La majorité des publications ne mentionnaient aucun indicateur de processus (83,9%; 52/62) et n'abordaient pas la durabilité des interventions multisectorielles dans le domaine de la santé (72,6%; 45/62). Nous avons néanmoins constaté qu'en général, elles tenaient compte des objectifs relatifs aux systèmes de santé (66,1%; 41/62): l'équité en santé (68,3%; 28/41) et les résultats de santé (63,4%; 26/41). Bien que la plupart (64,5%; 40/62) proposent des mécanismes visant à expliquer comment les interventions multisectorielles en matière de santé pourraient amener aux résultats escomptés, aucune n'avait recours à des évaluations réalistes pour les mesurer.

Conclusion Notre revue nous a permis d'établir que les interventions multisectorielles influençaient la performance des systèmes de santé à travers des améliorations immédiates en termes d'efficacité, de disponibilité, d'acceptation et d'abordabilité des prestations de services.

L'interdépendance entre ces effets témoigne de l'importance qu'ils revêtent lorsqu'il s'agit d'appréhender les rouages complexes des soins de santé modernes.

Резюме

Межотраслевые мероприятия и эффективность системы здравоохранения: систематический обзор

Цель Провести систематический обзор влияния межотраслевых мероприятий в области здравоохранения на эффективность системы здравоохранения.

Методы В соответствии с предпочтительными пунктами отчетности для протоколов систематических обзоров и метаанализов был проведен систематический обзор. По состоянию на 31 августа 2023 года (обновление на 28 февраля 2024 года) был проведен поиск рецензируемых журнальных статей в базах данных PubMed®, Scopus, Web of Science, Cumulated Index to Nursing and Allied Health Literature и Cochrane Database of Systematic Reviews. Были удалены дубликаты, проверены названия и резюме статей, а затем была проведена полнотекстовая оценка приемлемости и качества.

Результаты Было обнаружено 1118 недублированных публикаций, 62 из которых соответствовали критериям включения и исключения. Наибольшая часть рассмотренных исследований была посвящена межотраслевым мероприятиям, непосредственно связанным с конкретными результатами мероприятий по охране здоровья (66,1%; 41 исследование) и/или социальными детерминантами здоровья (48,4%; 30 исследований), но без прямого указания на общую эффективность системы

здравоохранения. В большинстве изученных публикаций не рассматривались показатели процесса (83,9%; 52/62) и не обсуждалась долгосрочная перспектива воздействия межотраслевых мероприятий в сфере здравоохранения (72,6%; 45/62). Однако в наибольшей доле (66,1%; 41/62) из них рассматривались цели системы здравоохранения: обеспечение равенства в вопросах здравоохранения (68,3%; 28/41) и результаты мероприятий по охране здоровья (63,4%; 26/41). Хотя в наибольшей степени (64,5%; 40/62) были предложены механизмы, объясняющие, как межотраслевые мероприятия в сфере здравоохранения могут привести к достижению намеченных результатов, ни в одном из них не использовались реалистичные оценки для их анализа.

Вывод Результаты обзора свидетельствуют о том, что межотраслевые мероприятия влияют на эффективность системы здравоохранения путем непосредственного повышения эффективности предоставления услуг, готовности, приемлемости и доступности. Взаимосвязь этих эффектов свидетельствует об их роли в решении сложных проблем современного здравоохранения.

Resumen

Intervenciones multisectoriales y rendimiento del sistema sanitario: una revisión sistemática

Objetivo Realizar una revisión sistemática sobre los efectos de las intervenciones multisectoriales en favor de la salud sobre el rendimiento de los sistemas sanitarios.

Métodos Se realizó una revisión sistemática de acuerdo con los ítems de informe preferidos para los protocolos de revisión sistemática y metanálisis. Se realizaron búsquedas de artículos de revistas con revisión por pares en PubMed®, Scopus, Web of Science, Cumulated Index to Nursing and Allied Health Literature y la Base de Datos Cochrane de Revisiones Sistemáticas el 31 de agosto de 2023 (actualización el 28 de febrero de 2024). Se eliminaron los duplicados, se examinaron los títulos y los resúmenes y, a continuación, se realizó una evaluación de la elegibilidad y la calidad del texto completo.

Resultados Se identificaron 1118 publicaciones iniciales no duplicadas, 62 de las cuales cumplían los criterios de inclusión y exclusión. El mayor porcentaje de estudios revisados se centró en intervenciones multisectoriales directamente relacionadas con resultados sanitarios específicos (66,1%; 41 estudios) o determinantes sociales de la salud

(48,4%; 30 estudios), pero sin referencia explícita al rendimiento general del sistema sanitario. La mayoría de las publicaciones revisadas no abordaron indicadores de proceso (83,9%; 52/62) ni discutieron la sostenibilidad de las intervenciones multisectoriales en salud (72,6%; 45/62). Sin embargo, se observó que el mayor porcentaje (66,1%; 41/62) tenía en cuenta los objetivos del sistema sanitario: equidad sanitaria (68,3%; 28/41) y resultados sanitarios (63,4%; 26/41). Aunque el mayor porcentaje (64,5%; 40/62) propuso mecanismos que explicaban cómo las intervenciones multisectoriales para la salud podían conseguir los resultados previstos, ninguno empleó evaluaciones realistas para evaluarlos.

Conclusión La revisión que se realizó ha demostrado que las intervenciones multisectoriales influyen en el rendimiento de los sistemas sanitarios a través de mejoras inmediatas en la eficiencia, la disponibilidad, la aceptabilidad y la asequibilidad de la prestación de servicios. La interconexión de estos efectos demuestra su función a la hora de abordar las complejidades de la atención sanitaria moderna.

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Health system performance assessment and reforms, Oman

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Problem To prioritize key areas of action and investment for the next strategic cycle of national development plans (2026–2031) in Oman, we needed a holistic view of the country's health system and its main deficiencies and inefficiencies.

Approach Informed by the World Health Organization framework, our team of seven national health ministry staff and two international experts conducted a rapid health system performance assessment. We used already available data to identify system bottlenecks and their potential root causes, verifying our findings with key informant interviews.

Local setting Oman's 4.9 million population is relatively young (average age 28 years) but ageing, with a mounting burden of chronic diseases. While health-care services are free for Omani nationals, more than 1.5 million expatriates rely on out-of-pocket payments for health-care services. Strengthening primary health care, improving the quality of care, providing financial protection, and ensuring that public and private health-care providers operate within the same legal and procedural framework are recognized as key national priorities.

Relevant changes Our assessment highlighted the need to extend health service coverage to the whole population, strengthen private health-care sector governance, improve health education, increase financial investment, and expand the country's capacity for data collection and analysis.

Lessons learnt The assessment framework allowed us to identify areas where information is lacking and use already available data to analyse multiple health outcomes. As well as identifying issues that need to be addressed during the next policy development cycle, our findings have contributed towards the preparation of a more extensive assessment.

Abstracts in عربي, 中文, Français, Русский and Español at the end of each article.

Introduction

Health systems are constantly changing; regular wide-ranging assessments of their performance help to identify and adjust priorities,[1,2] and inform actions for their robust and resilient transformation. Originally developed by the World Health Organization (WHO)[3] for this purpose, the health system performance assessment framework becomes an effective tool when combined with policy-cycle and strategic health system development plans.[3]

As part of Oman Vision 2040, the health ministry formulates the design and aims of the country's health system and submits these for consideration to the Oman 2040 Committee for inclusion in the successive 5-year national development plans.[4] The Cabinet of Ministers of Oman initiated the development of the next 5-year cycle for the period 2026–2031 in January 2023 by requesting its health ministry to report on the performance of Oman's health system by April 2023. This performance report enabled the identification of health system investment needs and guided preliminary discussion to develop goals and priorities for 2026–2031.

