

Achieving Universal Health Coverage in Low- and Middle-Income Countries: Challenges for Policy Post-Pandemic and Beyond

Prakash Babu Kodali 

Department of Public Health and Community Medicine, Central University of Kerala, Kasaragod, Kerala, India

Correspondence: Prakash Babu Kodali, Department of Public Health and Community Medicine, Central University of Kerala, Kasaragod, Kerala, 671320, India, Tel +91 8330963085, Email prakashkodali@cukerala.ac.in

Background: Achieving universal health coverage (UHC) is critical for ensuring equity, improving health, and protecting households from financial catastrophe. The COVID-19 pandemic derailed the progress made across primary health targets. This article aims to review the policy challenges to achieve UHC in a post-pandemic world.

Methods: A narrative review of 118 peer reviewed and grey literature was conducted. A total of 77 published articles were identified using an electronic search in PubMed and Scopus and a bibliographic search of relevant literature. Another 41 Reports, websites, blogs, news articles, and data were manually sourced from international agencies (WHO, World Bank, IMF, FAO, etc.), government agencies, and non-government organizations.

Findings: The challenges were identified and discussed under five broad findings: i) weak public health care systems ii) challenges to building resilient health systems, iii) health care financing and financial risk protection, iv) epidemiological and demographic challenges, and v) governance and leadership.

Conclusion: LMICs in Africa and South Asia face significant challenges to achieving UHC by 2030. As countries recover from the pandemic's aftermath, significant investments and innovations are needed to ensure progress toward UHC. Efficient resource mobilization through internal accruals, international cooperation, and resource sharing is needed.

Keywords: COVID-19, health systems, healthcare financing, primary health care, universal health coverage

Introduction

The foundation of Universal Health Coverage (UHC) is based on an egalitarian view of health care as a fundamental human right, in the spirit of earlier unifying concepts such as Health for All and the Alma-Ata declaration. UHC presents a vision in which all citizens enjoy a robust and efficient health system that spans preventive and curative healthcare, affordable access, access to medicines, and sufficient healthcare human resources.¹ UHC is defined by the World Health Organization (WHO) as “ensuring that all people obtain the health services they need, of good quality, without suffering financial hardship when paying for them”.² It covers the entire continuum of essential health services, from health promotion to prevention, treatment, rehabilitation, and palliative care across the life course. The delivery of these services requires capable healthcare systems and healthcare workers with optimal skill mix, equitably distributed, and adequately supported with sustained financing and resilient healthcare infrastructure.

Improving human health and well-being (Goal 3) is central to achieving Sustainable Development Goals (SDGs).

“Achieving UHC including financial risk protection, access to quality essential healthcare services, and access to safe, adequate, quality, and affordable essential medicines and vaccines for all” (target 3.8)

is vital to achieving the third sustainable development goal. The political declaration of the United Nations (UN) general assembly's high-level meeting on UHC recognized that investments made at the 2019 level were insufficient to achieve

SDG targets.³ The WHO 13th General Programme of Work (GPW 13) 2019–2023 estimated that in 2019, at least half of global population lacked access to essential health services.⁴ It recommended covering at least a billion more people every five years from 2015 to 2030 to attain the UHC target of SDG 3.8.⁴ Estimates indicate that in 2018 approximately 4.6 billion global population had UHC effective coverage, whereas 3.1 billion lacked the same in 2023, despite an addition of 388.9 million from 2018 to 2023.⁵

From 2010 to 2019, the annualised rate of increase in UHC effective coverage index in Sub-Saharan Africa (SSA) was 2.6%, 1.6 times greater than global average signifying a greater pace of progress.⁵ However, COVID-19 had a negating impact on the progress made till 2019. TB deaths increased for the first time in over a decade, primarily attributed to disruptions caused by COVID-19 in the diagnosis, treatment, and management of TB.⁶ COVID-19 pushed over 90 million people into poverty with a substantial increase in poverty in Sub-Saharan African countries.⁷ There was a profound impact on food security globally, with 368 million children missing out on school meals.⁸ Moreover, the impact of the pandemic on education, employment, and access to essential and emergency healthcare services has been well documented.^{9,10} In Nepal, during the months of COVID-induced lockdowns, the weekly institutional deliveries reduced by approximately 50%.¹¹ Majority of Indian districts witnessed >50% of antenatal care and child immunization services disrupted during December 2019 to April 2020.¹² From March to July 2020, COVID-19 led service disruptions in eight Sub-Saharan African countries (ie, Cameroon, Democratic Republic of Congo, Liberia, Malawi, Mali, Nigeria, Sierra Leone and Somalia) resulted in a cumulative shortfall of 0.32 million doses of pentavalent vaccinations.¹³ Another study reported a decline in first antenatal visits ranging from 18% to 32% across LMICs.¹⁴

The UN SDG report 2022 urges sustained cooperative efforts to raise from the negating effects of the pandemic, tackle the ongoing and future global uncertainties, and ensure sustainable development of humankind.¹⁵ Governments augmented their health spending in response to the pandemic.¹⁶ While COVID-19 has decreased globally (barring a few countries), significant challenges exist concerning achieving SDG 3.

Achievement of UHC facilitates the attainment of crucial health targets, including but not limited to reducing maternal, neonatal, and child mortality, reducing the disease burden attributed to communicable and noncommunicable diseases (NCD), prevention and treatment of substance abuse, and ensuring access to sexual and reproductive healthcare services, etc.¹⁷ In LMICs, the pandemic erased years of development across most SDG-3 targets. The LMICs in Asia and Africa were adversely impacted and were a priority to ensure global progress towards attaining UHC targets. Asia and Africa together account for more than 75% of the global population. At pre-COVID levels, the average UHC service coverage in South Asia and Sub-Saharan Africa was 51.07, indicating a significant under coverage.¹⁸ More than 75% of the estimated 3.1 billion global population not having an effective UHC coverage in 2023 are from LMICs in South Asia, Southeast Asia, East Asia, and Sub-Saharan Africa.⁵

As 2030 draws down, it is vital to take giant leaps in policy to make substantial progress toward achieving the promise of improving health and well-being. However, it is far more challenging in the current global environment with geopolitical uncertainties, inflation, rising costs of borrowing, and risk for sovereign default.^{19,20} Through a narrative review of published literature, reports, and data; this article discusses some of the critical challenges for policy to achieving UHC by 2030. The objective of this review is to identify the policy challenges to achieve UHC in a global ecosystem recovering from the aftermath of the COVID-19 pandemic. The review focuses on the health systems, economic, epidemiological, and demographic challenges to realize the goals set for UHC. The review focuses on the challenges faced by LMICs.

Methods

This article employs a narrative review approach to address its objective. Narrative reviews are the evidence-informed argument of plausible truth and provide an opportunity for induction, interpretation, and critical reflection.^{21–23} Due to their comprehensive nature, narrative reviews may not always employ a systematic search to identify a body of literature evidence.²¹ Given the broader objective of this work, the limited availability of empirical studies, and the inclusion and integration of several data sources, a narrative review was identified as the most suitable method for this article.

Evidence from multiple sources was integrated into this review. Research articles, opinion pieces, commentary, and reviews discussing on challenges posed by COVID-19 and its implications on UHC were identified through an electronic

literature search in PubMed and Scopus employing the generic keywords “Challenges” AND “COVID-19” AND “Universal Health Coverage” AND “Health Systems”. The literature search was conducted from October 2022 to December 2022. The initial search yielded 92 journal articles published in between 2020 and 2022. After screening for relevant titles and removing duplicates, a total of 40 articles were selected from the initial database search. A subsequent bibliographic search, manual search of key articles, and expert opinions identified another 37 journal articles. Additionally, datasets ($n = 3$), blogs/webpages ($n = 21$), reports ($n = 15$), news reports/policy documents ($n = 2$) were manually sourced from the websites of WHO, World Bank, OECD, FAO, ILO, Government organizations, and internationally renowned news agencies. For the data metrics, estimates for the latest available year were considered to draw interpretations.

The sourced evidence was analyzed and presented as findings under the broader dimensions of i) Weak primary health care systems ii) Challenges to building resilient health systems, iii) Health care financing and financial risk protection, iv) Epidemiological and demographic challenges, and v) Governance and leadership. This broader classification of challenges is based on the WHO global health observatory’s key health data indicators and specific indicators on SDG target 3.8.^{24,25}

Findings

Weak Primary Health Care Systems

Primary health care (PHC) is at the heart of achieving SDGs and UHC. PHC itself is estimated to account for more than 75% of the projected health gains associated with attaining SDGs and more than 90% of health services under comprehensive UHC.²⁶ PHC is agreed upon as a vital and cost-effective means to attain universal health coverage.²⁷ However, evidence indicates that primary health care systems are weak and not prioritised in a majority of LMICs.

