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Message from Dr Poonam Khetrapal Singh, WHO Regional Director for South-East Asia, on International Universal Health Coverage Day (12 December 2020)

Today, the world marks the third International Universal Health Coverage Day and the first during a global pandemic. The theme of this year’s event – “Health for all: protect everyone” – highlights the critical link between universal health coverage (UHC) and health security, and the urgent need for sustained investments in health systems oriented towards primary health care (PHC). Globally, at least half of the world’s population still do not have full coverage of essential health services. Around 930 million people spend at least 10% of their household budget to pay for health care. In the World Health Organization (WHO) South-East Asia Region, an estimated 60 million people are pushed into poverty on account of health spending, most of which goes towards medicines. Since 2014, achieving UHC has been one of the region’s flagship priorities, with a focus on enhancing primary-level care by increasing access to medicines and strengthening the health workforce.

Against the backdrop of a global pandemic that has caused disease, death and disruption, the case for UHC is clearer than ever. Strong and equitable health systems that leave no one behind create populations that are healthier, more productive and financially secure. Resilient health systems are the bedrock of emergency preparedness and response, and they ensure that when acute events do occur essential services can be maintained – one of the region’s key points of focus throughout the pandemic. Countries that prioritize public health and take a health in all policies approach can more easily mobilize the multisectoral buy-in required to address cross-cutting issues such as antimicrobial resistance, climate change and food safety. Investing in health system resilience to achieve UHC is not only moral but also critical for inclusive and sustainable economic development. It cannot afford to wait.

The region has in recent years made steady advances towards UHC. Trend data from this year’s annual progress report show that countries have continued to improve service coverage, which is now, on average, above 61%, compared with 47% a decade ago. Nine countries have surpassed the first WHO health workforce density threshold of 22.8 doctors, nurses and midwives per 10 000 population, compared with six in 2014. All countries have taken concerted action to strengthen the delivery of noncommunicable disease services at the primary level, in line with the region’s 2016 Colombo Declaration. However, although public spending on health increased on average by more than 23% between 2009 and 2018, most countries must invest substantially more to reduce out-of-pocket and catastrophic health expenditure. It can – and must – be done.

Throughout the coronavirus disease 2019 (COVID-19) response, Member States’ focus on maintaining essential health services has demonstrated the critical importance of investing in PHC-oriented health systems. In ordinary times, every dollar invested in health yields an average return of between US$ 2 and US$ 4, and the figure can be up to 20 times higher in lower- and middle-income countries. The WHO-supported Global Preparedness Monitoring Board estimates that it would take 500 years to spend as much on preparedness – including by investing in health systems strengthening – as the world is losing as a result of the impact of COVID-19. The pandemic has highlighted that economic health is dependent on public health, which in turn is dependent on adequate public spending on health. Amid the complex recovery that will follow, this lesson cannot be forgotten.

Crucially, we must not only mobilize additional funds but also ensure that those funds are spent wisely and efficiently. On 14 December 2020, to mark the 2-year anniversary of the Declaration of Astana, WHO launched its Operational framework for primary health care: transforming vision into action. The framework was adopted at this year’s World Health Assembly and comprises a series of evidence-based strategic and operational levers that countries can draw on and invest in to strengthen primary care services. The framework highlights the critical need for countries to focus action on the primary level as part of a whole-of-society approach to maximizing health and well-being. It puts special emphasis on driving multisectoral action and empowering people and communities, which have been central to the pandemic response and will facilitate the equitable and efficient deployment of COVID-19 vaccines.

Although much about the “new normal” will be temporary, some aspects must outlive the present crisis and become permanent features of the political, social and economic landscape. The primacy of public health in policy-making must be one such aspect, reflected in increased public investments in health even amid tough fiscal pressures. WHO will continue to support all countries of the region to achieve that outcome and to make rapid and sustained progress towards UHC, the region’s flagship priorities and Sustainable Development Goal 3. Together, we must achieve health for all, to protect everyone – our lives, livelihoods and futures depend on it.

Poonam Khetrapal Singh
WHO Regional Director for South-East Asia
Foreword

This supplement to the WHO South-East Asia Journal of Public Health marks International Universal Health Coverage Day 2020. The theme of the day is “Health for all: protect everyone” and the slogan is “To end this crisis and build a safer and healthier future, we must invest in health systems that protect us all – now”. The issue makes an important contribution by documenting good practices during the coronavirus disease 2019 (COVID-19) pandemic to inform a practical way forward on building back better in relation to primary health care (PHC) for universal health coverage (UHC).

COVID-19 has changed public health and health development in a fundamental and irrevocable way. In the past 12 months, the pandemic has stretched the limits of health systems in the World Health Organization (WHO) South-East Asia Region, as in all other regions. In addition, as reported by the Member States, most have also seen significant disruption of essential services across programmes. Furthermore, the impact of COVID-19 on the global economy has been unprecedented, making the overall context for recovery even more challenging.

Countries made significant efforts to meet these challenges within and beyond health, and will continue to do so in the next stage of the pandemic response – vaccine roll-out. There are valuable lessons to be learned here, which relate to the building blocks of health systems: the vital role of human resources for health; the importance of continued focus on access to affordable medicines as central to service delivery; in the wake of the economic crisis, the critical importance of public investment in public health; the potential for telehealth to improve access to services; and the significance of governance in relation to, for example, ensuring health worker security, engaging communities and the private sector, and ensuring equitable access to vaccines, as encapsulated by the COVID-19 vaccine global access initiative COVAX. The service delivery section of this issue looks at the specific experiences of major WHO South-East Asia Region programmes: reproductive, maternal, newborn, child and adolescent health, immunization and vaccines development, noncommunicable diseases and emergencies.

The COVID-19 experience in South-East Asia Region countries reinforces the importance of PHC. In fact, it validates the endorsement of the WHO Operational framework for primary health care: transforming vision into action by Member States at the 73rd World Health Assembly as guidance on PHC-centred systems strengthening for UHC.

Support to countries on the pandemic and on accelerating progress towards UHC and achieving the Sustainable Development Goals will remain a priority for WHO’s work in the region in 2021. By bringing together the region’s experiences during the COVID-19 pandemic, across programmes and system areas and in relation to the future of PHC, this issue makes a useful contribution to the knowledge base on the “how” of the operational framework.

Manoj Jhalani
Director, Department of Universal Health Coverage, Health Systems and Life Course
WHO Regional Office for South-East Asia
12 December 2020
The significance of primary health care for building back better: lessons from COVID-19

The coronavirus disease 2019 (COVID-19) pandemic, with its overlapping public health and economic emergencies, is a global reminder of the importance of addressing social and environmental determinants of health and inequality, and investing in health systems oriented towards primary care, all of which are components of a primary health care (PHC) approach.

PHC – the importance of which was famously articulated in the Declaration of Alma-Ata in 1978 and reaffirmed at the 2018 Astana Conference – is recognized as one of the best ways of promoting population health and well-being.1-3 PHC is “a whole-of-society approach to health that aims to ensure the highest possible level of health and well-being and their equitable distribution by focusing on people’s needs and preferences (as individuals, families, and communities) as early as possible along the continuum from health promotion and disease prevention to treatment, rehabilitation and palliative care, and as close as feasible to people’s everyday environment”.4 It promotes a focus on health systems oriented towards primary care, which have been shown to strengthen appropriateness, access, quality and efficiency of care, through their defining focus on people and the delivery of integrated preventive, curative and public health services.5 However, the efficacy and impact of such primary care is understood to be intrinsically linked to, and embedded within, a broader context that is inclusive of participatory and responsive financing and governance structures, and policies and actions in non-health sectors.6

In 2020, with the aim of supporting countries to operationalize PHC, the World Health Organization (WHO) launched its Operational framework for primary health care: transforming vision into action.7 Showcasing evidence-based strategic and operational levers, the framework highlights the need for a whole-of-society approach. Of note, the framework’s emphasis – on more and better multisectoral action, empowerment of people and communities, and the urgency of strengthening primary care as the “service front”8 and programmatic engine of universal health coverage2 – overlaps considerably with issues highlighted by the COVID-19 pandemic.

In the WHO South-East Asia Region, Member States have articulated a high-level commitment to the vision of PHC as one means by which to improve health and well-being. Even before the COVID-19 pandemic, an estimated 60 million people annually in the region experienced poverty because of out-of-pocket spending on health care. Regionally, various initiatives are seeking to both build primary care capacity and implement policies and strategies that reflect a multisectoral approach. As observed in the WHO Regional Director’s message accompanying this special issue, since 2014, achieving universal health coverage has been one of the flagship priorities across the South-East Asia Region, with service coverage improving from an average of 47% a decade ago to more than 61% in 2020. However, many challenges remain; the COVID-19 pandemic has provided opportunities for innovation and adaptation but has also presented new problems or compounded problems in relation to Member States’ efforts to operationalize PHC.

In this supplement, South-East Asia Region authors and others reflect on the challenges and lessons learned regarding PHC during the first 12 months of the COVID-19 pandemic, highlighting among other things examples of the rapid review and extension of health workforce capability; the expedited introduction of technological solutions to maintain and strengthen health care access; and newly decentralized governance arrangements designed to enable the integration of public health functions into front-line services.8,9

Addressing the critical issue of access to essential services, for example, Reddy et al.10 present findings from the analysis of routine facility data in India’s Telangana state, which show a positive association between a highly decentralized model of hypertension care that brings follow-up services and medicines closer to communities and indicators of service uptake and hypertension outcomes. Although identifying some decreases in service access during the pandemic-induced lockdown, the same study suggests a potentially protective effect on access to and use of hypertension follow-up services in populations covered by decentralized services compared with those covered by non-decentralized services. Zangmo et al.11 similarly describe various adaptations to traditional models of antenatal care employed to ensure continuity of this vital service in country settings experiencing widespread social and economic lockdowns.

Bezbaruah et al.12 and Zakoji and Sundararaman13 observe the critical importance of integrating emergency response capabilities and functions with routine community engagement and health workforce functions in support of effective and sustained emergency response measures that can be led by local stakeholders and are trusted by local populations. Bahl14 et al. describe how, despite the reduction in immunization services and surveillance for vaccine-preventable diseases across the South-East Asia Region early in the pandemic, rapid adaptation of guidelines and action plans meant that, in most countries, immunization coverage recovered during July–September 2020 to levels seen during the corresponding months in 2019. In fact, this was observed in Bangladesh, as reported by Wangmo et al.,15 where the rate of fully immunized children fell by 46% between January and April 2020 but recovered to 100% by June 2020.

The benefits of long-term community engagement (a key pillar of comprehensive PHC), including through investment in community health workers, is evident in several contributions (Bezbaruah et al.,12 Zakoji and Sundararaman,13 Reddy et al.16). These contributions provide further evidence of the critical role of primary care services not only in ensuring access
to essential health care during public health emergencies but also in providing a platform for long-term and sustained efforts to strengthen national and subnational health systems through community engagement.\(^3\)

Even with examples of innovation and adaptation, multiple challenges to progressing PHC in the South-East Asia Region remain, particularly in the new context of the COVID-19 crisis. Zapata et al.\(^6\) and Tangcharoensathien\(^17\) note that, despite several decades of investment by Member States in human resources for health, huge health workforce challenges remain, with only two countries currently meeting the revised WHO threshold of 44.5 health workers per 10 000 population. The pandemic has highlighted the need to prioritize locally appropriate actions in the delivery of primary care, yet health budgets are overstretched and, as Kwon\(^18\) points out, health governance and financing systems are too often unresponsive in the face of shifting health needs. Tandon et al.\(^19\) observe that, in many South-East Asia Region countries, low levels of public spending on health and tied donor funding inhibit investment in primary care or the types of multisectoral action needed to realize PHC. Alongside the political economy of pharmaceutical research, development and sales, such budget constraints can influence the availability of medicines, which, despite the remarkable efforts behind the COVAX initiative, will affect the ability of different countries to access and roll out COVID-19 vaccines.

Reflecting on a long-standing challenge, Khan et al.\(^20\) observe how, despite mixed health systems being the norm in the region, attention to, and investment in, effective regulatory mechanisms to ensure the quality and affordability of non-government (private for-profit and not-for-profit) services remain weak. Reflecting on issues of health governance, Tangcharoensathien\(^17\) and Guisset et al.\(^21\) observe how, often, decisions about health service type and availability are driven by siloed governance and financing systems that are distant, if not disconnected, from the realities of both patients and front-line providers. Looking at the intersection of such governance and regulatory issues, Rajbandary et al.\(^22\) describe the need for urgent investment to strengthen health information systems in the South-East Asia Region, noting the growing capacity for the collection and collation of health information within regional Member States but also the still underdeveloped capacity for analysing and utilizing these data at subnational and particularly facility levels, where it is arguably most needed. Walcott and Akinola\(^23\) reflect on the power of digital technologies, including data capture from rapidly expanding telemedicine applications, to inform better targeted interventions and advance the universal health care agenda. Wangmo et al. present data illustrating the positive role that health information systems, and especially the collection and use of routine data, have played in Bangladesh, to help identify and inform the government response, down to the health facility level, on early reductions in coverage of essential services during the first months of the COVID-19 pandemic.

Providing an important synthesis of many of these issues, Peiris et al.\(^24\) review the literature to highlight how, even when accounting for some welcome pandemic-related health service adaptations, country-level attention to strategic functions that would strengthen underlying health systems in support of PHC remains generally weak. Challenges include many of the strategic areas identified in WHO’s operational framework, such as leadership, governance and policy, funding and allocation of resources, and engagement of communities and other stakeholders.\(^7\)

Around the globe, the COVID-19 pandemic has laid bare the devastating impact of both structural inequities and suboptimally designed health systems. The pandemic has highlighted the pressing need to move away from brittle, uncoordinated and disease-specific responses and to reorient health systems towards a PHC approach. “Building back better” in the South-East Asia Region and beyond means taking stock of current weaknesses in often fragmented health systems and service functions and making changes to improve responsiveness, resilience and the capability to deliver better and more equitable health outcomes. This collection speaks to emerging insights and opportunities created by the willingness to adapt in the context of the COVID-19 pandemic but also to an urgent need to pay more attention to and invest more in PHC, before the health and economic impacts of the pandemic slow or reverse the progress made in recent decades. We hope that this collection serves to reinforce the need for enacted commitment to the vision of health for all, through investment in well-aligned governance, financing and structural reforms.

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References


Strengthening primary health care in the COVID-19 era: a review of best practices to inform health system responses in low- and middle-income countries

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Abstract

Amid massive health system disruption induced by the coronavirus disease 2019 (COVID-19) pandemic, the need to maintain and improve essential health services is greater than ever. This situation underscores the importance of the primary health care (PHC) revitalization agenda articulated in the 2018 Astana Declaration.

The objective was to synthesize what was already known about strengthening PHC in low- and middle-income countries prior to COVID-19.

We conducted a secondary analysis of eleven reviews and seven evidence gap maps published by the Primary Health Care Research Consortium in 2019. The 2020 World Health Organization Operational framework for primary health care was used to synthesize key learnings and determine areas of best practice.

A total of 238 articles that described beneficial outcomes were analysed (17 descriptive studies, 71 programme evaluations, 90 experimental intervention studies and 60 literature reviews). Successful PHC strengthening initiatives required substantial reform across all four of the framework’s strategic levers – political commitment and leadership, governance and policy, funding and allocation of resources, and engagement of communities and other stakeholders. Importantly, strategic reforms must be accompanied by operational reforms; the strongest evidence of improvements in access, coverage and quality related to service delivery models that promote integrated services, workforce strengthening and use of digital technologies.

Strengthening PHC is a “hard grind” challenge involving multiple and disparate actors often taking years or even decades to implement successful reforms. Despite major health system adaptation during the pandemic, change is unlikely to be lasting if underlying factors that foster health system robustness are not addressed.

Keywords: best practices, COVID-19, health systems strengthening, operational framework, primary health care

Background

The 2018 Astana Declaration affirmed primary health care (PHC) as vital to attaining the Sustainable Development Goals. The 2019 United Nations Political Declaration on Universal Health Coverage further highlighted the central role of PHC in achieving such lofty aims. The strategic confluence of these complementary global health agendas in the context of the coronavirus disease 2019...
(COVID-19) pandemic has revitalized the focus on PHC as a central pillar for health systems strengthening.

As attention shifts to "building back better", we are at a defining moment in which to reaffirm PHC as essential to attaining universal health coverage (UHC) by 2030. There is a vast body of evidence on what is needed to support comprehensive PHC for all. In 2018, a group of seven academic institutions formed the global Primary Health Care Research Consortium (PHCRC) to support country-specific and global implementation research in the pursuit of high-quality PHC in low- and middle-income countries (LMICs).

The consortium conducted literature reviews, evidence gap mapping and consultations with a wide range of stakeholders and proposed a prioritized PHC implementation research agenda. In this paper, we present the review findings and update the evidence base accumulated as part of the PHCRC’s work and synthesize what was already known about strengthening PHC prior to COVID-19 in LMICs. We identify the health systems strengthening strategies that should be prioritized to promote high-quality, equitable, people-centred PHC and to improve future responses to public health crises in the post-COVID-19 era.

Methods

We drew on the Primary Health Care Performance Initiative (PHCPI) conceptual framework to conduct a secondary analysis of reviews and evidence gap maps (EGMs) completed by the PHCRC in 2018. The PHCPI conceptual framework draws on the World Health Organization (WHO) definitions and operational framework for primary health care. It describes the core strategic levers (political commitment and leadership, governance and policy frameworks, funding and allocation of resources, and engagement of communities) and operational levers (e.g. models of care, workforce, digital health, systems for enhancing quality, payment systems) required to transform the 2018 Astana Declaration commitments into action (Fig. 2).

As part of the original evidence synthesis and EGM research, four domains were prioritized following a stakeholder consultation and prioritization process: PHC policy and governance; PHC organization and care delivery models; PHC financing; and PHC performance, safety and quality. Eleven reviews and seven EGMs were conducted across these four domains (Box 1).

Annex 1 provides a detailed description of the methods for data extraction and coding using the PHCPI framework. To synthesize key learnings from this body of work and to determine areas of best practice, we used the WHO Operational framework for primary health care. It describes the core strategic levers (political commitment and leadership, governance and policy frameworks, funding and allocation of resources, and engagement of communities) and operational levers (e.g. models of care, workforce, digital health, systems for enhancing quality, payment systems) required to transform the 2018 Astana Declaration commitments into action (Fig. 2).

When referring to all three PHC approaches (integrated health services, empowered people and communities, and multisectoral policy and action), we use the term “PHC”; when specifically describing services, we use the term “primary care”.

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**Fig. 1. Primary Health Care Performance Initiative conceptual framework**

**Table:**

<table>
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<tr>
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<th>Inputs</th>
<th>Service Delivery</th>
<th>Outputs</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
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<td>A1.a Primary health care policies</td>
<td>B2. Facility Infrastructure</td>
<td>C1.a Local priority Setting</td>
<td>C5.a First Contact Accessibility</td>
<td>E2. Responsiveness to People</td>
</tr>
<tr>
<td>A1.b Quality management Infrastructure</td>
<td>B3. Information Systems</td>
<td>C1.b Community Engagement</td>
<td>C5.b Continuity</td>
<td>E3. Equity</td>
</tr>
<tr>
<td>A1.c Social accountability</td>
<td>B4. Workforce</td>
<td>C1.c Empowerment</td>
<td>C5.c Comprehensiveness</td>
<td>E4. Efficiency</td>
</tr>
<tr>
<td>A2. Health Financing</td>
<td>B5. Funds</td>
<td>C1.d Proactive population outreach</td>
<td>C5.d Coordination</td>
<td>E5. Resilience of Health Systems</td>
</tr>
<tr>
<td>A2.a Payment systems</td>
<td></td>
<td>C2. Facility Organization and Management</td>
<td></td>
<td></td>
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<tr>
<td>A2.b Spending on primary health care</td>
<td></td>
<td>C2.a Team-based care Organisation</td>
<td></td>
<td></td>
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<tr>
<td>A2.c Financial coverage</td>
<td></td>
<td>C2.b Facility management capability and leadership</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3. Adjustment to Population Health Needs</td>
<td></td>
<td>C2.c Information Systems</td>
<td></td>
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<tr>
<td>A3.a Surveillance</td>
<td></td>
<td>C2.d Performance measurement and management</td>
<td></td>
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<tr>
<td>A3.b Priority setting</td>
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<tr>
<td>A3.c Innovation and learning</td>
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</tbody>
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**Social Determinants & Context (Political, Social, Demographic, Socioeconomic)**

NCD: noncommunicable disease; PHC: primary health care; RMNCH: reproductive, maternal, newborn and child health.

Source: Reproduced under the terms of the Creative Commons Attribution 4.0 International License (https://creativecommons.org/licenses/by/4.0) from Bitton et al.18
Results

By examining 1003 article abstracts identified from the source reviews and EGMs, 201 articles were identified as describing beneficial outputs or outcomes. An additional 37 articles were included from supplementary searches. Of the 238 included articles, 61% were published in 2013 or later. Annex Fig. 1 provides a breakdown of the articles by study type and region. Almost half of the articles reported on studies from the African and Eastern Mediterranean regions. The distribution of study types was similar across regions, with multiregion studies being mainly review articles. Annex Table 1 breaks the included articles down by PHCPI domain and study type. Governance and leadership, adjustment to population health needs, and workforce were the most common system and input domains, while availability of effective PHC services, and high-quality PHC were the most common service delivery domains studied, with a similar distribution across all study types. Only 35% of articles had documented outputs related to effective service coverage (most commonly, these were in the areas of reproductive, maternal, newborn and child health; childhood illnesses; and noncommunicable diseases and mental health). Relatively few studies documented benefits in PHCPI outcome domains (Annex Table 1).

Fig. 2. Primary health care theory of change from the WHO Operational framework for primary health care

PHC: primary health care.
Source: Reproduced under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; https://creativecommons.org/licenses/by-nc-sa/3.0/igo) from Operational framework for primary health care: transforming vision into action.
Annex 2 provides a detailed summary of best practices identified for each of the WHO operational framework levers. Table 1 provides examples of best practices organized by operational framework lever. In most examples, more than one strategic or operational lever was being used, and therefore we highlight additional “moderating levers” that appeared to be important to achieving success with the primary lever. In many articles, it was difficult to distinguish between the PHC-oriented research levers and the monitoring and evaluation levers, and consequently these were grouped together in the analysis. Annex Table 2 provides the references for each of these best practice examples. Taking these findings together, it can be observed that many best practices are complex strategies, focusing on multiple strategic and operational levers rather than acting exclusively on any one lever.

Table 1. Summary of best practices (see Annex Table 2 for references for each country and Annex 2 for detailed descriptions for each lever)

<table>
<thead>
<tr>
<th>Primary lever</th>
<th>Countries and regions with evidence of beneficial outcomes</th>
<th>Determinants of success</th>
<th>Moderating levers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic levers</strong></td>
<td></td>
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<tr>
<td>Political commitment and leadership</td>
<td>Country-specific articles: Afghanistan, Bangladesh, Bolivia, Brazil, Costa Rica, Cuba, Ethiopia, The Gambia, Georgia, Ghana, India (Kerala state), Iran, Liberia, Mexico, Niger, Rwanda, Sri Lanka, Thailand</td>
<td>“Health in all policies” approach to multisectoral reforms</td>
<td>Engagement of communities and other stakeholders</td>
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<tr>
<td></td>
<td></td>
<td>Strong leadership from civil society organizations</td>
<td>Funding and allocation of resources (outcome = increased health spending and insurance coverage)</td>
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<td></td>
<td></td>
<td>Pluralistic service provision</td>
<td>Primary health care (PHC) workforce (outcome = increased physician and nurse density)</td>
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<td></td>
<td></td>
<td>Community-based approaches</td>
<td>Monitoring and evaluation (outcome = health information system reforms)</td>
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<tr>
<td></td>
<td></td>
<td>Focus on demand generation through community mobilization</td>
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</tr>
<tr>
<td>Governance and policy frameworks</td>
<td>Country-specific articles: Brazil, China, Costa Rica, Côte d’Ivoire, Ethiopia, Ghana, Haiti, India, Indonesia, Mexico, the Philippines, Thailand</td>
<td>Governance perspective included in health system reforms</td>
<td>Political commitment and leadership</td>
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<tr>
<td></td>
<td></td>
<td>Clear institutional arrangements for governing quality of care</td>
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<td></td>
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<td>Political will leveraged</td>
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<td>Bottom-up accountability</td>
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<td>Decentralization and strengthening of meso-tier organizations</td>
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<td>Service accreditation</td>
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<tr>
<td>Funding and allocation of resources</td>
<td>Country-specific articles: Afghanistan, Bhutan, Mexico, Niger, Vietnam, Zambia</td>
<td>National health insurance schemes</td>
<td>Political commitment and leadership</td>
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<td></td>
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<td>Social health insurance schemes for low-paid workers</td>
<td>Governance and policy frameworks</td>
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<td></td>
<td></td>
<td>Disease-specific benefit packages (noncommunicable diseases)</td>
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<tr>
<td>Engagement of communities and other stakeholders</td>
<td>Country-specific articles: Thailand</td>
<td>Participation</td>
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<td></td>
<td>Multi-country articles: see Annex Table 2</td>
<td>Inclusion of marginalized groups</td>
<td>Political commitment and leadership</td>
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<td>Transparency and/or citizen efforts to ensure public service accountability</td>
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<td>Operational levers</td>
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<tr>
<td>Models of care</td>
<td>Country-specific articles: India</td>
<td>Promotion of service and/or programme integration, incorporating:</td>
<td>Governance and policy frameworks (outcome = efficiency gains)</td>
</tr>
<tr>
<td></td>
<td>Multi-country articles: see Annex Table 2</td>
<td>• medical staff from different disciplines</td>
<td>Funding and allocation of resources (outcome = efficiency gains)</td>
</tr>
<tr>
<td></td>
<td>Regional articles: sub-Saharan Africa</td>
<td>• patients and medical staff</td>
<td>Engagement of communities and other stakeholders</td>
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<td></td>
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<td>• care package for one medical condition</td>
<td>PHC workforce</td>
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<td>• care package for two or more medical conditions</td>
<td>PHC-oriented research</td>
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<td></td>
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<td>• specialist stand-alone services and PHC services</td>
<td>Monitoring and evaluation</td>
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<td></td>
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<td>• community locations</td>
<td>Funding and allocation of resources</td>
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<td></td>
<td>• a person-centred approach</td>
<td>Physical infrastructure</td>
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<td></td>
<td></td>
<td>Community participation/empowerment</td>
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<td></td>
<td></td>
<td>Multidisciplinary teams</td>
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<td>Evidence-informed decision-making, designed based on analysis of local needs and assets</td>
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<td></td>
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<td>Intervention prioritization</td>
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<td></td>
<td></td>
<td>Focus on both supply- and demand-side factors</td>
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<td></td>
<td></td>
<td>Increased public health funding</td>
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<td></td>
<td></td>
<td>Decentralizing village- and district-level health planning and management</td>
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<td></td>
<td></td>
<td>Strengthening service delivery infrastructure</td>
<td></td>
</tr>
<tr>
<td>Primary lever</td>
<td>Countries and regions with evidence of beneficial outcomes</td>
<td>Determinants of success</td>
<td>Moderating levers</td>
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<tr>
<td>PHC workforce</td>
<td><strong>Country-specific articles:</strong> Brazil, China, Ethiopia, India, Indonesia, Kenya, Thailand</td>
<td>Investment in skills/capacity development, Appropriate remuneration/incentive packages, Task-sharing, Investment in governance and policy environment to support mid-level health worker programmes: • clearly defined health workforce cadres • investment in training • licensing • monitoring and evaluation • clear deployment and retention strategy • supportive supervision</td>
<td>Governance and policy frameworks, Political commitment and leadership</td>
</tr>
<tr>
<td></td>
<td><strong>Regional articles:</strong> Africa, Asia, Latin America</td>
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</tr>
<tr>
<td>Physical infrastructure</td>
<td><strong>Country-specific articles:</strong> Ethiopia, Ghana, Uganda</td>
<td>Reliable electricity, Accessible transportation, Sustainable medical supplies</td>
<td>Governance and policy frameworks, Funding and allocation of resources, Medicines and other health products</td>
</tr>
<tr>
<td>Medicines and other health products</td>
<td><strong>Country-specific articles:</strong> China, Colombia, Saudi Arabia, Sudan</td>
<td>Use of essential medicine lists, Regulatory and administrative controls, Clear national pharmaceutical policies, Training in rational prescribing, Online feedback, Capitation-based payment/pay-for-performance schemes, Health insurance schemes to reduce out-of-pocket costs</td>
<td>Governance and policy frameworks, Funding and allocation of resources, PHC workforce</td>
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<tr>
<td></td>
<td><strong>Regional articles:</strong> South America</td>
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<tr>
<td>Engagement with private sector providers</td>
<td><strong>Country-specific articles:</strong> Afghanistan, Bangladesh, Pakistan</td>
<td>Contracting arrangements for PHC service provision, with: • contractor autonomy in fund allocation • non-negotiable deliverables • management by independent government agency Contracting arrangements for PHC service management, with: • contractor autonomy to deliver organizational or managerial changes, purchase medications and supplies, and allocate budget • availability of existing health workforce (salaried by government)</td>
<td>Governance and policy frameworks, Funding and allocation of resources, PHC workforce</td>
</tr>
<tr>
<td>Purchasing and payment systems</td>
<td><strong>Country-specific articles:</strong> China</td>
<td>Performance-based incentives for health workers with/without capitation-based payment, Combined demand- and supply-side incentives</td>
<td>Governance and policy frameworks, Funding and allocation of resources, PHC workforce</td>
</tr>
<tr>
<td>Digital technologies for health</td>
<td><strong>Country-specific articles:</strong> Afghanistan, Brazil, China, India, Iraq, Lebanon,</td>
<td>Improved access to screening at home, Functional referral system between outreach and facility-based care, Regular supply of medicines/free medicines, Supervisory support and coaching – a cycle of regular assessment, feedback, training and action, Ability to tailor patient care based on algorithms, Easy-to-follow clinical management guidelines, Links to virtual consultations (telehealth), Enhanced non-physician health worker capabilities and motivation</td>
<td>PHC workforce, Medicines and other health products, Physical infrastructure, Funding and allocation of resources</td>
</tr>
<tr>
<td>Systems for improving the quality of care</td>
<td><strong>Country-specific articles:</strong> Brazil, Egypt, Kuwait, Saudi Arabia, Tanzania <strong>Multi-country articles:</strong> see Annex Table 2 <strong>Region-specific articles:</strong> Africa (see Annex Table 2)</td>
<td>Provider-level strategies: • training to reduce medical errors • patient education • optimizing clinical records • decision support tools • national protocols and guidelines • public scorecards and performance reports • risk and safety management • audit and feedback • external accreditation and quality improvement • supportive supervision • recruitment and retention strategies</td>
<td>Governance and policy frameworks, PHC workforce, Digital technologies for health Monitors and evaluation</td>
</tr>
<tr>
<td>PHC-oriented research and monitoring and evaluation</td>
<td><strong>Country-specific articles:</strong> Ethiopia, India, Nepal, Pakistan</td>
<td>Implementation research partnerships between government and research institutions, Revised approach to research funding, emphasizing inclusion of decision-maker needs from outset</td>
<td></td>
</tr>
</tbody>
</table>
Discussion

The highly varied country responses to the COVID-19 pandemic have emphasized that health systems need a strong equity orientation to ensure that no one is left behind – both during a disaster and in recovery. The Astana Declaration reaffirmed PHC as a fundamental enabler of UHC, with its three core functions of meeting people’s needs throughout life and not only during sickness; countering social determinants of health such as financial hardship and limited access to education; and empowering individuals and communities to engage in maintaining and enhancing their health and well-being.2

The concept of “building back better” was used at the Third UN World Conference on Disaster Risk Reduction to describe an approach to post-disaster recovery that reduces vulnerability to future disasters and builds community resilience to address physical, social, environmental and economic vulnerabilities and shocks.3 Abimbola and Topp consider health system resilience a dualistic concept encompassing both adaptation and robustness – the two being necessary and interrelated conditions for resilience.21 The extent to which health systems are robust is determined by the pre-disaster context. The adequacy of the adaptation response is dependent on how robust the system was to begin with. For example, rapid acceleration of telehealth care (an adaptive response) requires adequate digital health infrastructure (system robustness). In the presence of weak, fragmented information systems, telehealth models of care could increase vulnerability and expose inequity.22–24

In this paper, we present the substantial evidence of what was already known pre-COVID-19 to support strengthening PHC and fostering robust health systems. Priority needs to be given to the strategic levers of political commitment and leadership, governance and policy frameworks, funding and allocation of resources, and engagement of decision-makers, communities and other stakeholders. The “hard grind” of producing change in these areas remains a complex undertaking long after the adaptive response to a public health emergency has been implemented.21

Despite global declarations, PHC receives variable and often fleeting attention from government leaders and is grossly underfunded in most LMICs; furthermore, there is a lack of accountability mechanisms to maximize population-level health outcomes and social participation in health system governance and service delivery functions.25 “Social vaccines” that protect communities from disasters by addressing underlying social determinants of health are needed just as much as COVID-19 vaccines.26 Despite several knowledge deficits, country case studies and large-scale policy evaluations clearly identify many areas of success that can be adapted to and adopted in other settings. Policy interventions such as incorporating health into all policies;27 institution building to strengthen governance structures and processes at national, regional and local levels; major increases in health expenditures and reallocation of funds to primary care from hospital specialist services; and engagement of civil society organizations in decision-making and demand generation are components of successful PHC reforms.