Here we report on the application and use of the health system performance assessment tool for the first time in Oman, with the specific aim of informing and focusing the planning of reforms in the health sector.

Local setting

The population of Oman was 4.9 million in 2023.[5,6] The population is relatively young (with an average age of 28 years) but is ageing.[5–7] Population growth is slowing[6,8] and the burden of noncommunicable diseases (e.g. diabetes) is increasing.[7] Omani nationals have access to health care from publicly owned health-care service providers. More than 1.5 million expatriates rely on out-of-pocket payments for their health-care needs. Continuous strengthening of primary health care (e.g. by increasing the number of health-care facilities and appropriately trained and funded staff); improving the quality of health care (e.g. developing and updating treatment guidelines); providing financial protection; and ensuring that public and private health-care service providers operate within the same legal and procedural framework are recognized as key national priorities.[9]

Approach

We chose the health system performance assessment framework published by WHO in 2022[10] to guide an assessment of the performance of the Omani health system. This WHO framework helps us to review health system functions and subfunctions, understand their interactions, and evaluate their impact on health system intermediate and final outcomes – including the collection and analysis of necessary data – in a systematic manner. Considering the deadline, the health ministry formed a small team to conduct a rapid health system performance assessment using only already available data.

Members of the national assessment team included seven health ministry staff members qualified in a range of individual health system (sub)functions – namely governance, financing, human resources, specialized and primary care

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> **Box 1.Summary of main lessons learnt**
>
> Use of a rapid health system performance assessment framework in Oman:
>
> - enabled us to obtain a holistic view of health system processes and outcomes, necessary for the identification of inefficiencies, restrictions, delays and gaps in data (e.g. a lack of information about private health-care providers);
> - allowed significant insights and benefits despite being conducted using modest resources and data already available; and
> - not only identified issues to be considered during the next 5-year policy development cycle in Oman, but also informed the preparation of a more extensive health system performance assessment.

service delivery, and pharmaceuticals – and in the integration of these (sub) functions into a national health system. We compiled data describing these individual health system (sub)functions and on intermediate and final outcomes from readily available national[5] and international databases.[7,11,12] The national assessment team was then joined by two international experts with experience in both the development and application of health system performance assessment frameworks. Our extended team (national and international members) collaborated in the integration of preliminary findings, the identification of data gaps and the collection of such additional data (especially on health system outcomes), the clarification of main findings and the identification of priority areas of action.

We conducted a stepwise analysis to assess the performance of the health system. Beginning with available data to obtain an overview of results across indicators, we conducted consecutive rounds of analysis where the health outcome findings (e.g. low life expectancy) are verified or their potential factors (e.g. low vaccine coverage, high obesity prevalence or poor accessibility of primary health care) are investigated further with additional data (combinations) or analytical approaches. Such an approach helps to identify the root causes (i.e. healthcare practices that can be introduced, extended or improved) of health system bottlenecks (i.e. deficiencies, inefficiencies, restrictions and delays), essential for achieving universal health coverage and improved health security. We then verified our initial identification of such root causes by interviewing key informants, such as health ministry advisors. We conducted 10 such interviews during the assessment process, predominantly with health ministry staff members who were not involved in the assessment process.

The cost of conducting the rapid health system performance assessment was around 40 000 United States dollars, including material, lodging and the time of national and international expertise. Our health system performance assessment culminated with the presentation of our report[9] to the health ministry leadership and participation in discussions of our findings. The health ministry then submitted our report, with recommendations for policy action, to the Cabinet of Ministers.

Relevant changes

Our rapid health system performance assessment identified several changes that should be incorporated within the health system goals and priorities for the next 5-year development plan; several areas of health-care provision and governance should be strengthened, and additional financial investment is required.

First, health coverage needs to be extended to cover all expatriates so that the entire population is protected against health-related financial risks, ensuring a healthy population and workforce. Second, the health ministry should strengthen the governance of private health-care providers (e.g. by reviewing legislation to ensure health system rules apply to the private sector, and creating enforcement mechanisms to ensure the application of these rules), and ensure that they meet the same quality-of-care and operational standards as the public health-care sector. Third, progress towards services focused on primary health care needs to be invigorated by reviewing and updating the country model of care for more effective and efficient service delivery. Fourth, education to promote health (e.g. nutrition) and the prevention of noncommunicable diseases needs to be improved and better integrated into primary and community health care to

reduce the load on secondary and more specialized health care. Fifth, financial investment into areas such as maternal and child health and vaccination should be increased to overcome gradual stagnation of outcomes in this area (e.g. there was only a minor improvement in infant mortality from 10.1 to 9.5 per 1000 live births during 2010–2020)[5–7]. Sixth, the governance and organization of health-care service providers should be reviewed and updated to improve the quality of care as well as increase the efficiency of resource use. Finally, because gaps in available data need to be addressed before a more extensive performance assessment can be conducted, finance to extend data collection and to ensure data quality and analytical capacity is essential.

Lessons learnt

We present a summary of the main lessons learnt during this rapid health system performance assessment process in Box 1.

Using such an analytical performance assessment framework enabled us to obtain a holistic view of health system inputs, processes, outputs and outcomes, essential for the identification of bottlenecks in the provision of population-wide health care. For example, the assessment highlighted that the health ministry has little information on the activities and quality of private health-care service providers, demonstrating a lack of effective governance of this sector. Such knowledge deficiencies can mean that problems are not identified and corrective actions are not instigated.

Assessing the performance of a health system creates a high demand for data that few countries could fully meet using routine data collection methods. However, use of the WHO framework for assessing performance allows many common health indicators to provide information about multiple health outcomes. For example, during our rapid assessment we used data describing maternal mortality to gain information on health outcomes, quality of care and the performance of health system functions.

Finally, as well as identifying health-care issues that need to be incorporated within the next 5-year policy development cycle, our rapid assessment has assisted in the preparation for a more extensive health system performance assessment. With

the guidance of WHO to ensure impartiality, the health ministry plans to conduct a comprehensive assessment with a larger team that includes representatives from institutions other than the Omani health ministry, and to conduct public consultations on our findings. ■

Competing interests: KK was part of the secretariat that coordinated the development of the WHO HSPA framework.

ملخص

تقييم أداء النظام الصحي والإصلاحات فيه، عُمان

المشكلة حتى نقوم بتحديد الأولوية في مجالات العمل والاستثمار الرئيسية للدورة الاستراتيجية التالية لخطط التنمية الوطنية (2026 إلى 2031) في عُمان، كانت هناك حاجة إلى رؤية شاملة للنظام الصحي في الدولة، فضلاً عن أوجه القصور ونقاط الضعف الرئيسية فيه.

الأسلوب قام فريقنا المكون من سبعة موظفين وطنيين بوزارة الصحة، فضلاً عن اثنين من الخبراء الدوليين، بإجراء تقييم سريع لأداء النظام الصحي، وذلك في ضوء إطار العمل بمنظمة الصحة العالمية. قمنا باستغلال البيانات المتاحة بالفعل لتحديد أزمات النظام وأسبابها الجذرية المحتملة، كما قمنا بالتحقق من النتائج لدينا من خلال المقابلات الشخصية مع مصادر المعلومات الرئيسيين.

المواقع المحلية إن سكان عُمان البالغ عددهم 4.9 مليون نسمة هم من الشباب نسبياً (متوسط العمر 28 عاماً)، ولكنهم يعانون من التدهور الصحي بسبب العبء المتزايد للأمراض المزمنة. وبينما تتوفر خدمات الرعاية الصحية العامة للمواطنين العُمانيين دون مقابل، إلا إن 1.5 مليون وافد يحصلون على خدمات الرعاية الصحية على نفقتهم الخاصة. إن دعم الرعاية الصحية الأولية، وتحسين جودة الرعاية، وتقديم الحماية المالية، وضمان قيام مقدمي الرعاية الصحية في القطاعين العام والخاص بالتشغيل ضمن نفس الإطار القانوني والإجرائي، يتم اعتبارها جميعاً بمثابة أولويات وطنية رئيسية.