Robust primary healthcare systems were able to continue the provision of essential healthcare services despite the disruptions caused due to COVID-19 pandemic.^{27,28} The key principles of primary health care (PHC) ie, i) community participation, ii) inter-sectoral coordination, iii) appropriate technology, and iv) support systems, are at the center to enabling health systems to achieve UHC.^{27,29} Weak PHC systems facing a shortfall of health workers, infrastructural shortcomings, lack of diagnostic facilities, asymmetric distribution of healthcare facilities, and inadequate financing were documented to be drivers of outbreaks like Ebola.^{30,31} During the COVID-19 pandemic, non-adherence to key PHC components resulted in the fragmentation of health systems, lack of coordination, infrastructural challenges, and inadequate investments, which further compromised health system preparedness to tackle COVID-19 in LMICs.^{32–34} Inadequacies in PHC resulted in a substantially higher burden of COVID-19 and its financial implications on households with high socioeconomic vulnerability.^{35–37}

Countries with weak primary healthcare systems witnessed greater disruptions in healthcare delivery and high healthcare costs during COVID-19. A study from India found that utilisation of hospital care decreased by over 37%, and out of pocket expenditure (OOPE) in private hospitals nearly doubled despite having government funded insurance.³⁸ Other studies found that the gaps in OOPE between public and private healthcare settings escalated due to weak PHC. The median cost of availing care for NCDs in private healthcare facilities was 20 times that of public healthcare facilities.³⁹ For COVID-19, 20.3% of all hospitalisations, and 59% of hospitalisations in private hospitals led to catastrophic health expenditure (CHE).⁴⁰ In Ethiopia, the incidence of missed appointments more than doubled for diabetes, hypertension, asthma, chronic kidney disease, cardiac illness, and cancer, majorly due to the challenges of accessibility and affordability.⁴¹

Shortcomings in PHC translate into widening health inequities among LMICs.⁴² Shortfall in primary health care inputs (such as availability of health workers, hospital beds, sufficient financing of health care) can be seen to be resulting in underperformance across key healthcare performance indicators. A comparison of eight LMICs, which account for over 32% of the global population, reflects that among LMICs, those with limited investments in PHC-building blocks had higher levels of infant and maternal mortality and lower levels of Measles immunization and COVID-19 vaccine coverage (see Table 1).

Table 1 Outline of Epidemiological, Health Care Input and Performance Indicators Across Selected LMICs

	Indicator	India	Pakistan	Indonesia	Bangladesh	Ethiopia	Nigeria	Ghana	DRC
Epidemiological indicators	Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total deaths)	24.17	33.15	18.93	22.61	44.65	65.21	45.24	56.18
	Cause of death, by non-communicable diseases (% of total deaths)	65.93	59.86	76.32	70.26	43.25	27.13	45.39	34.13
Health care input indicators	UHC Service Coverage Index	61	45	59	51	38	44	45	39
	UHC Effective Coverage Index	46.82	39.17	48.73	53.88	46.52	38.34	49.13	45.16
	Nurses and midwives (per 1000 people)	1.75	0.48	3.95	0.49	0.78	1.5	3.62	1.11
	Hospital Beds (per 1000 people)	0.53	0.63	1.04	0.79	0.33	NA	0.9	0.80
	Domestic general government health expenditure (% of GDP)	0.99	1.08	1.42	0.46	0.74	0.48	1.38	0.56
	Domestic general government health expenditure per capita (current US\$)	20.9	12.63	58.79	8.54	6.07	11.4	30.29	3.25
Health care performance indicators	Infant Mortality Rate	25.5	52.8	18.9	22.9	34.3	70.6	32.6	62.4
	Maternal mortality ratio (modeled estimate, per 100,000 live births)	145	140	177	173	401	917	308	473
	Immunization, measles (% of children ages 12–23 months)	89	81	72	97	54	59	94	55
	Percentage of population who received COVID-19 vaccines	72	69	74	88	35	36	39	13
	Out-of-pocket expenditure (% of current health expenditure)	54.78	53.81	34.76	72.68	37.87	70.52	36.22	38.5

Notes: The data presented is accessed from the world bank open data (<https://data.worldbank.org/>), and IHME (<https://ghdx.healthdata.org/record/ihme-data/gbd-2019-uhc-effective-coverage-index-1990-2019>). The indicators are presented for the latest available year. The presented countries account for 32% of the global population at 2021 levels.

Abbreviations: DRC, Democratic Republic of Congo; GDP, Gross Domestic Product; NA, not available.

Challenges to Building Resilient Health Systems

Health systems are at the core of achieving the target of UHC by ensuring equitable access to essential healthcare services and protecting households from CHE. WHO points to i) health service delivery, ii) health workforce, iii) health information systems, iv) access to essential medicines, v) health systems financing, and vi) leadership and governance as the core-building blocks of health systems.⁴³ It is essential to build resilience across these critical dimensions.

Resilience can be defined as the health system's ability to anticipate, absorb, adapt, and recover from significant shocks and health emergencies.⁴⁴ Climate change, emerging and re-emerging diseases, natural disasters, epidemics, and human-caused disasters highlight the need for resilient health systems which can withstand and adequately respond in face of crisis events. Building resilience requires investments in the health workforce, infrastructure, processes, leadership, and governance backed by sustained healthcare financing.^{44,45} While the components of healthcare financing, leadership, and governance are discussed as separate findings, the challenges associated with rest four are discussed here. A recent OECD report indicates that a) protecting people's health, b) fortifying the foundations of health systems, and c) strengthening the health workforce is core to building resilient health systems.^{44,46}

Poor health of populations can overrun healthcare systems and cripple health service delivery. Protecting population health provides breathing space for the health systems to build capacities for emergency response. Protecting health requires an uninterrupted continuance of the ongoing programs, prevention, and control of vaccine-preventable illnesses, maternal and neonatal mortality, and NCDs. The progress in protecting people's health was significantly derailed during the pandemic. Evidence points towards COVID-19-led disruptions in essential services, reducing average life expectancy by up to two years in some parts of the world.¹⁵ WHO advocates that at least 70% of the global population should receive COVID-19 vaccines by mid-2022.¹⁵ However, till early 2023, less than 50% of the population in developing countries across Africa were fully vaccinated against COVID, although majority of these countries were rated "high" to "very high" on INFORM COVID-19 risk index.⁴⁷ Among the least developed countries in Africa, the three-year average prevalence of undernourishment increased from 23.04% to 24.28% during the pandemic years.⁴⁸ While access to water and sanitation improved globally, in Africa alone, over 418 million individuals lack essential drinking water services, and 779 million lack sanitation services.⁴⁹ Among the healthcare facilities in LMICs at least 35% lack access to a reliable water source and close to 20% lack adequate sanitation facilities.⁵⁰ Malnutrition, vaccine-preventable diseases, contaminated water, and inadequate sanitation are the significant killers barring noncommunicable diseases, and a potential challenge to protect health and build resilience of health systems.

Developing countries in Africa and Asia need more health workforce in terms of trained doctors, nurses, specialists, pharmacists, and other healthcare professionals. Community health workers (CHW) account for a significant number of frontline health worker cadre in the developing world. India alone has over a million Accredited Social Health Activists (ASHA) and Auxiliary Nurse Midwives (ANM) working at the grassroots. While evidence indicates CHWs to be effective in delivering healthcare services, studies point to CHWs needing to be more trained, poorly paid, demotivated, and exhausted, limiting their ability to provide essential healthcare services.⁵¹ The developing world also faces a chronic shortage of professional health workers. India, with close to 18% of the world's population, has less than 11 qualified doctors and nurses per 10,000 population, far below the WHO threshold of 44.5.⁵² The majority of African countries have a health worker density less than 1/3rd of the WHO threshold.⁵³ Despite estimates of a reduced health workforce shortage by 2030, developing countries benefit the least. By 2030, the global health workforce shortage will decrease by 33%. However, the projected decrease in WHO African region is smaller than 1/4th of the global average.⁵⁴ The chronic shortage of the health workforce is argued to be a stumbling block in achieving UHC. Investments in recruiting, training, and retaining trained health workforce are essential to building resilient healthcare systems.

Healthcare infrastructure, policies, and processes are essential to ensure health systems' resilience. Eight of the 12 major countries with a population of 100 million or more have less than 11 hospital beds per 10,000 population (see Figure 1). During the first wave of the COVID-19 pandemic, WHO estimates indicated that 87% of the sub-Saharan African countries had less than 50 ventilators and a little over 120 ventilator beds per country.⁴⁵ Hospital resource availability was a significant predictor for COVID-19 mortality across geographies.^{55–57} Despite the awareness that a chronic shortage of hospital beds could be a challenge in a primary health emergency, most healthcare systems are

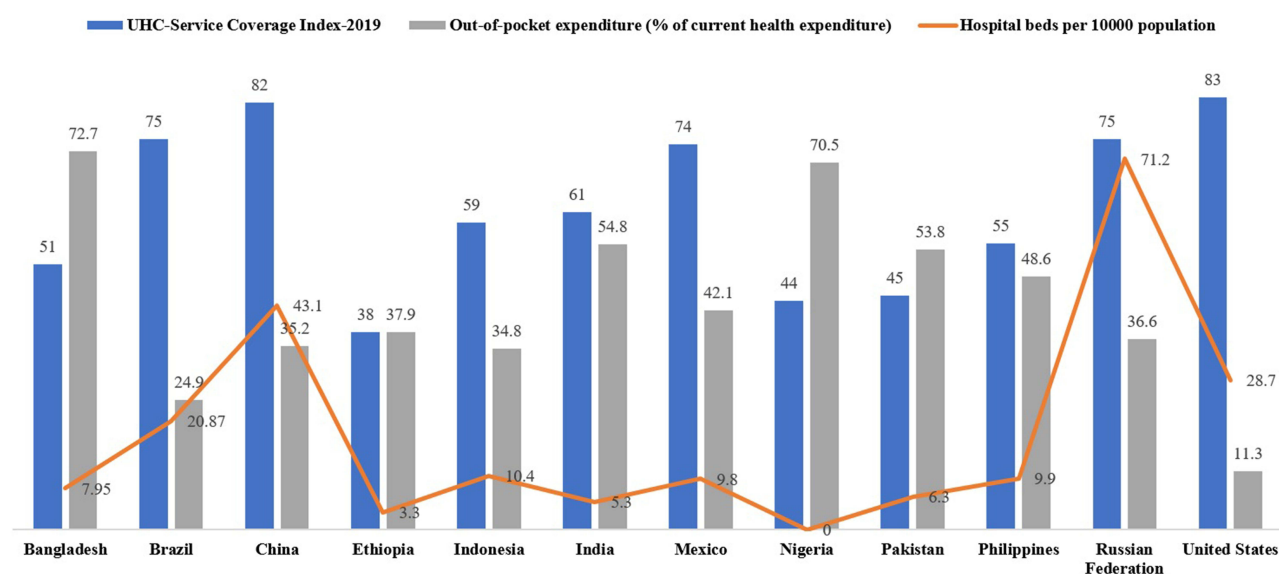


Figure 1 Selected indicators for UHC across 12 countries with more than 100 million population.