Despite the primacy of the strategic levers, we found that many successful reform strategies required these to be combined with a wide range of operational levers. The most mature evidence relates to workforce strengthening initiatives. Adequately motivated, digitally enabled, supportively supervised PHC teams with ample autonomy and decision space, and clearly delineated and complementary tasks, can improve service access, coverage and quality while also improving workforce satisfaction and retention. Professionalization of and continuing support for the community health workforce is a core priority.28 Investment in strategies that embrace the complex leadership roles of highly trained primary care professionals such as doctors and nurses is also needed, such that management and clinical skills are equally valued.29 Strategies to effectively regulate and engage with private sector health professionals are also critically important, given that they are the first point of contact in many countries. This again highlights the importance of strategic levers (regulation) being combined with operational levers (workforce engagement and strengthening).

More case studies of excellence are also critical motivators for change. The Exemplars in Global Health initiative is a good example of a systematic approach to sharing experiences of success and carefully documenting the factors that drove that success.30,31 The PHCPI Vital Signs Profiles provide measurement tools to enable a range of stakeholders to better understand and improve primary care in highly varied country contexts.32 Such initiatives have strong potential to improve measurement of primary care performance and to stimulate learning and knowledge sharing. And, finally, although there is a large evidence base to draw from, there remain many areas where knowledge is relatively limited. These are extensively documented in the PHCRC’s previous EGM work (see Box 1). Innovative models of care that integrate services across the life course, across diseases and across health care sectors are a priority area to be explored further. More research is also needed on performance management systems that focus on organizations rather than people and can be implemented at scale. Evidence-based priority setting through health technology assessments is becoming more common in several LMICs; however, the focus remains on high-cost technologies and its use in designing PHC benefits packages is another priority area to support PHC reforms.33–36 Embedded implementation research that forges multisectoral partnerships and embraces blurred boundaries between knowledge generators and knowledge users offers us a way forward to address these knowledge gaps.37

Conclusion

COVID-19 has revealed gross deficiencies in health systems around the world, highlighting the need for transformational change, at the centre of which should be the strengthening of PHC. This secondary analysis of literature reviews, EGMs and recent literature informed by experts in the field synthesizes what was already known about best practices to strengthen PHC prior to COVID-19. Using the WHO Operational framework for primary health care, we emphasize in each domain the factors that are known to have contributed to success. In order to achieve transformational change in PHC, major shifts are needed in the framework’s four strategic levers: political commitment and leadership, governance and policy, funding and allocation of resources, engagement
of communities and other stakeholders. However, where we found sufficient evidence of programmes and interventions that have resulted in improvements, attention to these strategic levers was accompanied by substantive investment in a range of operational levers, particularly in the areas of models of care, workforce strengthening and use of digital health technologies. In several areas, there remain knowledge gaps, and we endorse recent calls to strengthen implementation research in which multisectoral stakeholders come together to determine contextually calibrated priority research questions and adhere to co-design principles to answer those questions. There has been vast health system adaptation as a result of the pandemic, but such adaptation is precarious when underlying health system robustness is not addressed and could worsen inequities. The factors that foster robust health systems are the “hard grind” factors that can take years or even decades to implement at scale and require consistent, long-term investment in PHC. We document many case studies demonstrating success in undertaking lasting PHC reforms in a variety of country contexts – reforms that will stand these nations in good stead when it comes to adaptation during the pandemic and its aftermath.

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Conflict of interest: None declared.

Authorship: All authors were involved in the study design and provided recommendations of new articles to include in the review. MS extracted the articles from the original reviews and MS and DPr coded the data. DPe, MS, DPr and AP analysed the data to identify priority themes. DPe wrote the first draft and all authors contributed to subsequent drafts and approved the final version for submission.

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References

Annexes

Annex Fig. 1. Numbers of included articles by region and type

- AFR: Africa Region; EMR: Eastern Mediterranean Region; EUR: European Region; PAH: Region of the Americas; SEAR: South-East Asia Region; WPR: Western Pacific Region.

Annex Table 1. Included articles \( (n = 238) \) by Primary Health Care Performance Initiative domain and study type

<table>
<thead>
<tr>
<th>PHCPI domain</th>
<th>Descriptive studies</th>
<th>Interventions</th>
<th>Programme evaluations</th>
<th>Reviews</th>
<th>Total</th>
<th>Percentage of all papers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
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<td></td>
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<td></td>
<td></td>
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<td>16</td>
<td>18</td>
<td>29</td>
<td>67</td>
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<td>7</td>
<td>12</td>
<td>13</td>
<td>32</td>
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<tr>
<td>A3 Adjustment to population health needs</td>
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<td>12</td>
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<td>23</td>
<td>53</td>
<td>22</td>
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<td>3</td>
<td>6</td>
<td>7</td>
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<td>–</td>
<td>2</td>
<td>8</td>
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<td>11</td>
<td>21</td>
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<td>4</td>
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<td>23</td>
<td>36</td>
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<td>B5 Funds</td>
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<td>3</td>
<td>2</td>
<td>9</td>
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<td>18</td>
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<td>21</td>
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<td>C2 Facility organization and management</td>
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<td>7</td>
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<td>–</td>
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<td>3</td>
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<td>E2 Responsiveness to people</td>
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<td>9</td>
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<td>17</td>
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<td>2</td>
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<td>8</td>
<td>3</td>
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<td>E5 Resilience of health systems</td>
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<td>2</td>
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NCD: noncommunicable disease; PHC: primary health care; PHCPI: Primary Health Care Performance Initiative; RMNCH: reproductive, maternal, newborn and child health.

*Studies may be coded to more than one domain and therefore the column total does not add up to 100%.*
Annex Table 2. References for identified best practices

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<th>Primary lever</th>
<th>Evidence of beneficial outcomes</th>
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</thead>
<tbody>
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<td>Afghanistan, Bolivia, Brazil, Costa Rica, Cuba, Ethiopia, The Gambia, Georgia, Ghana, India (Kerala state), Iran, Liberia, Mexico, Niger, Sri Lanka, Thailand, Bangladesh, Rwanda6,7</td>
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<td><strong>Operational levers</strong></td>
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<td>Models of care</td>
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<tr>
<td><strong>Primary lever</strong></td>
<td>Evidence of beneficial outcomes</td>
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<td>Purchasing and payment systems</td>
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<td>Primary health care-oriented research and monitoring and evaluation</td>
<td>Ethiopia, India, Nepal, Pakistan65</td>
</tr>
</tbody>
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References


Peiris et al.: Strengthening primary health care in the COVID-19 era: a review of best practices


Annex 1. Data extraction methods
The abstracts of the articles included in the reviews and EGMs were analysed to determine if the article explicitly described examples of best practice and included either a quantitative or a qualitative description of a beneficial output or outcome in one or more domains of the PHCPI conceptual framework. Evidence included descriptive qualitative research and case studies that described an overall benefit; programme evaluations with a pre–post design or those lacking an explicit study design; interventions using experimental or quasi-experimental designs; and literature reviews (including scoping reviews, narrative syntheses and systematic reviews with or without meta-analyses). Perspective articles, opinion pieces and articles primarily focused on identifying gaps in knowledge were excluded.

For those articles that provided evidence of benefit, a full text review was conducted, and the inputs, service delivery processes and outputs/outcomes described were coded to one or more PHCPI domains. A random sample of 10% of articles were coded by a second reviewer (DPR). Coding disagreements were discussed for each article and consensus reached on the principles that should be applied when coding articles to the domains of the PHCPI framework. Subsequently, the first reviewer (MS) coded the remainder of the dataset. Because the source reviews were completed in early 2019, we also conducted supplementary ad hoc searches of the literature based on expert opinion from members of the PHCRC network to identify additional articles published to December 2020 describing best practices prior to COVID-19. PHCPI inputs and outputs were tabulated to understand the density of interventions and outcomes by geographical region, population focus and study type. Documents were coded in a spreadsheet and frequency analyses were conducted using R software.

Annex 2. Best practices for each lever in the WHO Operational framework for primary health care

Strategic levers
Political commitment and leadership
Mixed methods country-level case studies provide compelling evidence that political commitment and leadership (by heads of state and government, other political leaders, civil society, and influential community, religious and business leaders) have played a major role in successful PHC reforms. Kruk and colleagues looked at LMICs that had implemented PHC initiatives at a large scale. These countries included Bolivia, Brazil, Costa Rica, Cuba, The Gambia, Ghana, India (focusing on the state of Kerala), Iran, Mexico, Nigeria, Sri Lanka, Thailand and two fragile states, Afghanistan and Liberia. A common factor in the success of these national programmes...
was that they did not focus only on service delivery but, rather, took a “health in all policies” approach to multisectoral reforms, especially important given that spending decisions are made by heads of state and ministries of finance rather than decision-makers in the health sector. Financing reform to boost PHC and public health system funding was critical, as these sectors are traditionally the “poor cousin” of the hospital sector. Another success factor in these countries was a sustained focus on demand generation through community mobilization. This in turn requires strong leadership from civil society organizations to ensure participation in decision-making at the highest levels.

Other case studies have highlighted the influence of pivotal historical moments in driving reforms. One determinant of Bangladesh’s sustained success has been that, since its independence in 1971, there has been a decades long commitment to the guiding principles of PHC, such as preventive care, community participation, social justice and equity. This led to major institutional reforms, multisectoral collaboration, prioritization of community-based approaches and “pluralistic service provision (i.e., involvement of various types of service providers working in different capacities, modalities, and locations”).

Governance and policy frameworks
A review of several countries looking at governance-enhancing activities (accountability and transparency, governance frameworks and political economy analysis, institutional arrangements in health sector reforms, fair and transparent procurement principles) identified four key lessons on improving health system performance: (i) include a governance perspective to ensure the sustainability of health system reforms; (ii) establish clear institutional arrangements for governing quality of care in all national efforts; (iii) harness political will to enhance impact and sustainability; and (iv) foster bottom-up accountability and scale-up of healthcare reform.

Case studies from Brazil, China, Costa Rica and Thailand have shown the role of robust PHC policy and governance systems and their impact on improving health system performance. However, the relationship between governance and health system performance is underexplored. One empirical study examined whether expansion of the Brazilian Estratégia de Saúde da Família (ESF), a community-based primary care programme, reduced amenable mortality (mortality avoidable with timely and effective health care) in 1622 municipalities over the period 2000–2012. Overall, increasing ESF coverage from 0% to 100% was associated with a reduction of 6.8% in rates of amenable mortality, compared with no increase in ESF coverage. Despite these improvements, subsequent policies have potentially eroded the gains made by the Brazilian Sistema Unico de Saude, highlighting the importance of sustained political commitment to health reform initiatives.

Health system architecture plays an important role in governance structures and service delivery. There is emerging evidence of the importance of decentralization and strengthening meso-tier organizations to support PHC reforms. For example, Chinese PHC reforms have encouraged township hospitals to own and manage village clinics. Ghana’s Community-Based Health Planning and Service initiative relocates primary care services from subdistrict health centres to convenient community locations. However, the impact of governance changes on service delivery and outcomes is not well established, in part due to challenges in measuring such far-reaching and multifaceted system-level changes.

Studies on the impact of accreditation of primary care centres suggest that such regulatory processes lead to improved documentation, reinforcement of quality standards, strengthened relationships between primary care centres and multiple stakeholders, and improved staff and patient satisfaction. There are also studies of gatekeeping policies that require patients to access non-emergency hospital care or specialist services via primary care, and they have demonstrated reduced utilization of hospital services with no impact on patient satisfaction.

Funding and allocation of resources
Countries need to mobilize sufficient financial resources to provide or purchase essential primary care services for their populations. The vast majority of these resources are generated by the government and through out-of-pocket costs, with international donors and the private sector being relatively small contributors. A recent study of 27 LMICs found that the majority (55%) of primary care spending comes mainly from out-of-pocket costs and that the level and definition of primary care spending vary greatly across these countries.

Many LMIC governments are seeking to resource-pool and define essential benefit packages; however, the success of this strategy is dependent on an adequate absolute level of funding, robust management and accountability structures, and an ability to translate increased resources into quality services. There is reasonably robust evidence that national health insurance schemes, social health insurance schemes and mixed financing systems can reduce or eliminate user fees, improve service coverage, reduce financial barriers to accessing care and provide financial protection against catastrophic losses. Such strategies are generally associated with improved service coverage; however, there can be high variability in the uptake of such programmes, suggesting that implementation needs to be carefully calibrated to the local context and measured to assess fidelity.

In terms of purchasing, most health systems rely on fee-for-service models, with few examples of capitation-based payment models. There is growing interest in strategic purchasing of tightly defined services, allocation mechanisms built over time (not visits), and greater focus on performance monitoring and outcomes. However, there are few robust evaluations of strategic purchasing interventions. In terms of disease-specific benefit packages, one study examined the impact of large-scale implementation of the WHO Package of Essential Noncommunicable Disease Interventions in Bhutan and found...
that the intervention was cost effective, with efficiency gains to be made based on different population-screening criteria.\textsuperscript{31} Another large-scale evaluation, of a Mexican noncommunicable disease (NCD) policy involving funding primary care longitudinal management and prevention of NCDs, found reduced NCD mortality rates over a 13-year period.\textsuperscript{32}

**Engagement of communities and other stakeholders**

The SDGs explicitly recognize the importance of the development of effective, accountable and transparent institutions at all levels. Participation, inclusion, transparency and accountability (PITA) structures and mechanisms are key to promoting empowerment of individuals and communities. Several studies have examined citizen engagement and empowerment.\textsuperscript{33–39} One systematic review and meta-analysis assessed 35 citizen engagement programmes in LMICs and found that enhanced citizen engagement occurred primarily through four routes: participation, inclusion of marginalized groups, transparency and/or citizen efforts to ensure public service accountability, and PITA mechanisms collectively.\textsuperscript{40} Intervention targets were at the level of political systems (e.g. national referendums to set policies), internal institutional systems (e.g. decentralization of and community engagement in decision-making)\textsuperscript{38,41–46} and external engagement with citizens (e.g. interventions to disseminate information on performance, quality or cost).\textsuperscript{34,37,47} The review found that citizen engagement efforts improved access to and the quality of public services by an overall pooled effect size of 0.10 standard deviations. However, they did not systematically improve health outcomes, partly as a result of broader system barriers.

**Operational levers**

**Models of care**

New primary care models that promote service integration across sectors (public health, primary health care, hospital care) and integration between horizontal and vertical programmes are a core element of the WHO Framework on integrated, people-centred health services.\textsuperscript{48} Efforts to integrate care can substantially change organization of service delivery, leading to efficiency gains from organizational, operational and managerial perspectives, and may lead to more equitable delivery of care across disease-specific conditions.\textsuperscript{49} A global review of 67 articles on service integration experiments identified the following categories of integration: collaboration between medical staff from different disciplines and between patients and medical staff, development of care packages for specific and multiple medical conditions, specialist services integrated with PHC services, and service delivery in community locations.\textsuperscript{50} It concluded that positive outcomes can be generated from such service integration efforts without incurring additional costs.\textsuperscript{50} Similarly, a scoping review of 39 articles relating to community-oriented primary care models identified the following principles: a defined community, community participation, multidisciplinary teams, a comprehensive and equitable approach, local needs and assets analysis, prioritization of interventions, evidence-informed decision-making and person-centred service integration.\textsuperscript{51–53}

In terms of large-scale, population-specific models of care, the evidence base is strongest in the area of reproductive, maternal, newborn and child health (RMNCH). Several large-scale impact evaluations of new models of care have been shown to improve RMNCH outcomes.\textsuperscript{38,54–56} Two notable examples include the Indonesian Safe Motherhood Project and India’s National Rural Health Mission. The Safe Motherhood Project focused on both supply-side factors (professionalization, quality, technical and counselling capacity, and sustainability of midwives and other health providers) and demand-side factors to improve awareness of family planning and reproductive health. Net beneficial changes in under-5 mortality, total fertility rate, teenage pregnancy, unmet contraceptive need and percentage of deliveries overseen by trained health personnel were observed.\textsuperscript{56} India’s National Rural Health Mission is a transformational policy focused on changing care delivery through increasing public health funding, decentralizing village- and district-level health planning and management, strengthening public health service delivery infrastructure, and promoting social participation and community empowerment. It was associated with marked improvements in access to antenatal care and institutional delivery among all socioeconomic groups, with greater effects in the lowest and middle wealth and education terciles than in the highest tercile.\textsuperscript{38} These two examples highlight the importance of combining strategic and operational levers in order to generate sustainable improvements.

**Primary health care workforce**

There is a large and growing body of evidence that workforce strengthening strategies are highly effective in achieving the core functions of PHC. Health workers of varying skill levels can be trained to perform core primary care services such as administering immunizations and other preventive treatments, advising communities on basic diagnostic screening examinations and tests, advising on prevention against communicable and noncommunicable diseases, systematically recording health information and enumerating community populations for performance tracking.\textsuperscript{57–75} Investments to increase remuneration and improve these different cadres of health care providers’ skills are effective in strengthening workforce recruitment, retention and satisfaction, and care quality.\textsuperscript{13,14,76,77} Some studies have also demonstrated efficiency gains from task-sharing models of care\textsuperscript{78–82} and equity gains for workers themselves in terms of access to paid employment and skill-building opportunities.\textsuperscript{83} Eight country case studies, from Africa, Asia and Latin America, were used to assess the governance and policy environment for mid-level health worker programmes. The review recommended that policy-makers clearly define the type of cadres, the desired skill mix and roles to be performed; invest in training, licensing, supervision, monitoring and evaluation; and develop a coherent deployment and retention strategy.\textsuperscript{37} Supportive supervision is an important enabler of quality health care. It is characterized by the involvement of informal supervisors and peers as well as line managers, and encompasses teamwork, communication and empowerment of staff alongside oversight of clinical skills.\textsuperscript{54–59} A scoping review of African family medicine also highlighted that family medicine physicians have a high degree of variation in roles and responsibilities throughout the region and that this poses challenges for their establishment as a specific cadre within health care systems.\textsuperscript{32} It recommended greater policy support in nurturing a critical mass of family physicians who are comprehensively supported and integrated into all aspects of the health system.
Physical infrastructure
A frequently neglected area in research evidence is the critical role of adequate physical infrastructure to support primary care service functions. One descriptive study from Ghana and Uganda looked at electrification in rural areas and found that improved access to reliable electricity was associated with increased availability of health services, access to communications and vaccine and medicine storage, and improved health worker motivation and satisfaction; however, the study also highlighted that other facility infrastructure barriers, such as poor transportation, amenities and drug stock facilities, were additional barriers.83 Despite the lack of empirical research in this area, many of the country case studies of excellence in PHC reforms emphasized the issue of strong facility management and infrastructure as being essential enablers of success.70–72,94,96

Medicines and other health products
The use of essential medicines lists and national pharmaceutical policies,86–89 regulatory and administrative controls,100 specific training in rational prescribing and academic detailing,90–92 online feedback,93–95 capitation-based payment systems and other pay-for-performance schemes,8,96 and health insurance schemes to reduce out of pocket costs105 have all been shown to improve quality of use of medicines, reduce prescription costs and lower inappropriate use of antibiotics.

Engagement with private sector providers
Several studies examining government contracting of primary care services to private and nongovernmental providers generally have demonstrated improvements in service utilization and community satisfaction.106–112 However, systematic reviews evaluating its impact on quality of care or coverage of services are contradictory and less clear.106,109,113 One review found that, although there is evidence that both vouchers and contracting can improve health service outcomes in underserved areas, these outcomes are influenced by the degree of collaboration and cooperation between key actors, the type of delivered services and community demand, provider autonomy and trust, and the availability of robust governance structures to provide oversight for such services.114

Purchasing and payment systems
Financial incentives have been frequently studied, with variable outcomes observed.8,26,27,31,36,77,115–120 These studies suggest that performance-based incentives have a role to play in improving health worker performance; however, effect sizes are often modest, are variable and are rarely sustained over time. Some studies have demonstrated benefits in service utilization and reduction in hospitalizations from pay-for-performance schemes when used in conjunction with capitation-based payment.121,122 One study concluded that a direct link is needed between provider effort and the desired performance outcome for health workers to respond to incentives. Conversely, performance outcomes that require multiple actors to be engaged are less likely to meet with success.115 Incentives may also have unintended consequences on non-incentivized outcomes, and therefore careful consideration is needed when designing such incentives and monitoring their outcomes.115

Although studies of patient incentives alone are generally not associated with improved outcomes, some studies examining combined incentives to both providers and patients have shown benefits.121

Digital technologies for health
Digital health strategies that have sound evidence to support integration into primary care systems include data collection and formation of registries underpinned by portable electronic medical records, sensors and point of care diagnostics, patient behaviour change and education applications, point-of-care decision support systems, recall and reminder systems, telehealth models of care, workforce education and training, and human resource management.123–132

However, to leverage technology fully, there is a need for an increased focus on health systems strengthening rather than on single-solution applications. There are relatively few examples of digital health interventions that have been implemented at scale and this remains an ongoing challenge. Factors such as data security, cost constraints, health provider privacy and technical barriers are well-known barriers.123 The WHO mHealth Assessment and Planning for Scale Toolkit on scale-up of digital technologies describes six “axes of scale” that need to be considered to support scale-up and sustainability of digital health: (i) adequate formative groundwork to understand contextual influences and the scientific basis for the product; (ii) strategies for identifying, developing and sustaining fruitful partnerships; (iii) financial health, including business case development to understand projection of scale-up costs, and long-term revenue generation; (iv) fit for purpose technology and architecture that supports interoperability with existing and evolving information systems; (v) operations that can support implementation, use and maintenance of the product throughout the scaling-up process; (vi) and monitoring and evaluation activities to generate actionable knowledge that can support iteration and adaptation over time.133

Systems for improving the quality of care
Most quality improvement interventions are small-scale studies of provider-level strategies such as reducing medical errors, training, patient education, changes to record sheets, and decision support tools.90,134–136 There is a need for organizational and system-level strategies with a focus on health outcomes and research examining national-level strategies on quality and performance-monitoring systems.137,138 In the few studies of such large-scale programmes, benefits were observed from national protocols and guidelines and quality improvement programmes.90,139–141 Similarly, use of public scorecards and performance reports, risk and safety management, educational outreach, audit and feedback, external accreditation and quality improvement, community-based interventions, supervision, and recruitment and retention strategies all hold promise in improving technical quality.90 However, the evidence base is immature and tends to lack a health systems-oriented approach that takes into account complex environments and moves beyond merely documenting what works. Furthermore, the involvement of communities and service users in assessment of quality is a relatively nascent area.141
Primary health care-oriented research and monitoring and evaluation

In all the reviews and gap maps developed, there were recommendations for future implementation research to address prioritized knowledge gaps. However, there is recognition that there may be tension between the priorities of knowledge producers and knowledge users.148 A recent journal supplement called for “embedded implementation research” with a core focus on involvement of programme/policy decision-makers in the research cycle.150 Proactive engagement with decision-makers, communities and service users requires adequate funding and establishment of appropriate structures to facilitate participation, including a commitment to purposive translation and strengthening implementation research capacity.148 Participatory action research, with its emphasis on equitable engagement of all actors, flexible action planning, sensitivity to power imbalances, and development of structures for ongoing learning is considered a particularly important method of enabling such engagement.149

Case studies of successful research partnerships in Ethiopia, India, Nepal and Pakistan have demonstrated the value of such an embedded implementation research approach.144 Such an approach has implications for traditional research funding agencies. The recent Global Alliance for Chronic Diseases call for implementation research to scale up proven interventions is an example of how decision-maker needs can be incorporated at the outset. In this funding call, academics were required to identify implementation partners who were prepared to cover the costs of the strategy to be implemented.151 Such strategies blur the boundaries between traditional programme monitoring and evaluation processes and implementation research.

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Emerging good practices and lessons learnt to maintain essential health services during the COVID-19 pandemic

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Double burden of the pandemic and disruption of essential health services

Disruption of essential health services during the course of the coronavirus disease 2019 (COVID-19) pandemic has had a significant negative impact on our health systems.¹ As a proactive measure to provide Member States with practical policy options to reorganize and maintain access to safe and quality essential health services, the World Health Organization (WHO) published Operational guidance for maintaining essential health services during an outbreak in March 2020, with an update in June.²³

The survey “Rapid assessment of continuity of essential health services during the COVID-19 pandemic” (Pulse survey) revealed that disruption to core health services between March and June 2020 was reported in the 105 countries that responded.⁴ The results of the survey showed that globally, including within the South-East Asia Region, all types of services were affected, including but not limited to essential services for communicable diseases, non-communicable diseases, reproductive health, maternal, newborn, child and adolescent health, mental health, nutritional services and emergency services (Fig. 1).

**Fig. 1. Situation of essential health services in the South-East Asia Region – number of countries at different levels of disruption, March–June 2020**

<table>
<thead>
<tr>
<th>Service</th>
<th>Not disrupted</th>
<th>Partially disrupted</th>
<th>Completely disrupted</th>
<th>Don’t know</th>
<th>Not applicable</th>
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<tbody>
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<td>2</td>
<td>5</td>
<td>1</td>
<td></td>
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<tr>
<td>Antenatal care</td>
<td>6</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Facility-based births</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Routine immunization services in health facilities</td>
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<td>2</td>
<td>5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Routine outreach immunization services</td>
<td>5</td>
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<td>2</td>
<td></td>
<td></td>
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<tr>
<td>Sick child services/IMNCI</td>
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<td>4</td>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>Management of moderate and severe malnutrition</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>Outbreak detection and control (for non-COVID-19)</td>
<td>5</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Continuation of established ARV treatment</td>
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<tr>
<td>TB case detection and treatment</td>
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<td>Campaigns for indoor residual spraying</td>
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<td>Treatment for mental health disorders</td>
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<td>Cancer diagnosis and treatment</td>
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<td>Rehabilitation services</td>
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<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-hour emergency room/unit services</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urgent blood transfusion services</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inpatient critical care services</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergency surgery</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

ARV: antiretroviral; IMNCI: integrated management of neonatal and childhood illness; NCD: non-communicable disease; TB: tuberculosis.

Source: World Health Organization, Pulse survey on continuity of essential health services during the COVID-19 pandemic.⁴
The most frequently reported types of disruption in the South-East Asia Region were experienced on both the demand side – public reluctance to utilize health services during the pandemic and lockdowns hindering access – and the supply side – cancellations of elective care and repurposing (task shifting) of the health workforce to COVID-19 response (Fig. 2).

The Pulse survey along with regional consultations also revealed how countries adapted to the changing needs imposed by the pandemic and service disruption (Fig. 3). Creative design changes in service delivery models emerged in countries as they struggled to tackle both the pandemic and the continuity of essential health services. Member States in the South-East Asia Region urgently requested the sharing of lessons learnt and best practices. Through our routine communications with ministries of health, WHO country offices and other partners in the region and beyond, we synthesized the following five key areas of learning.

**Best practices were centred on primary health care principles**

First, service disruption was minimized or mitigated in countries where service delivery was decentralized and patient centred. For example, provision of services such as follow-up examinations or injections was decentralized to primary levels of service delivery or provided through other means such as telemedicine. Another example was provision of access to

---

**Fig. 2. Main causes of disruption of essential health services in the South-East Asia Region (n = 7 countries)**

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease in outpatient volume due to patients not presenting</td>
<td>100%</td>
</tr>
<tr>
<td>Government or public transport lockdowns hindering access</td>
<td>100%</td>
</tr>
<tr>
<td>Decrease in inpatient volume due to cancellation of elective care</td>
<td>86%</td>
</tr>
<tr>
<td>Related clinical staff deployed to provide COVID-19 relief</td>
<td>71%</td>
</tr>
<tr>
<td>Closure of outpatient disease-specific consultation clinics</td>
<td>57%</td>
</tr>
<tr>
<td>Insufficient PPE available for health care providers</td>
<td>57%</td>
</tr>
<tr>
<td>Changes in treatment policies for fever symptoms</td>
<td>57%</td>
</tr>
<tr>
<td>Financial difficulties during outbreak/lockdown</td>
<td>43%</td>
</tr>
<tr>
<td>Other</td>
<td>29%</td>
</tr>
<tr>
<td>Closure of population-level screening programmes</td>
<td>29%</td>
</tr>
<tr>
<td>Insufficient staff to provide services</td>
<td>29%</td>
</tr>
<tr>
<td>Closure of outpatient services as per government directive</td>
<td>14%</td>
</tr>
<tr>
<td>Unavailability of health products at health facilities</td>
<td>14%</td>
</tr>
<tr>
<td>Inpatient services/hospital beds not available</td>
<td>14%</td>
</tr>
</tbody>
</table>

PPE: personal protective equipment.

Source: World Health Organization, Pulse survey on continuity of essential health services during the COVID-19 pandemic.4

---

**Fig. 3. Approaches to overcoming disruption in the South-East Asia Region (n = 7 countries)**

<table>
<thead>
<tr>
<th>Approach</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triaging to identify priorities</td>
<td>86%</td>
</tr>
<tr>
<td>Telemedicine deployment to replace in-person consultations</td>
<td>71%</td>
</tr>
<tr>
<td>Task shifting/role delegation</td>
<td>71%</td>
</tr>
<tr>
<td>Novel supply chain and/or dispensing approaches for medicines through other channels</td>
<td>71%</td>
</tr>
<tr>
<td>Redirection of patients to alternative health care facilities</td>
<td>57%</td>
</tr>
<tr>
<td>Community outreach to inform of service disruption and changes</td>
<td>57%</td>
</tr>
<tr>
<td>Other</td>
<td>29%</td>
</tr>
<tr>
<td>Government removal of user fees</td>
<td>14%</td>
</tr>
</tbody>
</table>

Source: World Health Organization, Pulse survey on continuity of essential health services during the COVID-19 pandemic.4
medicines using community health workers, postal services or courier services to deliver medicines directly to patients’ homes, and provision of repeat prescriptions. In conjunction, on the supply side the stock thresholds were recalibrated at every level, to minimize disruption.