التغيّرات ذات الصلة التقييم الخاص بنا سلّط الضوء على الحاجة إلى توسيع نطاق تغطية الخدمات الصحية لتشمل جميع السكان، ودعم إدارة قطاع الرعاية الصحية الخاص، وتحسين الوعي الصحي، وزيادة الاستشارات المالية، وتوسيع قدرة الدولة على جمع البيانات وتحليلها.

الدروس المستفادة سمح لنا إطار عمل التقييم بتحديد المجالات التي تفتقر إلى المعلومات، وبالتالي استخدام البيانات المتاحة بالفعل لتحليل النتائج الصحية المتعددة. وفضلاً عن تحديد المشكلات التي تحتاج إلى التعامل معها خلال دورة تطوير السياسات التالية، فقد أسهمت النتائج لدينا في إعداد تقييم أكثر شمولاً.

摘要

阿曼的卫生系统绩效评估和改革情况

问题 为了确定阿曼在国家发展计划下一个战略周期（2026 至 2031 年）中采取关键行动和选择主要投资领域的优先次序，我们需要全面了解该国的卫生系统及其存在的主要缺陷和效率低下的情况。

方法 在世界卫生组织框架的指导下，我们组成了一支包含 7 名国家卫生部工作人员和 2 名国际专家的团队，并对卫生系统绩效进行了一次简短评估。我们使用已有数据来识别系统瓶颈及其潜在的根本原因，并通过与主要知情者的访谈来验证我们的发现。

当地状况 阿曼 490 万人口的结构相对年轻（平均年龄为 28 岁），但正在老龄化，且慢性病负担日益加重。虽然阿曼公民可以享受免费的医疗保健服务，但该国 150 多万外籍人士需要自行承担医疗保健服务相关费用。加强初级卫生保健工作、提高保健服务质量、提供财政保护以及确保公共和私人医疗保健提供者在同一法律和程序框架内提供服务，被认为是国家的主要优先事项。

相关变化 我们的评估结果显示，有必要将卫生服务覆盖范围扩大到全民、加强对私营医疗保健部门的治理、改善健康教育工作、增加财政投入，并提升国家的数据收集和分析能力。

经验教训 评估框架使我们能够识别缺乏信息的领域，并使用已有数据来分析多种健康结果。除了确定在下一个政策制定周期中需要解决的问题外，我们的研究结果还有助于筹备更广泛的评估工作。

Résumé

Évaluation des performances du système de santé et réformes, Oman

Problème Afin de hiérarchiser les domaines d'action et d'investissement clés pour le prochain cycle stratégique des plans de développement nationaux (2026-2031) à Oman, une vision globale du système de santé du pays et de ses principales faiblesses et inefficacités était nécessaire.

Approche S'inspirant du cadre de l'Organisation mondiale de la santé, notre équipe, composée de sept membres du personnel du ministère de la Santé et de deux experts internationaux, a procédé à une évaluation rapide de la performance du système de santé. Nous avons utilisé les

données déjà disponibles pour identifier les goulets d'étranglement du système et leurs éventuelles causes premières, et nous avons vérifié nos conclusions à l'aide d'entretiens avec des informateurs clés.

Environnement local La population d'Oman, qui compte 4,9 millions d'habitants, est relativement jeune (l'âge moyen est de 28 ans), mais vieillissante, et le fardeau des maladies chroniques s'alourdit. Alors que les services de santé publique sont gratuits pour les Omanais, plus de 1,5 million d'expatriés paient directement leurs soins de santé. Le renforcement des soins de santé primaires, l'amélioration de la qualité des soins, l'offre d'une protection financière et la garantie que les prestataires de soins de santé publics et privés opèrent dans le même cadre juridique et procédural sont reconnus comme des priorités nationales essentielles.

Changements significatifs Notre évaluation a mis en évidence la nécessité d'étendre la couverture des services de santé à l'ensemble de la population, de renforcer la gouvernance du secteur des soins de santé privés, d'améliorer l'éducation à la santé, d'accroître les investissements financiers et de développer les capacités du pays en matière de collecte et d'analyse des données.

Leçons tirées Le cadre d'évaluation nous a permis d'identifier les domaines où des informations font défaut et d'utiliser les données déjà disponibles pour analyser plusieurs résultats en matière de santé. Outre l'identification des questions à traiter lors du prochain cycle d'élaboration des politiques, nos conclusions ont contribué à la préparation d'une évaluation plus approfondie.

Резюме

Реформы и оценка эффективности системы здравоохранения, Оман

Проблема Чтобы определить приоритетные направления деятельности и инвестиций для следующего стратегического цикла национальных планов развития (2026–2031 гг.) в Омане, требовалось получить целостное представление о системе здравоохранения страны и ее основных недостатках и аспектах неэффективности.

Подход Опираясь на систему Всемирной организации здравоохранения, команда из семи сотрудников национальных министерств здравоохранения и двух международных экспертов провела экспресс-оценку эффективности системы здравоохранения. Для выявления слабых мест в системе и их возможных коренных причин использовались доступные данные, а полученные результаты проверялись в ходе интервью с ключевыми информаторами.

Местные условия Население Омана, насчитывающее 4,9 миллиона человек, относительно молодое (средний возраст 28 лет), но стареющее, с растущим бременем хронических заболеваний. Хотя услуги здравоохранения для граждан Омана бесплатны, более чем 1,5 миллиона иностранных граждан, проживающих в

этой стране, приходится платить за медицинское обслуживание из собственного кармана. Укрепление первичной медико-санитарной помощи, повышение качества медицинской помощи, обеспечение финансовой защиты, а также обеспечение функционирования государственных и частных медицинских учреждений в единых правовых и процедурных рамках признаны ключевыми национальными приоритетами.

Осуществленные перемены В ходе оценки была отмечена необходимость расширения охвата населения медицинскими услугами, усиления управления частным сектором здравоохранения, улучшения медицинского образования, увеличения финансовых инвестиций и расширения возможностей страны по сбору и анализу данных.

Выводы Система оценки позволила выявить недостаток информации и использовать доступные данные для анализа множества результатов мероприятий по охране здоровья. Помимо выявления вопросов, которые необходимо решить в ходе следующего цикла разработки политики, полученные результаты способствовали подготовке более обширной оценки

Resumen

Evaluación y reformas del sistema sanitario en Omán

Situación Para priorizar las áreas clave de intervención e inversión para el próximo ciclo estratégico de planes nacionales de desarrollo (2026-2031) en Omán, necesitábamos una visión holística del sistema sanitario del país y de sus principales deficiencias e ineficiencias.

Enfoque Teniendo en cuenta el marco de la Organización Mundial de la Salud, nuestro equipo, formado por siete funcionarios de los ministerios de sanidad nacionales y dos expertos internacionales, realizó una evaluación rápida del funcionamiento del sistema sanitario. Utilizamos los datos ya disponibles para identificar los obstáculos del sistema y sus posibles causas, y verificamos nuestros resultados con entrevistas a informantes clave.

Marco regional La población de Omán, de 4,9 millones de habitantes, es relativamente joven (edad media: 28 años) pero está envejeciendo, con una carga creciente de enfermedades crónicas. Mientras que los servicios sanitarios son gratuitos para los ciudadanos omaníes, más de 1,5 millones de expatriados pagan de su bolsillo los servicios sanitarios. El fortalecimiento de la atención primaria, la mejora de la calidad de la atención, la protección financiera y la garantía de que los proveedores

de atención sanitaria públicos y privados operan dentro del mismo marco legal y de procedimiento se reconocen como prioridades nacionales clave.