Notes: Author based on data from The World Bank⁵⁸ & WHO Global Health Observatory.⁵⁹

underprepared. Most African countries are net importers of essential medical and pharmaceutical supplies.⁴⁵ Similarly, the healthcare infrastructure in LMICs is deficient, with a shortfall in built space, accessibility, and availability of technology. Building self-reliance in healthcare capacities, essential medical supplies, and consumables are essential for health system resilience.

Healthcare Financing and Financial Risk Protection

Most sub-Saharan African countries have a Gross Domestic Product (GDP) per capita of fewer than 1600 USD per year and domestic government expenditure on health per capita of less than 75 international dollars. The global average is 860.68, with high-income countries like Australia and the United States spending upwards of 3700 and 5500 international dollars per capita, respectively.⁶⁰ Among the low-income and lower-middle-income countries, populous countries such as India, Pakistan, and Bangladesh, have a lower per capita government spending on healthcare.⁶⁰ The under-financed healthcare systems in LMICs require drastic financing reforms if the SDG targets are to be met. Healthcare spending as a percentage of GDP in LMICs which was in a static/decreasing trend, rose sharply post-COVID-19, primarily backed by government spending in healthcare.¹⁶ The challenge, however, remains in sustaining the increased funding and adequately allocating the available resources to strengthen infrastructure, supply chains, policies, and processes to build resilient systems.⁴⁵

Given the role of insurance as a core strategy towards the financial risk protection component of UHC, there is a risk that countries overemphasize the insurance component in their health policies. Insurance, while essential, is not a quick fix for underfunded and understaffed primary healthcare systems. A quick look at the recent national health accounts of selected countries demonstrates that inpatient curative care (which is the main focus of health insurance) is approximately 30–40% of the current health expenditure.^{61–63} Outpatient care, preventive care, pharmaceuticals and medical goods, transportation, laboratory, and diagnostics accounted for the other 60% of health expenditure by healthcare functions.⁶¹ In developing economies, overemphasizing the insurance component alone without strengthening the grassroots primary healthcare systems can be demeaning. As witnessed during the COVID-19 pandemic, countries and regions with underprepared PHC systems faced significantly higher patient loads, stock out of medical supplies, and a spike in mortality rates.^{64,65} Moreover, expansion of health insurance, without strengthening the primary and preventive healthcare services, might be of little benefit to patients but profitable for private healthcare providers.⁶⁶ High penetration of health insurance in the context of weak PHC could result in over-medicalization and proliferation of private medical practice. It might be of limited benefit in preventing OOE.

It is essential to ensure that the grassroots primary healthcare systems are well-oiled to serve the population's health needs. Strengthening PHC involves increasing healthcare expenditures substantially, establishing facilities, ensuring access, investments in training and retaining the health workforce, and ensuring access to life-saving medicines and supplies. The prominence of strengthening healthcare systems is far more critical for Africa and South Asia countries where significant challenges remain to achieve UHC.⁶⁷ The countries facing challenges to achieving UHC underperform in the UHC service coverage sub-index for service capacity and access.⁶⁸ Moreover, it can be observed that over two decades (ie, from 2000 to 2019), the poor-performing countries have yet to show much progress, remained stagnant or decreased,⁶⁸ reflecting that improving health service capacity and access is a significant challenge in these countries.

Concerning health insurance and social protection, a major challenge is the high percentage of the population working in the informal sector. The International Labour Organisation (ILO) estimates that 60% of the world's population work in the informal sector, ranging from 68% in Asia to 85.8% in Africa.⁶⁹ Arranging health insurance cover for the large proportion of the population working in the informal sector is a financial hurdle as contributory mechanisms need to be more effective.⁷⁰ Moreover, without a universal identification and record-keeping mechanism, the large portion of informal workers are effectively out of the system to be covered under social security. Informal workers are also worst hit during crisis events and are more likely to face health ramifications due to their socioeconomic vulnerabilities.^{71–73} Ensuring social protection during emergencies is critical to achieving SDGs.⁷⁴ Tax-based financing mechanisms, equitable provision of social security and financial risk protection should be ensured to protect vulnerable population groups.⁷⁵

Another emerging challenge is that a significant portion of the population is missing out on the benefits of health insurance. The global emphasis on UHC resulted in several countries initiating government-subsidized health insurance programs.⁷⁶ However, a significantly large number of these health insurance programs are specifically designed for the population in the lower wealth quintiles. On another extreme, the population in the higher wealth quintiles has access to resources and health insurance. A significantly large population in the middle wealth quintiles (Q2-Q3) remains uncovered or under-covered as they are neither poor enough to be covered by government-subsidized health insurance nor rich enough to purchase private health insurance voluntarily.⁷⁷ National Institution for Transforming India estimates that despite the launch of Ayushman Bharat-PMJAY, approximately 40.5% of the Indian population falls under the “missing middle.” Kerala, known for its pioneering health and nutritional indicators, has only 51.5% of its households covered under a health insurance scheme, even after the launch of PM-JAY.⁷⁸ The missing middle population in India and other LMICs is mainly constituted of self-employed individuals (including agriculture and non-agricultural workers), urban poor, individuals working in the informal sector, service workers, craftsmen, elementary workers, small business owners, and professionals.^{79,80} In high inflationary environments, private voluntary health insurance is unaffordable for most of these population groups.⁸¹ Moreover, given that the middle class is expected to grow to 1.15 billion global population by 2030,⁸² mechanisms are needed to ensure adequate health insurance coverage to the population who do not qualify for government social protection.

Epidemiological and Demographic Challenges

There is a paradigm shift in the disease burden with NCDs, injuries, and mental health issues accounting for the majority of the disability-adjusted life years (DALY) globally. The epidemiological transition is more rapid in LMICs, characterized mainly by a substantial rise in chronic noncommunicable diseases and a persistently high burden of communicable diseases. A paradox of high burden of NCDs, communicable diseases, maternal and child undernutrition, and vaccine-preventable illnesses is characteristically visible in LMICs. India, for example, was documented to have a differing disease pattern with southern states witnessing a rapid rise in noncommunicable diseases and northern states having a substantial burden of communicable, maternal, infant, and child health issues.⁸³ In Sub-Saharan Africa, HIV/AIDS, Child and Maternal Undernutrition, and overweight/obesity were top three risk factors for mortality.⁸⁴ A recent study of nationally representative surveys reported that 6.7% to 10.0% of women of reproductive age in India, Myanmar, and Nepal had both anaemia and obesity.⁸⁵

Evidence points to LMICs lagging in both communicable and noncommunicable disease control. An illustration of the same can be made by comparing tuberculosis and diabetes, two indicator diseases targeted for control as part of SDG 3.^{86,87} In Figure 2

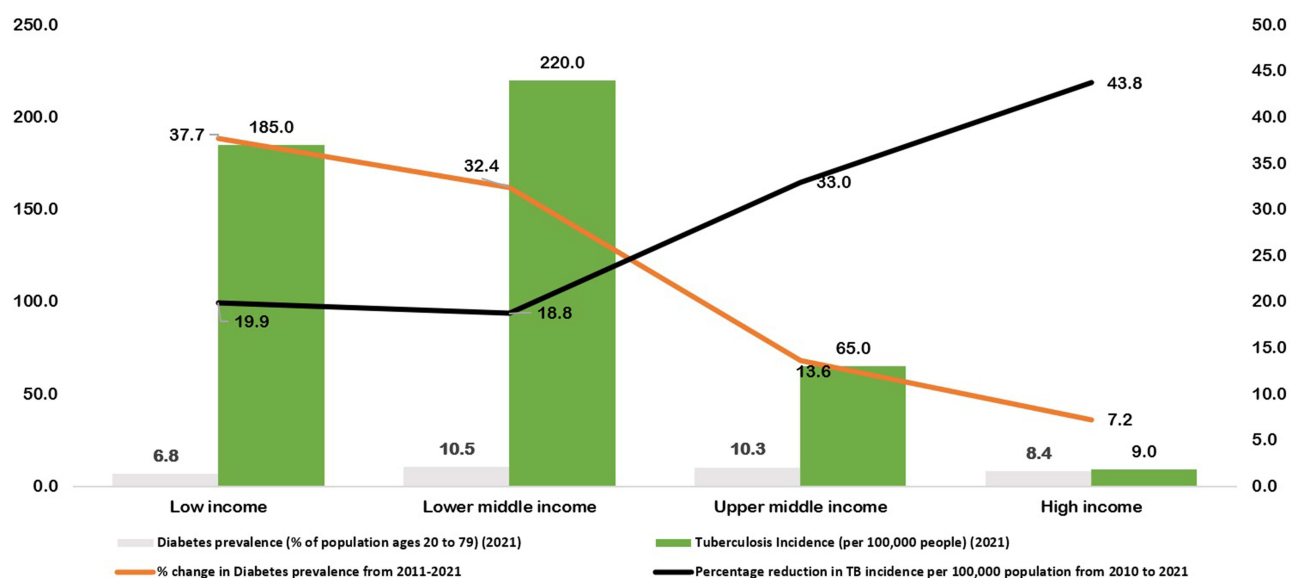


Figure 2 Trends in diabetes and tuberculosis across world bank country regions.