Second, community engagement, through the support of community health workers and volunteers, was key in addressing misinformation about the pandemic and ensuring continuity of health services. In addition, educational messages were tailored to local contexts, and sites of care were shifted into open and less crowded areas.

Third, acknowledgement and proper protection of health workers, including training on infection prevention and control and sufficient provision of personal protective equipment, was a prerequisite for maintaining the morale of the health workforce. Patient safety starts with health workers’ safety.

Fourth, good governance mattered in the public and private health sector, as well as other sectors. A whole-of-nation approach across sectors enabled some countries to draw on established mechanisms to adapt and respond with flexibility to the wide-ranging consequences of a pandemic lockdown. In some cases, decentralization provided the decision space for local authorities to make appropriate policy decisions in line with the local contexts, drawing on timely monitoring of service utilization. The combined social capital gains from responsive governance and a committed health workforce during the crisis can also contribute to increased community trust in health service provision. Many countries reported that lack of trust was a major disrupter.

Fifth, there was less disruption when countries employed integrative systemwide approaches that moved away from silos of surveillance and health service delivery for COVID-19. For example, continuity of essential services was improved when pandemic contact tracers were aware of routine surveillance needs such as assessing people for skin lesions associated with leprosy, or hypertensive follow-ups. Another example was the strengthening of pandemic surveillance when screening for COVID-19 was incorporated into routine assessments of all suspected tuberculosis or malaria cases.

Window of opportunity to build back better

The pandemic is a sharp reminder of how easily overwhelmed our health systems can become during public health emergencies. We have also witnessed during the pandemic that health systems built on a foundation of primary health care (PHC) are resilient and adapt in the face of enormous internal and external pressure. With the imminent global roll-out of COVID-19 vaccines, health systems will continue to experience significant pressure vis-à-vis health workforce capacity, resource allocation and strategic communication to address vaccine hesitancy, among other issues. Countries are not starting from scratch. We must revitalize and build on the existing PHC systems.

The lessons learnt and best practices emerging during this pandemic are indicative of the pivotal role of PHC in the continuity of essential services, improved equity and increased health security. These have been captured as practical ways forward in the PHC operational framework drafted jointly by WHO and the United Nations Children’s Fund (UNICEF). The framework proposes 14 levers for countries to consider in strengthening PHC-centred health systems towards universal health coverage and the health-related Sustainable Development Goals. We should not miss this window of opportunity to learn from the wide range of emerging best practices in countries, encourage more and more innovations, sustain and accelerate our investments in PHC, and build back better, differently and more prepared.

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Authorship: MZ and ST jointly conceptualized the manuscript. MZ wrote the first draft of the manuscript with input from ST. Both authors contributed to the discussion and analysis and approved the final version of the manuscript.


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References


Unpacking the service delivery function: COVID-19 provides an opportunity for some reverse thinking

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All forms of service delivery are being scrutinized during the COVID-19 pandemic

The rapid spread of coronavirus disease 2019 (COVID-19) has threatened to overwhelm health systems worldwide. In some countries, the COVID-19 crisis has shown the urgent need for more effective population-based services as well as personal care. Countries’ responses to COVID-19 have also shown that some health systems can be agile and develop innovative approaches, implementing strategic shifts1 to respond to the pandemic effectively while maintaining other essential health services. The pandemic has accelerated changes in what health and social services are delivered where and how, such as with the use of telemedicine and through fostering partnerships between public and private care providers. However, COVID-19 has also exposed and exacerbated persistent inequalities in risks to health and health outcomes, despite decades of commitment to health for all. While we are still learning, many changes introduced as responses to the crisis deserve to be sustained as we aim for more equitable and resilient health systems. The COVID-19 crisis has firmly reinforced the need for health systems that are based on a primary health care (PHC) approach that includes robust community-based services and reinforced public health functions.

A PHC approach includes three components: meeting people’s health needs throughout their lives; addressing the broader determinants of health through multisectoral policy and action; and empowering individuals, families and communities to take charge of their own health. Health systems aim to improve health and health equity in ways that are responsive and financially fair. To achieve these goals, health systems must fulfil four core functions: service delivery, stewardship/governance, financing and generation of resources.2 PHC is a policy mechanism for executing the four core health system functions in the most effective way. The pandemic has provided an impetus to revisit the service delivery function so that we can gain a clearer and more widely shared understanding of what it encompasses and its interactions with the other health system functions. This is not just a theoretical exercise; this understanding is required to optimize what services are delivered to communities and to individuals, and how.

Unpack and optimize the service delivery function

Commonly described shortcomings in health systems point to specific failures in service delivery. These include but are not limited to patients feeling lost in the system as they try to find their way to and among health providers; people postponing care seeking, not completing their treatment, or not accessing services at all because of a range of informational, organizational, financial or cultural barriers; irrational use of medicines; professionals under stress due to congestion in some facilities while other facilities lie almost empty; and unnecessarily repeated diagnostic tests because results were not shared between providers.3

Health services can be classified in a multitude of ways. They can be described by their purpose, such as health promotion and prevention, resuscitation, curative care, rehabilitation or palliative care.4 They can be categorized by place of delivery – in the community, at home, at a health centre, in a hospital or at a long-term care facility. Other classifications include by target, population versus personal services and whether the service delivery was by a public or private provider. These are all descriptions of the elements of service delivery. These elements require actions with regard to critical processes, including priority setting, planning, organization and quality of health services, and management of service delivery facilities.4 Together, these processes constitute the function of service delivery, which is influenced by, but distinct from, the other health system functions.

Make service delivery the cornerstone of action to strengthen a health system

Regardless of whether changes in health service provision are attempted at the facility (micro) level, the district/municipality (meso) level, or the national or state (macro) level, a process built on agreed models of care is essential to achieve desired changes. Models of care refer to a set of service principles that broadly define good practice in the way health services are delivered for an individual, a patient cohort or a population group.5 A model of care aims to deliver the right care at the right time and in the right place. Models of care are not static or universal; they are adapted to local health care needs.
Service delivery is the confluence where health care users
people at the heart of service delivery
A paradigm shift: reverse thinking places
health system functions.
Service delivery is an integral component in shaping other
financing arrangements or the production of health workers.
reforms. For example, fostering team-based care requires not
just the creation of teams but also the redesign of processes
such as task sharing or task shifting, new competencies for
individual health care workers, including implications for pre-
service training, and new payment methods with incentives for
team-based care.
These observations call for us to do some reverse thinking
about strengthening health systems – to see that service
delivery is not a passive consequence of governance and
financing arrangements or the production of health workers.
Service delivery is an integral component in shaping other
health system functions.

A paradigm shift: reverse thinking places people at the heart of service delivery

Service delivery is the confluence where health care users
and providers interact most directly. More reverse thinking
can increase awareness of the dynamic roles individuals
play in shaping health service provision and use across
different levels of the health system. Looking through a
service delivery lens highlights the processes and nuances of
people-centred care: co-creation of a personal care plan;
interactions between facility managers and staff in shaping
organizational processes and culture; local health authorities
engaging local communities and health care providers
to prioritize services and supervise implementation; and
decision-makers at national, state or district level exercising
stewardship of these processes. Experience shows that the
definition and revision of models of care require safe spaces
for community engagement, along with reliable information
on communities’ needs and assets, and assessment of
service access, coverage and quality. A service-delivery-
anchored approach to the design of PHC-oriented health
systems further reinforces the importance of empowering
people to engage in shaping service delivery processes,
strengthening the quality of services and increasing their use
as a result.

Conclusion

The COVID-19 pandemic has highlighted the need for a
coherent approach to strengthening the delivery of high-quality
individual and population-based health services through a
range of delivery platforms. The dual challenge of responding
to the emergency while protecting other essential services, as
well as considering future prevention and response, has put
the spotlight back onto primary care. The three components
of PHC are widely recognized as the foundation of successful
efforts towards universal health coverage and health security.
It is time to recognize that the service delivery function is not
simply an inevitable consequence of the performance of the
other three functions or a passive stepping stone towards
improved personal and population health; rather, it can and
must be actively and directly managed to ensure impact.
Service delivery has its own distinct processes involving the
planning, organization and management of services. It will
also be useful if more of us – policy-makers, programme
implementers and policy analysts – can reverse our thinking
about strengthening health systems and view health system
dynamics through a service delivery lens, keeping the
implications for service delivery squarely in our analysis as
we work to strengthen any of the four interconnected health
system functions. Country endorsement of service principles
and models of care that are aligned to PHC will further bolster
successful outcomes of reverse thinking.

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Impact of the COVID-19 pandemic on immunization and surveillance of vaccine-preventable diseases in the WHO South-East Asia Region

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Introduction

Immunization programmes in countries of the World Health Organization (WHO) South-East Asia Region have a strong foundation in primary health care, and their capacity to maintain service during the coronavirus disease 2019 (COVID-19) pandemic response is a reflection of public investment in resilient and broader health systems. We summarize in this paper the immunization experience during the pandemic and highlight lessons learnt for continuity of service delivery across programmes, in both the “new normal” and future public health emergencies.

Background

More than 37 million children are born in the WHO South-East Asia Region every year. Immunization systems established in the region were able to reach more than 90% of these infants with three doses of diphtheria–tetanus–pertussis (DTP3) vaccine in 2019. The region has continued to build on its immunization programme to achieve the eight goals laid out in the regional vaccine action plan (RVAP). The region eliminated polio in 2014, and maternal and neonatal tetanus in 2016, and has maintained that status for both since then. Five countries, of the eleven in the region, have achieved measles elimination, and two of these have also eliminated rubella. Immunization remains one of the most important public health interventions for the health and well-being of communities in the region and globally.

Epidemics and pandemics have been known to cause disruption to essential health services, including immunization services, resulting in several unfavourable outcomes. The COVID-19 pandemic is no exception. Disruption of immunization services, even for brief periods, is expected to result in an increase in the number of susceptible individuals and, thereby, increase the risk of emergence of outbreak-prone vaccine-preventable diseases.

The impact

The COVID-19 pandemic has had an impact on the performance of immunization and surveillance for vaccine-preventable diseases in several countries of the region. Routine immunization sessions stopped or were severely affected for varying durations, either nationally or subnationally, in most countries. These disruptions were mostly due to decreased access to services following transportation reductions, physical distancing measures, and concerns of caregivers and health workers about COVID-19 exposure. Although vaccine availability remained adequate, immunization coverage dipped to low levels during the early months following the onset of the pandemic, mainly because of interruptions in immunization sessions. Based on data received from countries by the WHO Regional Office for South-East Asia, nearly 3 million fewer children received DTP3 vaccines between January and June 2020 than in the corresponding period in 2019. A similar decline has been observed for other vaccines. For every 1000 children vaccinated, the first dose of measles vaccine is estimated to avert nearly 16.5 deaths and the second dose an additional 1.9 deaths. The decline in coverage of measles vaccination is likely to result in increased mortality and morbidity due to measles.

Similarly, surveillance for vaccine-preventable diseases was affected by the pandemic. The reporting of vaccine-preventable diseases by countries in the region declined significantly for a combination of various reasons such as repurposing of health workers for COVID-19 response, absence of health workers from work due to COVID-19 infection, lockdown measures and fear of infection among communities. More than 30 000 fewer cases of suspected measles and nearly 19 600 fewer cases of acute flaccid paralysis were reported and investigated between January and October 2020 than in the corresponding period in 2019, leading to a decline in sensitivity of surveillance for measles and polio respectively. Environmental surveillance for poliovirus detection was also affected, with more than 600 fewer sewage samples collected and tested in the region in 2020 than in 2019.

The pandemic also delayed the implementation of mass vaccination campaigns for measles, rubella and polio in the region, delayed the introduction of new vaccines that were planned in countries, and delayed various monitoring and evaluation activities.

The recovery

With support from the regional and country offices of WHO and the United Nations Children’s Fund (UNICEF), as well as other partners, all countries in the region took several actions to revive and resume immunization and surveillance activities. Countries
adapted the key guiding principles to continue immunization activities during the COVID-19 pandemic to develop national guidelines and action plans for immunization and vaccine-preventable disease surveillance. These plans were rapidly disseminated to subnational levels for implementation. Infection prevention and control guidelines for use during immunization sessions were developed and implemented in all countries. Plans for monitoring the implementation of national guidelines were also developed and implemented. As a result of these measures, immunization coverage levels improved rapidly and, in most countries, achieved the same levels during July to September 2020 as during the corresponding months in 2019. While performance of the surveillance programme has also shown signs of recovery, the reporting rates for suspected measles and acute flaccid paralysis cases remains below 2019 levels in several countries.

What next?

Priority should be given to maintaining continuity of immunization services under safe conditions that ensure no undue risk to health workers, caregivers or the community. The availability of adequate supplies of personal protective equipment for health workers and effective strategies to communicate about safety during immunization sessions remain important. Country-specific catch-up strategies to reach and vaccinate those missed during the pandemic must be developed while implementing routine immunization programmes. National programmes need to decide on the most appropriate strategy to reach these missed children, depending on the extent of disruption of immunization and the COVID-19 transmission dynamics in the country. Multiantigen catch-up campaigns may have to be considered for areas with prolonged disruptions. Relaxation in the upper age limit for vaccination and flexibility in where and when immunization sessions are conducted will allow missed children to be reached. When planning for catch-up strategies, it will be necessary to consider adequate supplies of vaccines and other logistics, appropriate training of health workers, communication and community engagement. Support for field and laboratory capacities for surveillance of vaccine-preventable diseases remains critical. Alternative and innovative strategies, such as event-based surveillance, may have to be considered, depending on country context. Short- and long-term plans to mitigate the impact of the COVID-19 pandemic on immunization and surveillance activities need to be developed. The role of the national immunization technical advisory group in each country remains crucial not only to provide advice on but also to monitor the implementation of strategies for the revival of immunization and surveillance activities.

Conclusions

Immunization is one of the most cost-effective public health interventions, and its roll-out has also received political support as a merit good. The application of lessons learnt from maintaining continuity with quality and reach during the pandemic provides important lessons for building back better systems for primary health care in the new normal. Previous disease outbreaks and humanitarian emergencies have underlined the importance of maintaining essential health services such as immunization, and effectively engaging communities in planning and service delivery. Immunization delivery strategies will need to be adapted and should be conducted under safe conditions, without undue risk to health workers, caregivers and the community, as per the guidance documents issued by WHO to protect the population from vaccine-preventable diseases. The gains will have to be sustained, and efforts to mitigate the impact will have to be accelerated and innovative approaches developed to ensure continuity of immunization and surveillance activities, vaccinate the cohorts left out, and resume all halled activities on vaccination, new vaccine introduction and supplementary mass vaccination activities. Monitoring, supervision and evaluation of the programme will remain important to ensure that progress towards the goals of the RVAP remains on track – the focus remains on the regional flagship priorities on measles and rubella elimination – and that the Sustainable Development Goals can be met.

Disclaimer: The views expressed in the submitted article are of the authors and not an official position of the institution to which they are affiliated.

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Authorship: SB and SK conceptualized the paper; MS managed the data and all authors contributed equally to the analysis of the data. SK and SB were responsible for writing the article, and SB, JL and SK were also involved in the final review of the article.


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References

Redesigning routine antenatal care in low-resource settings during the COVID-19 pandemic

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Abstract
Obstetric care, because of the unique and varying needs specific to different patients, requires special consideration in times of a pandemic such as the coronavirus disease 2019 (COVID-19) pandemic. Health care facilities providing obstetric care need to develop contingency plans for minimizing antenatal visits to limit the exposure of both healthy pregnant women and care providers to the virus. However, to mitigate any potential adverse effects of reduced antenatal visits, intelligent use of evolving telemedicine capabilities can protect the continuum of care despite the overwhelming burden caused by the pandemic. A collaborative work model involving health workers in the community and regional-level health centres also has the potential to prevent the catastrophic collapse of obstetric care services during a pandemic such as the COVID-19 pandemic.

Keywords: antenatal care, COVID-19, obstetrics, pandemic, telemedicine

Introduction
Coronavirus disease 2019 (COVID-19) reached pandemic proportions in a short period, recognizing no boundaries of geography, economy or religion. The functioning of the Indian health system, which historically has been built on in-person interaction between patients and health care providers, is severely affected as the global pandemic grips the globe. Pregnant women, as a result of physiological alterations in the immune and cardiorespiratory systems, may be at increased risk of severe disease if infected with the respiratory virus. In addition, the risk of contracting the disease from infected pregnant women poses unique challenges to obstetricians in providing antenatal care. It has become extremely difficult to achieve the goal of a positive pregnancy experience for all women in the time of COVID-19.

The usual prenatal care schedule is based on the World Health Organization (WHO) 2016 recommendations, which prioritize person-centred health care for positive perinatal and maternal outcomes by increasing the number of contacts of a pregnant woman with health providers from four to eight. Pregnant women make the first contact in the first trimester, with a subsequent two contacts at 20 and 26 weeks’ gestation and the next five contacts in the third trimester at 30, 34, 36, 38 and 40 weeks. The interventions recommended for improving the quality of antenatal care are nutrition education, assessment of mother and fetus, preventive measures, management of common physiological pregnancy symptoms and health system-level interventions.1 2 However, in the current scenario of a global pandemic that has placed unprecedented demands on our health systems, health facilities and workforces may be inundated by a plethora of activities related to controlling the pandemic. Hence, non-emergency yet essential health services, such as antenatal services, may be compromised. Furthermore, the fear of getting infected as well as countrywide lockdowns, with travel restrictions and social distancing norms, may deter pregnant women from seeking health care.

Antenatal care during a pandemic: some important considerations
During the COVID-19 pandemic, it is imperative to reorganize antenatal visits, not only to reduce the possibility of exposure of a healthy pregnant woman to infected individuals but also to minimize health care workers’ exposure to prenatal patients who may be infected but are asymptomatic. Such reorganization may be helpful in creating the capacity to provide face-to-face consultations for high-risk patients who require more visits and also prove to be beneficial for all maternity care providers offering care, given the potential for reduced health care workers as the pandemic affects all members of the community.3

Routine antenatal outpatient departments may be closed due to lockdown, and most of the government hospitals have been reorganized for the management of patients affected by the pandemic. This may prevent pregnant women from approaching hospitals due to fear of getting infected. Even if they visit hospitals, they may not be able to communicate properly with an unfamiliar health care provider in unfamiliar surroundings.
Routine laboratory and sonography services may be suspended during a pandemic, further affecting regular antenatal care. This may delay the recognition of high-risk conditions such as anaemia, diabetes and asymptomatic bacteriuria, and also timely interventions based on tests for these. A lack of sonography services presents challenges for early diagnosis and dating of pregnancy as well as ensuring fetal health.

Screening for genetic disease also becomes difficult in these times, as it may be considered non-essential. This may, however, have a serious impact on the outcome of pregnancies in women who have been previously affected by any genetic or metabolic disorder. Because of the extensive reorganization of the health system and resources, invasive fetal diagnostic procedures may not be performed routinely, further jeopardizing obstetric services. Even fetal therapeutic procedures such as intrauterine transfusions will be affected when routine fetal monitoring is suspended.

Antenatal visits allow physical examination, which helps in detecting complications such as pre-eclampsia (by checking blood pressure and noting the presence of swelling of feet or generalized oedema), anaemia or jaundice (by noting the presence of pallor or icterus), intrauterine growth restriction (by abdominal examination), weight gain, any breast problems or any worsening of an underlying medical disorder such as heart disease. Abdominal examination to assess fetal position and presentation and the amount of amniotic fluid at term also helps in making an individualized care plan for the patient. Nationwide lockdowns can have severe implications for maternal and perinatal health if alternative ways of providing antenatal care are not developed.

Assessment of mental well-being can also be difficult in the absence of face-to-face consultations. Opportunities for health education (regarding nutrition, breastfeeding, contraception), promoting healthy behaviours, ensuring birth preparedness and alleviating the anxiety of antenatal women may be squandered during a pandemic.

Although there is ample published literature regarding the management of pregnant women affected by prior pandemics, there is limited literature on how routine antenatal care was reorganized during those times. Even for the severe acute respiratory syndrome (SARS) pandemic of 2003, researchers have reported only how they handled complicated issues.

In Toronto, obstetric services for patients with suspected SARS were shifted to a separate building with different entrances, elevators and air-handling systems. All patients and health care providers were screened at the hospital entrance for SARS symptoms. All caregivers wore N95 respirator masks, face shields or eye protection, gowns and non-latex gloves, while the patients wore N95 respirator masks. Frequent hand washing with ethanol-based gels was implemented. Patients’ attendants were limited to the minimum. After early discharge, women were instructed to stay at home under quarantine for 10 days, and a nurse visited them on their third day postpartum. Health care workers were asked to observe work quarantine.

In Hong Kong, obstetric services were provided in a separate area from where SARS cases were managed. There was a tendency to discharge patients in the early postpartum period, and all non-essential obstetric services (e.g. routine ultrasonography and prenatal diagnosis) were temporarily suspended.

### Strategies to overcome challenges during a pandemic

Some of the strategies that can be used by primary care physicians to overcome difficulties in providing routine antenatal care during the pandemic are summarized in Box 1 and are discussed below in detail.

#### Box 1. Practice points for primary care physicians

- Inform local authority about suspected cases and facilitate testing.
- Promote social distancing signage at clinics asking patients to self-identify if they are having flu-like symptoms, have travelled abroad or have come into close contact with someone who has tested positive.
- Screen patients over the phone before visiting the clinic.
- Reduce in-person antenatal care services.
- Promote teleconsultations.
- Be aware of the levels of personal protective equipment to be used when a patient is under investigation and examine patients only with all precautions.
- Report all patients with fever.
- Promote social distancing and hand hygiene at each visit.

#### Reducing the number of routine antenatal visits to those who require in-person services (such as ultrasounds and lab tests)

Usual antenatal care includes eight visits, as recommended by WHO. However, during a pandemic, consideration should be given to reducing the number of recommended prenatal visits for low-risk pregnancies.

The optimal frequency, timing and content of visits should be determined according to the needs and risk status of each pregnant woman and her fetus, as well as the risk of contracting infection when a pandemic such as the COVID-19 one sets in.

Prior to the WHO’s 2016 recommendations, a focused antenatal care model was recommended by WHO in 2002, particularly in low- and middle-income countries. It suggested four antenatal care visits, first between 8 and 12 weeks, then between 24 and 26 weeks, third at 32 weeks and last between 36 and 38 weeks. Villar et al., through a multi-centre randomized controlled trial, established that there were no disadvantages of fewer visits.

Focused antenatal care is evidence-based and has been the best approach for resource-limited countries with few health professionals and limited infrastructure, as may be the case in a pandemic due to quarantine of exposed health care providers. Focused antenatal care has already proved its effectiveness in terms of reducing maternal and perinatal mortality and morbidity.

Hence this model can be used for routine antenatal care in times of pandemic when the health system is already overwhelmed and the risk of getting infected concerns both pregnant women and health care providers. Recently, global interim guidance on COVID-19 during pregnancy and puerperium from the International Federation of Gynecology and Obstetrics and allied partners advocated for a reduced
number of antenatal visits for low-risk, uncomplicated pregnancies to minimize the risk of cross-infection.9

The most important evidence-based intervention that requires in-person prenatal visits is checking blood pressure to diagnose and treat pre-eclampsia, a leading cause of maternal mortality. However, this can be done at home and supervised through telemedicine. Measuring weight beyond the first prenatal visit has not been shown to improve outcomes. Listening to fetal heart tones has also not been shown to change pregnancy outcomes. There is insufficient evidence that abdominal palpation or measuring symphysial fundal height improves pregnancy outcomes. However, of late Turrentine et al. have proposed a drive-through prenatal care model where blood pressure measurement, fetal heart rate assessment and selected ultrasound-based observations along with face-to-face doctor–patient interaction can occur, with the pregnant woman remaining in her private vehicle. This model also has the potential to reduce patient anxiety due to restricted antenatal visits.10

During the COVID-19 pandemic, some Australian hospitals have decided to reduce in-person antenatal visits to only three for low-risk women throughout their entire pregnancy.11 Those visits are linked to key immunizations:

- the first antenatal visit to coincide with the delivery of the influenza vaccine;
- the second appointment at 28 weeks to include the pertussis vaccine;
- the third appointment between 34 and 37 weeks to include an ultrasound for fetal position and biometry.

Similarly, because of the COVID-19 pandemic, in-person prenatal care at an American hospital has now been reduced to an initial prenatal visit, an anatomy ultrasound, and 28-, 36- and 39-week visits. All lab tests are to be conducted during these visits, rather than in separate appointments.12

Home monitoring of blood pressure, weight, urine protein and glucose can be an alternative to some antenatal visits in low-risk patients. Pregnant women can also measure their fundal height starting at 20 weeks, when the fundus should be at the level of the umbilicus. They can even mark their fundus after passing urine and send photos so that their doctor can see the progression.

The usual antenatal blood tests can be done normally at one of the antenatal visits, except for testing for gestational diabetes mellitus. An oral glucose tolerance test (OGTT), usually done between 24 and 28 weeks’ gestation, involves a follow-up blood test 2 hours after the fasting sample. However, this waiting period is not ideal in the time of a pandemic. Hence, low-risk women can have a fasting blood sugar level test performed at the 26- to 28-week antenatal visit while high-risk women can have a glycosylated haemoglobin (HbA1C) test instead of an OGTT during the first trimester.

Health care providers can schedule a telehealth appointment for the day before a face-to-face visit. These telehealth appointments can cover the majority of what needs to be discussed, thus limiting the time required for the follow-up face-to-face interaction to less than 15 minutes.

For the care of pregnant women at high risk, including obstetric risks, fetal risks, medical comorbidities or psychosocial issues, an individualized care plan should be created to determine the schedule of visits. All the visits need not be face-to-face consultations. A schedule for antenatal care during the COVID-19 pandemic is proposed, as shown in Fig. 1.

![Fig. 1. A proposed schedule for antenatal care in low-risk women during the COVID-19 pandemic](image-url)

**Low risk**

1st prenatal visit at 11–13 weeks

2nd prenatal visit at 18–20 weeks

3rd prenatal visit at 28 weeks

4th prenatal visit at 36 weeks

**High risk**

Level II ultrasonography

- Anti-D injection if ICT negative in Rh-negative pregnancy
- DTP vaccine
- Fasting blood sugar test
- Provide instructions on home blood pressure measurement and DFMC

Individualized care plan

- Review fetal movements
- Blood pressure and obstetric examination
- Obstetric ultrasonography (if needed)
- Discuss birth plan

**Individualized care plan**

- Teleconsultation once pregnancy is diagnosed
- Start folic acid tablets if not taking already
- Assess whether high risk or low risk

- Virtual visits at 16 weeks, 34 weeks and 38 weeks or any time in the presence of complaints
- Defer in-person visit for at least 14 days if the pregnant woman is COVID-19 positive but having no or mild symptoms
- If a COVID-19-positive woman requires admission for any indication (obstetric or moderate to severe COVID-19), she should be treated in a dedicated COVID-19 hospital

- Anti-D: antibody against D antigen; DFMC: daily fetal movement count; DTP: diphtheria, tetanus and pertussis; ICT: indirect Coombs test; NB: nasal bone; NT: nuchal translucency.
and are already at advanced stages of adoption in medical sciences such as radiology, pathology and ophthalmology, they have been minimally explored for obstetric care. Online antenatal education resources and real-time synchronous telecommunication through various tools of telemedicine such as video technology, audio technology or chat-based platforms such as WhatsApp and Google Hangouts can be utilized to provide support from experienced health care providers well trained in communication skills. In the context of countrywide lockdowns to contain the spread of a pandemic, information on antenatal care can also be accessed through trusted official hospital websites.

Digital health apps can play a role in the care of pregnant women. A mobile health app can enable the provision of prenatal care and its integration with other aspects of family and professional life. Furthermore, the majority of prenatal care visits are scheduled to exchange educational information with the patient; pregnant women may be more receptive to educational programmes that can be delivered through a mobile health app. In-person visits for weight and blood pressure measurement can also be replaced by communication via mobile technology or remote monitoring. Marko et al. tested a mobile app for antenatal care and found that it resulted in fewer in-person visits without affecting patient satisfaction.

Telemedicine can also be used to educate pregnant women about preventive measures during a pandemic, such as isolation of ill people, voluntary quarantine of households with ill people and social distancing techniques to limit exposure to infected people. These measures can present unique challenges for pregnant women, who can be guided through telemedicine on how to protect themselves from becoming infected if they are quarantined with or directly providing care for ill people. Furthermore, they can be reassured through telemedicine that COVID-19 infection is not necessarily an indication for delivery, as vertical transmission has not been proven.

**Telephone triage**

Telephone triage can be utilized to prevent women from visiting hospitals unnecessarily. The services of senior, experienced, trustworthy health care providers with excellent communication skills may be more effective in reassuring patients and reducing the number of unnecessary patient visits than those of other providers. Virtual triage also allows us to obtain more history, trace contacts and discuss recent travel. If a pregnant woman requires a COVID-19 test for COVID-19 infection, the triage facility may aid her in getting to the right location and also allow time for the infection prevention team to prepare at the facility. It can also be utilized to defer prenatal care for at least 2 weeks if a pregnant woman tests positive.

**Utilization of the private sector**

If government hospitals are redeployed to provide care to ill people during a pandemic, routine antenatal care services can be provided by the private sector utilizing telemedicine. However, private sector providers should adhere to all the recommendations listed in national telemedicine practice guidelines, both to maintain the privacy and confidentiality of the patient and to ensure that they remain within the law.

Online help groups can be created, in which women can act as peer mentors and share their lived experiences with other pregnant women. These mentors, besides helping group members with home monitoring of their pregnancy, can also guide them to recognize any danger signs. Such online groups can not only prove to be instrumental during periods of lockdown but also contribute outside a pandemic by providing extra support and reassurance to pregnant women.

**Utilization of outreach facilities for antenatal care**

In countries where health care delivery is based on the provision of outreach services by accredited social health activists (ASHAs) or auxiliary nurse midwives (ANMs), routine antenatal care can be provided without any difficulty. ASHAs or ANMs can allocate fixed-day services in their area while ensuring adherence to social distancing norms. They can create awareness in their community about the need to reduce the number of antenatal visits and mobilize women only in small groups of three or four to peripheral health centres to avoid overcrowding. They can also list and follow up on high-risk pregnancies to ensure early detection of complications, referral and further follow-up. Each pregnant woman, with the help of an ASHA or ANM, can be linked with the appropriate health facility for delivery. All districts should identify and communicate to peripheral facilities a list of functional and adequately staffed centres where high-risk pregnant women and women who develop complications can be treated.

Antenatal care during the last trimester requires prioritization. Telephone contact should be made by ASHAs or ANMs with high-risk pregnant women during the last trimester to ascertain their status and organize home-based follow-up if necessary. Home visits by ASHAs or ANMs, with all protective measures, may also provide them with the opportunity to distribute iron, folic acid and calcium tablets to pregnant women. In the case of a home delivery, an immediate visit can be made by an ASHA or ANM to assess the health of the woman and newborn.