Cambios importantes Nuestra evaluación destacó la necesidad de ampliar la cobertura de los servicios sanitarios a toda la población, reforzar la gobernanza del sector sanitario privado, mejorar la educación sanitaria, aumentar la inversión financiera y ampliar la capacidad de recopilación y análisis de datos del país.

Lecciones aprendidas El marco de evaluación nos ha permitido identificar las áreas en las que falta información y utilizar los datos ya disponibles para analizar múltiples resultados sanitarios. Además de identificar cuestiones que deben abordarse durante el próximo ciclo de elaboración de políticas, nuestros resultados han contribuido a la preparación de una evaluación más amplia.

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Health system evaluation: new options, opportunities and limits

Kevin Croke,[a] Edwine Barasa[b] & Margaret E Kruk[a]

High-quality evaluation is critical for health systems because it enables the best use of scarce resources and helps policy-makers learn what works best in their setting. What works cannot be assumed: since health systems are complex, system reforms have long causal chains and multiple interacting components. Many promising health system interventions, even those that increase intervention coverage, fail to improve health outcomes such as mortality and morbidity. However, many health system reforms, especially in low- and middle-income countries, are never evaluated due to data limitations and scarce resources for health systems research.

Counterfactual-based designs (that is, evaluations in which research design enables inference about the causal impact of a policy) are challenging to implement for health system reforms. Reforms are often applied to the whole system, leaving no obvious control group, or are assigned to high-level administrative units, limiting the number of treated and comparison units. Reforms may be targeted to areas or groups for political reasons, limiting ability to randomize and constraining generalizability. Many researchers have seen these challenges as reasons why rigorous evaluations of complex health system reforms are unlikely to succeed, promoting instead realist designs rooted in largely qualitative methods. While these methods have important strengths, recent innovations in evaluation methods, approach and data have also opened new possibilities for health system evaluation. These innovations include large-scale randomized health system trials, causal inference methods for better non-randomized inference and new technologies for data collection and analysis, including big data. These applications, which have emerged from disparate academic disciplines and from practice, may not be fully appreciated by applied health systems researchers.

A first innovation is the growing application of randomized controlled trials to system questions. Randomization has often been considered infeasible for health system questions. For example, a study shows that 79% (139/176) of intervention evaluation papers in top medical, economics, and health services journals in the United States of America were randomized controlled trials, compared to fewer than one fifth of health delivery (that is, health system) papers.[1] However, use of randomized designs for health system evaluation in low- and middle-income countries is increasing. Recent examples include evaluations of performance-based financing in Nigeria;[2] subsidized health insurance in Indonesia;[3] community health worker recruitment and supply chain organization for medicine delivery in Zambia;[4,5] and point-of-care quality interventions in northern India.[6] Beyond maximizing internal validity, randomized controlled trials also allow researchers to test causal mechanisms, including predictions derived from theory. Direct tests of theory can enable systematic, linked accumulation of knowledge on important questions. These studies have had important implications for practice, for example by limiting enthusiasm about the potential of performance-based financing or coaching interventions to improve quality of care. In the absence of high-quality randomized evidence, advocates on opposing sides might have continued to cite competing non-randomized studies. Randomization can be difficult for political and practical reasons. Yet these proofs by existence demonstrate that large-scale, system-level randomized controlled trials should not be considered impossible beforehand, particularly when governments and/or sponsors are keen to learn and engage early in the process.

When randomization is not possible, rigorous evaluations of health system reforms with careful attention to counterfactual comparison has become increasingly feasible using methods such as difference-in-difference or regression discontinuity designs. Application of these methods has been hindered in the past by limited data availability. Yet the data picture has changed for the better in many low- and middle-income countries. Household surveys such as the Demographic and Health Surveys have expanded their topical and geographic coverage, and are now routinely geocoded. When multiple national survey rounds take place before and after programme scale-up, difference-in-difference research designs can often be used to estimate the impact of policy. Administrative data from vital registration systems, national health management information systems or national insurance programme claims data, long used in high-income countries, are increasingly usable for such research in middle-income countries. Brazil provides several examples: one study uses the staggered expansion of Brazil's *Programa Saúde da Família* in a difference-in-difference framework to demonstrate that the programme substantially reduced infant and maternal mortality.[7] By contrast, and using similar data and methods, another study shows that the *Mais Medicos* programme, in which expatriate doctors were deployed to underserved communities in Brazil, did not affect infant mortality.[8]

This approach has been more limited in regions that lack comprehensive vital registration. In these settings, administrative data-based evaluations are often limited to utilization data, aggregated on the platform of the health management information system DHIS2. These data systems have faced challenges with data quality as well as completeness. Health management information system data capture what happens in facilities, missing outcomes (including mortality) that occur at home, and typically do not capture individual-level data. Yet even with these limitations, these data have been increasingly leveraged in stud-

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ies for which service utilization is the primary outcome. For example, these data have been used to demonstrate the impact of the coronavirus disease 2019 (COVID-19) pandemic on health system utilization.[9]

These challenges of data completeness and quality have generated enthusiasm about potential uses of technology, including big data, to enable more health system evaluation, including in settings with limited administrative data. Experience so far demonstrates promise but also grounds for caution. On the positive side, digital technologies have been used to improve surveys, digitize routine data collection, expand demographic surveillance systems and integrate remotely sensed data. Mass mobile phone ownership has opened new possibilities for mobile data collection in low- and middle-income countries: during COVID-19, many researchers and institutions successfully implemented mobile phone data collection protocols. For example, recent multicountry mobile phone surveys have effectively captured health system performance data in low-income countries.[10] Digital technologies have also enabled expansion of health and demographic sentinel sites to nationally representative scale in some settings, such as Mozambique's countrywide mortality surveillance for action system. New digital platforms, such as the socioeconomic high-resolution rural-urban geographic platform for India,[11] can now aggregate surveys, geospatial data and geographically coded administrative data.

Larger scale applications of big data (beyond survey and administrative data) have been creatively leveraged for some forms of health research in low- and middle-income countries. Mobile phone call data records have been used to study population movement, informing disease transmission dynamics. Social media posts have been used to predict disease outbreaks. Researchers have envisioned a future in which passively collected health status measures from wearable devices, or health utilization from facility-based sensors, via the Internet of Things, can be used for evaluation. In development economics, researchers increasingly benefit from the fact that variables of interest such as night-time luminosity, housing infrastructure, temperature, pollution or land use are now observed at high frequency and resolution by satellites or other remote sensing apparatuses. Researchers train machine learning algorithms to measure poverty based on these observations, opening scope for new forms of economic and social policy evaluation.

Yet application of these data sources to health system policy evaluations in low- and middle-income countries is still nascent. Many public health applications of big data are used for mapping or prediction, which is extremely useful but distinct from policy evaluation. Key health outcomes of interest such as service utilization, health status, financial risk protection or population attitudes cannot be measured by satellites or other remote sensing tools. The same incomplete electrification and digitization of health facilities that currently limits evaluation designs using DHIS2 are likely to render big data from wearables and facility-based sensors unreliable for national-scale health system evaluation studies. New technologies can generate data with greater temporal and spatial coverage. However, they do not solve the health system evaluation problem because even when data is abundant, strong research designs remain critical. New data sources open promising areas for health systems evaluation, but they cannot substitute for careful research design. Effective health system inquiry requires robust theoretical frameworks, supported by improvements in underlying administrative and vital registration data systems.