Notes: Based on data from The World Bank.⁵⁸

it can be noted that despite having a low base, the percentage reduction in tuberculosis incidence in the upper middle- and high-income countries was double that of low and lower-middle-income countries. On the contrary, the prevalence of diabetes increased by over 37% in low-income countries, whereas it only increased by 7% in their high-income counterparts. The dual challenge of communicable and noncommunicable diseases is to be factored into policies and programs to progress toward UHC. Moreover, emerging issues such as climate change and antimicrobial resistance (AMR) pose a significant epidemiological challenge. A recent Lancet study concluded that AMR is attributable to over 4.9 million deaths in 2019, with LMICs of South Asia and Sub-Saharan Africa accounting for over 65% of the total DALYs attributable to AMR.⁸⁸ Moreover, climate change is documented to directly impact aggravating disease outbreaks associated with vector-borne and waterborne diseases.^{89,90} These challenges are further compounded by epidemic proportions of NCDs brought forward by rapidly aging populations.

In the last seven decades, the global average life expectancy has more than doubled from 30 years over 70, primarily due to the prevention of mortality due to communicable, maternal, neonatal, and nutritional diseases (CMNND).⁹¹ The increased life expectancies also pose a potential longevity risk, as the healthcare systems are under-prepared to provide essential healthcare services to the growing geriatric population. Evidence indicates that LMICs, despite their comparatively higher fertility rate, are aging rapidly.⁹² The epidemiological transition in several developing countries closely follows the demographic transition, with NCDs such as Hypertension, Diabetes, Cardiovascular diseases, and Cancers rising substantially. For example, from 2011 to 2021, the prevalence of diabetes increased by 37% and 32%, respectively, in low-income and lower-middle-income countries, whereas the same was 7% in high-income countries (see Figure 2). The healthcare systems in LMICs have a limited preparedness to tackle the growing burden of NCDs. For example, for hypertension which is one of the most common NCDs, less than 45% of women and 33% of men in South Asia were aware that they have hypertension.⁹³ Studies from developing countries reveal a sub-optimal level of diagnosis and higher case-fatality rates for NCDs.^{94–97} Despite evidence indicating a higher incidence and early age of onset of major cardiovascular events in population groups from developing countries,⁹⁶ there is a limited health systems preparedness towards tackling NCDs in general and aging-specific issues in particular.

Around 14 of the 21 interventions proposed by the 2022 NCD 2030 countdown, collaborators require healthcare systems prepared to tackle NCDs.⁹⁸ However, investments in NCD care have traditionally been poor and limited in LMICs. Estimates indicate that less than 1% of the global health funding is directed towards NCDs in LMICs. An Indian study reported that from 2012 to 2017, the NCD expenditure of the ministry of health and family welfare accounted for less than 0.04% of the country's GDP. In contrast, NCDs during the same time accounted for over 60% of all deaths.^{98,99}

Another South-African study reported inadequacies in mainstreaming aging-friendly healthcare facilities, primarily due to budgetary constraints.¹⁰⁰ Among the 12 most populous countries reported in Figure 1, the NCD sub-index for UHC coverage averages 61.18, with rapidly aging countries such as China and the United States (US) scoring 62.7% and 61.1%, respectively.¹⁰¹ Vietnam despite scoring higher than China and USA on NCD sub-index is projected to miss the 2030 targets across most of NCD risk management and health service indicators.^{101,102} This evidence substantiates the argument that most of the world's population are not covered by essential NCD services. The significant under coverage of NCD services, coupled with the rapidly aging population could potentially deter the achievement of NCD-specific targets under SDG and require sustained efforts. Providing accessible, affordable, and comprehensive care for the prevention and control of NCDs and aging-associated health issues is imperative to achieving the goals of UHC.

Governance and Leadership

Governance and leadership are at the helm of sustaining adequate healthcare financing, building resilient healthcare systems, and strategizing ways to provide equitable healthcare access. The WHO document on monitoring health systems building blocks discusses on the existence of policies, strategies, and mechanisms on ten priority health areas as core indicators for monitoring leadership and governance.⁴³ As of 2017, only 38% of the WHO member nations passed legislation on UHC, reflecting a limited leadership commitment.¹⁰³ Also, effective political, economic, and administrative governance is essential to develop resilient health systems for the post-pandemic world.⁶⁶ Specifically, as the countries struggle with climate change, economic downturn, energy crisis, global uncertainties, and internal issues, a sustained political commitment is essential to continue investments to strengthen health systems. As per the latest data available, the countries such as Bangladesh, India, Pakistan, Ethiopia, and Nigeria spend less than 5% of the general government expenditure on health.¹⁰⁴ Given that these countries account for around 25% of the global population, commitment from leadership is essential to ensure adequate healthcare financing.

In addition to financial investments into healthcare systems, mechanisms are required to ensure efficient use of the available resources. Corruption in the governance architecture and healthcare systems is a significant challenge hindering UHC. A recent narrative synthesis of out-of-pocket expenditure among insurance beneficiaries across Sub-Saharan African countries indicates corruption within the system as a significant challenge to successfully implementing UHC.¹⁰⁵ Governance issues and informal payments were documented to erode trust in the healthcare systems.¹⁰⁶ Lack of accountability, poor health resource management, and unequal power in healthcare decision-making, negatively impacted progress toward UHC in low-income countries.¹⁰⁷ Additionally, internal conflicts within the countries are known to have a significant impact on people's health and well-being. Civil wars are documented to have resulted in outbreaks of cholera, measles, diphtheria, and other vaccine-preventable diseases in South Sudan and Yemen.^{108,109} The recent economic crisis in Sri Lanka had a significant impact on access to essential medical supplies and adequate nutrition. It was documented to have a negative impact on the mental health of individuals.¹¹⁰ The health impact of the recent armed conflicts between the countries is well documented.¹¹¹

Moreover, a significant challenge to achieving UHC is an unequal distribution of healthcare services to socially and economically vulnerable populations. Despite the longstanding awareness about the impact of social inequalities in influencing individual health status and access to healthcare, the priority given to social determinants is all but underwhelming. The pandemic responses in several South-Asian countries were documented to have a substantial negative impact on vulnerable households resulting in unemployment, poverty, and food insecurity.¹¹² Moreover, the lack of financial protection further pushed the households into poverty caused by COVID-19-induced health expenditures.¹¹³ The recent crisis events have reflected the limited protection available to socio-economically weaker sections of the community. Across the world, the poorest countries and poorest households are witnessing a weaker recovery.^{114,115} While the countries increased the social-sector spending during COVID-19, evidence indicates declining spending in the social sector from 2022.^{116,117} Decreased spending could narrow the available social protection nets to disadvantaged groups.

Good governance strategies, including but not limited to leveraging technology, inter-sectoral coordination, context-specific health policy, equitable financing modalities, and increased transparency, are needed to improve progress toward UHC. Creating quality leadership within healthcare human resources will be a strategic investment in improving healthcare systems' long-term resilience and facilitate achieving UHC.

PHC an Essentiality in Achieving UHC

Strong primary health care systems are necessary for attaining UHC. Without PHC, unilateral interventions to achieve UHC through health insurance seem to have little success. A study based on nationally representative sample of older persons in India reported that enrollment in a public funded health insurance had no effect on OOPe or CHE, but accessing treatment from private health sector significantly increased OOPe.¹¹⁸ Similarly, in Ghana despite implementation of national health insurance scheme (NHIS), governance issues, poor financing, quality of care, and lack of stakeholder participation compromised its effectiveness.¹¹⁹

Strengthening primary health care systems require strategic investments towards strengthening its core pillars. Community participation, one of the main pillars of PHC played a key role in pandemic response. In India and other LMICS, local bodies, community-based organizations, volunteers, and civil society played a vital role in pandemic response.^{120,121} Millions of CHWs across LMICS were critical in ensuring delivery of essential health services to the last mile.¹²² CHWs played a central role in strengthening primary health care systems and tackling HIV/AIDS, Malaria, Tuberculosis, Maternal and Child Mortality.^{122,123} Despite their apparent contributions, community participation through civil society is troubled by bureaucratic challenges, limited recognition, and engagement. Similarly, CHWs continue to face challenges of limited training, poor supervision, inadequate financing, inefficient compensation mechanisms, and an overwhelming workload.¹²⁴ It is essential to tackle the existing challenges and build on the strengths of community participation as an important component of PHC in realizing the goal of UHC.