**Conclusion**

Outbreaks of infectious diseases pose unique challenges for obstetric care facilities. Denying essential health services such as outpatient antenatal care and inpatient delivery services during a pandemic can have severe implications for maternal and fetal health. Social distancing and countrywide lockdowns have proven their role in slowing down viral transmission, giving time to adapt health systems to the pandemic. Health care facilities need to develop plans to minimize the exposure of healthy pregnant women while continuing to provide both routine and emergency obstetric care. A strategy to reduce the number of antenatal visits and different places for care and delivery of pregnant women with confirmed COVID-19 or recent exposure and healthy pregnant women may minimize the risk of infection. Intelligent use of technology such as telemedicine, which has been used in managing chronic illness for a long time, can be incorporated into obstetric care. Furthermore, triaging of pregnant women based on their period of gestation and their symptoms has the potential to avoid the risk of exposure while ensuring that the pregnant women most in need of attention receive care. Lastly, a collaborative work model involving health workers in the community and regional-level health centres also has the potential to prevent the catastrophic collapse of obstetric care services during a pandemic such as the COVID-19 pandemic.

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**Authorship:** All authors contributed equally.


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Roles of community health workers in advancing health security and resilient health systems: emerging lessons from the COVID-19 response in the South-East Asia Region

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Abstract
To enhance public health emergency preparedness, countries have strengthened core capacities required by the International Health Regulations (2005). In addition, recent major public health emergencies, including the coronavirus disease 2019 (COVID-19) pandemic, have reiterated the critical importance of underlying health systems and their resilience, including the roles of community health workers (CHWs). The aim of this study was to summarize the situation of CHWs in the World Health Organization South-East Asia Region, including their roles and the challenges they have faced during the COVID-19 pandemic response. We reviewed journal articles, policy documents, national guidelines, reports and online publications from development agencies, governments and media houses. Our review results, including three identified case studies, suggest that CHWs in the region have expanded their usual roles to meet the need for both maintenance of regular health services and demand for COVID-19 response activities. During the response, the regular role of a CHW in health education and promotion focused on awareness-raising and the promotion of “new normal” behaviours; CHWs also played critical roles in assisting in surveillance and contact tracing, and in ensuring that people followed isolation and quarantine guidelines. Concurrently, CHWs ensured continuity of essential health services. However, there were challenges, such as stigma, a lack of adequate training or protective equipment, and limited levels of incentives and recognition. Based on these findings, we recommend the development and implementation of long-term plans across the region to strengthen and support CHWs and recognize CHWs as an integral component of resilient health systems.

Keywords: community health worker, COVID-19, primary health care, public health emergency preparedness, resilient health systems, South-East Asia Region

Introduction
The world continues to face public health threats from infectious hazards, natural disasters and food safety events. To cope with health security threats and enhance public health emergency preparedness, countries have strengthened core capacities required by the International Health Regulations (2005) (IHR).1 Recent experiences with major public health emergencies, including the coronavirus disease 2019 (COVID-19) pandemic, have reiterated the critical importance of underlying health systems and their resilience for countries to respond effectively to such events. One of the crucial components that has often been overlooked during peacetime is the critical role of community health workers (CHWs) in the response to outbreaks and other public health emergencies, including in prevention, preparedness and surveillance.2,3

CHWs play essential roles in primary health care (PHC), as outlined in the 1978 Declaration of Alma-Ata.4 They enable the key features of the PHC approach, including meeting people’s health needs throughout their lives, facilitating multisectoral policy and action to address health determinants at community level, and empowering individuals, families and communities to take charge of their own health. The term “community health workers” is often used in a non-specific way. The International Labour
Organization defines CHWs as those who “provide health education and referrals for a wide range of services, and provide support and assistance to communities, families and individuals with preventive health measures and gaining access to appropriate curative health and social services”.

The World Health Organization (WHO) guidelines on CHWs also recognize that there are blurred boundaries with other types of community-based health workers; the scope of the guidance has been expanded to include all types of community-based health workers.

Globally, CHWs are increasingly recognized as a key component of effective COVID-19 responses. For example, experiences from Italy reveal that managing the COVID-19 epidemic requires a shift away from hospital-centred care and towards community-centred care. In times of crises, essential health services often decline, a trend that could be as dangerous as the pandemic itself. Viet Nam’s success in controlling the spread of COVID-19 was also attributed, in part, to its CHWs, village health volunteers, who understood their communities and had their communities’ trust.

The WHO South-East Asia Region has been severely affected by COVID-19, with over 11 million cases and over 168,458 deaths as of 8 December 2020. The COVID-19 pandemic has further strained what was, in the majority of countries in this region, an already overstretched health system, including human resources for health. While the regional average density of doctors, nurses and midwives increased to 26.0 per 10,000 population in 2018, it is still far from the global threshold of 44.5 per 10,000 population estimated to be required to achieve the Sustainable Development Goals. During previous emergencies, CHWs have served as a bridge between the community and health services, as well as the agents of community participation in health. The region is considered a birthplace of modern CHWs because of the Jamkhed Comprehensive Rural Health Project, and different countries in the region have developed a variety of CHW programmes, varying in their structure, function and scope.

Lessons from the COVID-19 pandemic, including the way CHWs have contributed to addressing this severe public health emergency, are likely to redefine our future efforts to strengthen resilient health systems and public health emergency preparedness. In this regard, we reviewed how the roles of CHWs have adapted to meet the formidable COVID-19 challenges in the South-East Asia Region and identified the lessons learnt from their experience. We present our findings in this paper, including case studies that exemplify how CHWs contributed to the COVID-19 response, and a discussion on the future directions for the roles of CHWs as part of resilient health systems in the context of health security and emergencies.

**Approach**

We conducted a rapid evidence review by searching over 150 publications, including peer-reviewed publications, the grey literature, relevant policy documents, national guidelines and reports, factsheets, articles on news websites, speeches, conference presentations and proceedings, as well as websites of governments, international organizations (e.g. WHO headquarters, regional and country offices, United Nations agencies) and nongovernmental organisations (NGOs). Our focus was on community-based activities and interventions during the COVID-19 response, and the search criteria included combinations of the words “community health workers”, “COVID-19”, “accredited social health activists”, “pandemic”, “village health volunteers” and “primary health care” and each of the countries within the region.

**Findings**

**Overall status of CHWs and COVID-19 in South-East Asia**

Table 1 summarizes the availability of select PHC workers per 10,000 population recently reported by Member States through the National Health Workforce Accounts, along with selected relevant IHR capacity indices and the COVID-19 case incidence for the 11 countries in the South-East Asia Region. PHC is carried out by different types of health workers and there is currently no standard that defines the categories of health workers considered to be PHC workers. Disaggregated data are limited for accurately quantifying which health workers are predominantly working in PHC, especially for doctors, nurses and midwives. Based on verified available data reported by Member States in the region, “select PHC workers” are CHWs, traditional practitioners, medical assistants and paramedical practitioners.

Within the region, India reported the largest cumulative number of confirmed people with COVID-19 infection and Maldives experienced the greatest case incidence rate (cumulative number of COVID-19 cases per 1 million population) as of 6 December 2020. The Democratic People’s Republic of Korea, Thailand and Timor-Leste reported fewer than 100 COVID-19 cases per 1 million population.

The reported PHC worker density per 10,000 population varied greatly across the region, from 0.5 to 13.2, with the notable outlier of Thailand, which reported as many as 157.7 PHC workers per 10,000 population, including 153 CHWs.

In the IHR State Party Self-Assessment Annual Reporting (SPAR), four of the eleven South-East Asia Region countries reported a score of 80% or more for human resources for the implementation of IHR capacities (average of 2018 and 2019 values). These findings suggest that multisectoral workforces are available and trained in these countries for the implementation of IHR capacities at all levels, including local levels. The presence of such workforces contributes to the resilience of communities. Of the eight countries that conducted the IHR Joint External Evaluation (JEE) mission between 2017 and 2019, three countries (Indonesia, Sri Lanka and Thailand) were assessed as having strong capacity in terms of communication engagement with affected communities, with regular briefings, training and engagement of social mobilization and community engagement teams, including volunteers, and feedback loops with community engagement teams.

**Country case studies**

The following case studies illustrate the contributions made by CHWs during the COVID-19 response in the South-East Asia Region.
Table 1. Summary of the density of select PHC workers, relevant IHR capacities by State Party Self-Assessment Annual Reporting (SPAR) and Joint External Evaluation (JEE) scores and COVID-19 cases, South-East Asia Region, December 2020

<table>
<thead>
<tr>
<th>Country</th>
<th>CHWs</th>
<th>Medical assistants</th>
<th>Traditional medicine professionals and associate professionals</th>
<th>Paramedical practitioners</th>
<th>Total</th>
<th>SPAR score for human resources for the implementation of IHR capacities (%)</th>
<th>JEE score for communication engagement with affected communities (2017–2019)</th>
<th>COVID-19 cases (cumulative)</th>
<th>COVID-19 cases per 1 million population (cumulative)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>3.4</td>
<td>0.9</td>
<td>2.8</td>
<td>7.1</td>
<td>40</td>
<td>4</td>
<td>475 879</td>
<td>2890</td>
<td></td>
</tr>
<tr>
<td>Bhutan</td>
<td>2.3</td>
<td>8.2</td>
<td>10.5</td>
<td>60</td>
<td>3</td>
<td>4</td>
<td>426</td>
<td>552</td>
<td></td>
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<tr>
<td>Democratic People’s Republic of Korea</td>
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<td>2.0</td>
<td>80</td>
<td>NA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
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<td>7.2</td>
<td>5.9</td>
<td>13.1</td>
<td>100</td>
<td>NA</td>
<td>9 644 222</td>
<td>6989</td>
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<td></td>
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<tr>
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<td>80</td>
<td>4</td>
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<td>8.6</td>
<td>4.5</td>
<td>13.2</td>
<td>20</td>
<td>3</td>
<td>13 159</td>
<td>24 344</td>
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<td>1.5</td>
<td>6.9</td>
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<tr>
<td>Sri Lanka</td>
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<td>0.5</td>
<td>60</td>
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<td>27 228</td>
<td>1272</td>
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<tr>
<td>Thailand</td>
<td>153.3</td>
<td>4.4</td>
<td>157.7</td>
<td>80</td>
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<td>4072</td>
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<tr>
<td>Timor-Leste</td>
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<td></td>
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<td></td>
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</tr>
</tbody>
</table>

*Data on PHC workers are based on the numbers reported by countries to the WHO Regional Office for South-East Asia and published in the latest report. Data collection on PHC workers started in the 2019 round of data collection and is at an evolving stage. Data are still incomplete.

IHR SPAR data are available at the Global Health Observatory. Data are presented as the average of 2018 and 2019 values. IHR JEE mission reports conducted from 2017 to 2019 are available on the WHO website. Data are not available from the Democratic People’s Republic of Korea, India and Nepal, which have not yet conducted the JEE.

Data on COVID-19 cases are cited from WHO’s COVID-19 weekly epidemiological update, 8 December 2020 (data as of 10:00 Central European Time, 6 December 2020) (https://www.who.int/publications/m/item/weekly-epidemiological-update-6-december-2020).

Community health volunteers supported access to COVID-19 information and services in Cox’s Bazaar, Bangladesh

As of April 2020, over 1400 Rohingya refugees were trained as community health volunteers (CHVs), in order to support the COVID-19 response as well as to provide essential health services to 860 000 Rohingya refugees and 472 000 Bangladeshis living in refugee camps and the surrounding areas in Cox’s Bazar, Bangladesh. CHVs played a critical role in ensuring access to services and information in the crowded camps. One CHV could be assigned up to 150 households every week, visiting the camps’ residents door to door, sharing information about health, hygiene, and COVID-19 symptoms and testing, looking for signs of illness for case finding and referral, advising on home-based care for suspected COVID-19 cases, recording births and deaths, working directly with the refugee communities to address mental health by providing primary support, and referring patients when additional support was needed. They also ensured that routine health care support, including immunizations, management of non-communicable diseases, and maternal and child health support, continued in the community. The CHVs acted as a bridge, building trust between refugee communities and health facilities. To build trust, they also worked closely with community leaders (majhis) and religious leaders (imams). They also tackled the fear and rumours that had discouraged many people from approaching health facilities by providing accurate information and practical advice.

Health volunteers contributing to containing the spread of COVID-19 in Dharavi, Mumbai, India

In Dharavi, Mumbai, India, Asia’s most densely populated urban slum, in which approximately 1 million people live in an area of just over 2.1 km² (520 acres), physical distancing to limit the spread of COVID-19 was virtually impossible. The “Dharavi model” adopted by the municipal administration involved “chasing the virus” with tracing, testing and treating, including proactive screening and robust surveillance. To access the crowded area and its residents, the municipal corporation collaborated with local influential leaders, community organizations and NGOs, including hundreds of CHWs. These CHWs, who were designated as “COVID warriors”, were familiar with the densely populated area and trusted by the community. They provided information on COVID-19, ensured regular supplies of essential groceries and medicine in containment zones, and were equipped with a thermal scanner and a pulse oximeter to support screening efforts. The use of CHWs generated significant community capacity for a resilient response, and the spread of COVID-19 was contained within 2 months.

Village health volunteers in Thailand helped contain the spread

Established in 1977, Thailand’s village health volunteer (VHV) system played a crucial role in the country’s successful COVID-19 prevention activities and response. At the start of the pandemic in March 2020, to help the government with nationwide efforts in communication, contact tracing and the isolation of people who required home quarantine, VHVs were mobilized and trained and, for their protection, provided with face masks, shields, biohazard bags and alcohol-based hand sanitizer. During the month of March, VHVs visited 3.3 million households, providing information about preventive measures, encouraging mask use and social distancing, and dispensing cloth masks, alcohol-based hand sanitizer and health
information flyers. Then, during the first 2 weeks of April, before the Songkran New Year, VHVs visited 8 million additional households to identify potential COVID-19 cases, focusing on high-risk groups, while ensuring that people adhered to prevention measures. During the Songkran New Year period in mid-April, before the announcement of the emergency decree regarding the lockdown, many Thai residents living in urban areas returned to their rural homes. Without the VHVs who knew their respective villages and had established the trust of their communities, it would have been a near impossible task to trace all the returnees who contracted COVID-19. Although the VHVs already had a range of other responsibilities, it was possible to piggyback on their current outreach efforts and capitalize on the trust established to enable effective COVID-19 screening, contact tracing and surveillance, which ultimately helped to limit the spread of the virus.

The roles of CHWs in the COVID-19 response
In non-emergency situations, the traditional roles of CHWs have included health education, routine immunization, supporting maternal and child health, family planning and reproductive health activities, and surveillance and contact tracing for communicable diseases.\textsuperscript{26,27} Given the urgency and enormous gap between the health needs of the population and the available human resources, the CHW’s role has expanded in response to the COVID-19 pandemic. The aforementioned case studies introduced some of our findings on the various roles that CHWs in the South-East Asia Region have played as part of the COVID-19 pandemic response. We elaborate further on our findings below.

Health education including promotion of new normal behaviours
We found that in all South-East Asia Region countries, in line with government advice and decrees, CHWs have undertaken roles to encourage communities to adhere to public health and social distancing measures in response to the COVID-19 crisis. These have included hand hygiene, cough etiquette, proper use of masks, staying at home when unwell, physical distancing, and avoidance of the three Cs – closed spaces, crowded places and close-contact settings.\textsuperscript{28,29} CHWs have played a critical role in promoting these “new normal” behaviours by engaging with their communities to understand people’s perceptions and by framing the behaviours in the relevant context, considering the micro culture and social systems that can differ greatly across communities, even within a country. This is no small feat as it requires addressing the often-pervasive resistance to change and promoting the normalization of community adaptation to new ways of thinking and behaviours in order to uphold public health and social well-being.

Countries in the region have approached the use of CHWs in the COVID-19 response in different ways. In India and Thailand the promotion of the “new normal” behaviours have been integrated in national CHW guidelines.\textsuperscript{30–32} In Indonesia and Maldives, CHWs who staff health posts have been providing COVID-19-related information to the community. In Myanmar, CHWs have been conveying messages across the slums of Yangon and in hard-to-reach areas.\textsuperscript{33} In India, CHWs have been trained in COVID-19 prevention activities.\textsuperscript{34,35} Another important role that CHWs have played has been in preventing the spread of rumours and misinformation regarding COVID-19. In Indonesia, community volunteers, including CHWs, are part of the Indonesian government’s efforts, along with digital technology, to fight COVID-19 infodemics.\textsuperscript{36}

Assisting with surveillance, contact tracing and quarantine
CHWs’ contributions to the surveillance and screening of symptoms have played an important role in limiting the spread of COVID-19 in the region. In many countries, including Bangladesh, India, Nepal and Thailand, CHWs conducted symptomatic screening to detect people who might be infected with COVID-19. In India, as internal migrants returned home after lockdown, the CHWs, or accredited social health activists (ASHAs), screened 30–50 households per day for symptoms.\textsuperscript{37,38} When systematically applied, contact tracing will break the chains of transmission of an infectious disease and thus is an essential public health tool for controlling the COVID-19 pandemic.\textsuperscript{39} However, given the considerable fear and stigma surrounding COVID-19, many people have been reluctant to report if they have been in contact with a suspected case. CHWs are trusted by their communities and are trained to convey challenging messages, and hence have been invaluable in communicating the importance of reporting contacts and providing reassurance on the available support in the face of stigma and similar challenges. People in contact with a COVID-19 case are quarantined while waiting for their test results, and, if found to have a positive test result, are isolated for a prescribed time to prevent potential contacts from contracting the virus. CHWs have played a crucial role in helping individuals and families to understand the importance of quarantine and isolation procedures, and in supporting those who are undergoing quarantine and isolation to ensure procedures are followed and that their essential needs are met.\textsuperscript{40}

Maintaining essential health services
The COVID-19 pandemic has absorbed health resources across the region, leading to the disruption of essential services, many at the primary care level, compounding the danger of the crisis to the public’s health.\textsuperscript{7} These essential services include services for maternal and child health, managing chronic diseases and addressing the needs of vulnerable people in the community (people with disabilities and special needs, refugees, migrant workers, the elderly).\textsuperscript{7} In the early stages of the COVID-19 response, CHWs were unable to continue to deliver normal services either because they were under lockdown or because their work was focused on the COVID-19 response. Many health programmes were put on hold during this period, including those for family planning, HIV/AIDS management, immunizations and child health, and malaria and neglected tropical diseases.\textsuperscript{41} Routine immunizations were also affected for the same reasons, as well as because people were afraid of contracting the virus.\textsuperscript{42} However, previous networks established for polio vaccination, including those using CHWs, have supported the COVID-19 response.\textsuperscript{43} Moving forward, these networks, and especially the CHWs, who have the trust of the community, are expected to play a critical role in the delivery and acceptance of the COVID-19 vaccine as it becomes increasingly available in the region. Focusing the provision of health care at the community level has also lessened the burden on the health care system, as demonstrated in the Cox’s Bazar case study described
above. As countries start to learn to live with COVID-19, the delivery of health services has resumed in accordance with current public health and social measures, and CHWs make a vital contribution to this.

Challenges faced by CHWs in the COVID-19 response
Although CHWs have played invaluable roles in responding to the COVID-19 pandemic, it has not been without important challenges.

Stigma and discrimination
The exposure of CHWs to people with COVID-19 infection renders them as vulnerable to stigma as they are to the virus. People fear that they may contract the virus from CHWs and be subjugated to stigma and discrimination themselves, and many cases of violence and other forms of discrimination against health care workers, including CHWs, have been reported in the region.44 For example, an online media site in India reported that a mob of 100 people assaulted ASHAs who were collecting data on people with COVID-19-like symptoms.35 Without a system-wide approach and supportive network, CHWs alone may not be able to dispel the high levels of stigma and discrimination.

Infection prevention and control
CHWs’ safety, and the safety of their families, may be compromised without awareness of and adequate training on measures to prevent exposure to the virus, and the provision of personal protective equipment (PPE), such as masks, gloves and hand sanitizer, and instruction on their proper use. The media in the region have reported cases of CHWs not receiving adequate PPE, especially in the early stages of the pandemic when there was a shortage of supplies.20,37,45–49

Need for adequate training
Across the region, and even within countries, the type and level of COVID-19 training provided to CHWs varied. Despite how essential such training is to the work and safety of CHWs, training was not always adequate, regular and appropriate.3 There were, however, examples of innovative approaches to address this gap. In Thailand, VHVs stayed informed and updated about COVID-19 epidemiology and operational guidelines through the use of specially designed mobile applications and social media group chats.25 In Indonesia, training was provided via a webinar for health workers, including CHWs.

Remuneration and incentives
Monetary remuneration and non-monetary incentives, such as respect and recognition, are important for maintaining CHW motivation and minimizing attrition, especially as CHWs gain experience and skills and become integrated into their communities. There is no standardized approach to CHW remuneration and incentives regionally, and even within countries it can differ greatly. CHWs may receive government payments, NGO incentives, or financial rewards from their communities or the patients they serve, or they may receive no payments or incentives. Without a more harmonized approach to CHW remuneration and incentives, their motivation and performance may be inconsistent and unsustainable, which will consequently affect health outcomes.37,50

Discussion
Our efforts to synthesize the roles that CHWs have played in the COVID-19 response in the South-East Asia Region have identified the considerable potential of CHWs to contribute to the pandemic response. We also identified important challenges. We found that in countries where CHW systems have already been in place for some time, the CHWs had the intimate knowledge and trust of their communities, which enabled them to mobilise quickly, communicate effectively and empower communities to protect themselves against COVID-19.

The IHR require countries to build core capacities at all administrative levels. At community level and/or primary public health response level, the IHR require capacities "(i) to detect events involving disease or death above expected levels for the particular time and place in all areas within the territory of the State Party; (ii) to report all available essential information immediately to the appropriate level of health care response; and (iii) to implement preliminary control measures immediately."51 As described previously, our review has identified that CHWs are undertaking many of these IHR roles, including carrying out surveillance, screening, contact tracing and health promotion activities, assisting patients in home isolation, and encouraging and mobilizing people for testing.

The need to strengthen the engagement of CHWs in terms of health emergency preparedness and response is reflected in the IHR JEE tool, which calls for countries to ensure that they establish communication and engagement with affected communities, and that a multisectoral workforce strategy encompassing all relevant sectors of public health professions, including CHWs, is in place.51 It takes time to build systems, and system development needs to be guided by a long-term vision. In this regard, it is worth noting that VHVs in Thailand have been maintained and strengthened over 40 years and have contributed to various health programmes, including those addressing health security threats.24 It is likely that VHVs in Thailand have made an important contribution to the overall COVID-19 pandemic response as part of a whole-of-society response, as described in the case study. Thailand has also reported significant achievements on the related indicators in the IHR SPAR and JEE and has maintained the case incidence of COVID-19 at a low level. Although it is not within the scope of this study to examine causal relationships between the CHW programme and COVID-19 outcomes, the experiences of Thailand may provide a strong case to call for long-term investment and recognition of CHW programmes as an integral part of efforts to advance IHR capacities and resilient health systems.

The response of CHWs during the COVID-19 pandemic has also revealed the challenges they have faced while making essential, and often personally difficult, contributions. A key issue we identified was that of stigma and discrimination, and even violence, shown towards CHWs, along with the fear that CHWs may expose members of their family and the community to the risk of COVID-19 infection. There was minimal, if any, concern for the safety of CHWs, as our review found that CHWs did not receive adequate training on infection prevention and control, including how to use PPE in their work. As the pandemic evolved rapidly, the training they received was variable, especially for those in remote areas. Across
different settings, recognition or performance-based incentives are not sufficient, especially taking into consideration the risks associated with CHWs' work.

Countries need to respond to the diverse challenges and adapt to emerging needs. The 15 key recommendations contained in the WHO guideline on CHWs (2018) remain relevant and comprehensive to guide countries, and additional guiding frameworks have been proposed.6,52,53 These range from selection, education and management, to integration into health systems and the provision of a set of evidence-based policy options. We would like to highlight the following three recommendations that countries can adapt to their health systems context when addressing the challenges identified in this paper.

First, include resources for incentives in health system resource planning and provide a financial package commensurate with the job demands, the job complexity, number of hours worked, training and roles that CHWs undertake. Despite the significant roles carried out by CHWs in this pandemic, their payment and recognition do not necessarily match their contributions. Although additional financial incentives such as a hazard allowance and annual leave have been discussed for other health workers, CHWs often have not been included in this planning. It is critical that CHWs are integrated into the whole health system and that their incentives are planned and provided accordingly.

Second, adopt service delivery models that include CHWs carrying out general tasks as part of integrated PHC teams. CHWs do not exist in isolation. They are both part of the community and part of the PHC system. They are often trained in specific health services or activities, but they are most effective and most efficient when integrated into the comprehensive PHC system.

Third, ensure that CHWs have sufficient and quality-assured commodities and consumables through the overall health supply chain. Including CHWs in the PHC system will enable local authorities to ensure that sufficient equipment and consumables are provided to CHWs in a timely manner.

Conclusion
Experiences during this pandemic remind us that CHWs are the vital link between their community and the health system – providing a strong case for the idea that sustained investments in CHW programmes serve as public health emergency preparedness measures as part of resilient health systems. Such investments also contribute to advancing the implementation of the IHR to enable health events to be detected, events to be reported at the appropriate level and control measures to be implemented in a timely manner. CHWs deserve adequate training to ensure that their knowledge and skills are up to date, equipment and supplies to protect themselves, and decent remuneration and recognition for the contributions they make. We must take this opportunity to once again shed light on the roles of CHWs at the forefront of, and as a fundamental element of, our health systems and accelerate our investments in and support for CHWs.

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Decentralization of India Hypertension Control Initiative services to maintain continuum of care for hypertensive patients during COVID-19 pandemic in Telangana

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Abstract

The India Hypertension Control Initiative (IHCI) was launched in Telangana, India, with the vision of maintaining the continuum of care for hypertensive patients and improving treatment outcomes through provision of free hypertension medication. Decentralization of the IHCI towards more patient-centred services was undertaken to bring free medication and follow-up services closer to the community in the hopes of improving follow-up and control rates for hypertensive patients.

To determine if decentralization of hypertension follow-up services and free medication to peripheral health centres improved continuity of care and treatment outcomes in hypertensive patients and helped to mitigate disruption during the coronavirus disease 2019 (COVID-19) pandemic, hypertension outcomes were reviewed before and during the COVID-19 pandemic, for patients registered in health centres that decentralized free medication and follow-up services to subcentres – the intervention group – and in health centres that did not decentralize these services – the non-intervention group.

Hypertensive patients had higher rates of monthly follow-up and controlled blood pressure in the decentralized facilities than in the non-decentralized facilities, where these services were limited to primary and secondary health centres. Comparing follow-up rates and blood pressure control rates before and during the COVID-19 pandemic, these were maintained for patients in the decentralized facilities whereas they were significantly lower for patients in the non-decentralized facilities.

The IHCI decentralized model appears to have contributed to continuity of care for people with hypertension and to have maintained this continuity against system shocks such as that of the COVID-19 pandemic. Decentralization of free medicines and follow-up services to the first and most peripheral point of contact in the primary health care system brings these essential services closer to home, which can encourage patients to seek services from the public sector – capturing a strong case for a primary health care foundation to the strengthening of systems for universal health coverage.

Keywords: primary health care, hypertension, India Hypertension Control Initiative, decentralization, COVID-19, continuum of care

Background

Hypertension, or high blood pressure (BP), affects an estimated 1.13 billion people globally. Known as the silent killer, it is a major cause of premature mortality, including cardiovascular disease and stroke, the top two causes of death worldwide.¹ In India hypertension contributes to an estimated 1.6 million deaths a year due to cardiovascular diseases, with an estimated 200 million Indians having high BP, of whom fewer than half are aware of their condition, and fewer than one tenth have their BP under control.²

The Government of India has set ambitious targets in response to this disease burden: by 2025, a 25% relative reduction in the prevalence of hypertension, and 80% controlled BP among people known to have hypertension.³,⁴ Attaining these targets means sustained treatment of approximately 45 million hypertensive people – no small feat especially if half are unaware of their condition. To address this lack of awareness,
the Government of India has implemented a widespread population-based hypertension-screening programme at the community level. However, with the chronic nature of hypertension, its management and control require pervasive reach into communities and an integrated primary health care approach to sustain lifelong connections to care.

**India Hypertension Control Initiative**

The India Hypertension Control Initiative (IHCI) is a multipartner initiative of the Ministry of Health and Family Welfare (MoHFW), Government of India; the Indian Council of Medical Research (ICMR); state governments in India; the World Health Organization (WHO) India; and Resolve to Save Lives (a technical partner). It was launched in late 2017 to strengthen hypertension management and monitoring at the primary health care level. With the evidence-based strategies adopted from the technical package of the Global Hearts Initiative for the treatment of hypertension in primary care services, the IHCI promotes five components of care needed to effectively reduce hypertension: implement practical treatment protocols to ensure consistent quality, ensure regular uninterrupted supply of hypertension drugs free of cost, employ team-based care and task shifting, focus on patient-centred services, and establish information systems (Box 1). By ensuring the continuum of quality care for patients detected with hypertension, the IHCI complements population-based screening and is expected to accelerate the progress towards the achievement of Government of India targets, as well as to contribute to those of universal health coverage and the Sustainable Development Goal 3 target of reducing premature mortality from noncommunicable diseases (NCDs) by 30% by 2030. Starting in 2018, the IHCI was rolled out in a phased manner to five states (Box 1). By July 2019, based on successes and lessons learnt, the MoHFW announced Phase 2 of IHCI, with plans to expand to 100 districts covering most of India, with the aim of reaching 150 million people by 2023.

**India Hypertension Control Initiative in Telangana state**

In this paper we focus on IHCI implementation in the southern state of Telangana. The newest of India’s states, Telangana

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**Box 1: What is the IHCI?**

The five components are based on the Global Hearts Initiative.

<table>
<thead>
<tr>
<th>Component</th>
<th>What was accomplished</th>
<th>Lessons learnt during initial roll-out</th>
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</table>
| 1. Implement standardized, evidence-based treatment protocols to ensure consistent quality | • developed evidence-based drug and dose-specific treatment protocols  
• implemented simple treatment protocols at primary health centres (PHCs)  
• established protocol for referral and medical titration for uncontrolled BP | • allowed more efficient and cost-effective selection of medication and treatment approaches  
• easier to forecast needed drugs  
• reduced clinical variability |
| 2. Ensure regular and uninterrupted supply of medication and equipment | • prioritized adequate quantity of medicine and blood pressure monitors  
• free of cost hypertension drugs to all registered patients | • improved forecasting of drugs prioritization led to allocative efficiency  
• many patients still not accessing free drugs at PHCs |
| 3. Employ team-based care and task shifting to strengthen the continuity of care | • conducted comprehensive training for all health care workers on latest hypertension practices  
• trained PHC nurses to dispense prescription drugs, counsel, follow up and give adherence counselling | • many hypertensive patients missed follow-up – could not access PHC  
• need to engage auxiliary nurse midwives and accredited social health activists in hypertensive care: counselling, follow-up, patience adherence |
| 4. Patient-centred services to increase access | • decentralized services, including BP monitoring to PHCs | • while utilization of hypertension services at PHCs increased, PHCs may not be so patient centred, as many patients do not access because of cost of travel and loss of wages, which does not offset the free medication |
| 5. Information systems that allow for continuous, real-time monitoring | • implemented routine documentation of patient outcomes, including hypertensive treatment card (HTC)  
• implemented supervision and monitoring of PHCs to provide prompt feedback to staff | • monitoring patients through registration and HTC  
• improved follow-up of patients with uncontrolled BP  
• routine documentation of patient outcomes strengthened the culture of monitoring and accountability |

**Timeline of IHCI in India and Telangana:**

- IHCI launched: November 2017
- Madhya Pradesh: 3 districts - April 2018
- Maharashtra: 4 districts - November 2018
- Telangana: 10 districts - December 2019
- Punjab: 5 districts - January 2018
- Kerala: 5 districts - May 2018
- Telangana: pilot of decentralization to subcentres - February 2020

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has the eighth largest state economy, with a population of 35 million. The most recent population-based survey found hypertension prevalence of 13% in women and 21% in men (2016). Another study reported for Telangana estimates along the hypertension cascade of care: 80.5% of people with hypertension screened, 55% aware of their condition, 16.4% treated for their BP and 9.4% having their BP under control.