New approaches must also be rooted in an appreciation of the practicalities of policy change. Evaluation strategies must be compatible with a plausible theory of how organizations (including governments) learn, and how they make policy decisions.[12] Health policy rarely changes based only on evidence. Policy evolves over time as competing coalitions of experts, politicians and stakeholders push for their preferred solutions. Evidence is only one input into this mix, along with values, public opinion, interest group pressure, previous studies, and ideological and intellectual predispositions of policy-makers. Policy-makers' willingness to change their minds based on new evidence may be as much a function of the strength of their relationship and the depth of their trust with researchers, as it is with the technical rigour of the evidence.

Together with improved data and evaluation methods, investment is needed in the institutions that implement high-quality evaluations and participate in ongoing policy dialogues about the future of the health system. These institutions comprise the health research and policy community in low- and middle-income countries, including academia, think tanks, research units embedded in ministries and evidence-oriented nongovernmental organizations. These organizations are also the natural constituency to press governments to invest their own resources in better statistical systems, including both routine and survey data, which will enable better evaluation on an ongoing basis. Institutionalization of this process is not just a key ingredient in policy translation: it can also help strengthen the sustainability of evaluation and health system learning over time. ■

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Performance assessment to improve public health systems

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Public health systems are under pressure, especially from the increase in noncommunicable diseases, rising health disparities as well as the coronavirus disease 2019 (COVID-19) pandemic.[1] As unresolved health issues eventually put a burden on the health system, preventing disease is clearly a better approach than curing it. Moreover, while health at the individual and population level holds intrinsic value, it is also indispensable for proper societal and economic functioning. Health is a key production factor that needs to be valued in the same way as human and financial capital.[2] However, while scientists, policy-makers and health workers acknowledge that prevention is better than cure, the dominant focus of health systems is on curing disease,[3] as evidenced, for instance, by the small share of health expenses allocated to prevention.

Health systems are insufficiently equipped to deal with the pressure. Hence, focusing on strengthening public health systems through concerted actions by citizens, policy-makers and the global health community is needed. A key tool in achieving this objective is health system performance assessment, as it provides a systematic method to uncover the strengths and weaknesses of the health system.

In this article, we outline the potential and challenges of applying the Health System Performance Assessment Framework for Universal Health Coverage to public health systems.[4] We start with conceptual issues, then showcase how a version of the assessment has been applied to assessing public health systems in nine jurisdictions, and conclude with a selection of lessons drawn from the study as well as on ways in which the assessment can be made more applicable to public health systems.

The assessment is a new framework that illustrates the relationship between the performance of health system functions and the intermediate objectives and final goals of the health system.[4] The health system functions are: governance, resource generation, financing and service delivery, where service delivery is split into three components: public health, primary health care and specialized care.

While the position of public health within the assessment's framework is clear, it struggles with the scope and boundaries of public health. Taking a common definition of public health as a starting point in the assessment (improving health, prolonging life and improving the quality of life among whole populations),[4] it becomes clear that public health can be viewed narrowly, as the delivery of preventive services (such as vaccinations and health education) or broadly, as anything that promotes and protects health (such as labour laws and sewage systems). Moreover, differentiating public health from primary care is inherently difficult, as primary health care workers may be the ones who are delivering public health services.

The assessment clarifies that improving health is a central goal of any health system. However, large-scale improvements in health often stem from outside the health system.[5] This challenge is compounded by the realization within the public health community that many contemporary impediments to public health stem from commercial interests.[6] For example, tobacco and ultra-processed food, as well as the social media and gambling sectors, among many others, benefit from (over) consumption of health-harming goods or services. Once disease is present, pharmaceutical, medical technology and related firms benefit from treating avoidable diseases. Such diseases could, therefore, generate dual financial benefits for private parties. Public health policy that can robustly regulate and

eventually eliminate these private business models would contribute to a societal business model, as healthier citizens are more productive both economically and socially.

In addition, climate change is increasingly putting a burden on public health around the world.[7] Heat-related deaths of individuals aged 65 years and older have increased by about 85% between 2004 and 2022, which is more than twice the increase that was expected if temperatures had not increased.[7] Yet the assessment does not consider measures taken to either mitigate climate change or adjust to it.

Therefore, having included public health in the assessment is positive as it relates to many determinants of health outside the health-care system, but the breadth of its definition is insufficiently complete. Indeed, if it is defined too narrowly, some of the largest contributions to health improvement such as sanitation and food safety are left out of scope. However, if the public health system is defined too broadly, an assessment of its performance becomes increasingly difficult.

Application of the assessment

A recent study provides a first application of the public health system performance assessment in nine jurisdictions (Australia, British Columbia [Canada], Chile, Denmark, England [United Kingdom of Great Britain and Northern Ireland], Italy, Latvia, Kingdom of the Netherlands and Singapore).[8] These jurisdictions were selected based on guidance from the European Observatory on Health Systems and Policies, which involved consulting experts in health systems as well as looking at geographical spread and health-care system characteristics. Moreover, because the lessons drawn from the assessment

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were aimed at supporting advice on strengthening the Dutch public health system, the jurisdictions needed to be comparable to the Dutch system.[9] One of the study's shortcomings is that only relatively high-income countries were covered – and therefore their public health challenges may not reflect those of low- and middle-income countries.

The researchers took a broader view of public health than that in the assessment, in the sense that public health was not seen only as a means of service delivery. The researchers also considered the governance, resource generation, financing and service delivery of the public health system. To limit the scope of the study, and considering available resources and time, six tracer themes were identified as focal points of the assessment: urban planning, particulate matter disposal, human-papillomavirus vaccination, influenza management, mental health services and child screening services.

Between November 2021 and March 2022, two health system experts for each of the nine jurisdictions completed a questionnaire. Before distributing the questionnaires, a scoping review of scientific and grey literature was performed to pre-fill the questionnaires, allowing the local health system experts to focus on reviewing large parts of the questionnaire instead of completing the entire questionnaire. The researchers supplemented the information from the scoping review in combination with the input of the experts with indicators from, among others, the World Bank, the World Health Organization and the Organisation for Co-operation and Economic Development.

The outcome of the study highlighted the difficulty of providing a consistent scope of public health systems.[10] Indeed, while most jurisdictions have stated public health goals, some countries have specific subgoals. Italy, for instance, has an explicit focus on food safety; while Chile, England, Latvia and Kingdom of the Netherlands have goals focused on decreasing health disparities; and Australia and British Columbia have specific goals regarding indigenous populations.

Moreover, the study revealed differences in governance structures as well as resource generation, financing and service delivery. The governance of the public health system is generally outlined in one or more public health acts, especially for larger jurisdictions' responsibilities, which are often divided across multiple levels of government. An element of shared responsibilities and resources across different policy domains is also often present.

Lessons learnt

This article does not intend to detail the various findings; rather, it presents the two key lessons drawn from the assessment.

First, while many rules and regulations are in place to govern public health, politicians at the national, regional and local levels are not held accountable if health goals are not met. Health goals are aspirational but not targets such as those set for public finances (such as fiscal debt and deficit rules)[11] or the environment (such as emission targets). Hence, a key strategy to strengthen public health systems is to assign accountability for policy actions as well as outcomes.[12]

Second, funding for prevention should be seen as an investment in future health and not as a budgeted expense. Financing of public health is inherently different from health care, since usually medical services are budgeted to reduce short-term increases in costs as much as possible. However, doing so is counterproductive for preventive interventions as they are not primarily aimed at reducing costs but at enhancing health.[3]

The way forward

In this article, we have outlined the role that performance assessment can play in strengthening public health systems by providing a systematic method of assessing the strengths and weaknesses of public health systems. In doing so, we have also suggested some directions towards which the assessment can be developed further. Indeed, scholars applying the assessment will have to consider whether the place of public health in the current assessment, as a means towards service delivery, properly reflects the broad role that public health policy can potentially play in improving health and reducing disparities. Embedding the interaction between public health and commercial determinants of health, as well as climate change, more closely in the assessment will also be important. While lessons could be drawn from the nine jurisdictions in which the assessment was applied – especially regarding accountability and the investment nature of prevention – moving forward, pursuing an assessment of public health systems across a much broader range of jurisdictions will be needed. Although doing so poses many difficulties, such broader application can contribute to strengthening public health systems, considering the challenges posed by communicable and noncommunicable diseases as well as the large socioeconomic health disparities worldwide. ■

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How health systems contribute to societal goals

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Traditionally, health system performance assessments have focused on evaluating the health system itself, with less concern about the broader impacts of improved population health beyond the sector. However, in today's interconnected world, health is intricately linked with the environment, sociocultural dynamics, geopolitics and the economy, among others. These interconnections highlight the need for health system performance assessments to recognize that achieving health goals can also contribute to broader societal objectives, including population well-being, economic development, environmental sustainability and social cohesion.