Accessibility and availability of medical and non-medical technology will strengthen PHC. Shortcomings in health infrastructural capacities weakening the health care systems were discussed earlier. Focused interventions are required to ensure access and availability of essential medical supplies and technologies. Digital technologies played a central role in pandemic response across the countries and minimized the pandemic's social, economic and health impacts.^{125,126} Leveraging technology can enable bridging the gaps towards attainment of UHC in low and middle-income countries.¹²⁷ Additionally, inter-sectoral coordination with a "health in all" approach, and equitable distribution of resources for health and development are essential achieving UHC in face of the challenges of economic inequities, global uncertainty, antimicrobial resistance, and climate change.^{75,128} In India, campaigns like "Eat right India", "Fit India", "Poshan Abhiyan", integration of digital health technologies through "Ayushman Bharat Digital Mission" and launch of "National Programme on Climate Change & Human Health" provide an opportunity for inter-sectoral coordination.

Sustained financing is crucial for the success of PHC approach. WHO advocates for an increase in PHC spending by at least 1% of the GDP to increase access to essential health services. The Lancet Global Health Commission on financing primary health care recommends for substantial increase in PHC spending in LMICS, through resources pooled from tax revenues and internal accruals.¹²⁹ However, at current levels PHC spending is limited. An analysis of health accounts of 36 LMICS revealed that only 10% of current health expenditure is spent on preventive care or health systems governance.¹³⁰ Estimates indicate that attainment of UHC requires at least a 2.6-fold increase in per capita PHC expenditure from 2020 to 2030 with incremental PHC costs accounting for up to 3.3% of gross domestic product (GDP).¹³¹ However, there is a limited progress with countries like India aiming to increase the government health spending on PHC up to 1.6% of the country's GDP.^{132,133} The mismatch in requirement and allotment needs to be revisited with a strategic "primary health care investment plan" based on the cost analysis and evidence-based projections on country's PHC expenditure.

Despite the challenges, there are proactive steps focused at improving PHC service delivery in LMICS. Under Ayushman Bharat Program, Indian government plans to strengthen its PHC with a network of more than 0.15 million Health and Wellness Centers (HWC) providing a package of comprehensive primary health care services.^{132,134} By building on the lessons learnt from National Health Mission (NHM), HWCs are designed to provide robust primary health care services.^{132,135} Similar strategic approaches to strengthening PHC built on the local needs and capacities are needed in LMICS.^{136,137} Across LMICS, challenges remain with regard to utilization of PHC, and building trust among the users. The perception of low quality of health care at PHC facilities is known to negatively impact service usage.¹³⁸ Providing a i) broader package of services, ii) assured provision of services offered, iii) services ensuring continuity of care, iv) ensuring basic quality standards, v) appropriate mix of providers, and vi) strong information systems are known to improve effectiveness of primary health care services and their utilization.^{139,140}

Conclusion

Over the decades, sustained underfinancing for primary health care has resulted in several lost opportunities. As countries recover from COVID-19, significant investments are needed to compensate for the lost progress and achieve the specific targets for UHC. LMICs with weak healthcare systems require concentrated efforts and investments. Building resilient healthcare systems capable of adapting to epidemiological transition is essential. The challenges persist in pooling the required economic resources and efficiently using them. As the GDP raise, the growing economic powers should be used to finance the healthcare infrastructure sustainably. Measures such as health taxes (ie, taxes imposed on products having an adverse health effect) and earmarking the proceeds towards healthcare spending could be beneficial in improving per-capita healthcare spending. While international funding accounts for a minor portion of the overall health expenditure across LMICs, it is impactful. However, health expenditure from external sources remained static in the five years preceding pandemic. As the COVID-19 pandemic proved our shared vulnerabilities to disease, international cooperation, and support are necessary to achieve the goals of UHC. In the context of global economic stagnation and a high inflationary environment, necessary aid and leverage to low-income countries can boost their progress.

Data Sharing Statement

Data sharing does not apply to this article. All the data used in this article are available in the public domain.

Funding

The author received no funding to undertake this work.

Disclosure

The author has no conflict of interest.

References

1. Ranabhat CL, Jakovljevic M, Kim CB, Simkhada P. COVID-19 pandemic: an opportunity for universal health coverage. *Front Public Health*. 2021;9:673542. doi:10.3389/fpubh.2021.673542
2. Hussein R. A Review of Realizing the Universal Health Coverage (UHC) goals by 2030: part 1- status quo, requirements, and challenges. *J Med Syst*. 2015;39(7):71. doi:10.1007/s10916-015-0254-y
3. United Nations. *Political Declaration of the High-Level Meeting on Universal Health Coverage*. United Nations; 2019.
4. World Health Organization. *Thirteenth General Programme of Work, 2019–2023: Promote Health, Keep the World Safe, Serve the Vulnerable*. World Health Organization; 2019.
5. Lozano R, Fullman N, Mumford JE, et al. Measuring universal health coverage based on an index of effective coverage of health services in 204 countries and territories, 1990–2019: a systematic analysis for the global burden of disease study 2019. *Lancet*. 2020;396(10258):1250–1284.
6. World Health Organization. *Global Tuberculosis Report 2021*. World Health Organisation; 2022.
7. Gerszon Malher D, Yonzan N. *Updated Estimates of the Impact of COVID-19 on Global Poverty: Turning the Corner on the Pandemic in 2021?* World Bank Data Blog; 2021.
8. United Nations. *Policy Brief: The Impact of COVID-19 on Food Security and Nutrition*. Geneva: United Nations; 2020.
9. Kendzerska T, Zhu DT, Gershon AS, et al. The effects of the health system response to the COVID-19 pandemic on chronic disease management: a narrative review. *Risk Manag Healthc Policy*. 2021;14:575–584. doi:10.2147/RMHP.S293471
10. Ahmed T, Rahman AE, Amole TG, et al. The effect of COVID-19 on maternal newborn and child health (MNCH) services in Bangladesh, Nigeria and South Africa: call for a contextualised pandemic response in LMICs. *Int J Equity Health*. 2021;20(1):77. doi:10.1186/s12939-021-01414-5
11. Kc A, Gurung R, Kinney MV, et al. Effect of the COVID-19 pandemic response on intrapartum care, stillbirth, and neonatal mortality outcomes in Nepal: a prospective observational study. *Lancet Glob Health*. 2020;8(10):e1273–e1281. doi:10.1016/S2214-109X(20)30345-4
12. Avula R, Nguyen PH, Ashok S, et al. Disruptions, restorations and adaptations to health and nutrition service delivery in multiple states across India over the course of the COVID-19 pandemic in 2020: an observational study. *PLoS One*. 2022;17(7):e0269674. doi:10.1371/journal.pone.0269674
13. Shapira G, Ahmed T, Drouard SHP, et al. Disruptions in maternal and child health service utilization during COVID-19: analysis from eight sub-Saharan African countries. *Health Policy Plan*. 2021;36(7):1140–1151. doi:10.1093/heapol/czab064
14. Aranda Z, Binde T, Tashman K, et al. Disruptions in maternal health service use during the COVID-19 pandemic in 2020: experiences from 37 health facilities in low-income and middle-income countries. *BMJ Glob Health*. 2022;7:1. doi:10.1136/bmjgh-2021-007247
15. United Nations. *The Sustainable Development Goals Report 2022*. Geneva: United Nations; 2022.
16. World Health Organization. *Global Spending on Health: Rising to the Pandemic's Challenges*. World Health Organization; 2022.
17. World Health Organization. Targets of Sustainable Development Goal 3. 2023; Available from: <https://www.who.int/europe/about-us/our-work/sustainable-development-goals/targets-of-sustainable-development-goal-3>. Accessed February 25, 2023.
18. World Bank. UHC service coverage index. In: *World Health Organization GHODR*. The World Bank; 2020.