IHCI roll-out to its 10 districts started in November 2018 (Box 1). Fig. 1 describes the IHCI in relation to the health service delivery structure in India. Initially the IHCI was focused on the primary health centres (PHCs) and secondary care facilities up to the level of district hospital, where, after diagnosis, hypertensive patients were registered, counselled and provided with optimized treatment and a cost-free 1-month supply of medication. Every registered patient received a hypertensive treatment card (HTC) to track his or her follow-up visits and BP. A team of cardiovascular health officers and cardiovascular health senior treatment supervisors provided technical support and monthly monitoring through facility visits.

During the initial stages of implementation there were lessons learnt on successes and limitations of the IHCI (Box 1). Notably, more than a third of facilities implementing IHCI had over half of their registered patients missing follow-up visits, meaning they were not accessing their free medication and BP checks. When nurses tracked these patients by phone, the main barriers patients conveyed included the distance to travel to the PHC, the high out-of-pocket cost of transport to get to the PHC and the loss of wages for time off to travel to the PHC. Patients further indicated that, since hypertension medicines cost less than US$ 1 per month, visiting the PHC for free medication would not offset the cost they would incur to get there. More patient-centred approaches were needed to address these barriers and ensure continuity of care.

Fig. 1 highlights the process and details of decentralization. To address the issues in continuity of care, follow-up services for hypertensive patients registered in IHCI, on treatment and with controlled BP – monthly monitoring of BP and dispensing of drug refills – were decentralized from the PHC to the subcentres. Each PHC has five or six associated subcentres, which are the most peripheral health facilities and first points of contact between the health system and the community. Sanctioned staff in Telangana’s subcentres include two female auxiliary nurse midwives (ANMs), who provide essential community health services and manage records of vital statistics, catering to a population of around 5 000.

As a pilot in the first quarter of 2019, IHCI services were decentralized to the subcentres of nine PHCs across six districts, with the plan of scaling up in a phased manner to all PHCs

### Patient-centred services: decentralization of IHCI

Experience from other countries and India’s HIV/AIDS and tuberculosis programmes have shown decentralization approaches do address many barriers to access and can deliver chronic care services closer to communities. In this sense, decentralization refers to prioritizing community-level access to care through the transfer of clinical decisions and tasks often considered the responsibility of only highly trained specialists to general care providers and lay health workers (task shifting), and the transfer of associated pharmaceuticals, health commodities and equipment to community-level and peripheral health facilities. Realizing that decentralization of services is one of the key elements of primary health care that can address geographical barriers to access, high out-of-pocket costs and retention issues of chronic patients requiring lifelong medication and regular follow-up, it was decided, with the support of the Telangana state government, to decentralize the IHCI.

Fig. 1. India’s health services pyramid, IHCI service delivery and Telangana’s decentralization intervention
in the state, contingent on positive preliminary findings. PHC nurses coordinated the decentralization process with support from cardiovascular health officers and cardiovascular health senior treatment supervisors. ANMs were trained to measure BP, dispense drug refills and manage patient data, while BP monitors and antihypertensive drugs were made available at the subcentres. Patients registered at these decentralized facilities, who were on treatment and with controlled BP, were invited to avail themselves of follow-up services from the subcentres. ANMs would provide these patients with their monthly follow-up care, including BP measurement, drug refills and cohort monitoring through manual treatment cards. In addition, if patients’ BPs were uncontrolled, they were referred to the PHC for assessment by a medical doctor.

The decentralization was facilitated by the Government of India-supported accredited social health activists (ASHAs)—the first port of call for any health-related need in the community. ASHAs serve as the interface between their communities and the formal public health system, providing community-level curative care, raising awareness of health-related social determinants and entitlements, and mobilizing and facilitating people’s access to public health services. Pigggybacking on their ongoing support for hypertension screening, ASHAs educated their communities about the new decentralized services at the subcentres and the value of registering at the PHC so they could access the free hypertension medication and follow-up services at these subcentres. ASHAs were also provided with list of registered hypertensive patients in their communities so they could mobilize them to visit the subcentres for follow-up.

COVID-19 and disruption of IHCI services

By the time WHO declared the COVID-19 pandemic in March 2020, IHCI decentralization had rolled out to all the subcentres in 6 of Telangana’s 10 districts. Telangana’s first case of COVID-19 was detected on 2 March 2020, after which the case load gradually increased. To combat the spread of COVID-19, a nationwide mobility restriction, or lockdown, which stopped most public transport, was declared from the end of March 2020 until the end of May 2020, after which there was a phased relaxing of restrictions. To respond to the steady increase in COVID-19 cases, all PHCs were designated as COVID-19 testing centres and much of the health workforce was repurposed to COVID-19-related activities.

During the pandemic, many countries reported disruptions in the diagnosis and treatment of NCDs. As people with hypertension are more prone to severe illness and complications of COVID-19, it was critical to ensure the continuum of care for these patients in the face of potential disruption. At the national level, the Government of India identified the provision of medication for hypertension as a priority for maintaining essential services, which allowed decentralization efforts to continue. A preliminary review of Telangana’s IHCI monthly cohort data on hypertension outcomes suggested services may have been disrupted as a result of the pandemic and/or lockdown; just prior to the pandemic, in February 2020, nine districts had at least 50% of their patients controlled for BP, compared with only four districts in August 2020, 5 months after the pandemic had started. In response to these initial findings, Telangana state responded by having subcentres mobilize drugs for further distribution to patients during the lockdown period. With the use of the IHCI line list of patients, ASHAs and ANMs went from door to door and delivered the medicines at the patients’ doorsteps. Consequently, we wanted to look more closely at whether or not the COVID-19 pandemic affected IHCI follow-up services and hypertension outcomes, and if the decentralization of these IHCI services helped to mitigate their disruption.

Methods

We reviewed hypertension outcomes before and during the COVID-19 pandemic, for patients registered (i) in PHCs that decentralized their follow-up services to subcentres, the intervention group, and (ii) in PHCs that did not decentralize these services, the non-intervention group. Fig. 2 illustrates the differences between these two study groups. For the intervention group, the decentralization of follow-up services included the training of ANMs, availability of hypertensive drugs at the subcentre, the availability of BP monitors and the transfer of treatment cards from the PHC to the subcentre.

At the PHC, all patients are newly registered in the IHCI, which has been implemented in both the intervention and non-intervention groups with the same treatment protocols, supportive supervision system, drug supplies, availability of functional BP monitors, and recording and reporting system. Both patient study groups receive the same services (numbered 1–4 in Fig. 2). At the time of the monthly follow-up, the intervention group’s services have been decentralized to the subcentre, while the non-intervention group’s follow-up visits continue at the PHC. Both study groups have access to the same follow-up services as listed in Fig. 1 – monthly BP monitoring, dispensing of prescribed refills if BP is under control, counselling as needed and documentation of the visit in the patient’s HTC. The difference between the two is that the intervention group receives these services in the subcentre administered by an ANM, and the non-intervention group receives these services at the PHC administered by a nurse. If the patient’s BP is not under control, the patient is referred to the medical doctor; who for the non-intervention patient is at the same facility, the PHC, whereas the intervention patient must travel to the PHC for doctor consultation and possible titration of medicines.

The hypertension outcomes of patients newly registered in IHCI were determined over three cohort periods. Table 1 provides the summary characteristics of the three study cohorts. The first cohort, from the second quarter of 2019, is pre-COVID-19, and drawn from nine decentralized (intervention) and nine non-decentralized (non-intervention) PHCs from the same six districts during the pilot phase, retrospectively matched on health facility attributes and population coverage. Similarly, a second set of cohorts was drawn from 2020 during the COVID-19 pandemic, from all PHCs in a fully decentralized district (intervention) and in a non-decentralized district (non-intervention). The two districts were retrospectively matched on population size and health system attributes (Table 2). The two study cohorts are based on different sampling approaches. The 2020 6-month cohort includes all patients newly registered in the IHCI between January and June 2020, from all PHCs in both the intervention and non-intervention districts. The monthly cohort is three separate 1-month samplings (March, April, May 2020) of 50 patients from all the PHCs in both districts.
We analysed two primary indicators along the continuum of care: the follow-up rate and the BP control rate. The operational definitions are in Table 1. The data collection and data entry were the same for all three cohorts. The HTCs of all newly registered patients between the relevant dates for each cohort and in both the intervention and non-intervention districts were reviewed. For each patient, the HTC was checked to determine if at least one follow-up visit had been made at any time during the relevant time period. If there was a follow-up visit, an e-record was made if the BP result was recorded and if the patient received a refill prescription or was referred to the PHC. Chi-square significance testing of comparisons was done in Epi Info 7.2 for the 2020 6-month cohort only.

Results

Entry into IHCI

Table 1 summarizes select characteristics for the intervention and non-intervention study groups for all five cohorts. While health system characteristics are matched quite equally between the two study groups across all cohorts, the number of newly registered patients during the study period is substantially higher in the intervention groups. For the 2019 pilot, nearly three times as many patients were newly registered into IHCI at the decentralized facilities as at the non-intervention facilities. Similarly, for the 2020 6-month cohort, the number of newly registered patients in the decentralized intervention group is nearly 1.5 times as many as in the non-intervention group. This difference is not explained by differences in the district population. The intervention district (Mulugu) in the 2020 cohorts has a smaller population than the non-intervention district (Jayashankar Bhupalpally), and for the 2019 pilot the populations are similar. One explanation for the pronounced difference could be the influx of hypertensive patients not previously captured by the public sector and perhaps treated in the private sector; in fact, one study found that 91% of newly registered patients in Telangana IHCI sentinel sites had been previously diagnosed with hypertension.6

Follow-up visits and controlled blood pressure

Across all cohorts, the follow-up rate was higher for the intervention groups than for the non-intervention groups (see Fig. 3). This means that the decentralized facilities/districts had a higher percentage of newly registered IHCI patients who attended at least one monthly follow-up visit during the assessed outcome period, ranging from 65% for the April 2020 monthly cohort to 86% for the 2019 pilot cohort. In contrast, the non-decentralized facilities/districts had follow-up rates ranging from 36% for the March 2020 cohort to 65% for the 2019 pilot cohort.

The BP control rates had similar patterns to the follow-up rates and were higher in the intervention groups than in the non-intervention groups (see Fig. 3). Among all newly registered IHCI patients, a higher percentage of those accessing decentralized facilities/districts had their BP under control – 74% for the 2019 pilot cohort (which is close to the national target of 80%) and 61% for the April 2020 cohort – compared with patients from non-decentralized facilities/districts (65% for the 2019 pilot cohort and 32% for the April 2020 cohort).
Table 1. Description of three study cohorts

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>2019 pilot cohort</th>
<th>2020 6-month cohort</th>
<th>2020 monthly cohorts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study population</td>
<td>Patients newly registered in the IHCI programme in Telangana state</td>
<td>IHCI follow-up services decentralized in 9 PHCs to 53 SCs for registered patients on treatment and with controlled BP</td>
<td>IHCI follow-up services decentralized in all PHCs in Mulugu district to 89 SCs for registered patients on treatment and with controlled BP</td>
</tr>
<tr>
<td>Description of intervention</td>
<td>IHCI follow-up services were not decentralized and limited to 9 PHCs</td>
<td>IHCI follow-up services limited to all PHCs in Jayashankar Bhopalpally district</td>
<td></td>
</tr>
<tr>
<td>Description of non-intervention</td>
<td>18 PHCs across 6 districts 9 intervention PHCs 9 non-intervention PHCs Retrospectively matched</td>
<td>2 districts – all PHCs in district 1 Intervention district: Mulugu 1 non-intervention district: Jayashankar Bhopalpally Retrospectively matched</td>
<td></td>
</tr>
<tr>
<td>Comparison unit</td>
<td>18 PHCs across 6 districts 9 intervention PHCs 9 non-intervention PHCs Retrospectively matched</td>
<td>2 districts – all PHCs in district 1 Intervention district: Mulugu 1 non-intervention district: Jayashankar Bhopalpally Retrospectively matched</td>
<td></td>
</tr>
<tr>
<td>Sample</td>
<td>All hypertensive patients newly registered into IHCI during any point in period X</td>
<td>Sample of 50 hypertensive patients per facility newly registered into IHCI each month</td>
<td></td>
</tr>
<tr>
<td>Time period of new registrations (X)</td>
<td>Quarter 2, 2019: April, May, June</td>
<td>Quarter 1, 2020: January, February, March and Quarter 2, 2020: April, May, June</td>
<td>March or April or May</td>
</tr>
<tr>
<td>Time period for assessing outcome (Y)</td>
<td>Quarter 3, 2019: July, August, September</td>
<td>Quarter 3, 2020: July, August, September</td>
<td>April/May for registered in March May/June for registered in April June/July for registered in May</td>
</tr>
<tr>
<td>Sample size</td>
<td>Intervention: 1 718 Non-intervention: 597 Total: 2 315</td>
<td>Intervention: 3 260 Non-intervention: 2 267 Total: 5 527</td>
<td>Intervention: 800 per month Non-intervention: 650 per month Total: 1 450</td>
</tr>
</tbody>
</table>

Operational definitions

- **Missed visit**: If a patient newly registered in period X did not visit the PHC or SC for follow-up during period Y
- **Follow-up**: If a patient newly registered in period X visited the PHC or SC for follow-up at least once in period Y, and had their BP measured and received a refill of prescribed hypertensive medication during the visit or was referred to the medical doctor for further follow-up.
- **Follow-up rate**: Number of patients newly registered in period X with at least one follow-up in period Y / Number of newly registered patients in period X included in the study sample
- **Controlled BP**: SBP < 140 and DBP < 90
- **BP control rate**: Number of patients newly registered in period X whose BP was controlled during their follow-up visit in period Y / Number of newly registered patients in period X included in the study sample
- **Uncontrolled BP**: SBP ≥ 140 or DBP ≥ 90

DBP: diastolic blood pressure; IHCI: India Hypertension Control Initiative; PHC: primary health centre; SBP: systolic blood pressure; SC: subcentre

Table 2. Characteristics of intervention and control groups across study cohorts

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>2019 pilot</th>
<th>2020 6-month and monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-intervention</td>
<td>Intervention</td>
</tr>
<tr>
<td>Districts</td>
<td>From within the same 6 districts</td>
<td>Jayashankar Bhopalpally</td>
</tr>
<tr>
<td>Total population covered/served</td>
<td>259 921</td>
<td>271 121</td>
</tr>
<tr>
<td>PHCs</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>SCs</td>
<td>53</td>
<td>90</td>
</tr>
<tr>
<td>ANMs</td>
<td>78</td>
<td>139</td>
</tr>
<tr>
<td>ASHAs</td>
<td>215</td>
<td>442</td>
</tr>
<tr>
<td>Hypertensive patients newly registered into IHCI during study period</td>
<td>597</td>
<td>2 267*</td>
</tr>
</tbody>
</table>

*Applies to only the 6-month study cohort, since a subset of patients were included in the monthly cohorts and data were not available for total numbers newly registered in the clinics.

ANM: auxiliary nurse midwife; ASHA: accredited social health activist; IHCI: India Hypertension Control Initiative; PHC: primary health centre; SC: subcentre.
Differences in follow-up and hypertension control rates were statistically significant \((p < 0.001)\) for the 2020 6-month cohort, and for the 2019 pilot the sample sizes render the difference in rates considerable.

These results suggest that, across different time and geographic variables, decentralizing follow-up services may improve continuity of care and bring the programme closer to national goals.

**IHCI before and during COVID-19 pandemic**

The follow-up assessments of the 2020 monthly cohorts span the same period as the Telangana COVID-19 lockdown: April 2020 to June 2020. Across all three monthly cohorts and for both intervention and non-intervention groups, the follow-up and BP control rates were lower than those of the pre-COVID-19 pilot, suggesting that some level of disruption to service delivery took place during the COVID-19 lockdown, regardless of decentralization status (Fig. 3).

However, the magnitude of disruption during COVID is much more pronounced in the non-intervention groups. For example, for the decentralized groups, the follow-up rate was 86% in the 2019 pilot cohort and 78% in the March 2020 cohort, a 9% difference. In contrast, for the non-intervention groups, the follow-up rate was 74% in the 2019 pilot cohort and 36% in the March 2020 cohort, a decrease of 51%. This pattern, of a less substantial decline in follow-ups among the decentralized services, was observed for all monthly cohorts. These results point to a potential protective effect of decentralization against disruption of essential services under constrained conditions, such as the COVID-19 pandemic. Interestingly, even though the period of follow-up assessment for the 2020 6-month cohort took place during the phased relaxation of lockdown, the follow-up and control rates were consistent with those of the monthly cohorts.

Fig. 4 shows for each cohort and by study group the distribution of newly registered patients’ status at their assessed follow-up: controlled BP, uncontrolled BP or missed visit. The figure provides a more comprehensive picture of who is not included as having their BP controlled, which can shed light on service delivery priorities to address these patients’ unmet needs across different settings and conditions. Missed patients have an unknown BP status, so the priority is to have their BP measured, while the patients with uncontrolled BP require possible titration of their medicines, so their immediate priority is to access a medical doctor at the PHC. In this study, except for the 2019 pilot cohort, missing patients from non-decentralized facilities were a substantially higher percentage than patients with uncontrolled BP. In contrast, except for the April 2020 cohort, the percentages of uncontrolled and missing patients from decentralized facilities are similar. In both cases the aim is to ensure they have the medicines they need to control their BP, but the approaches to achieve this are different.
with their own set of challenges. For patients with uncontrolled BP, if they are unable to access the PHC, the subcentre does not offer titration of medicines. Complementary approaches are needed to ensure these patients get the care and medicines they need.

**Strengths and limitations**

This study highlights the effective use of routine data to evaluate implementation outcomes, including in the context of a significant public health emergency, demonstrating trends that provide important insights into the importance of access to affordable medicines and potential benefits of decentralization. A significant limitation is that the findings here are observational and that factors not controlled for may have influenced the outcomes in ways that have not been documented. Comparison of results between the 2019 and 2020 cohorts has its limitations, since the time periods and population groups are different. This could introduce confounding factors that bias findings. Furthermore, the full impact over time of COVID-19, the lockdown, and additional interventions such as the home deliveries of medication by ANMs and ASHAs on each 2020 cohort has not been analysed.

**Discussion**

Evidence shows that the IHCI has had a substantial impact on service availability, utilization and health status, sustained even during COVID-19; a study of 24 sentinel clinics across four states in India found that the patients from Telangana had the highest follow-up rate (73%) and BP control rate among those returning for follow-up (78%). An analysis of the underlying reasons for this highlights the importance of primary health care for improved service delivery. This provides a useful contribution to the discussion on both specific areas of strengthening health systems for primary care and the importance of an overarching primary health care approach for universal health coverage.

The IHCI is designed to be anchored in communities at the primary care level, with referrals to higher-level facilities. At the core of the service delivery effort is the regular supply of hypertension drugs, free of cost and backed up by the availability of trained health workers, appropriately managed using task shifting and team-based care, and monitored with the support of the health information system.

The cost of medicines to households in India is notably high. Out-of-pocket expenditure makes up 60% of total health spending, of which 40% is on medicines, and 90% of all the expenditure on medicines and diagnostics is borne by households. Public investment in medicines has remained persistently low in India in spite of the international evidence on its importance for both utilization and equity in low-income settings. A recent study in Tanzania found health service utilization positively and significantly associated with the continuous availability of all essential medicines. A study in Chhattisgarh, India, found that 70% of overall household out-of-pocket expenditure was for medicines, which was a key barrier to access, reinforcing the recommendation to implement

<table>
<thead>
<tr>
<th>Fig. 4. Distribution of patient status at follow-up in intervention and non-intervention groups across five study cohorts</th>
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</thead>
<tbody>
<tr>
<td><strong>Percentage of patients</strong></td>
</tr>
<tr>
<td><strong>% controlled blood pressure</strong></td>
</tr>
<tr>
<td><strong>2019 pilot</strong></td>
</tr>
<tr>
<td><strong>March 2020 monthly cohort</strong></td>
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<tr>
<td><strong>April 2020 monthly cohort</strong></td>
</tr>
<tr>
<td><strong>May 2020 monthly cohort</strong></td>
</tr>
<tr>
<td><strong>Jan–June 2020 6-month cohort</strong></td>
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</table>
lists of essential drugs. Addressing access to medicines is at the heart of the IHCI design, and its implementation supports this evidence. Findings from this study indicate that improving access to affordable (free) prescription drugs affected the utilization of services from the public sector.

Conceptually, community health workers are an integral part of primary care; however, experience has shown a number of challenges owing to both systems gaps and the overall context in which guidelines and best practices are applied and replicated. One study assessed the opportunities and challenges to the roles and responsibilities of ASHAs in Manipur, India, and found they were critically constrained by overall system limitations, including poorly equipped facilities and capacity of health workers. This not only affected their work but also eroded trust and credibility in the community. The IHCI experience suggests that addressing strengthening systems in programme design and its operationalization through systemic support for health workforce can be effective in supporting frontline providers such as ASHAs in their interrelated health and community roles.

A key enabler for successful implementation of the IHCI has been the decision to decentralize the procurement and distribution of (free) medicines and service delivery to the first point of contact. Decentralization was further supported by capacity strengthening at community and peripheral health facility levels, notably through the training of ANMs and ASHAs in new clinical skills, monitoring and evaluation, health education and counselling, pharmaceuticals and supply chain. Importantly, health workers were mobilized to inform communities of the availability of services and medicines and encourage utilization. The higher number of registered patients in decentralized districts and facilities suggests that ASHAs were instrumental in linking communities to key public health services.

Globally, the evidence on health service decentralization is mixed. A systematic review of the experience of 26 lower- and middle-income countries found that impact was dependent on technical and decision-making capacities at decentralized level; and, while effectiveness in governance, financing and service delivery appears to have improved with decentralization, resource management seems to be less so. Similar single-country reviews in Indonesia and India highlight the need for more research for conclusive results. Decentralization has been a crucial factor in the success of the IHCI and, while this study does not consider the issue in depth, its findings do contribute to the knowledge pool and, in line with the Muñoz et al. review, indicate the potential of decentralization when accompanied by requisite conditions. Programme data indicate there were substantially more newly registered hypertensive patients in the decentralized study group than in the non-decentralized study group, including during the COVID-19 pandemic. Decentralization also appears to have contributed to improved continuity of care. Hypertensive patients had higher rates of monthly follow-up in the decentralized study group than the patients in the non-intervention study group, where these services were limited to the PHC. Across all the study cohorts, patients from the decentralized facilities had higher BP control rates than patients from the non-intervention facilities. Moreover, across the 2020 cohorts, the follow-up and BP control rates for groups in decentralized areas were maintained, not deviating significantly from the 2019 cohort rates, despite the concurrent lockdown and rising COVID-19 burden. The groups in non-decentralized areas experienced follow-up and BP control rates that were half of those in the pre-COVID-19 cohort.

It is important to acknowledge that the programme was not without challenges: maintenance of regular and adequate stocks of drugs; persistent shortages of sanctioned ANMs at the subcentres (retention of staff at the community health level is an overarching systems challenge);23 the cumbersome paper-based approach of HTCs (again, a continuing issue in relation to health management information systems); and gaps in continuity of care for patients unable to access the PHC through, for example, telemedicine consultations with the ANM and patient, or NCD camps at the community level where medical doctors visit monthly or bimonthly to provide medication titration and other follow-up services for patients with uncontrolled BP who are unable to access the PHC. Nevertheless, IHCI has made significant achievements as well as maintaining continuity of services even through the pandemic, with important lessons for building resilient health systems and primary health care.

Conclusion

The IHCI decentralized model appears to have contributed to the continuity of care for people with hypertension and to have maintained this continuity against system shocks such as that of the COVID-19 pandemic. Decentralization of free medicines and follow-up services to the first and most peripheral point of contact in the primary health care system brings these essential services closer to home, which can encourage patients to seek services from the public sector. Now, more than ever, the new normal requires more decentralized service delivery models that deliver care where and when it is required, reaching the patients who are in need.

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Authorship: All authors contributed equally to this paper.

Reddy et al.: Decentralization of India Hypertension Control Initiative services to maintain continuum of care


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References


Pandemic preparedness requires better regulation and stewardship of private providers that dominate provision of primary health care

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Many Asian low- and middle-income countries’ health systems are characterized by a failure of the public sector to adequately provide, regulate and monitor primary health care services, resulting in the dominance of poorly regulated health care providers in the private sector. The long-standing neglect by many Asian governments to invest in public sector primary health care services – with the notable exceptions of Bhutan, Maldives, Sri Lanka and Thailand – has created a vacuum that has been filled by private providers, from which the majority of people seek care.1,2 As we summarize here, coronavirus disease 2019 (COVID-19) has highlighted the consequences of poorly regulated privately dominated primary health care provision on patient impoverishment, the quality of care delivered and the levels of infectious disease transmission.

Although COVID-19 can develop into a severe illness, the early stages of infection are usually characterized by mild respiratory symptoms. Numerous studies show that patients with mild symptoms often approach private drug shops or clinics as the first point of care.2 In the absence of well-disseminated and binding standard treatment guidelines, such providers often rely on (social) media, rather than public health agency guidelines or peer-reviewed medical literature, to obtain information on clinical management options.3 In addition, these private providers typically make a profit from the provision of consultations, tests and medications, including non-pharmaceutical interventions. The absence of clear treatment guidelines, and the potential financial benefits to for-profit private providers from overprovision of care, can result in the use of inappropriate and expensive treatments, often with little regard to side-effects or the risk–benefit ratio for the patient.4 Furthermore, pre-existing gaps in effective health coverage, coupled with the predominance of the public relying on private providers to routinely access health care, can lead to price gouging and result in catastrophic out-of-pocket health expenditures. For example, during the COVID-19 pandemic, price increases for personal protective equipment (PPE) were observed in pharmacies across four Asian low- and middle-income countries.5

Poor infection prevention and control practices are already well documented among private providers.6 Many private providers practise in health care facilities that are overcrowded and do not have appropriate ventilation, specimen collection areas, biosafety standards or PPE. Furthermore, lack of awareness regarding COVID-19 transmission, compounded by shortages of PPE for health care providers, can lead to a serious risk of transmission at some private health care facilities. Although several countries have encouraged symptomatic individuals to call helplines, rather than visiting health care facilities, there are many vulnerable groups – including women, elderly people, refugees and people with low literacy – who may not easily be able to use phones to seek health care advice.7

The role of private diagnostic laboratories as part of the network delivering primary health care and potentially impeding infectious disease control is also important. The costs and quality of the services provided by private laboratories can vary greatly. For example, anecdotal reports exist of incorrect diagnostic tests being used for COVID-19 in private laboratories, and private laboratories have been shown to give incorrect results of diagnostic tests for other infectious diseases.8 Furthermore, in the case of COVID-19, additional complexity is created by the speed with which new tests are being developed and marketed. In the absence of regulations and guidance, many private laboratories market tests with little appreciation of their role in patient care or their position in the diagnostic algorithm.

Although COVID-19 has highlighted the need to prioritize locally appropriate actions to manage the role of private providers in the delivery of primary health care, it has done so at a time when government budgets and human resources are highly overstretched. It may not be possible to fix the deep-rooted challenges associated with strengthening public primary health care while we are struggling to control a pandemic of unprecedented scale; nonetheless, it is critical to recognize the long-term challenges we will face if we allow primary health care delivery to be dominated by poorly regulated private providers. The lack of contextualized knowledge about how to achieve improved regulation and stewardship in mixed health systems is a major barrier to progress, and there is an urgent need for investment in research to produce that knowledge locally.9 We must also look for specific opportunities emerging in the light of COVID-19. For example, since the pandemic has shown the susceptibility of health care providers to infectious diseases, private providers may be more willing to voluntarily engage with government agencies and be part of information-sharing networks. This could facilitate sharing of guidelines
and alerts by government agencies and reduce reliance on sources that might propagate misinformation. Equally, there is an opportunity for governments to include better regulation of private providers in their pandemic preparedness plans. Moving forward, there is an urgent need for more effective stewardship of mixed health systems to minimize the elements of poorly regulated private health care provision that can undermine the basic principles of equity, affordability and quality of health care.

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References


Financing health in the new normal: issues and opportunities

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Pandemics and universal health coverage

Coronavirus disease 2019 (COVID-19) has disrupted all aspects of society, including progress towards universal health coverage (UHC). Countries now have an urgent need to increase government spending on health; as is always emphasized, public investment plays a key role in mixed financing mechanisms in World Health Organization South-East Asia Region countries. This is the only feasible way forward for adequate, sustainable and equitable financing for health. The pandemic crisis has provided an opportunity to appreciate the clear interconnectedness of health and the economy: failures in health systems have devastating economic effects. Because of the immediate effects of COVID-19 on fiscal deficits, however, countries still cannot afford to invest substantially in health systems, and the long-term effect is a deterioration in the population’s health.

UHC with functioning health systems has the capacity to protect a country’s economy from a pandemic such as COVID-19, and primary health care (PHC) is a cornerstone of UHC. Sufficient funding and effective service delivery for pandemic preparedness and response as part of UHC reduce the risk of an outbreak, enable quick response and protect the vulnerable, increasing social stability and prosperity. Countries need to mobilize more financial resources, such as health taxes, increase flexibility in purchasing mechanisms and public financial management (PFM) with swift reprioritization, improve fiscal space through effectiveness in spending, and strengthen PHC. To make health systems more resilient to shocks and crises, it is critical for governments to invest in core health system functions, such as financing, service delivery and governance. In particular, funding and integration of these functions at the primary level – including infection prevention and control, surveillance, and information systems – are fundamental to ensure that health systems are prepared for and respond better to health emergencies.

Sustainable financing and purchasing for universal health coverage and health system resilience

Health financing should provide comprehensive coverage and access to essential medicines and health services, including preparedness for outbreaks and pandemics. Key public health functions, tests, diagnostics and personal protective equipment related to pandemic response should be available as an entitlement without financial barriers. PFM systems need to include special arrangements and procedures that enable fast and transparent flexibility to reallocate funds or purchase goods and services to adjust to changing needs in response to an emergency, including the needs of the poor and vulnerable. Purchasing arrangements need to be made to ensure that during a pandemic there is minimal disruption in the provision of essential health care, such as vaccinations and care for mental health, noncommunicable diseases, reproductive health, and maternal and child health.

Quick and flexible purchasing in times of outbreak or pandemics includes making additional public resources available to frontline health care providers in a timely manner. Resilient health systems can quickly adjust PFM rules and procedures, and fiscal arrangements such as advance payments or direct budget transfers aimed at accelerating release of funds to providers. Temporary compensation to providers for unexpected changes in cash flow is needed to enable smooth and effective adaptation.