Recent health policy discussions have explored, for example, the environmental footprint of health systems, the effects of social factors such as loneliness on well-being, the breakdown of trust in politicians during events such as the coronavirus disease 2019 (COVID-19) pandemic, and the economic implications of mental health on employment and poverty status. These discussions underline that health systems are responsible for providing health services and have a pivotal role in the improvement of people's health, promotion of overall well-being, happiness and productivity.

To better understand the contribution of health systems to broader societal well-being, such goals need to be adequately conceptualized and measured. Well-being is not captured by standard economic measures such as gross domestic product (GDP), which primarily focus on economic growth and fail to reflect income distribution, sustainability practices, non-market transactions and health and education outcomes, many of which contribute to societal well-being. Newer, more holistic measurement approaches to well-being, for example the Organisation for Economic Co-operation and Development's (OECD) well-being framework,[1] attempt to quantify well-being through various factors such as health, education, employment, housing, security, gender equality and social connections.

In this article, we conceptualize societal well-being from the perspective of the health system's contribution to it. We break down well-being into three societal goals – social cohesion, environmental sustainability and economic development (Fig. 1). The health system contributes to these objectives through actions that primarily serve to achieve its own goals such as improving population health, equity, people-centredness or resilience. Therefore, achieving health system goals leads to considerable contributions to societal goals.

Conceptualizing societal well-being

Societal well-being represents an aggregate measure of societal (or the population's) overall quality of and satisfaction in life, encapsulating emotional, environmental, social and economic dimensions. Health systems contribute value to people's lives and thus contribute to well-being – for example through curative care but also through preventive and promotive services, through public health functions and through various other actions it undertakes, such as community engagement.

Those services and actions aim to ensure good health, including mental health, which has been consistently identified as an important contributor to both individual and population (societal) well-being.[1]

Social cohesion

Social cohesion is the bond that holds a society together, manifesting in trust, solidarity and a collective commitment to shared values and objectives.[2,3] The health system fosters social cohesion by ensuring equitable access to health care,

involving communities in health initiatives, reducing health disparities and promoting inclusivity – key aspects of people-centred care. The health system goals of people-centredness and equity promote trustworthiness.[3] By building trust that the necessary care will be readily available for everyone, a sense of fairness and social responsibility is created in the community, leading to stronger social cohesion. For example, community health initiatives that involve participatory approaches for health promotion and disease prevention can enhance community ties and mutual support, leading to better health outcomes and lower mortality rates over time.[4] Social cohesion also contributes to local community development, which often depends on a community's ability to agree on common goods to be created for the benefit of its community members.[2] More specifically, inclusive community health initiatives involve members of vulnerable and marginalized groups in the planning and implementation of health strategies with aims for eliminating discrimination, reducing income inequality, reducing barriers and ensuring equal access to health care.

Economic development

This societal goal encompasses processes that enhance living standards, create jobs and spur innovation – elements that standard economic metrics fail to capture. This dimension is vital for providing necessary resources for health and improving overall quality of life. The health system contributes to economic development through maintaining a healthy workforce, reducing absenteeism and burnout, promoting productivity and addressing health inequities to enable full economic participation. Notably, with a healthy workforce, the health sector's proportion of GDP for OECD countries was reported at around 9.2% in 2022,[5] representing a significant share of the economy. A health system

goal of financial protection helps to protect individuals from catastrophic health expenditures through mechanisms such as prepayment and pooled resources, which protects them from falling into poverty due to health-care costs. This protection is linked to economic development as it helps to ensure productivity and economic contributions are maintained without the financial burden of health expenses. Consequently, a health system goal of health improvement (that is, a healthier workforce) boosts overall economic productivity and growth. The health sector's growth has implications for the overall economic health of nations, especially given its size and expansion rate. Before the COVID-19 pandemic, the health sector was expanding more rapidly than the overall economy in OECD countries, causing the health share of GDP to increase nearly 1% in the years 2000–2018. This translated to current health spending sharply increasing, indicating a substantial increase in the financial resources dedicated to health care.[6] Additionally, by addressing health inequities, marginalized and vulnerable members of the community can participate more fully in the economy. In essence, the health system acts as a recipient of economic resources and as an active player in shaping the economic landscape, fostering a resilient economy that underpins societal well-being.

Environmental sustainability

Environmental sustainability describes responsible interactions with the planet to preserve its resources. Climate change is expected to considerably influence health system usage and the need for service transformation, as the health sector's negative impact on the ecological footprint is now recognized. In 2019, a study estimated that, if health care were a country, it would be the fifth largest emitter of carbon emissions worldwide.[7] As a result, health system contributions to environmental

Fig. 1. **The goals of societal well-being**
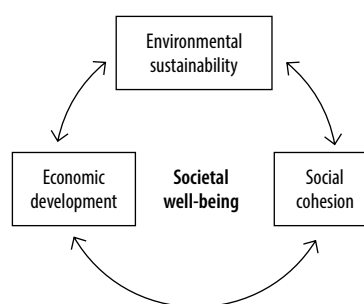
sustainability have begun through the optimization of health service resources, as well as greening initiatives that reduce its carbon footprint and other environmental impacts. Additionally, the health system has adapted services and structures to better respond to emerging climate-related issues such as an increased number of catastrophic events or vector-borne diseases.[8] The health system goal of efficiency is a means of contributing to environmental sustainability through ongoing efforts to optimize resource use, reduce waste and adapt to the changing needs of a population in climate crises, to provide care more efficiently. The sustainable management of our environment is thus not an isolated endeavour but is intrinsically linked to our societal well-being, economic development and the pursuit of social cohesion.

Intersections

Every goal within society, while significant on its own in the context of health system performance, does not encompass or support alone the complex needs of society. For instance, the attainment of social cohesion hinges upon a foundation of trust and solidarity, prompting a community to embrace behaviours that promote health and solidarity,[9] which in turn lay the groundwork for economic growth. Rather, social cohesion acts

as a precursor for economic development.[10] Social solidarity plays an important role in the beliefs and attitudes around climate mitigation strategies or conservation efforts.[11] Environmental sustainability requires collective, community action. The intricate relationship between social and environmental factors underscores the need for a holistic approach. Achieving equity necessitates active participation, a core principle of environmental justice movements.[12] Engaging people, communities and civil society in decision-making fosters fairness and strengthens social cohesion and sustainability.[13] Equity comprises both distributive justice and procedural justice facets within a society, emphasizing the interconnectedness of social and environmental well-being. More broadly, these three goals relate to societal well-being as a proxy measure of quality of life within a resilient and healthy community.