19. Jones M. The big default? The dozen countries in the danger zone. 2022; Available from: <https://www.reuters.com/markets/europe/big-default-dozen-countries-danger-zone-2022-07-15/>. Accessed February 25, 2023.
20. IMF. *Global Financial Stability Report: Navigating the High-Inflation Environment*. International Monetary Fund; 2022.
21. Greenhalgh T, Thorne S, Malterud K. Time to challenge the spurious hierarchy of systematic over narrative reviews? *Eur J Clin Invest*. 2018;48(6):e12931–e12931. doi:10.1111/eci.12931
22. Thorne S. On the evolving world of what constitutes qualitative synthesis. *Qual Health Res*. 2019;29(1):3–6. doi:10.1177/1049732318813903
23. Day G, Robert G, Rafferty AM. Gratitude in health care: a meta-narrative review. *Qual Health Res*. 2020;30(14):2303–2315. doi:10.1177/1049732320951145
24. World Health Organization. The global health observatory. Available from: <https://www.who.int/data/gho/data/indicators>. Accessed February 25, 2023.
25. United Nations. Goals 3: ensure healthy lives and promote well-being for all at all ages. 2022; Available from: <https://sdgs.un.org/goals/goal3>. Accessed February 25, 2023.
26. World Health Organization. Universal health coverage (UHC). 2022; Available from: [https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-\(uhc\)](https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc)). Accessed February 25, 2023.
27. World Health Organization. *Primary Health Care Measurement Framework and Indicators: Monitoring Health Systems Through a Primary Health Care Lens*. World Health Organization; 2022.
28. Blanc DC, Grundy J, Sodha SV, et al. Immunization programs to support primary health care and achieve universal health coverage. *Vaccine*. 2022. doi:10.1016/j.vaccine.2022.09.086
29. Hone T, Macinko J, Millett C. Revisiting Alma-Ata: what is the role of primary health care in achieving the sustainable development goals? *Lancet*. 2018;392(10156):1461–1472. doi:10.1016/S0140-6736(18)31829-4
30. Omoleke SA, Mohammed I, Saidu Y. Ebola viral disease in West Africa: a threat to global health, economy and political stability. *J Public Health Africa*. 2016;7(1):534. doi:10.4081/jphia.2016.534
31. Nagai M, Oikawa M, Tamura T, Egami Y, Fujita N. Can we apply lessons learned from Ebola experience in West Africa for COVID-19 in lower income countries? *Global Health Med*. 2020;2(2):140–141. doi:10.35772/ghm.2020.01028
32. Paul E, Ndiaye Y, Sall FL, Fecher F, Porignon D. An assessment of the core capacities of the Senegalese health system to deliver Universal Health Coverage. *Health Policy OPEN*. 2020;1:100012. doi:10.1016/j.hopen.2020.100012
33. Sarker M, Hossain P, Ahmed ST, Barua M, Sutradhar I, Ahmed SM. A critical look at synergies and fragmentations of universal health coverage, global health security, and health promotion in delivery of frontline health care services: a case study of Bangladesh. *Lancet Region Health*. 2022;7:100087. doi:10.1016/j.lansea.2022.100087
34. Knaul FM, Touchton M, Arreola-Ornelas H, et al. Punt politics as failure of health system stewardship: evidence from the COVID-19 pandemic response in Brazil and Mexico. *Lancet Reg Health*. 2021;4:100086. doi:10.1016/j.lana.2021.100086
35. Rocha R, Atun R, Massuda A, et al. Effect of socioeconomic inequalities and vulnerabilities on health-system preparedness and response to COVID-19 in Brazil: a comprehensive analysis. *Lancet Glob Health*. 2021;9(6):e782–e792. doi:10.1016/S2214-109X(21)00081-4
36. Duarte R, Aguiar A, Pinto M, et al. Different disease, same challenges: social determinants of tuberculosis and COVID-19. *Pulmonology*. 2021;27(4):338–344. doi:10.1016/j.pulmoe.2021.02.002
37. El-Khatib Z, Otu A, Neogi U, Yaya S. The association between out-of-pocket expenditure and COVID-19 mortality globally. *J Epidemiol Glob Health*. 2020;10(3):192–193. doi:10.2991/jegh.k.200725.001
38. Garg S, Bebartha KK, Tripathi N. Household expenditure on non-Covid hospitalisation care during the Covid-19 pandemic and the role of financial protection policies in India. *Arch Public Health*. 2022;80(1):108. doi:10.1186/s13690-022-00857-8
39. Mathew R, Olickal JJ. Out-of-pocket expenditure on noncommunicable diseases during Covid-19. A cross-sectional study from a semi-urban area of Kannur, Kerala. *Clin Epidemiol Glob Health*. 2023;19:101210. doi:10.1016/j.cegh.2022.101210
40. Garg S, Bebartha KK, Tripathi N, Krishnendhu C. Catastrophic health expenditure due to hospitalisation for COVID-19 treatment in India: findings from a primary survey. *BMC Res Notes*. 2022;15(1):86. doi:10.1186/s13104-022-05977-6
41. Ayele TA, Alamneh TS, Shibru H, et al. Effect of COVID-19 pandemic on missed medical appointment among adults with chronic disease conditions in Northwest Ethiopia. *PLoS One*. 2022;17(10):e0274190. doi:10.1371/journal.pone.0274190
42. Karamagi H, Titi-Ofei R, Amri M, et al. Cross country lessons sharing on practices, challenges and innovation in primary health care revitalization and universal health coverage implementation among 18 countries in the WHO African Region. *Pan Afr Med J*. 2022;41:159. doi:10.11604/pamj.2022.41.159.28913
43. World Health Organization. *Monitoring the Building Blocks of Health Systems: A Handbook of Indicators and Their Measurement Strategies*. World Health Organisation; 2010.
44. OECD. *Investing in Health Systems to Protect Society and Boost the Economy: Priority investments and Order-of-Magnitude Cost Estimates*. The Organization for Economic Cooperation and Development; 2022.
45. Gebremeskel AT, Otu A, Abimbola S, Yaya S. Building resilient health systems in Africa beyond the COVID-19 pandemic response. *BMJ Global Health*. 2021;6(6):e006108. doi:10.1136/bmjgh-2021-006108
46. Karamagi HC, Tumusiime P, Titi-Ofei R, et al. Towards universal health coverage in the WHO African Region: assessing health system functionality, incorporating lessons from COVID-19. *BMJ Glob Health*. 2021;6:3. doi:10.1136/bmjgh-2020-004618
47. UNDP. *COVID-19 Vaccine Equity Dashboard: Exploring Inequities in the Global Distribution of COVID-19 Vaccines*. Programme UND; 2023.
48. FAO. *Suite of Food Security Indicators*. Nations FaAOotU; 2022.
49. UNICEF. Africa to drastically accelerate progress on water, sanitation and hygiene – report; 2022. Available from: <https://www.unicef.org/senegal/en/press-releases/africa-drastically-accelerate-progress-water-sanitation-and-hygiene-report>. Accessed April 3, 2023.
50. World Health Organization. Water. Available from: <https://www.afro.who.int/health-topics/water>. Accessed February 25, 2023.
51. Colvin CJ, Hodgins S, Perry HB. Community health workers at the Dawn of a new era: 8. Incentives and remuneration. *Health Res Policy Syst*. 2021;19(Suppl 3):106. doi:10.1186/s12961-021-00750-w
52. Karan A, Negandhi H, Hussain S, et al. Size, composition and distribution of health workforce in India: why, and where to invest? *Hum Resour Health*. 2021;19(1):39. doi:10.1186/s12960-021-00575-2