In a pandemic, a surge in patients requires the mobilization of both public and private providers for a whole-of-country approach. Having a contracting system in place for private providers, based on quality and performance, is fundamental for pandemic preparedness. Incentive and payment systems for private (and public) providers, together with laws, accreditation and regulation to ensure the quality of health care providers, form part of pandemic preparedness. A country can introduce a law to allow mandatory mobilization of private providers in a health emergency. The role of the private sector is also critical to rapidly expand the supply of personal protective equipment, diagnostic tests and medicines.

PHC needs to play a key role in prevention, detection, treatment and referrals, and can also help ensure access to essential services without disruption. Digital health has been shown to improve access to care during the COVID-19 pandemic in many countries because social distancing and lockdowns are barriers to health care access, and health care providers are also concerned about potential infection resulting from a patient visit. Adequate payments and incentives for both providers and patients as well as a system to ensure quality, safety and privacy in digital health should be considered.

Key lessons

The COVID-19 pandemic has underscored the importance of sufficient investment in the health sector and the interconnectedness of health and the economy. Investment in strengthening health systems – primary care and public health
in particular – is a fundamental solution for preparedness and response to a pandemic. Effective targeting and protection of elderly, poor and vulnerable people, including migrant workers and those who live in vulnerable environments, such as urban slums, is key to successfully addressing a pandemic, as well as achieving UHC. Multisectoral cooperation of public and private sectors, central and local governments, and different ministries and sectors, particularly ministries of health and of finance, is critical.

When countries make progress towards UHC, they need to make sure that people are entitled not only to individual services but also to population and public health services, including prevention, preparedness and treatment of infectious diseases and pandemics. In an effective response to a pandemic, resilience and adaptability of service delivery and purchasing are crucial in terms of provider payment methods/rates, coverage of medicines and services, and contracting mechanisms. Government budgets and PFM need to be flexible as well as accountable to ensure that they can reprioritize and mobilize financial resources and increase spending to the health sector during a pandemic crisis.

The pandemic has shown that health systems protect lives and improve prosperity, and without them economic recovery is not possible. All countries gained valuable lessons in how to strengthen their health systems to become more resilient and how to protect vulnerable people as part of a wider societal effort to improve lives and well-being, including access to essential services for all, without financial hardship.

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Authorship: SK conceptualized and wrote the manuscript.


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Reference

Perspective

Financing health care in the WHO South-East Asia Region: time for a reset

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Abstract

The coronavirus disease 2019 (COVID-19) pandemic is having a devastating impact and continues to take its toll in the World Health Organization South-East Asia Region. In addition to its direct impact on morbidity and mortality, the pandemic is adversely affecting economic activity as a result of lockdowns and voluntary social distancing. The average per capita economic contraction among South-East Asia Region countries is currently projected to be 5.3% in 2020, suggesting severe consequences for financing for health and sustaining progress towards universal health coverage. Health financing systems in many countries of the region – characterized by extremely low levels of public financing and a predominance of out-of-pocket spending – have contributed to weaknesses in primary health care (PHC), including in relation to pandemic preparedness and containing COVID-19. Without sustained countercyclical public spending and an increased priority for health in government budgets, countries will be likely to see a slowdown or even reversal in growth in public financing for health, which is already at a low level in several countries of the region. In the face of this economic adversity and fiscal tightening, efforts to improve the efficiency and equity of public spending on health will be key, especially for strengthening PHC and enhancing cost-effectiveness in terms of the choice and delivery of interventions. To this end, countries must emphasize the public health focus, improve targeting of public financing towards the poor and vulnerable, reduce fragmentation and duplication of financing flows, leverage strategic purchasing and cut wasteful spending. The COVID-19 pandemic also presents an opportunity to reset how health systems and PHC are prioritized and adequately financed in the countries of the South-East Asia Region, as areas of core public investment that not only contribute to better health outcomes but also are critical for ensuring a sustained economic recovery.

Keywords: COVID-19, economic impact, health financing, primary health care

Introduction

The coronavirus disease 2019 (COVID-19) pandemic is having a devastating impact globally. As of 2 December 2020, there have been more than 63 million confirmed cases worldwide and almost 1.5 million deaths, with the elderly and those with comorbidities suffering the most.1 Because of weaknesses in testing and the registration of deaths, the actual numbers of cases and deaths are likely to be much higher. In addition to the direct impact of COVID-19 on morbidity and mortality, there are concerns about its longer term health impact among those who have recovered.2 Although some countries have managed to contain the spread of COVID-19 using lockdowns combined with testing, tracing and isolation protocols, cases continue to rise in other countries. In addition, even among some countries that had initially contained the disease, subsequent waves are being observed, such as the one presently being experienced in the northern hemisphere, where colder weather is correlated with higher rates of indoor mixing of people. These challenges are expected to remain until vaccines are widely available and an effective treatment is found. Lockdown- and fear-induced declines in utilization of routine health services – especially those delivered at the primary health care (PHC) level such as immunization, antenatal care, and the detection and management of communicable and noncommunicable diseases – have also been recorded.3,4 Despite utilization levels returning to pre-crisis levels, these declines are likely to have a longer term impact on population health.

COVID-19 lockdown policies, as well as voluntary social distancing, have resulted in steep declines in economic activity globally. Consumption and trade have declined, followed by investment. As a result, the world is experiencing one of the largest declines in gross domestic product (GDP) in almost a century, unprecedented in magnitude and scale, with most countries expected to see negative economic growth – and all seeing a slowdown in economic growth – in 2020. Countries
that implemented more stringent lockdown policies and failed to contain the virus appear to have taken the biggest economic hit, as have those whose economies are more dependent on the services sector (including tourism), given that sector’s greater dependence on face-to-face contact. Even those countries that have remained virus free to date, for example some Pacific countries, have not been immune to the economic contagion of COVID-19. Declining economic activity, including lower remittances, have resulted in a rise in poverty and a decline in employment, hitting those in the informal sector especially hard. As lockdown policies are slowly being reversed and the first phase of vaccine deployment begins, there have been early signs of recovery in many countries, with economic growth rates expected to rebound in 2021, albeit from a much lower GDP base; however, this remains subject to great uncertainty.

This paper focuses on the economic impact of COVID-19 on health financing in countries of the World Health Organization (WHO) South-East Asia Region. We argue that, although COVID-19 presents risks, it also provides an opportunity to reset health financing systems in many countries of the region, especially for financing PHC, sustaining progress towards universal health coverage (UHC) and improving future pandemic preparedness.

The remainder of this paper is organized as follows. The next section provides a brief summary of health financing systems in South-East Asia Region countries, underscoring the diversity of the region. This is followed by a summary of what is known about and predicted to be the economic impact of COVID-19 in the region and a discussion of some of the medium-term implications for health financing, especially for PHC. The paper ends with a brief summary and conclusions, including a discussion of possible mitigative policy options.

**Health financing systems in the South-East Asia Region**

The South-East Asia Region countries – Bangladesh, Bhutan, Democratic People’s Republic of Korea, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste – are collectively home to over one quarter of the world’s population. Most countries of the region are classified by the World Bank as being lower middle income, with national incomes per capita ranging between US$ 1026 and US$ 3995; the region is also home to three upper middle-income countries, that is, those with national incomes between US$ 3996 and US$ 12 375, namely Indonesia, Maldives and Thailand. The region is home to the second-, fourth- and eighth-largest countries in terms of population size (India, Indonesia and Bangladesh, respectively) as well as some of the smallest and least populated countries in the world (e.g. Bhutan, Maldives and Timor-Leste). Pre crisis, the estimated purchasing power parity (PPP) US$ 1.90-per-day poverty rate was more than 20% in India and Timor-Leste and around 15% in Bangladesh and Nepal; over half of the population lived on less than PPP US$ 3.20 per day in these countries.

Health systems in the region are diverse. Private provision is relatively significant – accounting for 60–80% of outpatient visits and 40–60% of inpatient cases – in Bangladesh, India and Indonesia. In contrast, public provision dominates in Bhutan, Sri Lanka and Timor-Leste. The region is home to countries with some of the best health systems and health outcomes globally (e.g. Sri Lanka and Thailand) as well as those that have made tremendous progress in recent decades (e.g. Bangladesh and Nepal). Nevertheless, health system challenges – a hospital-centric focus, weaknesses in PHC, a relatively low density and maldistribution of health workers, suboptimal quality of care, and geographic and socioeconomic inequalities in access and outcomes, including deficiencies related to gender and urban health – remain in several countries, many of which have been made more visible as a result of the COVID-19 pandemic.

In terms of financing, health spending in most countries of the region is “small” relative to GDP. Current health spending as a percentage of GDP is the lowest of all WHO regions, at 4.4%, considerably lower than the 2018 global average of 6.6% (Table 1). Over the past decade, per capita health expenditure in the South-East Asia Region has increased from an average of US$ 150 in 2009 to US$ 195 in 2018, an annual growth rate of 3.0%, which was lower than the corresponding

<table>
<thead>
<tr>
<th>WHO region</th>
<th>Per capita current health spending (US$)</th>
<th>Current health spending share of GDP (%)</th>
<th>Public spending share of GDP (%)</th>
<th>OOP share of current health spending (%)</th>
<th>External share of current health spending (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Office for Africa</td>
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<td>5.7</td>
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<tr>
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<td>2.4</td>
<td>39.7</td>
<td>2.5</td>
</tr>
<tr>
<td>Regional Office for Europe</td>
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<td>5.1</td>
<td>28.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Regional Office for South-East Asia</td>
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<td>3.8</td>
<td>1.7</td>
<td>45.1</td>
<td>9.9</td>
</tr>
<tr>
<td>Regional Office for the Western Pacific</td>
<td>915</td>
<td>7.8</td>
<td>4.3</td>
<td>19.3</td>
<td>16.9</td>
</tr>
<tr>
<td>All countries</td>
<td>1009</td>
<td>6.6</td>
<td>3.4</td>
<td>33.2</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Per capita health expenditures are reported in constant 2018 US dollars. Source: Global Health Expenditure Database.
and vertical programme financing flows, which tend to be heavy reliance on input-based, line-item budgeting structures, financial management rules are used, which in some cases resources are pooled by ministries of health, traditional public as Bangladesh, Myanmar and Timor-Leste, where public monitoring and management of providers. In countries such on norms following historical patterns and without active Region countries, with resources being allocated based all WHO regions, with an estimated 16% of the population, or about 310 million people, spending more than 10% of their budget on health. In addition, the South-East Asia Region is the only WHO region that, despite a decline in the aggregate OOP share of current health spending, has seen an increase in OOP-induced impoverishment in recent decades using the PPP US $1.90-per-day poverty line.

When it comes to the sources of financing, there is considerable variation between countries within the region. In Bhutan, Maldives and Thailand, public sources provide the predominant share of current health spending, while in Bangladesh, India and Myanmar OOP financing is the largest contributor of resources for health. External financing also plays a significant role in countries such as Myanmar, Nepal and Timor-Leste. Social health insurance (SHI) contributions are relatively minor in the region but growing in importance in countries such as Indonesia (Fig. 1).

For countries where data are available, average per capita PHC expenditure in the region was US$ 42, ranging from US$ 24 to US$ 58 (from 38% to 73% of current health expenditure, respectively). While there is no target for what PHC expenditure “should be”, public spending on PHC is generally viewed as insufficient, accounting for less than 40% of the entire PHC budget in low- and middle-income countries. It has been recommended that public spending on PHC should increase by at least 1% of GDP to realize the Alma-Ata Declaration. When it comes to essential service packages, several countries of the region have adopted these in recent years, such as Bangladesh and Sri Lanka, to be offered largely at the PHC level. However, although such packages have been developed, reforms that would enable their effective implementation, for example to address weak supply-side readiness, improve capacity for the reallocation of existing resources, and enhance managerial accountability, have, by and large, not taken place.

Purchasing is largely passive in many South-East Asia Region countries, with resources being allocated based on norms following historical patterns and without active monitoring and management of providers. In countries such as Bangladesh, Myanmar and Timor-Leste, where public resources are pooled by ministries of health, traditional public financial management rules are used, which in some cases are plagued with challenges such as low execution rates, heavy reliance on input-based, line-item budgeting structures, and vertical programme financing flows, which tend to be rigidly designed with limited flexibility. In countries that follow a decentralized governance model, key resources are controlled at subnational levels. These include India and Indonesia and, more recently, Nepal and Timor-Leste. Notable exceptions to passive purchasing in the region include Indonesia and Thailand, both of which have created strong institutional arrangements to carry out strategic purchasing functions. These include the setting up of provider payment mechanisms and tariffs that are results oriented as part of large-scale demand-side insurance schemes. India is also moving in this direction: the recently launched Pradhan Mantri Jan Arogya Yojana (PMJAY) scheme has established rules to empanel providers only when they meet certain criteria, and the new National Health Authority not only processes claims but also actively monitors quality indicators.

**Economic impact of the COVID-19 pandemic**

The South-East Asia Region was one of the regions with the highest number of new cases in the last week of November (Fig. 2). Within the region, India had the highest number of cumulative cases, with more than 10 million; as of 1 December, Maldives, with 24,050 cases, had the highest number of cumulative cases per million population. In addition to the health impact, the COVID-19 pandemic is having a severe economic impact on countries of the region. Before the crisis, the South-East Asia Region was the fastest growing region in the world. From 2009 to 2019, the annual economic growth rate in the region averaged 5.4% (4.2% in per capita terms), with Bangladesh, Bhutan, India and Myanmar posting some of the fastest annual GDP growth rates in the world, in excess of 6.0% per year (Table 2). Current projections indicate that the COVID-19 pandemic will result in a country-averaged economic contraction of −4.2% (−5.3% in per capita terms).
across the South-East Asia Region countries in 2020. Although the region will not be the worst hit – Regional Office for the Eastern Mediterranean, Regional Office for the Americas and Regional Office for Europe countries are expected to fare much worse in terms of average economic impact – the 2020 contraction in the region will be especially deep relative to the 2009–2019 trend in growth rates and far greater than the impact of previous regional and global crises, such as the 2009 global financial crisis and the 1997–1998 Asian financial crisis. Despite current projections of an expected rebound in economic growth in 2021, on average, South-East Asia Region countries will lose several years of economic output and it may take as many years again for economic activity to return to pre-crisis levels (Fig. 3).

The country-level economic impact of the COVID-19 crisis is expected to be highly variable. Maldives is currently expected to be among the worst hit globally, with a projected decline of 19.9% in per capita GDP in 2020 (down from an average growth of 3.2% over 2009–2019), primarily because of a decline in tourism. This is followed by India, which is expected to contract by 11.2%, down from an average economic growth rate of 5.9% over 2009–2019 (Fig. 4). On the demand side, India’s contraction is driven by a decline in both consumption and investment; on the supply side, the contraction has occurred in both the manufacturing sector and the services sector.

Sri Lanka, Thailand and Timor-Leste are expected to see their economies contract by between 5% and 10%. On the other hand, both Bangladesh and Myanmar are projected to be among the few countries in the world not to contract in 2020; nevertheless, they too will still see considerable slowdowns in economic growth relative to trends. Bangladesh has seen a steep decline in exports, including garment exports, but robust

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**Table 2: GDP growth across WHO regions**

<table>
<thead>
<tr>
<th>WHO region</th>
<th>Average 2009–2019 (%)</th>
<th>Projected 2020 (%)</th>
<th>Projected 2021 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GDP</td>
<td>Per capita GDP</td>
<td>GDP</td>
</tr>
<tr>
<td>Regional Office for Africa</td>
<td>4.0</td>
<td>1.6</td>
<td>–2.9</td>
</tr>
<tr>
<td>Regional Office for the Americas</td>
<td>2.0</td>
<td>1.0</td>
<td>–8.3</td>
</tr>
<tr>
<td>Regional Office for the Eastern Mediterranean</td>
<td>3.0</td>
<td>0.4</td>
<td>–9.4</td>
</tr>
<tr>
<td>Regional Office for Europe</td>
<td>2.1</td>
<td>1.7</td>
<td>–5.9</td>
</tr>
<tr>
<td>Regional Office for Asia</td>
<td>5.4</td>
<td>4.2</td>
<td>–4.2</td>
</tr>
<tr>
<td>Regional Office for the Western Pacific</td>
<td>3.9</td>
<td>2.6</td>
<td>–4.1</td>
</tr>
<tr>
<td>All countries</td>
<td>3.1</td>
<td>1.7</td>
<td>–5.7</td>
</tr>
</tbody>
</table>

Source: International Monetary Fund.
remittances have bolstered consumption. Manufacturing is expected to contract in Myanmar, but the impact on the services sector has been less severe than expected.

The extended economic slowdown as a result of the COVID-19 pandemic has resulted in a deceleration in remittances to countries of the region. For example, downward projections, based on assumptions that the control of the epidemic and resumption of economic activities will take 1 year, have been made for India (9%), Sri Lanka (9%), Nepal (12%), Thailand (15.8%), Myanmar (17.7%), Timor-Leste (17.7%) and Indonesia (21.4%) in 2020.26,27 The pandemic has also worsened unemployment in the region, with a substantial estimated decline in global working hours during the first three quarters of 2020, resulting in an average of 30 million full-time equivalent jobs lost in the South-East Asia Region and about 100 million jobs lost in the South-East Asia and South Asia regions.28 The crisis has disproportionately affected jobs in some sectors, such as the retail and wholesale trade, hospitality, recreation, manufacturing, and accommodation and food services sectors, with migrant and informal workers being among the worst-hit groups.29 With a greater proportion of women working in some of the most affected sectors, the pandemic also threatens to derail efforts made to reduce work-related gender inequalities.

The COVID-19 crisis is estimated to push an additional 48–59 million people living in this region into extreme poverty in 2020. This could rise to as many as 62–76 million by 2021, depending on the severity of the projected economic contraction, comprising more than half of the world’s total7 (Fig. 5). Extreme poverty, defined as living with less than PPP US$ 1.90 per day, is likely to affect between 7.2% and 7.7% of the entire region’s population this year, reversing two decades of a declining trend observed since 1998 (left side of Fig. 6). Measuring the impact against the PPP US$ 3.20-per-day international poverty line, which is more appropriate for lower-middle-income countries, the picture becomes graver. Fig. 6 describes three scenarios: the “pre-COVID-19” scenario as categorized by the International Labour Organization of the United Nations.
depicts the would-be poverty levels had the COVID-19 crisis not occurred, while the “COVID-19-baseline” and “COVID-19 downside” scenarios were developed under the assumptions that the global economy will contract by either 5% (blue line) or 8% (red line) in 2020, respectively. Before the pandemic, more than one third of the region’s population lived below the PPP US$ 3.20 poverty line, and the deceleration in economic activity intensified by the pandemic is projected to push an additional 110–134 million people below this line in 2020 (Fig. 5). Thus, without policy interventions, the COVID-19 crisis could induce greater income inequality in a region where income inequality was already considerably high before the crisis.

The economic slowdown has also resulted in declining government revenues, with the tax revenue share of GDP – already low in the region relative to global benchmarks – declining by about 2% of GDP on average. The grant financing share of GDP is expected to remain largely unchanged, but overall government revenues will decline. Most countries have dramatically raised borrowing and, as a result, government expenditures as a share of GDP have risen (Fig. 7), primarily to finance the emergency pandemic response, for expanding social protection programmes and for countercyclical government spending. Consequently, public debt levels are projected to rise across the region – with levels already elevated prior to the crisis in some countries such as India, Maldives and Sri Lanka – to exceed 60% of GDP on average (Fig. 7). Higher public debt levels will imply higher debt servicing in the future and the potential for continued fiscal tightening, at least in the medium term.

d Countercyclical government spending refers to policies that increase government spending and reduce taxes during recessions.
Implications for health financing in the South-East Asia Region

The economic impact of COVID-19 on health financing – beyond the immediate emergency surge financing response to the pandemic – is difficult to predict. Public financing for health is a function not only of economic growth – more accurately, the additional revenues and borrowing that are facilitated by economic growth – but also of what happens to overall public spending and to health’s share of overall public spending, that is, to the priority that health receives in government budgetary allocations and the ability of the sector to absorb and utilize allocations effectively. The increase in public spending for health in South-East Asia Region countries over 2000–2018 was largely the result of conducive macro-fiscal factors such as rapid economic growth. In other words, the experience in the past has been overwhelmingly one of “a rising tide lifting all boats” rather than “farin better with a larger share” when it comes to health. Globally, public spending on health during previous crises has tended to contract with declining GDP, at least on average. However, this was not always the case, and especially so when crises were triggered by adverse health events. For instance, public spending on health increased in affected countries during the 2014–2016 Ebola epidemic in West Africa despite declining GDP because of reprioritization of health. Similarly, during the 2009 financial crisis several Organisation for Economic Co-operation and Development and European Union countries protected public spending on health by expanding deficit-financed total public spending.

If governments are committed to prioritizing health, such as, arguably, in Sri Lanka and Thailand, there may be less concern about the impact of COVID-19 on public spending for health. In other countries, the combination of countercyclical increases in public spending and declining levels of per capita GDP may imply across-the-board tightening; in such settings, in the absence of reprioritization of health, growth in public spending for health is likely to decline or even become negative in some countries, putting at risk substantial gains made towards advancing UHC in recent decades. For example, pre-crisis per capita GDP in India was roughly US$ 2000, the public spending share of GDP was approximately 27% (a combination of the government revenue share of 20% of GDP and borrowing of about 7% of GDP) and health’s share of public spending was approximately 3% (average of national and state-level funding), yielding per capita public spending on health of about US$ 20, about 1% of GDP. With India’s expected economic contraction of 11.2% and with levels of per capita GDP taking several years to return to pre-crisis levels, public spending on health will have to increase as a share of GDP, through sustained countercyclical overall public spending or by increasing health’s share of overall public spending, in order to protect levels of and growth rates in public spending on health from declining, which were already low to begin with.

In Indonesia, where one quarter of public financing comes from contributory SHI revenues, fiscal sustainability challenges as a result of deteriorating labour market conditions and rising rates of poverty could emerge. Rising unemployment means fewer employed members paying into SHI schemes, while weakening wages may also mean lower contribution rates. A larger pool of unemployed and impoverished individuals may also result in additional calls on the government budget for subsidizing contributions. Transferring contributory coverage to non-contributory coverage will be an administrative challenge, with many likely to fall “between the cracks”. In addition, SHI schemes such as those in Indonesia are facing additional demands to cover medical expenses for COVID-19, including for testing, community-based isolation of mild cases, and inpatient care of severe cases. On the other hand, social distancing measures and reduced economic activity may lead to fewer road traffic accidents and reductions and delays in seeking elective and non-urgent care, as well as declines in other environment-related reasons for ill health (e.g. because of lower levels of air pollution). The net effect of all these factors on SHI finances is difficult to predict with certainty. Unpublished preliminary projections indicate that an additional 8 million individuals will be either unemployed or impoverished in Indonesia as a result of the pandemic. Indonesia’s unemployment rate is projected to rise to 7.5% of the labour force in 2020, up from 5.3% in 2019, which equates to an additional 3 million people. In addition, declining economic growth is projected to push another 5 million people below the poverty line. Given current coverage and contribution rates, this could potentially mean additional outlays to manage the loss in contributions and an increase in the need to provide subsidized SHI coverage.

Globally, data suggest a nearly one-to-one relationship between growth in national income and growth in aggregate OOP spending. Given the nature and magnitude of the contraction expected because of the pandemic, levels of OOP spending could decline throughout the South-East Asia Region. This effect will likely be aggravated by fear- and lockdown-related declining utilization trends, which are being observed in many countries. On the other hand, increasing rates of self-medication and higher co-payments may have the opposite effect, leading to higher OOP spending. Declining OOP spending, declining consumption and declining utilization would be likely to result in improvements in commonly used financial protection metrics, for example OOP shares of income/consumption, even though these improvements would be deceptive as they would be caused by foregone care rather than improvements in effective coverage. Foregone care would adversely affect both population health and economic productivity. This implies that public financing may need to increase even further if it is to help offset declining OOP spending trends. This may be necessary not only to help stimulate utilization more generally by removing additional financial barriers to accessing care, but also to manage greater relative utilization at public facilities, which may be
expected as a result of the economic shock resulting from the pandemic.\textsuperscript{1} The decline in OOP spending may also cause cash flow issues for providers, hence the need for increased public spending to sustain the survival of those who depend on such revenues. At the time of writing this paper, access to and allocation of vaccines against COVID-19 are still hotly debated and unaddressed issues. Governments should strive to make sure that financial barriers do not prevent the vaccines reaching those who are most in need.

Considerable uncertainty remains as to what might happen to external financing for health. Total levels of external financing have stagnated in recent years,\textsuperscript{9} at about US$ 40 billion annually, and there is little evidence to suggest that the previous global financial crisis in 2008–2009 had any significant impact on external financing flows to low- and middle-income countries.\textsuperscript{20} On the one hand, the fact that the economic shock is also affecting higher income countries may indicate an adverse impact on external financing flows; on the other hand, high-income countries are also the most likely to be able to weather the storm, at least in the short term, increasing government spending outlays by borrowing more, and, therefore, external financing may not be impacted as much. Given the communicable disease nature of the crisis, high-income countries have an interest in ensuring that COVID-19 is controlled not only within their own borders but also outside. As noted above, current projections indicate no significant changes in overall levels of grant financing provided to countries of the South-East Asia Region. It remains to be seen if these projections are borne out and, in addition, a lot of uncertainty remains as to the extent of the impact on health-specific grant financing not just in 2020 but also in 2021 and beyond. If external financing declines, public financing from domestic sources will need to increase even further to ensure that gains made in recent years are not lost as a result of the economic shock from the pandemic.

Summary and conclusions

The COVID-19 pandemic not only has had a direct impact on mortality and morbidity in South-East Asia Region countries but also will have indirect implications in the medium term for financing for health and for sustaining progress towards UHC, especially given the adverse economic impact that countries across the region are facing because of lockdowns and voluntary social distancing. The average economic contraction faced by countries of the region is currently projected to be 5.3% in 2020. GDP may take several years to recover to pre-crisis levels, with countries such as India, Maldives, Sri Lanka, Thailand and Timor-Leste being especially hard-hit. With lower levels of economic activity, public revenues have declined, and countries have ramped up deficit financing to increase public spending, leading to higher levels of public debt. Without sustained countercyclical public spending and increased priority for health in government budgets, countries will be likely to see a slowdown or even reversal of growth in public spending on health, which is already low in several countries of the region. If previous trends are realized, OOP spending will also be likely to decline as a result of foregone care, and tremendous uncertainty remains around levels of external financing for health given that the economic shock from COVID-19 is also affecting high-income countries.

What might countries do during this period of economic adversity and fiscal tightening? Improving the efficiency and equity of public spending on health is key, now more than ever. Budgetary spending will need to be trimmed, without sacrificing outputs and outcomes – by strengthening PHC, enhancing cost-effectiveness, improving the targeting of public financing towards the poor and vulnerable, reducing fragmentation and duplication, and cutting other forms of waste – and it should be urgently prioritized, underscoring that a crisis can sometimes provide opportunities to implement necessary reforms. Such reforms could also facilitate reprioritization of health in countries where health has been historically underprioritized. In addition, the emergency surge financing response to COVID-19 in most countries of the region should also be directed towards strengthening health systems for routine health services, especially PHC, and bolstering core public health functions. This is an opportunity to be seized, rather than creating yet another vertical programme with its own parallel mechanisms, which could further undermine the capacity of already weak health systems in the region.

Where feasible, this may be an opportune time for countries to assess if health taxes – for example taxes on consumption that is harmful to health, such as the consumption of alcohol, tobacco, sugar, and taxes on carbon emissions – could be introduced or scaled up. Although the primary focus of such health taxes ought not to be to raise revenues but rather to improve health by addressing risk factors, during times of crisis they may play an important role in augmenting revenues.\textsuperscript{37} Where there are concerns regarding the lack of progressivity of such taxes, some form of “soft earmarking” of additional revenues for pro-poor programmes could help mitigate their impact. Early debt relief is also an option as a form of provision of development assistance to countries most in need. Experience from countries that have participated in existing schemes, such as the Debt2Health initiative managed by the Global Fund to Fight AIDS, Tuberculosis and Malaria, may offer a starting point.

As well as posing a challenge, the COVID-19 pandemic also presents an opportunity to reset how health systems and PHC ought to be prioritized and financed in countries of the South-East Asia Region, as areas of core public investment that not only contribute to better health outcomes but also are critical for ensuring a sustained economic recovery.

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\textsuperscript{1} This will be important in several South-East Asian Region countries where the level of private provision is relatively high, such as Bangladesh, India and Indonesia.

\textsuperscript{9} Even though the Institute for Health Metrics and Evaluation’s estimates include financing from non-traditional donors (e.g. China), which are becoming increasingly important.
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Deep impacts of COVID-19: overcoming challenges in strengthening primary health care by targeting the health workforce

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The coronavirus disease 2019 (COVID-19) pandemic has had unprecedented negative impacts on the health, well-being and livelihoods of people worldwide. The crisis has triggered the deepest global recession in decades, with global gross domestic product (GDP) projected to fall by 5.2% in 2020. Economic recovery is uncertain if the pandemic persists and restrictions on movement and disruption to economic activity continue. Furthermore, a significant increase in the public debt burden and a reduction in governments’ fiscal space, especially for health, may jeopardize countries’ progress towards achieving the health-related Sustainable Development Goals (SDGs).

Variations by country in the extent to which policy-makers have taken timely multisectoral action and in the effectiveness of their social measures and public health interventions have affected the outcomes of pandemic control in terms of caseload, morbidity, mortality, burden on the health system and capacity to maintain essential health services. A study of eight European countries estimated that, across those eight countries, a further delay of 1 week in imposing lockdown would have cost more than half a million lives. Substantially more lives were saved in countries that acted promptly than in those that did not. Effective management of COVID-19 responses through a whole-of-government approach – notably through collaborative public health and social measures – in conjunction with resilient health systems can contain infection, prevent health system disruption and maintain essential health services.

The pandemic has profoundly shaped how countries deliver health services. Prior to the pandemic, countries in the World Health Organization (WHO) South-East Asia Region were steadily progressing on essential health services coverage. Efforts to strengthen primary health care (PHC) and improve health systems’ resilience in these countries supported the public health response to the pandemic. For example, in Thailand, to prevent the spread of coronavirus infection in hospitals, non-urgent ambulatory care was transferred to PHC or delivered through telehealth consultations, while access to medicines was maintained through deliveries by village health volunteers or postal services. In Sri Lanka, PHC was one of the key response mechanisms for implementing infection prevention and control amid the COVID-19 crisis, through strengthened capacity of primary care providers, who also ensured continued provision of essential health services through telemedicine. In one district in Telangana, India, during the lockdown imposed as a result of COVID-19, transferring follow-up services for hypertensive patients to the lowest-level PHC facility, the subcentre, led to significantly lower patient attrition rates than in a district with no transfer of services.

Despite the South-East Asia Region’s increased health service delivery capacity in the face of the pandemic, one enduring challenge remains to achieving universal health coverage (UHC): adequate capacity in terms of human resources for health (HRH) at PHC level. There has been progress between 2014 and 2019, the region experienced a 21% increase in the average density of doctors, nurses and midwives, with 9 of the 11 countries of the region having surpassed the WHO threshold, set in 2006, of 22.8 health workers per 10,000 population. However, only two countries are above the revised WHO threshold, set in 2016, of 44.5 health workers per 10,000 population, the density estimated to be required to achieve the SDGs. Continued progress will rely on good HRH governance. Except for one, all countries of the region have established HRH coordination units in their ministries of health, which facilitate multisectoral action to be taken by, for example, health professional education and training institutes, public and private employers and professional councils. Yet many of these HRH coordination units struggle with fragmented oversight, planning and management, and require targeted capacity strengthening.