In conclusion, health policy-makers evaluating their system's performance should recognize that achieving certain health system goals can considerably enhance overall societal well-being. In this article, we make an initial effort to advance the discussion on this important topic. ■

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Analysis of health system characteristics needed before performance assessment

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To assess the performance of a health system, understanding its structures and functions is necessary. This understanding requires an in-depth description and analysis of the health system, which can be facilitated using standardized assessment templates. While many national and international actors work on health systems strengthening, they often struggle to find reliable systematic information on the design and functioning of a health system. At the same time, national policy-makers might seek to learn from experiences from other systems and contexts, but do not always find comparable information on other countries' health systems. Using a standardized guide or template when describing and assessing how a health system functions can support cross-country comparisons because the structured nature of a template simplifies the extraction of comparable information.[1,2] Several international agencies, including the World Health Organization (WHO), the Organisation for Economic Co-operation and Development (OECD), the United States Agency for International Development (USAID), the European Union (EU) and the Commonwealth Fund have developed such templates. We have reviewed 12 of these templates (Waitzberg R, Berlin University of Technology, unpublished material, 2024) and believe that there is much scope for improvement and harmonization (Box 1). Templates were defined as having an overall framework, a list of indicators or topics and instructions for users, while covering the entire health system and the design of the health system, as well as including an assessment of health system performance.

Information gaps

While the structures and processes of health systems differ across countries, all perform the same essential functions of governance; health financing; ensuring the availability of medical products, vaccines and technologies; generating relevant health information; creating and sustaining a health workforce; and providing health services.[17] Policy-makers, advisors and researchers can learn much from deep, systematic descriptions of these functions and use them to interpret the results of health system performance assessments. Templates that guide authors on how to fully describe health systems should cover all these essential functions.

While existing templates cover some functions, they do not cover all of them. For example, health financing is always covered, and service delivery, health workforce and governance are frequently covered, albeit sometimes under different labels. However, health information systems and medical products are often missing. Similarly, the way health system performance is addressed in existing templates is incomplete as it is frequently assessed regarding access and coverage, quality and safety and financial protection, but less often with regard to responsiveness and efficiency.

Yet, these topics are important and should be better explored across all countries and thus covered in all templates. For example, the lack of attention to health information systems is surprising, given their central role in generating data that can be used to describe and steer health systems.[18,19] While measuring the performance of

health systems in achieving their goals is challenging, it should form an integral part of descriptions and analyses of health systems. Health systems aim to improve efficiency and responsiveness, and these objectives therefore deserve more attention in health system templates. International organizations could join forces and create a unified template where they agree on core indicators and core topics to be covered, as well as the main methods of data collection. Such a publication could, for example, build on the collaboration between WHO, OECD and the European Observatory on Health Systems and Policies' *Health system performance assessment: a renewed global framework for policy-making*.[20]

Health systems indicators

Various agencies have developed core health indicators to describe the functions and assess the performance of health systems. For example, the WHO Regional Office for the Eastern Mediterranean has 84 core health indicators;[21] the EU has more than 60 core health indicators;[22] WHO has proposed 17 core indicators for monitoring building blocks;[16] and the global Health Systems Performance Assessment dashboard has 24 key indicators for two functions and two goals of the health system.[23] While all templates suggest that users describe systems with various indicators (on average 53 indicators per template), only 11 indicators are used in at least half of the templates and can be considered frequently used (Pfundstein ID, University Geriatric Medicine FELIX PLATTER, unpublished material, 2024). A more standardized list of core indicators for templates would be useful.

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Box 1. **Templates found in a 2023 scoping review**

1. A common evaluation framework for the African Health Initiative (2013).[3]

2. Commonwealth Fund health profiles (2020).[4]

3. African Health Observatory Platform on Health Systems and Policies Country Health Systems and Service Profile: An overview (2020).[5]

4. European Observatory on Health Systems and Policies - Health Systems in Transition template for authors (2019).[6]

5. Health Systems in Action insights. European Observatory on Health Systems and Policies (2021).[7]

6. Monitoring Framework for Universal Health in the Americas, Pan American Health Organization (2021).[8]

7. OECD health systems characteristics survey, Latin American Countries (2018).[9,10]

8. Pan American Health Organization/WHO/USAID Health Systems Country Profiles 1999–2009.[11]

9. State of Health in the EU – country health profiles (2019).[12,13]

10. USAID UHC Monitoring Framework with Ethiopia country report as a case study (2017).[14]

11. USAID's health system assessment approach: a how-to manual, version 3.0 (2017).[15]

12. Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies (2010).[16]

EU: European Union; OECD: Organisation for Economic Co-operation and Development; WHO: World Health Organization; UHC: Universal Health Coverage; USAID: United States Agency for International Development.

Source: Waitzberg R, Berlin University of Technology, unpublished material, 2024.

We searched for the availability of the 11 indicators in 125 countries in the WHO regions of the Americas, Eastern Mediterranean and Europe in 2000–2023, resulting in a total of 1375 indicators. About 80% (1099) of frequently used indicators in templates were available. However, many important indicators are less available.[11] Indicators on service delivery are missing in many templates, which can be explained by the lack of these data in international databases, such as in the WHO African Region.[24] Therefore, building an evidence base on the functioning and performance of health systems worldwide requires greater efforts to promote data availability for a standardized set of indicators.

Accounting for contextual differences

Different world regions struggle with different problems, both external and internal to the health system, including different economic, geographic and political contexts, population structures and burdens of disease. Some health systems face difficulties related to crowded cities, while others struggle to reach remote areas. Different health systems cope with varying degrees of fragmentation in the organization or delivery of care, different roles of private provision or funding, different patient pathways, and different responsibilities and remits of health workers.

Health system analyses must consider these contextual differences, for example by including in templates optional topics or indicators that may be more relevant to some countries than others. Furthermore, templates may recommend different sources of data for the same indicators. For example, high-income countries tend to have more data on routine health service utilization and data from civil registration systems, while low- and middle-income countries tend to have data for similar indicators from population or facility surveys.

The need for qualitative data

A comprehensive health system analysis and comparison requires a combination of quantitative indicators complemented with systematic qualitative information that captures non-measurable characteristics. For example, qualitative information adds value on the degree of decentralization of service delivery, the governance of providers, the payment methods used and the skills of health workers. Qualitative information is particularly suitable to capture processes, changes and outcomes, while an (over-) reliance on quantitative indicators may result in comparisons limited to quantifiable parameters. Recent work focusing on health system performance suggests combining quantitative with qualitative data to enrich assessments.[1,25]

Conclusion

Achieving comparable, standardized information on health system structures, processes and outcomes at the global level requires templates with greater standardization and better harmonization of indicators, and a greater availability of health system data. Such templates would allow the systematic analysis of health system functions, and make the results of health system performance assessments more useful to policy-makers and researchers. The resulting in-depth understanding of health systems is crucial for efforts to strengthen health systems because in complex adaptive systems, changes to one function will have implications for all other functions. ∎

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Policy questions as a guide for health systems' performance comparisons

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Researchers and policy-makers have long compared health system performance.[1,2] International comparisons raise awareness of health systems' relative strengths and shortcomings, prompting policy debates and informing policy decisions. Yet determining how these international comparisons can be used to improve health system performance is challenging. Health systems can differ in many ways, including how they are governed, how they are funded, how they generate and deploy resources, and how they deliver services.[3,4] While the international health community widely agrees that these functions influence health system performance,[5] understanding of how much they matter, which ones matter most and how they are affected by the context in which they operate remains limited. To gain relevant and meaningful insights from health systems comparisons that offer lessons for policy, we must agree on how to compare health systems. In this article, we argue that doing so requires collecting better, more granular data on a broad range of health system characteristics and using those data to choose the most appropriate health system comparators.

How are health systems compared?