53. Ahmat A, Okoroafor SC, Kazanga I, et al. The health workforce status in the WHO African Region: findings of a cross-sectional study. *BMJ Glob Health*. 2022;7(Suppl):1. doi:10.1136/bmjgh-2021-008317
54. Boniol M, Kunjumen T, Nair TS, Siyam A, Campbell J, Diallo K. The global health workforce stock and distribution in 2020 and 2030: a threat to equity and 'universal' health coverage? *BMJ Glob Health*. 2022;7:6. doi:10.1136/bmjgh-2022-009316
55. Janke AT, Mei H, Rothenberg C, Becher RD, Lin Z, Venkatesh AK. Analysis of Hospital Resource Availability and COVID-19 Mortality Across the United States. *J Hosp Med*. 2021;16(4):211–214. doi:10.12788/jhm.3539
56. Volpato S, Landi F, Incalzi RA. A frail health care system for an old population: lesson from the COVID-19 outbreak in Italy. *J Gerontol a Biol Sci Med Sci*. 2020;75(9):e126–e127. doi:10.1093/gerona/glaa087
57. Sarfraz Z, Sarfraz A, Sarfraz M, et al. Lessons learnt from emergency medicine services during the COVID-19 pandemic: a case study of India and the United States. *Ann Med Surg*. 2022;73:103197. doi:10.1016/j.amsu.2021.103197
58. The World Health Bank. Data Bank Health Nutrition and Population Statistics. Available from: <https://www.who.int/data/gho/data/indicators>. Accessed: 5 April 2023.
59. World Health Organization. The WHO Global Health Observatory. Available from: <https://www.who.int/data/gho/data/indicators>. Accessed 5 April 2023.
60. World Bank. Domestic general government health expenditure per capita, PPP (current international \$); 2022. Available from: <https://data.worldbank.org/indicator/SH.XPD.GHED.PP.CD?> Accessed February 25, 2023.
61. NHATS. *National Health Accounts Estimates for India FY 2017-18*. National Health Accounts Technical Secretariat (NHATS), National Health Systems Resource Centre (NHSRC); 2021.
62. National Center for Health Statistics. Health care expenditures. 2022; Available from: <https://www.cdc.gov/nchs/hs/topics/health-care-expenditures.htm>. Accessed February 25, 2023.
63. HSRF/HFG Project. *Ethiopia's Health Financing Outlook: What Six Rounds of Health Accounts Tell Us*. Rockville: Health Finance and Governance Project; 2018.
64. Jha P, Deshmukh Y, Tumbe C, et al. COVID mortality in India: national survey data and health facility deaths. *Science*. 2022;375(6581):667–671. doi:10.1126/science.abm5154
65. Nepal R, Bhattacharai B. The Grim Reality of Health System Uncovered with COVID-19 Pandemic in Nepal. *J Nepal Health Res Coun*. 2020;18(3):569–571. doi:10.33314/jnhrc.v18i3.2755
66. Tediosi F, Lönnroth K, Pablos-Méndez A, Raviglione M. Build back stronger universal health coverage systems after the COVID-19 pandemic: the need for better governance and linkage with universal social protection. *BMJ Glob Health*. 2020;5:10. doi:10.1136/bmjgh-2020-004020
67. World Health Organization. Universal Health Coverage (UHC) Index of Service Coverage; 2022. Available from: <https://dashboards.sdgindex.org/map/indicators/universal-health-coverage-uhc-index-of-service-coverage/ratings>. Accessed April 3, 2023.
68. World Health Organization. UHC Service Coverage sub-index on service capacity an access; 2021. Available from: <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/uhc-sci-components-service-capacity-and-access>. Accessed February 25, 2023.
69. ILO. More than 60 per cent of the world's employed population are in the informal economy. 2018. Available from: https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_627189/lang-en/index.htm. Accessed February 25, 2023.
70. Yazbeck AS, Soucat AL, Tandon A, et al. Addiction to a bad idea, especially in low- and middle-income countries: contributory health insurance. *Soc Sci Med*. 2023;320:115168. doi:10.1016/j.socscimed.2022.115168
71. Pitoyo AJ, Aditya B, Amri I, Rokhim AA. Impacts and Strategies Behind COVID-19-Induced economic crisis: evidence from Informal Economy. *Indian J Labour Econ*. 2021;64(3):641–661. doi:10.1007/s41027-021-00333-x
72. Wijayaningtyas M, Lukiyanto K, Nursanti E, Laksmana DI. The effect of economical phenomenon on informal construction workers earnings within Covid-19 pandemic: a mixed method analysis. *Heliyon*. 2022;8(8):e10321. doi:10.1016/j.heliyon.2022.e10321
73. Swarna NR, Anjum I, Hamid NN, et al. Understanding the impact of COVID-19 on the informal sector workers in Bangladesh. *PLoS One*. 2022;17(3):e0266014. doi:10.1371/journal.pone.0266014
74. Lönnroth K, Tessier L, Hensing G, Behrendt C. Income security in times of ill health: the next frontier for the SDGs. *BMJ Glob Health*. 2020;5:6. doi:10.1136/bmjgh-2020-002493
75. Barron GC, Laryea-Adjei G, Vike-Freiberga V, et al. Safeguarding people living in vulnerable conditions in the COVID-19 era through universal health coverage and social protection. *Lancet Public Health*. 2022;7(1):e86–e92. doi:10.1016/S2468-2667(21)00235-8
76. Ly MS, Bassoum O, Faye A. Universal health insurance in Africa: a narrative review of the literature on institutional models. *BMJ Glob Health*. 2022;7:4. doi:10.1136/bmjgh-2021-008219
77. Agustina R, Dartanto T, Sitompul R, et al. Universal health coverage in Indonesia: concept, progress, and challenges. *Lancet*. 2019;393(10166):75–102. doi:10.1016/S0140-6736(18)31647-7
78. IIPS. *National Family Health Survey - 5 (2019-20): State Fact Sheet Kerala*. Mumbai: International Institute for Population Sciences; 2021.
79. Bhat R, Holtz J, Avila C. Reaching the Missing Middle: ensuring Health Coverage for India's Urban Poor. *Health Syst Reform*. 2018;4(2):125–135. doi:10.1080/23288604.2018.1445425
80. Dartanto T, Rezki JF, Siregar CH, Bintara H, Pramono W. *Expanding Universal Health Coverage in the Presence of Informality in Indonesia: Challenges and Policy Implications*. LPEM, Faculty of Economics and Business, University of Indonesia; 2015.
81. Young RA, DeVoe JE. Who will have health insurance in the future? An updated projection. *Ann Fam Med*. 2012;10(2):156–162. doi:10.1370/afm.1348
82. Raju J, Kimberly JR, Guillen M, Kobrin SJ The new global middle class: potentially Profitable — but also unpredictable; 2008. Available from: <https://knowledge.wharton.upenn.edu/podcast/knowledge-at-wharton-podcast/the-new-global-middle-class-potentially-profitable-but-also-unpredictable/#:~:text=The%20World%20Bank%20estimates%20that%20the%20global%20middle,average%20incomes%20between%20Brazil%20%28%2410%29%20and%20Italy%20%28%2420%29>. Accessed February 25, 2023.
83. Dandona L, Dandona R, Kumar GA, et al. Nations within a nation: variations in epidemiological transition across the states of India, 1990–2016 in the Global Burden of Disease Study. *Lancet*. 2017;390(10111):2437–2460. doi:10.1016/S0140-6736(17)32804-0
84. Melaku YA, Gill TK, Taylor AW, et al. Trends of mortality attributable to child and maternal undernutrition, overweight/obesity and dietary risk factors of noncommunicable diseases in sub-Saharan Africa, 1990–2015: findings from the global burden of disease study 2015. *Public Health Nutr*. 2019;22(5):827–840. doi:10.1017/S1368980018002975

85. Jayalakshmi R, Sewor C, Kannan S. Intraindividual double burden of malnutrition among women (15–49 years) in India, Myanmar, and Nepal: evidence from the recent Demographic and Health Surveys. *Eur J Clin Nutr*. 2023. doi:10.1038/s41430-023-01269-9
86. Singh Thakur J, Nangia R, Singh S. Progress and challenges in achieving noncommunicable diseases targets for the sustainable development goals. *FASEB Bioadv*. 2021;3(8):563–568. doi:10.1096/fba.2020-00117
87. Micah AE, Su Y, Bachmeier SD, et al. Health sector spending and spending on HIV/AIDS, tuberculosis, and malaria, and development assistance for health: progress towards Sustainable Development Goal 3. *Lancet*. 2020;396(10252):693–724. doi:10.1016/S0140-6736(20)30608-5
88. Murray CJL, Ikuta KS, Sharara F, et al. Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. *Lancet*. 2022;399(10325):629–655. doi:10.1016/S0140-6736(21)02724-0
89. Mora C, McKenzie T, Gaw IM, et al. Over half of known human pathogenic diseases can be aggravated by climate change. *Nat Clim Chang*. 2022;12(9):869–875. doi:10.1038/s41558-022-01426-1
90. The Lancet M. Climate change: fires, floods, and infectious diseases. *Lancet Microbe*. 2021;2(9):e415. doi:10.1016/S2666-5247(21)00220-2
91. Max R, Esteban OO, Hannah R. Life Expectancy. *Our World in Data*; 2013. Available from: <https://ourworldindata.org/life-expectancy>. Accessed February 25, 2023.
92. Chatterji S, Byles J, Cutler D, Seeman T, Verdes E. Health, functioning, and disability in older adults—present status and future implications. *Lancet*. 2015;385(9967):563–575. doi:10.1016/S0140-6736(14)61462-8
93. Zhou B, Carrillo-Larco RM, Danaei G, et al. Worldwide trends in hypertension prevalence and progress in treatment and control from 1990 to 2019: a pooled analysis of 1201 population-representative studies with 104 million participants. *Lancet*. 2021;398(10304):957–980.
94. Binegdie AB, Meme H, El Sony A, et al. Chronic respiratory disease in adult outpatients in three African countries: a cross-sectional study. *Int J Tuberc Lung Dis*. 2022;26(1):18–25. doi:10.5588/ijtld.21.0362
95. Salvi S, Kumar GA, Dhaliwal RS, et al. The burden of chronic respiratory diseases and their heterogeneity across the states of India: the Global Burden of Disease Study 1990–2016. *Lancet Glob Health*. 2018;6(12):e1363–e1374. doi:10.1016/S2214-109X(18)30409-1
96. Prabhakaran D, Jeemon P, Roy A. Cardiovascular Diseases in India: current Epidemiology and Future Directions. *Circulation*. 2016;133(16):1605–1620. doi:10.1161/CIRCULATIONAHA.114.008729
97. Elias MA, Pati MK, Aivalli P, et al. Preparedness for delivering noncommunicable disease services in primary care: access to medicines for diabetes and hypertension in a district in south India. *BMJ Glob Health*. 2017;2(Suppl 3):e000519. doi:10.1136/bmjgh-2017-000519
98. Watkins DA, Msemburi WT, Pickersgill SJ, et al. NCD Countdown 2030: efficient pathways and strategic investments to accelerate progress towards the sustainable development goal target 3.4 in low-income and middle-income countries. *Lancet*. 2022;399(10331):1266–1278. doi:10.1016/S0140-6736(21)02347-3
99. ICMR, PHFI, IHME. GBD 2019 India; 2021. Available from: <https://vizhub.healthdata.org/gbd-compare/india#>. Accessed February 25, 2023.
100. Solanki G, Kelly G, Cornell J, Geffen L, Doherty T. The need to incorporate the impact of population ageing into the post-COVID-19 policy and planning reset in low and middle income countries. *Glob Health Action*. 2021;14(1):1921351. doi:10.1080/16549716.2021.1921351
101. World Health Organization. UHC Service Coverage sub-index on noncommunicable diseases; 2021. Available from: <https://www.who.int/data/gho/data/indicators/indicator-details/GHO/uhc-sci-components-noncommunicable-diseases>. Accessed February 25, 2023.
102. Nguyen PT, Gilmour S, Le PM, et al. Trends in, projections of, and inequalities in noncommunicable disease management indicators in Vietnam 2010–2030 and progress toward universal health coverage: a Bayesian analysis at national and sub-national levels. *eClinicalMedicine*. 2022;51:101550. doi:10.1016/j.eclinm.2022.101550
103. World Health Organization. Countries that have passed legislation on Universal Health Coverage (UHC); 2017. Available from: [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/countries-that-have-passed-legislation-on-universal-health-coverage-\(uhc\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/countries-that-have-passed-legislation-on-universal-health-coverage-(uhc)). Accessed February 25, 2023.
104. World Bank. Domestic general government health expenditure (% of general government expenditure); 2022. Available from: <https://data.worldbank.org/indicator/SH.XPD.GHED.GE.ZS>. Accessed February 25, 2023.
105. Derkyi-Kwarteng ANC, Agyepong IA, Enyimayew N, Gilson L, Narrative Synthesis A. Review of out-of-pocket payments for health services under insurance regimes: a policy implementation gap hindering universal health Coverage in Sub-Saharan Africa. *Int J Health Policy Manag*. 2021;10(7):443–461. doi:10.34172/ijhpm.2021.38
106. Jayanthi TP, Suresh S, Padmanaban P. Primary health centres: preferred option for birthing care in tamilnadu, India, from users' perspectives. *J Health Popul Nutr*. 2015;33(1):177–186.
107. Masefield SC, Msosa A, Grugel J. Challenges to effective governance in a low income healthcare system: a qualitative study of stakeholder perceptions in Malawi. *BMC Health Serv Res*. 2020;20(1):1142. doi:10.1186/s12913-020-06002-x
108. Alsabri M, Alhadheri A, Alsakkaf LM, Cole J. Conflict and COVID-19 in Yemen: beyond the humanitarian crisis. *Global Health*. 2021;17(1):83. doi:10.1186/s12992-021-00732-1
109. Jones FK, Wamala JF, Rumunu J, et al. Successive epidemic waves of cholera in South Sudan between 2014 and 2017: a descriptive epidemiological study. *Lancet Planet Health*. 2020;4(12):e577–e587. doi:10.1016/S2542-5196(20)30255-2
110. Matthias AT, Jayasinghe S. Worsening economic crisis in Sri Lanka: impacts on health. *Lancet Glob Health*. 2022;10(7):e959. doi:10.1016/S2214-109X(22)00234-0
111. Khorram-Manesh A, Burkle FM, Goniewicz K, Robinson Y. Estimating the number of civilian casualties in modern armed conflicts—a systematic review. *Front Public Health*. 2021;9:765261. doi:10.3389/fpubh.2021.765261
112. Rasul G, Nepal AK, Hussain A, et al. Socioeconomic Implications of COVID-19 Pandemic in South Asia: emerging Risks and Growing Challenges. *Front Sociol*. 2021;6:629693. doi:10.3389/fsoc.2021.629693
113. World Health Organization. More than half a billion people pushed or pushed further into extreme poverty due to health care costs; 2021. Available from: <https://www.who.int/news/item/12-12-2021-more-than-half-a-billion-people-pushed-or-pushed-further-into-extreme-poverty-due-to-health-care-costs>. Accessed April 3, 2023.
114. Sánchez-Páramo C, Hill R, Mahler DG, et al. COVID-19 Leaves a Legacy of Rising Poverty and Widening Inequality In. World Bank Blogs; 2021.
115. Sethi M, Creutzig F. COVID-19 recovery and the global urban poor. *Npj Urban Sustainability*. 2021;1(1):23. doi:10.1038/s42949-021-00025-x
116. Centre for Policy Research. The Evolution of India's Welfare System, 2008 to 2023. The Wire; 2023.
117. UNESCO, World Bank. *Education Finance Watch*. UNESCO, The World Bank; 2022.