HRH strategies must link directly to strategies for improving health service delivery, and more policy attention needs to be paid to frontline PHC workers. Historically, the PHC health workforces in South-East Asia Region countries have focused on providing maternal and child health services, gradually extending coverage to screening and treatment for noncommunicable diseases and other acute conditions. However, most of the PHC workforces in the region have limited capacity to perform other critical public health functions, notably surveillance of and response to health threats. This limited capacity on public health, compounded by the rural retention issues that most countries struggle with, reveals significant gaps in the PHC workforce when it comes to effectively addressing public health emergencies.

If these gaps are not addressed, countries will fall short of the HRH required to implement the imminent large-scale COVID-19 vaccination campaign targeting priority and high-risk populations, as recommended by the WHO Strategic Advisory Group of Experts on Immunization. In the South-East...
Asia Region, the sheer population size – 2 billion people in 11 Member States – means vaccinating 400 million people to cover 20% of the population and vaccinating 1 billion people to cover 50% of the population. To achieve this vital undertaking, the region’s PHC workforce will need to be significantly scaled up and their skills and roles expanded. Some countries of the region have had success in improving rural retention through “bundles” of interventions that include a mix of educational interventions (e.g. recruitment of students from rural backgrounds and ethnic minorities, home-town placements once students graduate, and pre-service curricula that reflect rural health services and provide exposure to PHC early on) and financial and non-financial incentives. There has been less progress in developing new skills and cadres of frontline health workers.

The United Nations Member States have committed to invest at least an additional 1% of GDP in PHC. However, the methodology for producing national health accounts (NHAs) has yet to capture expenditure on PHC. The lack of evidence in NHAs on the true size of investment in PHC and, within that, in HRH inhibits useful monitoring of HRH spending. Furthermore, the emerging national health workforce accounts for the region do not capture all cadres of the PHC workforce. This will impede the kind of planning that underpins responsiveness and adaptability in the face of public health emergencies such as the COVID-19 pandemic.

Over the past 2 years, health workforce strengthening has been in the global political spotlight thanks to the 2018 Astana Declaration on PHC and the 2019 United Nations Political Declaration of the High-level Meeting on Universal Health Coverage. Building on the steps needed to respond to the pandemic and achieve UHC by strengthening PHC, the following are policy recommendations for South-East Asia Region countries.

First, accelerate increased coverage of functional PHC. WHO proposes three functions defining adequate PHC: (i) provision of comprehensive health services as the first contact point with the health service throughout the life course, (ii) multisectoral actions to address determinants of health and (iii) empowering citizens and communities to lead healthy lives. Evidence shows that, while provision of comprehensive health services to the population is more developed in the region than the other two functions, even there gaps remain.

Achieving UHC targets will require not only the scaling up of the health workforce through incentives and education strategies but also investment in effective and integrated health workforce databases that enable real-time tracking of the skills mix and geographical distribution of the health workforce. In addition, more policy attention needs to be paid to expanding the roles of health workers. The transformations in the education of health professionals that are under way in most South-East Asia Region countries must address instructional and institutional aspects to ensure that new cadres of health professionals are able to respond appropriately to the emerging health needs of the population.

Second, strengthen PHC to enable better responses to emergencies and outbreaks. In this regard, PHC has two functions: first, identifying and managing emergencies, and, second, providing surge capacity for hospitals. For the first, strengthening the capacity of PHC health workers to conduct case-based and event-based surveillance, followed by outbreak investigation and containment of small daily health threats, is a platform that can be built on to respond to large public health emergencies. This requires immediate policy attention.

For the second, a well-functioning PHC sector can relieve the pressure on the hospital sector during public health emergencies. To achieve this, the PHC workforce needed to be adaptable, take on additional skills and roles to support new models of service provision, and implement innovative approaches to service delivery. As illustrated earlier, routine noncommunicable disease services, including dispensing of medicines to well-controlled patients, can be transferred from hospitals to PHC. Innovative approaches using telecommunications (e.g. smartphones) need to be more widely integrated into PHC and incorporated into the transformative education agenda. Use of technology and changes in service delivery design can also contribute to alleviating rural retention issues.

Third, mobilize adequate resources for PHC. Despite fiscal challenges, governments need to make bold decisions and commit politically to investing in the health of their populations through PHC. Including PHC-related HRH data in 5- and 10-year sector-wide planning would enable the integration of PHC into the whole continuum of health workforce planning and corresponding resource allocation, making it possible to target improvements in terms of education, recruitment, the absorptive capacity of the public sector, desired skills mix, posting, retention and continued professional development. As building these capacities will need lead time, countries need to act now.

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References

Perspective

Implementing a decade of strengthening the health workforce in the WHO South-East Asia Region: achievements and way forward for primary health care

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Abstract

Background Health workers are the cornerstone of primary health care (PHC) services, the delivery of an effective coronavirus disease 2019 (COVID-19) response and progress towards universal health coverage (UHC). In 2014, the World Health Organization (WHO) South-East Asia Region committed to the Decade for Health Workforce Strengthening 2015–2024, and UHC became a regional flagship with a focus on strengthening the health workforce. Since its inception, three rounds of monitoring with standardized indicators have been completed.

Methods In 2019, data on human resources for health were collected through the National Health Workforce Accounts online platform by the country focal points; this was complemented by a regional online consultation in June 2020. A mid-term review report on the Decade for Health Workforce Strengthening was launched during the 73rd session of the Regional Committee in September 2020.

Results The availability of doctors, nurses and midwives in the South-East Asia Region has increased by 21% since the decade began in 2014. Nine countries of the region are now above the 2006 WHO threshold of 22.8 doctors, nurses and midwives per 10 000 population, compared with only six countries in 2014. However, only two countries are above the 2016 revised WHO threshold of 44.5 doctors, nurses and midwives per 10 000 population, the density estimated to be needed to achieve the Sustainable Development Goals. Countries of the WHO South-East Asia Region have made progress to different extents during the past 5 years on strengthening governance of human resources for health, data, rural retention and health professional education.

Discussion Addressing broader health workforce challenges and particularly PHC workforce challenges will require extra commitment and prioritization by governments for the second half of the decade. COVID-19 presents the necessity and an opportunity to increase long-term investment in the health workforce and in strengthening PHC in the South-East Asia Region.

Keywords: health workers, health workforce, primary health care, primary health care workforce, South-East Asia Region

Background

Health workers are the cornerstone of primary health care (PHC) services.1 They are also critical for the delivery of an effective coronavirus disease 2019 (COVID-19) response and for progress towards universal health coverage (UHC).2

Global and regional health workforce agendas have evolved significantly since 2006, when the World Health Organization (WHO) highlighted the global urgency of addressing the existing critical human resources for health (HRH) shortages in order to reach the health Millennium Development Goals. Efforts since have led to the health workforce in the region, particularly the PHC workforce, moving towards fulfilling the commitments set out in the Astana Declaration (Box 1).

The COVID-19 pandemic has underlined the importance of health workers in providing effective COVID-19 services while maintaining other essential health services. The pandemic has highlighted the need to strengthen the surge capacity response of health workers, to ensure their occupational safety from coronavirus infection and to support the health and well-being of this workforce. There is a policy window of opportunity to link these actions to longer term HRH-strengthening approaches.
Box 1. Timeline of global and regional policy context for developments in human resources for health

2006  *The world health report 2006* identified 57 countries with critical shortages of workforces to meet the health Millennium Development Goals. Six of these countries were members of the WHO South-East Asia Region. All six of these countries took action to address these shortages, but progress was slow.

2010  WHO launched a set of global policy recommendations, *Increasing access to health workers in remote and rural areas through improved retention*. The recommendations urged Member States to implement a series of measures to improve health workforce retention in underserved areas.

2013  WHO launched *Transforming and scaling up health professionals’ education*. The guidelines called for new approaches to health professionals’ education, in relation to both institutional and instructional dimensions.

2014  South-East Asia Region Member States recognized that more attention to and prioritization of health workforce policies were required to progress towards UHC. A Regional Committee resolution endorsed and committed to implementing the Decade for Health Workforce Strengthening 2015–2024. UHC became a regional flagship programme, with a focus on strengthening the health workforce and access to medicines.

2015  The Sustainable Development Goals were launched in 2015 and reinforced the importance of addressing health workforce challenges to achieve the health goal (SDG 3).

2016  The WHO *Global strategy on human resources for health: workforce 2030* and the report of the United Nations High-Level Commission on Health Employment and Economic Growth, both of which highlighted the importance of investing in the health workforce, were published.

2018  The Astana Declaration on PHC reinforced the importance of strengthening the PHC workforce to improve the accessibility and quality of PHC services.

2020  The International Year of the Nurse and the Midwife and the publication of the report *State of the world’s nursing 2020* provided an extra boost to the health workforce agenda in the region. The COVID-19 pandemic emerged, emphasizing the importance of resilient health systems and a solid health workforce platform for effective COVID-19 responses while maintaining other essential health services.

According to the WHO *Global strategy on human resources for health*, the estimated global and South-East Asia Region shortages of health workers will be 18 million and 6.9 million respectively in 2030, meaning that nearly 40% of this shortage burden will be in the South-East Asia region. Since the Decade for Health Workforce Strengthening launched in the South-East Asia Region in 2014, there have been three rounds of monitoring, in 2016, 2018 and 2020. The 2020 report on the mid-term review of progress during the Decade for Health Workforce Strengthening in the South-East Asia Region covers the first half of the decade and, where data are available, analyses the progress made on the overall health and PHC workforces. The review also describes challenges and the way forward for the PHC and overall health workforces during the second half of the decade. Some of the main findings, information on progress and reflections from the report are presented here.

### Methods

Data for the mid-term review progress report on the Decade for Health Workforce Strengthening were collected through the National Health Workforce Accounts (NHWA) online platform in late 2019. Each South-East Asia Region country has an NHWA focal person from the ministry of health who collects HRH data from different sources, validates the data and then puts them on the NHWA online platform. The data collection was complemented by a regional online consultation conducted in June 2020.

Data for the 2020 report are more complete than data for previous reports. In particular, more complete data on the production of doctors, nurses, midwives, dentists and pharmacists were reported. In addition, for the first time, 10 South-East Asia Region countries reported data on other PHC workers such as medical assistants, community health workers, traditional medicine professionals, associate professionals and paramedical practitioners. These professionals represent a significant portion of the health workforce and play an important role in providing promotive, preventive and curative services in primary care.

Country HRH profiles were produced using the data described above and were then reviewed by the country NHWA focal points.

The limitations of the data are threefold. First, data on the stock of health workers are frequently collected from health professional council registers, which tend to overestimate the number of health workers because these registers include all health workers who have registered since qualifying as professionals, even if they are no longer active. Some South-East Asia Region countries are progressively introducing live registries to address this limitation; however, this commonly leads to a reduction in the stock of health workers, referred to as the “data paradox” – as the quality of data improves, the stock of health workers drops.

Second, data on the composition and distribution of health workers are primarily from the public sector, since the availability of data from the private sector is limited.

Third, data on doctors, nurses, midwives, dentists and pharmacists come from the national or subnational level and...
are generally not disaggregated by level of care. Therefore, there are no country data showing the availability of each of these five professional categories in primary care.

**Results**

**Health workforce situation in the WHO South-East Asia Region**

**Availability of health workers**

In all South-East Asia Region countries, excluding the Democratic People’s Republic of Korea, the availability, or density, of doctors, nurses and midwives has increased by 21% since the start of the Decade for Health Workforce Strengthening in 2014.¹³ Nine South-East Asia Region countries are now above the 2006 WHO density threshold of 22.8 doctors, nurses and midwives per 10 000 population, compared with six countries in 2014.¹³ However, only two countries are above the 2016 revised WHO density threshold of 44.5 doctors, nurses and midwives per 10 000 population – the estimated density required to achieve the Sustainable Development Goals (SDGs) (Fig. 1).² The densities of pharmacists and dentists have increased in about half of the region’s countries over the same period.

Although the density of doctors, nurses and midwives is on a par with the Eastern Mediterranean Region (27.7) and African Region (12.7), the Western Pacific Region (55.5) has more than twice the density and the European Region (117) and the Region of the Americas (113) have more than four times the density that the South-East Asia Region (26.0) has.

For the first time, 10 countries reported on the availability of types of PHC workers beyond the five categories of doctors, nurses, midwives, dentists and pharmacists. Categories and titles of PHC workers across the region are diverse. Each country’s categories were mapped against the International Standard Classification of Occupations 2008 (ISCO-08),¹⁵ to facilitate comparison across countries (Fig. 2). The available data show that PHC workers make a substantial contribution to the health workforce in six South-East Asia Region countries. As the data are incomplete for some countries, the contribution of PHC workers is most likely underestimated; however, the data should become more accurate with time as countries move towards standardized reporting of the PHC workforce.

Four countries (Bhutan, Indonesia, Nepal and Thailand) have a ratio of three or more nurses and midwives to one doctor (Fig. 3). No recommended standard for ratio of nurses to doctors exists but, for comparison, the average ratio is 2.7 nurses per doctor in the Organisation for Economic Co-operation and Development (OECD) countries.¹⁶ Historically, Bangladesh has had more doctors than nurses and midwives, and since the previous report in 2018 this ratio has narrowed, but it remains at less than one nurse/midwife to one doctor.

**Training of key health professionals**

Trend data on new graduates of domestic pre-service education institutions are not available; however, seven South-East Asia Region countries reported these data for the first time in 2018, which will serve as the baseline moving forward. The annual output of nursing graduates varies widely across

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**Fig. 1. Trends in the availability of doctors, nurses and midwives in South-East Asia Region countries, 2014–2018**

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<th>Country</th>
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DPR Korea: Democratic People’s Republic of Korea; HRH: human resources for health.

*Countries for which data are reported by professional councils.

Source: Country data reported to the WHO South-East Asia Regional Office through the NHWA online platform (by ministries of health and professional councils) as of 15 December 2019.
the region, from 3.2 to 25 graduates per 100 000 population (Fig. 4). Interestingly, the three countries with the lowest nursing densities (Bangladesh, Myanmar and Timor-Leste) also reported the lowest nursing graduate rates. The variation in the production of doctors is much smaller, ranging from 2.3 to 5.9 per 100 000 population. Compared with the OECD averages, South-East Asia Region countries’ rates are much lower; they produce only one third the number of doctors per capita and one quarter the number of nurses per capita. Of the eight countries with a midwife cadre, four countries reported the number of midwifery graduates, of which three have a higher annual output of midwifery graduates than the OECD average (2.1 per 100 000).

The production of pharmacists varies by a factor of 10 across the region (Fig. 4), and that of dentists by a factor of five (data not shown). However, data for these two cadres are less reliable than those for doctors and nurses at present. India’s high rate of producing pharmacists is partly explained by the country’s inclusion of pharmaceutical technicians in the category of pharmacists.

Distribution and composition of the health workforce
Data on the distribution of health workers are limited, as most South-East Asia Region countries report disaggregated data only at the first subnational level, and not disaggregated by urban or rural, public or private, or type of health facility.
In addition, data are not available on the distribution, age and sex of the other types of PHC workers beyond the five categories reported on here. Within countries, the subnational distribution by province/state remains unequal, with Sri Lanka having the lowest geographical variation (Fig. 5).

Overall, the South-East Asia Region has a young health workforce, with only 10% of medical doctors aged 55 years or older, compared with the 34% of medical doctors in OECD countries who are aged 55 years or older (Fig. 6). Only 6% of nurses in the region are aged 55 years or older, compared with the global average of 17% of nurses who are aged 55 years or older. This is a potential health workforce dividend for the region.

In Myanmar and Sri Lanka, doctors in the region are more likely to be male (Fig. 6). Nurses and pharmacists are predominantly female, with the exception of nurses in Timor Leste and pharmacists in Bhutan. Midwives are female in all four countries that reported disaggregated data. Five countries out of eight that reported the data had more female than male dentists (data not shown in Fig. 6).

Health workforce policy: interventions by South-East Asia Region countries
During the first half of the Decade for Health Workforce Strengthening, countries reported taking action in the following four areas: health workforce governance, transformative education, rural retention and health workforce data.

Transformative education and rural retention were the initial priority areas of the decade, followed by HRH governance and data.

Health workforce governance
Good HRH governance involves providing overall strategic direction for health workforce development through national HRH policies, strategies and plans, and managing intersectoral action, which is needed for progress on both transformative education and rural retention.
Ten out of eleven countries of the region reported having HRH strategies that are up to date or in the process of revision. Most of these strategies are aligned with broader health services reforms. Four countries – Bangladesh, Nepal, Sri Lanka and Timor-Leste – have developed essential services packages, which define what services should be provided, where and by whom. Furthermore, the health workforce component, including availability and skill mix, has been explicitly prioritized and integrated into these essential services packages.

**Health labour market analysis**
Health labour market analysis generates evidence on the market dynamics of the health workforce. Analyzing factors affecting the demand for and supply of health workers to meet health needs, and forecasting future needs, can be valuable in informing policy decisions. Bangladesh, Sri Lanka and Chhattisgarh in India report that they use health labour market analysis to inform policy-making. This type of analysis has helped these countries identify key bottlenecks and gaps in HRH supply and demand, as well as develop strategies to strengthen their health workforce situation.

**New cadres and diversified skill mix for PHC**
Countries have changed their existing skill mix, expanded roles and introduced new cadres of health workers to adapt to emerging health needs. Several countries have used mid-level health providers – health professionals who have received a shorter duration of training than a medical doctor – to expand access to PHC services. Evidence suggests that they can safely deliver the most essential health interventions if they are properly trained, supervised and supported. Bhutan, for example, has successfully deployed health assistants with 3 years of training to PHC centres. Their original responsibilities were predominantly maternal and child health services, and their role has now been expanded to cover screening and treatment of noncommunicable diseases. India has recently introduced community health officers to provide comprehensive care.
**Fig. 6.** Health workforce (doctors, nurses, midwives and pharmacists) composition in South-East Asia Region countries, by age and by sex, 2018 (or latest year for which data are available)

Source: Country data reported to the WHO South-East Asia Regional Office through the NHWA online platform (by ministries of health and professional councils) as of 15 December 2019.
PHC services in new health and wellness centres. These community health officers have a bachelor of nursing, or are general nurse midwives or ayurveda practitioners who undergo a 6-month bridge course in public health and primary care.

Other countries have progressively introduced medical doctors as providers of preventive, promotive and curative primary care services, with a major emphasis on the first two. This includes medical doctors in Timor-Leste, “household” doctors in the Democratic People’s Republic of Korea, and “family” doctors in Indonesia, Maldives, Sri Lanka and Thailand.

Community health workers play an important role in providing PHC services at the community level across the region. These workers provide health promotion and preventive services – accredited social health activists in India, village health volunteers in Thailand, community health care providers in Bangladesh and female health volunteers in Nepal – and in some countries, such as India, they also provide certain essential curative services. In addition to providing promotive, preventive and curative services, community health workers are often key actors in community engagement and empowerment strategies, one of the key pillars of comprehensive PHC.

HRH unit: coordinating between stakeholders
The WHO Global strategy on human resources for health recommends the creation of HRH units as one way of strengthening HRH governance. Ten countries have an HRH unit within the ministry of health, compared with eight in 2018. Myanmar and Thailand have recently established new HRH units with the technical support of WHO. HRH units cover a wide range of functions, from the strategic to the more administrative. A 2018 survey found that only 14% of staff in HRH units are professionals, limiting their capacity to play a more strategic and effective role. While Indonesia has an established, well-resource HRH unit that plays a central role in coordinating the country’s HRH agenda, over the past 2 years, the HRH units in Bangladesh, India and Sri Lanka have expanded their technical staff along with their range of functions, to include support strategy development, and coordination and monitoring of HRH strategy implementation. In Sri Lanka, the HRH unit has helped to shorten recruitment times from 18 months to 3 months, which in turn has helped to reduce staff shortages.

Transformative health professional education
Transformative education means changing how health professionals are educated in order to equip and enable them to better respond to people’s health needs. It involves changes in both institutional design, which specifies the structure and functions of the education system, and instructional design, which focuses on processes. In 2013, WHO developed guidance on transformative education. Countries of the South-East Asia Region have made progress on different components of transformative education, including accreditation and regulation of health professional training institutions, use of modern information technologies in pre-service education, continuing professional development (CPD), faculty development, curriculum adaptation and use of interprofessional education.

Most countries have mechanisms for accreditation of health professional education. However, there are considerable differences between countries in how accreditation is defined and implemented. For example, Indonesia and Thailand have well-established accreditation systems, with their accreditation agencies recognized in 2018 by the World Federation of Medical Education. Other countries, such as India, are progressively improving their accreditation systems. India has brought forth major regulatory change in health professional education: the 2018 Allied Health Professional Bill, which seeks to regulate and standardize the education and practice of allied and health care professionals, and is currently in Parliament for approval, and the National Medical Commission (NMC) Bill, passed by parliament in 2019, which introduces an NMC-administered national licensing examination for physicians. The Democratic People’s Republic of Korea has also initiated reforms in the regulation of medical education, with the technical support of WHO.

Most countries have national standards for CPD. However, more research is needed to better understand the situation with regard to CPD systems in South-East Asia Region countries, such as their content, effectiveness and status, as a requirement for relicensing. Recently, the WHO South-East Asia Region has received ethical clearance to conduct a regional study on CPD.

Interprofessional education, an educational approach to preparing students from different health professional backgrounds to work collaboratively to provide comprehensive health services, has been hard to advance in practice, although there are examples from Indonesia, Myanmar and Thailand.

Rural retention
In 2019, following the framework of the 2010 WHO recommendations on rural retention, six country case studies were conducted on rural retention of health workers in Bhutan, India (Chhattisgarh State), Indonesia, Myanmar, Sri Lanka and Thailand. Findings from the case studies showed that, while limited data are available to assess and monitor the impact of rural retention policies, rural retention is still a high government priority for all countries and that good practices in policy development and implementation exist. For example, in 2020, Myanmar approved a national strategy on rural retention. The case studies found that countries with the most successful rural retention implemented bundles of interventions that include educational and regulatory interventions, financial incentives and, to a lesser extent, professional support, with the most common interventions being educational and financial incentives. Examples of countries improving the availability and distribution of health workers in rural areas include health assistants in Bhutan, medical doctors in Thailand, and medical doctors and specialists in Chhattisgarh, India. Although progress has been made on rural retention, there is no room for complacency. Countries need to continue prioritizing the planning and implementation of rural retention policies to improve the availability and distribution of health workers in rural areas and strengthen their impact assessments.

Health workforce data: a new frontier in health workforce planning
The Decade for Health Workforce Strengthening has resulted in improved quantity and quality of health workforce data. In 2017, the South-East Asia Regional Office organized a regional conference on “Improving the generation and use of HRH data”, at which countries agreed on 14 core indicators to
report regionally on a yearly basis through the NHWA platform to help monitor progress on their HRH situations and inform decision-making. Through WHO guidance on the NHWA platform and new information technologies, countries have strengthened their HRH information systems and their ability to collect, monitor, report and act on these important indicators.

For example, Maldives launched its new HRH information system in 2019, which integrates health workforce data from different ministries. Nepal has digitalized data from all professional councils and linked them to the HRH information system of the Ministry of Health. Timor-Leste has conducted an assessment of its health workforce information system to inform its current development of an HRH registry. Bangladesh has established in its Human Resources Development Unit a central human resource information system to capture health workforce data from the public sector.

An increasing number of countries of the region are making more evidence-based decisions on staffing through the Workload Indicators of Staffing Norms management tool. This tool helps district and national managers identify the needs for different cadres of health workers based on the reported health facility workload. It is primarily used in PHC facilities, playing an important role in efficiently allocating scarce health workers. The tool is also used to inform reviews of national staffing norms. The investments in strengthening HRH data have paid dividends, but more efforts are required to further improve HRH data to inform planning, monitoring and policy-making.

**Discussion**

**Health workforce and PHC workforce: progress, challenges and way forward in South-East Asia**

Even before the impact of the COVID-19 pandemic, epidemiological and demographic transitions, plus the rapid urbanization experienced across the South-East Asia Region, were changing population health needs, requiring the adaptation of PHC services to respond to them.

Historically, PHC services and the health workforce in the region have been focused on delivering maternal and child health services, with limited attention to noncommunicable diseases and other acute pathologies. Furthermore, in most countries of the region, PHC has not been well equipped for critical public health functions, notably surveillance and rapid response to health threats. Very often the quality of PHC services has been suboptimal, owing in part to the shortage, maldistribution, inadequate training and poor performance of PHC workers, and the insufficient budget allocated to HRH.

Since the Decade for Health Workforce Strengthening started, countries have tried to adapt PHC services and the PHC workforce progressively to the evolving health context. Overall, the availability of doctors, nurses and midwives in the region has increased by 21% and 9 out of 11 countries have passed the threshold of 22.8 doctors, nurses and midwives per 10,000 population. The distribution of health workers in rural areas has improved in some countries, in part as a consequence of the implementation of a bundle of policy interventions to address rural retention. The health workforce skill mix has been revisited in some countries, giving greater importance to mid-level providers, while introducing more medical doctors in others. Several countries have increased the roles of community health workers in providing PHC services at community level.

Despite the past 5 years’ progress on HRH governance, health workforce data and various other dimensions of the health workforce, the region cannot be complacent, as the following protracted challenges in the health workforce and PHC remain.

**Continued shortage of health workers.** Only two countries have passed the new SDG threshold of 44.5 doctors, nurses and midwives per 10,000 population.

**Maldistribution of health workers.** Reasons for the inefficient and inequitable distribution of the health workforce are threefold. First, the urban/rural unequal distribution continues, with low availability of health workers in rural areas and in poor and marginalized urban areas. Second, the geographical distribution tends to favour central regions, which have much higher health workforce availability. Third, while data on the private sector are often weak, the existing evidence points to a substantial proportion of the health workforce working in the private sector.

**Inadequate PHC skill mix to respond to changing population needs.** Several countries continue to focus on doctors as the primary PHC service providers providing curative services as opposed to preventive and promotive services. In addition, not enough effort is put into enhancing the roles and capacities of other professionals, such as nurses, midwives, mid-level health workers and community health workers, as key providers of comprehensive primary care services. Furthermore, countries pay minimal attention to addressing the social determinants of health through multisectoral actions and citizen empowerment.

**Substandard working conditions.** Inadequate investment in PHC leading to poor work environments, low salaries and lack of supervision for PHC health workers remains a challenge in some South-East Asia Region countries.

**Low quality of health professional education.** The quality of pre-service education remains low in some countries, with health curriculums not adapted to the evolving health needs of the population, and with limited implementation of CPD and interprofessional education. Furthermore, some countries have weak accreditation and regulatory systems.

**Gaps in HRH data.** Data on the health workforce continue to be fragmented and of poor quality, and there is limited disaggregation of data by service delivery level, urban or rural services, or private or public sector, and for PHC health professionals beyond the five categories of doctors, nurses, midwives, dentists and pharmacists. There are issues relating to ensuring data security. Furthermore, the NHWA platform requires continued strengthening and support.

**Weak HRH governance.** HRH governance continues to have fragmented oversight, planning and management. The primary focus for health workforce governance is still on administrative functions. The capacity of ministry of health senior policy-makers and HRH technical staff to pursue more robust technical and strategic planning approaches needs strengthening.

COVID-19 has exponentially increased the stress on an already overstretched PHC workforce. PHC workers are playing a critical role in containing and responding to the pandemic, while maintaining essential health services such
as immunization and tuberculosis control. PHC workers will also play a critical role in administering COVID-19 vaccines to hundreds of millions of people in the region. However, often they are not well protected from the virus and they suffer from increasing mental stress and exhaustion. Addressing these challenges, which have been magnified by the COVID-19 pandemic, will require extra commitment and prioritization by governments.

COVID-19 also provides a policy window of opportunity to increase the necessary long-term and sustained investment in the health workforce and to accelerate pending reforms in the South-East Asia Region. For example, the COVID-19 pandemic is catalysing short-term changes in education and training that merit longer-term adoption, such as more long-distance education through greater use of information technologies. It is also creating new needs and opportunities to accelerate progress on HRH governance.

Government budget restrictions may play against these reforms, but, now more than ever in the context of COVID-19, countries have a strong argument for prioritizing the health agenda and, within it, the health workforce agenda.

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23. Improving retention of health workers in rural and remote areas: case studies from WHO South-East Asia Region. New Delhi: World Health Organization Regional Office for South-East Asia; 2020.


A strong primary health care (PHC) system is paramount for achieving universal health coverage (UHC). PHC is the cornerstone of robust and resilient health systems and a major driver for cost-efficient, effective and equitable health service delivery throughout the lifespan of individuals and communities. For PHC to succeed, countries need to produce, collect and use health data that are continuously used to monitor primary care services, analyse barriers to access, determine the quality of service delivery, and inform the right decisions to improve health outcomes – all of which are dependent on having a robust health information system (HIS).

The 2030 Sustainable Development Goals (SDGs) agenda has refocused global attention on the urgent need to strengthen countries’ HISs. However, progress has lagged, and countries in the World Health Organization’s (WHO) South-East Asia Region are at different stages of strengthening their HISs, with a range of health priorities and interventions to monitor, and varying capacities to analyse and use their data. To facilitate understanding of the range of HIS strengthening needs and effectively target investment, WHO developed the SCORE for Health Data Technical Package (SCORE package).

**Primary health care and robust health information systems**

The SCORE package brings together, for the first time, a set of five essential interventions, each of which includes recommended actions, tools and resources to support countries to address their HIS challenges and strengthen their HIS capacities and systems to generate health data for analysis and use. The SCORE package builds on existing health measurement frameworks, guidelines and tools that countries can adopt according to their HIS needs.

Fig. 1 describes the five essential interventions represented by the SCORE acronym and the corresponding key elements that contribute to a robust HIS. The first three interventions – “S”, “C” and “O” – focus on improving the availability and quality of health-related data from comprehensive data sources. The last two interventions aim to enhance the synthesis of, analysis of, access to, and use of health data for action, with “R” focused on programming at national and subnational levels, and “E” focused on national high-level policy and planning.

**SCOPE for Health Data Technical Package**

The SCORE assessment instrument evaluates countries’ capacities to monitor the performance of their health systems with regard to these five interventions and key elements.

**The SCORE assessment in the WHO South-East Asia Region**

The SCORE assessment instrument was used to evaluate the HIS capacity of the 11 South-East Asia Region countries in relation to all five interventions. Countries’ capacities were measured for each key element using indicators composed of a set of criteria, with capacities scored on a 5-point scale, weighted by their importance in the overall HIS, and individual scores combined to give a total indicator score. Table 1 describes how the capacity levels for three indicator criteria are mapped to the 5-point scale.

Countries’ capacities were informed by a desk review of their publicly available national and subnational HIS-related documents. Teams from each country shared additional documentation not available in the public domain to help complete any information gaps and validated the draft scores during regional consultations. The final assessment results were shared with countries for endorsement and sign-off.

There was an abundance of data to inform interventions “S” and “C”; however, the data informing interventions “O”, “R” and “E” were variable and inconsistent. Missing criteria may have affected the indicator scores, resulting in some limitations in interpretation.