Comparisons are often made between health systems that are deemed to share similar characteristics such as geographical location, historical legacy, income level, type of financing and public sector values. The desire to compare similar systems could stem from the idea that if health systems differ in too many ways, attributing any one characteristic to variations in performance would be challenging. Moreover, borrowing policy options from a health system that shares few common traits with that of its intended recipient is unlikely to lead to similar outcomes and may have unintended consequences. However, finding new solutions to complex problems is difficult if we only compare systems that approach their challenges in similar ways, while comparing health systems that differ markedly from one another in their design may bring important insights. Such comparisons among health systems with different design features could help policy-makers gauge if certain institutional features are consistently associated with better outcomes, and help to develop a broader evidence base for reform.[6,7]

Whether the aim is to compare similar systems or to compare health systems with different design features to each other, we need conceptual clarity on how to categorize or classify health systems to inform the selection of relevant comparators. Despite recognition of the multiple ways in which health systems differ, only a few broad categorizations used in comparative research exist. Too often, international health systems are categorized based on an oversimplified typology, either as social health insurance or as tax-financed system. These types are known as Bismarck and Beveridge, respectively (Otto von Bismarck instituted the first social health insurance model in Germany in 1883. William Beveridge established the national health service in the United Kingdom of Great Britain and Northern Ireland in 1948). While this typology may have been relevant historically to describe different ideologies for health system designs in the first half of the 20th century, it has become less meaningful over time. For example, to expand population coverage, many traditional social health insurance systems now use funds generated from general taxation to cover uninsured groups (such as the unemployed) who are unable to pay social insurance contributions. This results in social health insurance systems becoming increasingly dependent on general tax financing, blurring the distinction between Beveridge and Bismarck typology. As an illustration, while the Health Insurance Institute of Slovenia receives more than 95% of its annual funding from social insurance contributions, Hungary's National Health Insurance Fund is largely financed by general taxation. Moreover, as health system comparisons increasingly include countries that do not share inherited features, this taxonomy has proven difficult to apply.

This point is further demonstrated in Table 1. Systems that are often described as Bismarck or Beveridge differ with regards to several other characteristics such as the way they pay providers, whether they have gatekeeping, how they incentivize quality and whether they use health technology assessments.

Choice of comparators

Health systems are currently facing many challenges such as ageing populations and increasing multimorbidity; finding new ways to pay for expensive breakthrough treatments; and the increasing frequency of global threats to population health, such as pandemics and climate change. Governments approach these problems in different ways. For example, to incentivize better care for an older and unhealthier population, numerous governments are experimenting with innovating payment and delivery models in primary and secondary care. To address concerns about the costs and utilization of new technologies, many governments have introduced regulatory bodies that review and assess the effectiveness and

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Table 1. **Sample of health system characteristics for selected OECD countries**

Country	Typology	Predominant form of hospital payment	Direct access to specialist care	Financial incentives to providers to enhance quality of care	Use of health technology assessment to inform coverage of medicines
France	Social health insurance (Bismarck)	Diagnosis-related group	Limited	Yes	Systematically used
Germany	Social health insurance (Bismarck)	Diagnosis-related group	Yes	No	Systematically used
Italy	Tax-financed system (Beveridge)	Diagnosis-related group	Limited	No	Used in some circumstances
Kingdom of the Netherlands	Social health insurance (Bismarck)	Diagnosis-related group	Limited	Some	Systematically used
Republic of Korea	Social health insurance (Bismarck)	Fee-for-service	Limited	Yes	Systematically used
Spain	Tax-financed system (Beveridge)	Global budget	Limited	Yes	Systematically used
Sweden	Tax-financed system (Beveridge)	Global budget	Yes	Yes	Systematically used
United Kingdom	Tax-financed system (Beveridge)	Budget and diagnosis-related group	No	Yes	Used in some circumstances

OECD: Organisation for Economic Co-operation and Development.
Source: OECD Health Statistics, 2024.[8]

sometimes cost-effectiveness of new technologies. During the coronavirus disease 2019 (COVID-19) pandemic, governments took varied approaches to prevent the spread of the virus, protect the health system from surges of demand, and incentivize rapid deployment of vaccines and treatments.

Do different approaches to common problems have differential effects on health system performance? And do some countries implement specific policies more effectively than others? Cross-country comparisons can help to answer these questions. However, to make the best use of comparative analysis, researchers need to select the adequate comparator countries. Policy-makers also have a range of priorities that may require different comparators depending on the question being asked. Choosing the most appropriate comparator countries for a particular policy question requires data on all essential functions of health systems. That is, distinguishing between systems based on whether they are Beveridge or Bismarck is not appropriate to inform all comparative health policy questions.

Conceptual tools and data

Any attempts to group health systems are only as good as the available data, agreed-on definitions underpinning these data, and approach taken to clustering. Groupings that are too broad risk masking complexity and variation between systems, while too much detail on variation in characteristics may result in health systems appearing to have no peers, reducing the scope for cross-country learning. The challenge lies in finding the optimal balance to ensure comparisons are meaningful, valid and policy relevant.

Much development in the conceptual and data tools to construct health system typologies has occurred in the past few decades. Information on health system inputs, such as expenditures by type and function or numbers of beds and doctors, has become increasingly harmonized and readily available through large intergovernmental organizations including the World Health Organization (WHO), the World Bank and the Organisation for Economic Co-operation and Development (OECD). This information has also begun to be supplemented with additional qualitative and survey data that consider how these inputs are used to meet health systems objectives, through initiatives such as the European Observatory's Health System in Transition profiles, the OECD's Health System Characteristics Survey and the WHO Health Financing Progress Matrix.[9–11] These tools can help us group countries based on questions such as how health-care providers are recruited and trained, what processes are in place for ensuring minimum quality standards and what care similar patients are entitled to across countries, among others.

The demand for more evidence on the effects of public health policy on outcomes during the COVID-19 pandemic further catalysed data collection in this area. Multiple data sets were created to capture information on policies adopted by countries to combat the spread of the virus, such as the Blavatnik School of Government's Oxford COVID-19 Government Response Tracker,[12] a tool numerously cited in studies comparing the effectiveness of different national COVID-19 response tools. This example alone serves to highlight the vast demand for new information that can be used to classify health systems and compare policy responses across countries. As information capturing differences in how health systems work becomes more widely available, more must be done to better understand the variability in these characteristics and their association with performance.

Conclusion

Health systems across the globe face major common challenges including demographic pressures, funding constraints, workforce gaps and rising inequalities. International comparisons can and should help policy-makers by

providing much-needed information on which policies and design features can be most effective at addressing these challenges. But too often comparative analyses fail to provide meaningful information to inform policy; sometimes they can even confuse or mislead. We believe part of the problem lies in how we categorize health systems. When simple constructs are used to group countries, we risk obscuring the mechanisms and design features that are most relevant and responsible for variations in performance. Hence comparisons are needed that cluster and compare specific, policy-modifiable aspects of health systems – such as their governance, financing, the generation and deployment of resources, and the design of care delivery – aspects that are identified based on the policy question. More targeted classifications can further research, practice and policy by using more granular, internationally comparable available data that allow for asking better questions, learning from one another and informing reform options. ∎

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The *Support tool to strengthen health information systems* provides guidance for health information systems (HIS) assessment and strategy development and is used by the World Health Organization (WHO) to provide support to Member States to strengthen their HISs. The tool was first published in 2015, and an updated version was published in 2021. This current edition contains refined assessment methodology for the core module and four new add-on modules – emergency response information management system, geographic information system, long-term care, and migration health data.

The tool has two main parts: guidance for performing an assessment of a full HIS and guidance for the subsequent development of an HIS strategy. The assessment methodology aims to achieve a good balance between data collection and actual data use, and reflects the growing importance of electronic health records and other digital solutions. Based on the outcomes of the assessment, the tool describes a stepwise and practical approach for HIS strategy development.

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Theme issue: approaches to health system performance assessment