**South-East Asia Region HIS capacities: results of the SCORE assessment**

Across the region, countries’ capacities to survey their population and health risks (intervention “S”) are the most developed, especially for census and health security data, for which most countries have a well-developed or sustainable capacity. However, countries’ capacities for interventions “C”, “O”, “R” and “E” are variable. More than half of the countries have a limited or nascent capacity for intervention “C” – vital statistics and causes of death – with all but two countries having nascent/no capacity with regard to data on causes of death.

The availability of quality routine health-related data varies across countries, types of health data and levels of reporting;
none of the South-East Asia Region countries has reached a sustainable level of capacity to fully optimize its health services data. Health workforce data are the most widely available data, followed by health financing data (Fig. 2).

The need to improve service delivery data and their use to strengthen PHC

The availability of facility-based data lags behind that of other routine data, with all but one country having a moderate or lower capacity to report annually on key indicators derived from health facilities. These indicators are critical for monitoring the coverage and quality of service delivery, as well as national and global health targets. In addition, while some indicators may be available at the national level, countries struggle to report data at subnational levels and disaggregated by sex and age – a gap that poses challenges to countries with regard to effectively monitoring their progress towards UHC.

In the context of PHC, the capacities for intervention “O” are critical to ensure a continuous stream of service delivery data. Countries are at different stages of capacity with respect to the systems that support the availability of routine health service data. Except for four countries, most have a moderate

Table 1. Mapping of SCORE indicator criteria capacities to the assessment instrument scale

<table>
<thead>
<tr>
<th>Score (1–5 scale)</th>
<th>Electronic system to capture patient-level data in PCH facilities: standardized and fully interoperable with aggregated routine HISs</th>
<th>Institutionalized system of data quality assurance (DQA) for all facilities</th>
<th>Use of national health accounts (NHA) data to inform government priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>5: Sustainable capacity</td>
<td>All facilities</td>
<td>Continuous data review/audit at all levels</td>
<td>Comprehensive use of NHA data</td>
</tr>
<tr>
<td>4: Well-developed capacity</td>
<td>60–95% of facilities</td>
<td>Data reviewed regularly at all levels</td>
<td>Consistent use of NHA data</td>
</tr>
<tr>
<td>3: Moderate capacity</td>
<td>40–59% of facilities</td>
<td>Systematic DQA at national level but not subnational level</td>
<td>Some use of NHA data</td>
</tr>
<tr>
<td>2: Limited capacity</td>
<td>10–39% of facilities</td>
<td>DQA mechanisms exist nationally but are conducted ad hoc</td>
<td>Little use of NHA data</td>
</tr>
<tr>
<td>1: Nascent capacity</td>
<td>&lt; 10% of facilities</td>
<td>DQA is ad hoc and only in certain settings</td>
<td>No system of health accounting</td>
</tr>
</tbody>
</table>
or lower capacity for functional reporting systems. Most countries (n = 8) have a standardized system for electronic aggregate reporting of health facility data at subnational levels (districts, etc.). However, only two countries have a system in place for the standardized and electronic capture of patient-level health data at primary care health facilities, suggesting that a plethora of data are not useable for analysis as they are not in aggregate form. Half the countries in the region have an institutionalized system of data quality assurance for all health facilities. This raises the question in the remaining countries of whether or not the data on primary care are robust enough to confidently inform decisions. There is a need to catalyse a culture shift, as the health workforce’s use of health data at all levels increases the demand for quality routine data.

As countries further optimize their service delivery data, they will also need to optimize their capacities to analyse and use these data to monitor progress and performance. Except for three countries, there is limited institutional capacity for data analysis, particularly at the subnational level, and limited involvement of national public health/academic institutions to provide these analyses (Fig. 3). Half of the countries have a well-developed capacity to conduct regular analytical progress and performance reviews, with most countries regularly publishing analytical reports; however, most of these publications do not have adequate equity (socioeconomic and gender) and comparative analyses.

**Moving towards robust PHC: the way forward for the SCORE package**

In the context of the coronavirus disease 2019 (COVID-19) pandemic and the recognized need to strengthen PHC, more consideration of and resources for the optimization of health services data (“O”) and their use to measure progress and performance (“R”) are needed – there is untapped potential in the vast quantities of data already collected as part of routine primary care service delivery that could be “optimized” to enhance local and subnational decisions for improved primary care. The SCORE assessment found that, while South-East Asia Region countries are at different stages of HIS optimization, overall the region is not where it should be with respect to the availability and usability of health facility data. This information gap can limit countries’ ability to monitor...
Robust HISs are an essential driver of equitable and accountable service delivery, which are core principles of a PHC approach. As countries strengthen their health data to inform programme and policy decisions, with the aim of shaping the work of health systems to improve the health of people, health systems become more resilient and ultimately attain UHC, the health-related SDGs and the global pledge to “leave no one behind”.10

Countries can use the SCORE package technical tools to provide standardized methods and approaches that can be adapted to their needs. Indonesia used the Health Equity Assessment Toolkit (HEAT) to conduct health equity analyses, which led to the publication of the 2017 report State of health inequality and revision of the country’s action plans for neonatal and maternal health.5,6 In Nepal, the HEAT equity analysis, coupled with a pilot study using the WHO Innov8 tool, identified subpopulations of adolescents who were missed by the health system, and incorporated them as a priority population in its national strategy on adolescents.7 Bangladesh has initiated real-time monitoring of health indicators using the DHIS2 database platform. Facility and community health data from more than 14,000 public health facilities are presented through dashboard platforms.8 The data system enabled health managers at all levels to monitor the utilization of essential health services during the COVID-19 crisis and take action to rectify service delivery.9,10

Robust HISs are an essential driver of equitable and accountable service delivery, which are core principles of a PHC approach. As countries strengthen their health data to inform programme and policy decisions, with the aim of shaping the work of health systems to improve the health of people, health systems become more resilient and ultimately attain UHC, the health-related SDGs and the global pledge to “leave no one behind”.10

Service delivery disruptions during health crises or respond effectively to evolving epidemiology and health needs, to ensure the allocative efficiency of health resources.

While the past few years have witnessed substantive investments in the strengthening of HISs to produce quality health service data, particularly through the expansion of real-time reporting systems, such as the use of electronic medical records and the roll-out of the web-based open-source District Health Information Software 2 (DHIS2), mechanisms for the systematic recording, reporting and use of the data remain fragmented.2

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Robust HISs are an essential driver of equitable and accountable service delivery, which are core principles of a PHC approach. As countries strengthen their health data to inform programme and policy decisions, with the aim of shaping the work of health systems to improve the health of people, health systems become more resilient and ultimately attain UHC, the health-related SDGs and the global pledge to “leave no one behind”.

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The coronavirus disease 2019 (COVID-19) pandemic, which started as an outbreak in one country and very quickly travelled around the world, makes a strong case for investment in global public health and has resurrected the debate on universal health coverage (UHC).

An estimated 400 million people around the world lack access to basic health services. Each year, close to 100 million people are pushed into extreme poverty because they have to cover their own health costs. These numbers have increased with COVID-19 and will continue to increase as people lose jobs and health insurance and as health expenditures rise due to COVID-19-related spending on testing, treatment and vaccines.

The shift to value-based health care (VBHC) is fundamental to achieving the UHC objectives of quality health care, financial protection and equitable access to health care. Health systems are already stretched by dealing with chronic diseases and complex morbidities that have been further exacerbated by COVID-19.

It is crucial to optimize the efficiency of health systems and deliver patient-centric care where the focus is on health outcomes that truly matter to the patient and society. To achieve this, there are three ways in which VBHC can enable UHC in a world recovering from the pandemic.

1. Data-driven approaches optimize care delivery

Throughout the global effort to mitigate the spread of COVID-19, many traditional services have rapidly pivoted towards innovative remote-access care. The inherent inertia in legacy health care systems was swiftly overcome by an urgent need to facilitate remote health care delivery, which has created a digital health boom.

The value of digital health in advancing the UHC agenda has increasingly been validated by support from the World Health Organization (WHO), which agreed on a mandate for digital health as a tool for advancing UHC.

In particular, telemedicine has allowed greater levels of doctor–patient engagement regardless of location, thereby significantly increasing the geographical reach of health care personnel. Other capabilities of digital health include e-learning and mobile-learning tools that can drive greater preventive and health-seeking behaviours, consistent with the goals of UHC.

Data captured through the shift to telemedicine during the pandemic illuminate the “digital divide”, highlighting that underserved populations lack the tools to engage in appropriate health-seeking behaviours. Recognizing this divide makes possible targeted approaches to care delivery for patients living in digital deserts, enabling them to access care through alternative models such as mobile clinics.

This data-driven approach to optimizing care delivery is consistent with VBHC, as it focuses on improving outcomes. WHO Director-General Dr Tedros Adhanom Ghebreyesus states that “harnessing the power of digital technologies is essential for achieving universal health coverage”.

COVID-19 has accelerated this digital transition, and we must harness the power of data to identify key pain points and blind spots in our health care delivery models and to expand coverage to more of the world’s population.

2. Better health care access and outcomes improve population health

Despite many countries nominally providing UHC and improving access, there are still many problems related to quality of care and missed opportunities for improving outcomes. To maximize efforts to improve health coverage, we must move beyond access and benefits packages to an emphasis on quality of care and health outcomes – a defining pillar of VBHC.

Digital health and data-driven care are increasingly recognized as drivers of UHC, and we must ensure that digital health tools incorporate systematic collection and analysis of comprehensive health-outcome data. By meticulously tracking health outcomes for appropriately segmented groups, we can measure the impact of health interventions independent of access.

These models have been embraced by several countries, and it is expected that the seismic shift to digital health in the aftermath of COVID-19 will increase take-up of value-based decision-making. Rwanda is often touted as a developing country with a noteworthy health care system, which includes significant use of computerized medical records and comparatively good health care outcomes.

In India, Aravind Eye Care System (a network of ophthalmology hospitals) has been responsible for a substantial reduction in the incidence of blindness. This was achieved through innovative care delivery models, involving
value-based tracking of health outcomes following cataract surgery and providing high-quality, low-cost cataract surgery en masse. The high rates of good outcomes have increased consumption of the network’s services, which has allowed some cross-subsidized health care, enabling the network to spread costs and offer health care to a wider patient base.

3. New compensation models could reduce costs and improve care

Another defining pillar of UHC is ensuring that populations can receive the health services they need without suffering financial hardship. It is essential that new health care models seek to reduce the financial barriers faced by patients. Value-based models of care typically involve accurate measurement of costs across the entire cycle of care, with compensation dependent on the quality of care as measured by outcomes.

This system differs from the traditional “fee for service” system, where medical providers use a “pay per use” type of compensation structure. Embracing alternative compensation models encourages health care providers to deliver more efficient care and also reduces the overall costs of health care for patients, thus reducing management inefficiency and broadening access for patients.

Increased commitment to health outcomes leads to long-term cost savings for patients, as they are incentivized to optimize their health. In a fragmented “fee for service” system, physicians often lack access to the information necessary to deliver care and can end up taking a piecemeal approach to patient management, treating the symptom instead of the patient.

In VBHC, providers are reimbursed based on the effectiveness of their care, encouraging greater coordination on patient care and producing cost savings for the patient. These models have been shown to yield between 8% and 3% increases in adherence to important care management factors such as medication adherence and blood pressure control management.7

Such interventions ultimately reduce avoidable health care spending and ensure that patients are able to utilize their saved resources in more prudent health-seeking behaviours.

The combination of superior health outcomes, lower costs and accessible care represents measurable clinical and social impacts that make VBHC a highly compelling model for moving the global health care needle towards UHC.

As we rethink our world post pandemic, we must harness the tools of VBHC to advance the welfare of collective humanity in line with Goal 3 of the United Nations Sustainable Development Goals: “Ensure healthy lives and promote well-being for all at all ages.”8 In so doing, we can reconcile the illusionary gap between VBHC and UHC and produce health systems that are defined by high value, low cost and extensive reach.

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References


Policy and practice

Maintaining essential health services during the pandemic in Bangladesh: the role of primary health care supported by routine health information system

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Abstract

In the initial phase of the coronavirus disease 2019 crisis, Bangladesh’s health systems faced competing demands to respond to the pandemic and concurrently maintain the continuity of essential health service delivery, particularly at the primary care level. Bangladesh’s established network of primary care health facilities, the country’s backbone for delivering essential health services, routinely feed data into the national health information system, the District Health Information Software 2 platform, which provides near real-time data on the utilization of essential health services, visualized through user-friendly integrated dashboards. Trend analyses of these data showed that by April and May 2020 there had been sharp reductions in the utilization of key essential health services across all levels of care.

Early and continuous monitoring and analysis of these data informed public health policy-makers and health facility managers on rapid response strategies to restore the availability and use of essential health services. Through corrective policy measures and targeted interventions, Bangladesh’s primary health care network provided a critical platform for Bangladesh to build back most of its essential health services by October 2020. Bangladesh’s experience highlights the critical role of primary-level health facilities as a touchpoint for monitoring population access to services and as a staging point for implementation of strategies and interventions that rebuild and strengthen health service delivery towards achieving universal health coverage and more resilient health systems.

Keywords: COVID-19, data use, District Health Information Software 2, essential health services, primary health care, routine health information systems

Background

COVID-19 and essential health services

The package of essential health services defined by the Government of Bangladesh (GoB) is the cornerstone of the country’s commitment to universal health coverage (UHC), while its established primary health care (PHC) network is the backbone that ensures its implementation.¹ At the onset of the coronavirus disease 2019 (COVID-19) pandemic, Bangladesh’s health system faced competing demands, with a shift in focus towards emergency response while concurrently maintaining the delivery of essential health services. An initial review of service utilization data from the country’s national health information system (NHIS) found that between January and April 2020 outpatient visits and inpatient cases at PHC facilities had decreased substantially and immunization rates had fallen by 50%, challenging the country’s promise to leave no one behind.² Bangladesh’s subsequent response to service disruption showcases how a robust health information system (HIS) at the PHC level can strengthen health system resilience in the face of health security threats such as a pandemic.

Primary health care in Bangladesh

Bangladesh has a pluralistic health system: a highly centralized public sector and a private sector mix of for-profit and not-for-profit providers. The GoB is the leading provider of PHC services in the country. The Ministry of Health and Family Welfare (MoHFW) is responsible for overseeing, managing and regulating health services, family planning and nutrition programmes for the country. Under the MoHFW, the Directorate General of Health Services (DGHS) and the Directorate General of Family Planning (DGFP) oversee PHC service delivery, while the Ministry of Local Government, Rural Development and Cooperatives (MoLGRDC) supplements the MoHFW in the provision of PHC services in urban areas, predominantly through nongovernmental organizations (NGOs) and other private providers.³
Under the DGHS, PHC services are administered through the established upazila health system, which encompasses the three lower tiers of health service delivery (Fig. 1). These include an extensive network of community clinics at the ward level, health facilities at the union level and upazila health complexes (UpHCs) at the upazila level. UpHCs are the first referral facilities in the health system, offering outpatient and inpatient services (31–50 beds) with basic operative care (Fig. 1). Community clinics are supported by the MoHFW and managed by leaders and members of the communities that they serve, which promotes community ownership of their constituents’ health. UpHCs alone account for 31% of public sector service delivery and, with over 13,000 community clinics, the entire PHC network accounts for a major portion of the country’s service delivery health information.

Bangladesh’s health information system
In 2009, the MoHFW instituted as part of its NHIS the open-source District Health Information Software 2 (DHIS2), a modular web-based platform for the collection, validation, analysis and presentation of individual-level and aggregated health data for all levels of the health system. As the largest deployer of DHIS2 globally, Bangladesh’s NHIS has come a long way since its deeply fragmented paper-based days.

Across the PHC setting, over 14,000 PHC facilities continuously feed data into the NHIS DHIS2, allowing it to capture near real-time facility and community health data, including on utilization of essential health services (Fig. 1). At the central DGHS level, through an interoperable and standardized framework, the NHIS DHIS2 brings together in one data warehouse previously siloed health information from multiple public health programmes and units, incorporating routine health and health systems data as well as data from historical health surveys.

In addition to its comprehensiveness, one of the useful features of the NHIS DHIS2 is its rich data-mining functions and enhanced accessibility through a user-friendly, integrated dashboard that synthesizes data from the multiple databases for in-depth analysis and visualization. The DHIS2 dashboard has facilitated health managers’ ownership and accountability for their health data. Since 2016, weekly videoconferences have been held between the Director General of Health Services and the country’s 8 divisional and 64 district health managers to discuss their dashboard data and any required follow-up; the same forum exists for UpHC health managers through monthly meetings.

Assessing the disruption of essential health services during COVID-19

Assessment approach
The assessment included trend analyses of the utilization of key essential health services between January and October for both 2019 and 2020. It used NHIS DHIS2 routine data from 503 facilities across all 3 levels of health care – 424 UpHCs (primary), 62 district hospitals (secondary) and 17 medical college hospitals (tertiary) – and did not include data from union facilities, community clinics or specialized hospitals. The number of outpatient appointments, inpatient admissions, first antenatal care visits (ANC-1) and institutional normal vaginal deliveries (NVD), as well as the percentage of children fully

Fig. 1. Bangladesh’s public health service delivery structure and NHIS DHIS2

immunized by the Expanded Programme on Immunization (EPI), were assessed for each month and level of health facility, as proxies for essential health services utilization.

The analysis was presented to country stakeholders during an informal dissemination workshop in July 2020, followed by formal dissemination to divisional-level health managers in October 2020 and to policy-makers at the central level in December 2020. Feedback from these dissemination workshops validated the assessment findings and provided qualitative inputs on the reasons for the observed trends and response measures to restore service utilization.

**Utilization of key essential health services before and during the COVID-19 pandemic**

The GoB’s response to the COVID-19 pandemic started in early March 2020, when the first confirmed COVID-19 cases were detected. Shortly afterwards, the GoB declared a strict lockdown, suspending road transport and closing all non-essential organizations, businesses and educational institutions, with only medical services, pharmacies and grocery stores remaining open. The lockdown extended from 25 March until 30 May 2020, after which restrictions were lifted.

Fig. 2 presents the 2019 (pre-COVID-19) and 2020 (during COVID-19) trend analyses for four of the essential health service utilization indicators across three levels of care. In 2020, overall trends in utilization followed a similar pattern for all indicators and across all facility levels. Until March 2020, the utilization of outpatient, inpatient, ANC-1 and NVD services was consistent with utilization in the corresponding months of 2019. However, from March onwards, the trends fluctuated greatly, with utilization starting to fall in March 2020, decreasing sharply and substantially in April and May, and then increasing incrementally between June and October 2020. In contrast, the pre-COVID-19 utilization trends show minor fluctuations after March. The changes in 2020 utilization were concurrent with the timing of the lockdown, suggesting that the onset of the COVID-19 pandemic and its associated country responses in March 2020 may have contributed to the disruption of these essential services during the first 2 months of the pandemic.

The magnitude of utilization disruption and the time frame for recovery to pre-COVID-19 values vary across the services, and in some cases across facility levels. For example, outpatient and inpatient services experienced the greatest percentage reductions in utilization between January (pre-COVID-19) and April 2020 (during the COVID-19 lockdown). Outpatient service utilization fell by 72%, 78% and 76% in UpHCs, secondary hospitals and tertiary hospitals, respectively. The outpatient and inpatient indicators did not include service delivery with

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**Fig. 2. Trends in utilization of outpatient, inpatient, ANC-1 and NVD services in 503 facilities across 3 levels of service delivery between January and October in 2019 and 2020, Bangladesh**

- **Primary care**
  - Upazila health complexes (424)
  - No. of OP appointments (thousands)
  - No. of IP admissions (thousands)
  - No. of ANC-1s (thousands)
  - No. of institutional NVDs (thousands)

- **Secondary care**
  - District hospitals (62)

- **Tertiary care**
  - Medical college hospitals (17)

ANC-1: first antenatal care visit; IP: inpatient; NVD: normal vaginal delivery; OP: outpatient.
respect to confirmed COVID-19 cases, as these data are reported to a separate national COVID-19 surveillance system.

In contrast, institutional NVDs were the least affected service between January and April, falling by 41%, 52% and 56% in UpHCs, secondary hospitals and tertiary hospitals, respectively. The trends in NVDs are consistent with findings from a study that analysed 2019 and 2020 trends using a different data source, DGFP data on utilization of maternal health services.13

Utilization of outpatient services, inpatient services and ANC-1s was 50% or more lower in April 2020 than in April 2019. Although an upward trend in utilization of all four services across all three facility levels is observed starting in June 2020, utilization does not quite reach the corresponding 2019 levels, even by October 2020. Interestingly, for all four services, recovery to pre-COVID-19 utilization was faster at the UpHC level than for the higher-level facilities, suggesting a positive shift in responses to address essential health service delivery at the primary level. For example, by September 2020, normal institutional deliveries in UpHCs had increased to just over 90% of the September 2019 value, while even by October 2020 deliveries in tertiary-level hospitals were at only 68% of 2019 values.

Between January and May 2020, 380 000 children missed their first dose of the measles and rubella vaccine and over 360 000 children missed their third dose of pentavalent vaccine (data not shown). Fig. 3 presents the 2019 and 2020 trend analyses for the number of fully immunized children (EPI coverage) between January and October. Trends in EPI coverage for 2020 initially show a similar pattern to those of the other service utilization indicators, with 2020 and 2019 immunization coverage consistent until March 2020, and coverage then dropping sharply and substantially, by 46%, in April 2020. However, unlike the other essential health service utilization indicators, EPI coverage experienced an equally sharp increase in June 2020, to levels above those observed in 2019, and levels of coverage remained high until October 2020. These findings suggest that the onset of the COVID-19 pandemic may have disrupted immunization services in April and part of May 2020 but that health system responses, supported by robust monitoring and surveillance of the country’s EPI, contributed to quickly building back better with regard to immunization services.

Completeness of data reporting can affect the results of service delivery utilization analysis. The completeness of ANC-1, outpatient, inpatient and NVD data reported into the NHIS DHIS2 in 2020 was 95% in March, dropping to 88% in April and rising back to 94% by October. For EPI coverage, data completeness was 100% throughout 2020. Overall, data completeness is high, and the 7% decrease in April’s data completeness would not contribute substantially to the major decreases in utilization observed at the onset of the COVID-19 pandemic.

Factors influencing disruption of and response measures to restore essential health services

Through leveraging existing weekly and monthly videoconferences with the DGHS, health managers and policy-makers regularly reviewed health service utilization and related data through the NHIS DHIS2 dashboards to monitor potential disruptions and discuss associated factors. Towards the end of April, dramatic drops in utilization were observed and multiple supply-side and demand-side factors identified. During the initial days of the pandemic in April 2020, the government had shortened outpatient visiting hours, repurposed frontline health workers to respond to COVID-19 and imposed travel restrictions, affecting the physical accessibility of essential services in facilities. Fear and anxiety about the pandemic among communities also adversely affected utilization of essential health services.14 Based on these collective reviews, the GoB prioritized the timely restoration of essential services through corrective policy measures and targeted interventions across all levels of service delivery, and integrated these into the country’s official COVID-19 preparedness and response plan.2 Details of identified factors that influenced the disruption and enabled rapid and timely restoration of essential health services in Bangladesh are presented in Table 1.

Fig. 3. Trends in numbers of fully immunized children between January and October, 2019 and 2020

<table>
<thead>
<tr>
<th>Month</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td>Feb</td>
<td>300</td>
<td>350</td>
</tr>
<tr>
<td>Mar</td>
<td>350</td>
<td>400</td>
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<tr>
<td>Apr</td>
<td>400</td>
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<tr>
<td>May</td>
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<td>Jun</td>
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<td>Jul</td>
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<tr>
<td>Aug</td>
<td>600</td>
<td>650</td>
</tr>
<tr>
<td>Sep</td>
<td>650</td>
<td>700</td>
</tr>
<tr>
<td>Oct</td>
<td>700</td>
<td>750</td>
</tr>
</tbody>
</table>
### Table 1. Policy-level and operational-level factors influencing disruption and enabling recovery of essential health services

<table>
<thead>
<tr>
<th>Disruption/factors influencing disruption</th>
<th>Response measures to mitigate and build resilience</th>
<th>Operational level (PHC)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td>Policy level</td>
<td>Operational level (PHC)</td>
</tr>
<tr>
<td>Preparedness</td>
<td>Committee for Essential and Routine Health Services established at central level under the MoHFW to oversee the continuity of essential health services</td>
<td>Multisectoral Coordination Committee formed at facility level</td>
</tr>
<tr>
<td></td>
<td>Strategies to ensure provision of the essential health package prioritized in Bangladesh’s preparedness and response plan for COVID-19</td>
<td>Frequent online meetings with PHC facilities to support maintenance of essential health services</td>
</tr>
<tr>
<td></td>
<td>Frequent online meetings of health managers to closely monitor provision and utilization of the essential services package against targets and discuss mitigation and response strategies</td>
<td>Scaled-up regular monitoring of essential health service activities at primary level – community clinics and UpHCs</td>
</tr>
<tr>
<td><strong>Accessibility and availability of essential health services and medicines</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outpatient visiting hours shortened to 4 hours per day in April and May 2020</td>
<td>Normal outpatient visiting hours restored to 6.5 hours per day in June 2020</td>
<td>Telemedicine services established for both non-COVID-19 and COVID-19 patients</td>
</tr>
<tr>
<td></td>
<td>Government promoted telemedicine and telehealth for both COVID-19 and non-COVID-19 patients</td>
<td>Mobile phone services established for COVID-19 services and essential health services</td>
</tr>
<tr>
<td>Overloaded health facilities</td>
<td>Rapid population-based assessments on service barriers and client satisfaction for essential health services conducted</td>
<td>Efforts to increase community awareness of alternative access to care such as telemedicine and mobile phone services</td>
</tr>
<tr>
<td></td>
<td>Integrated service delivery, such as integrated tuberculosis and COVID-19 testing using GeneXpert machines, promoted</td>
<td>Effective patient flow established (screening, triage and targeted referral)</td>
</tr>
<tr>
<td></td>
<td>Separate ICU beds for COVID-19 and non-COVID-19 patients</td>
<td></td>
</tr>
<tr>
<td>Decrease in fully immunized children</td>
<td>National guidelines on continuing immunizations during COVID-19 developed[1]</td>
<td>Children who missed or did not complete their vaccination line listed</td>
</tr>
<tr>
<td></td>
<td>Continuous supply of vaccines prioritized</td>
<td>Catch-up immunization activities for EPI organized</td>
</tr>
<tr>
<td><strong>Health and human resources gaps</strong></td>
<td></td>
<td></td>
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<tr>
<td>Shortages due to redistribution, repurposing and task shifting of frontline health workers to the COVID-19 response</td>
<td>Health workforce available for surge-capacity demand and essential health care services identified and redistributed</td>
<td>Cadre of health workers dedicated to COVID-19 treatment only, to minimize deployment of health staff from essential services</td>
</tr>
<tr>
<td></td>
<td>Online eLearning platform for health workers established</td>
<td>2000 medical doctors and 5000 nurses newly recruited and posted to primary-level health facilities</td>
</tr>
<tr>
<td>Motivational issues due to high workload/burnout of PHC workers</td>
<td>Hotlines at national level introduced to provide psychological support to health workers</td>
<td>Provision of accommodation close to facility and transport to facility</td>
</tr>
<tr>
<td>Gaps in financial risk protection for frontline health workers exposed to the risk of infection with COVID-19</td>
<td>Frontline health workers recognized as invaluable for essential health services delivery and this recognition promoted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Financial risk protection and incentives for frontline health workers provided through a special insurance package for staff working with patients who have COVID-19</td>
<td></td>
</tr>
<tr>
<td><strong>Health information systems</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disruption in routine data reporting due to emphasis on COVID-19 response</td>
<td>Strategy and plan to analyse essential health services routine data during COVID-19 response developed</td>
<td>Refresher training for NHIS DHIS2 data focal points at subnational and facility levels conducted to reinforce continued and complete data reporting on essential health services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Directive issued on the importance of continued data entry and reporting during COVID-19 in order to monitor utilization of essential services</td>
</tr>
</tbody>
</table>
During the October 2020 dissemination workshop, division health managers highlighted that the effects of COVID-19 on service utilization were not uniform across the country or even within their divisions. Divisional and district health managers continuously assessed their situations, adapting measures to their own contexts. For example, in the Mymensingh division, 32% of health workers were designated for the COVID-19 response, creating a major human resource gap. In response, the division adopted innovative local-level strategies prioritizing telemedicine and mobile phone consultations for non-emergency services, including screening for COVID-19. Frequent virtual supervisory “visits” and meetings with primary-level staff provided additional guidance and support to facilities. In addition, to minimize exposure and maximize efficient flow of patients, separate emergency services were created for COVID-19 and non-COVID-19 cases, with separate entrance and exit pathways.

Optimizing the national HIS and PHC network to strengthen health system resilience

The COVID-19 pandemic experience in Bangladesh demonstrates the importance of resilient health systems to ensure continuity of essential health services during a pandemic. Countries should focus on strengthening their PHC systems’ readiness to ensure the continuity of essential health services and to respond effectively to health emergencies. Despite Bangladesh’s immense progress on PHC, challenges in its provision of quality PHC services remain. The country’s PHC structure spans two government ministries, the MoHFW and the MoLGRDC, and implementation is intersectoral, covering both the public and private health sectors. Coverage of public PHC services is not extensive in urban areas compared with coverage in rural areas. The MoLGRDC supplements the MoHFW to cover the PHC services for urban populations. Furthermore, there are substantial human resource constraints at the primary level, including a shortage of physicians and nurses.

A 2019 assessment of physician and nurse workload in UpHCs found high levels of workload pressure, especially for nurses. Moving forward, Bangladesh’s PHC can reach its full potential by addressing the extent of its existing resource gaps.

The shared responsibility for PHC service delivery across different sectors and agencies – the public sector, the private sector and NGOs – may extend into issues of interoperability in the NHIS. For example, most urban populations seek PHC services from the private sector through out-of-pocket payments, and these data are not yet integrated into NHIS DHIS2. The country has a national vision for an integrated digital health system and the capacity of the NHIS DHIS2 platform to realize this vision. A national digital health strategy is being drafted, and Bangladesh will continue to integrate siloed aspects of routine health information into the NHIS DHIS2 to capture the full picture of utilization of essential health services. With respect to data quality, data verification exercises take place as part of routine supervision and monitoring, and facilities are scored on the completeness of their data, which should lead to progressive improvements in data quality.

Bangladesh’s network of PHC facilities routinely feeding data into the NHIS DHIS2 has enabled the GoB and health managers to monitor, in near real time, the utilization of essential health services. During the pandemic, this steady stream of data from the most primary level of health service delivery enabled public health decision-makers to quickly assess the effects of the pandemic and respond. While all levels of the health system contributed towards the initial emergency response to strengthen health service coverage and utilization, the network of PHC facilities provided a critical platform for many of the response strategies to restore essential services, including deployment of additional providers, distribution of personal protective equipment, mass training in IPC, provision of telemedicine and community awareness-building.

Bangladesh’s evidence on disruption in utilization of essential health services in the early phase of the pandemic highlights the need for rapid policy and strategic responses, and a resilient health system, to restore essential health services at all levels. The positive trend up to October 2020 highlights the need to sustain such recovery and build back better to accelerate the advancement of UHC. Bangladesh’s experience highlights the critical role of primary-level health
facilities as a touchpoint for monitoring population access to services and as a staging point for the implementation of strategies and interventions that rebuild and strengthen health service delivery with the aim of achieving UHC.

Disclaimer: The authors alone are responsible for the views expressed in this article and they do not necessarily represent the views, decisions or policies of the institutions with which they are affiliated.

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