118. Garg S, Bebartta KK, Tripathi N. Role of publicly funded health insurance in financial protection of the elderly from hospitalisation expenditure in India-findings from the longitudinal aging study. *BMC Geriatr.* **2022**;22(1):572. doi:10.1186/s12877-022-03266-2
119. Christmals CD, Aidam K. Implementation of the National Health Insurance Scheme (NHIS) in Ghana: lessons for South Africa and low- and middle-income countries. *Risk Manag Healthc Policy.* **2020**;13:1879–1904. doi:10.2147/RMHP.S245615
120. Sahoo KC, Sahay MR, Dubey S, et al. Community engagement and involvement in managing the COVID-19 pandemic among urban poor in low-and middle-income countries: a systematic scoping review and stakeholders mapping. *Glob Health Action.* **2023**;16(1):2133723. doi:10.1080/16549716.2022.2133723
121. Jagannathan A, Thekkumkara SN, Thirthalli J, Kasi S, Community Participation A. Initiative During COVID-19 Pandemic: a Case Study From India. *Indian J Psychol Med.* **2021**;43(2):154–157. doi:10.1177/0253717621991012
122. Perry HB, Hodgins S. Health for the people: past, current, and future contributions of national community health worker programs to achieving global health goals. *Glob Health Sci Pract.* **2021**;9(1):1–9. doi:10.9745/GHSP-D-20-00459
123. Hodgins S, Kok M, Musoke D, et al. Community health workers at the Dawn of a new era: 1. Introduction: tensions confronting large-scale CHW programmes. *Health Res Policy Syst.* **2021**;19(3):109. doi:10.1186/s12961-021-00752-8
124. Perry HB, Chowdhury M, Were M, et al. Community health workers at the Dawn of a new era: 11. CHWs leading the way to “Health for All”. *Health Res Policy Syst.* **2021**;19(Suppl 3):111. doi:10.1186/s12961-021-00755-5
125. Whitelaw S, Mamas MA, Topol E, Van Spall HGC. Applications of digital technology in COVID-19 pandemic planning and response. *Lancet Digital Health.* **2020**;2(8):e435–e440. doi:10.1016/S2589-7500(20)30142-4
126. Gudi N, Konapur R, John O, Sarbadhikari S, Landry M. Telemedicine supported strengthening of primary care in WHO South East Asia region: lessons from the COVID-19 pandemic experiences. *BMJ Innovat.* **2021**;7:3. doi:10.1136/bmjinnov-2021-000699
127. Babatunde AO, Abdulkareem AA, Akinwande FO, et al. Leveraging mobile health technology towards Achieving Universal Health Coverage in Nigeria. *Public Health Res Pract.* **2021**;2:100120. doi:10.1016/j.puhp.2021.100120
128. Ahmed SM, Naher N, Tune S, Islam BZ. The Implementation of National Action Plan (NAP) on Antimicrobial Resistance (AMR) in Bangladesh: challenges and lessons learned from a cross-sectional qualitative study. *Antibiotics.* **2022**;11:5.
129. Hanson K, Briki N, Erlangga D, et al. The Lancet Global Health Commission on financing primary health care: putting people at the centre. *Lancet Glob Health.* **2022**;10(5):e715–e772. doi:10.1016/S2214-109X(22)00005-5
130. Vande Maele N, Xu K, Soucat A, Fleisher L, Aranguren M, Wang H. Measuring primary healthcare expenditure in low-income and lower middle-income countries. *BMJ Glob Health.* **2019**;4(1):e001497. doi:10.1136/bmjgh-2019-001497
131. Stenberg K, Hanssen O, Bertram M, et al. Guide posts for investment in primary health care and projected resource needs in 67 low-income and middle-income countries: a modelling study. *Lancet Glob Health.* **2019**;7(11):e1500–e1510. doi:10.1016/S2214-109X(19)30416-4
132. Lahariya C. Health & wellness centers to strengthen primary health care in India: concept, progress and ways forward. *Indian J Pediatr.* **2020**;87(11):916–929. doi:10.1007/s12098-020-03359-z
133. Government of India. National Health Policy 2017. In: *New Delhi: Ministry of Health and Family Welfare.* Government of India; **2017**.
134. Lahariya C. ‘Ayushman Bharat’ Program and Universal Health Coverage in India. *Indian Pediatr.* **2018**;55(6):495–506. doi:10.1007/s13312-018-1341-1
135. Ved RR, Gupta G, Singh S. India’s health and wellness centres: realizing universal health coverage through comprehensive primary health care. *WHO South East Asia J Public Health.* **2019**;8(1):18–20. doi:10.4103/2224-3151.255344
136. Bitton A, Ratcliffe HL, Veillard JH, et al. Primary health care as a foundation for strengthening health systems in low- and middle-income countries. *J Gen Intern Med.* **2017**;32(5):566–571. doi:10.1007/s11606-016-3898-5
137. Okungu V, Chuma J, McIntyre D. The cost of free health care for all Kenyans: assessing the financial sustainability of contributory and non-contributory financing mechanisms. *Int J Equity Health.* **2017**;16(1):39. doi:10.1186/s12939-017-0535-9
138. Langlois EV, McKenzie A, Schneider H, Mecaskey JW. Measures to strengthen primary healthcare systems in low- and middle-income countries. *Bull World Health Organ.* **2020**;98(11):781–791. doi:10.2471/BLT.20.252742
139. Lahariya C, Sundararaman T, Ved RR, et al. What makes primary healthcare facilities functional, and increases the utilization? Learnings from 12 case studies. *Fam Med Prim Care Rev.* **2020**;9(2):539–546. doi:10.4103/jfmpc.jfmpc_1240_19
140. Assegaai T, Reagon G, Schneider H. Evaluating the effect of ward-based outreach teams on primary healthcare performance in North West Province, South Africa: a plausibility design using routine data. *S Afr Med J.* **2018**;108(4):329–335. doi:10.7196/SAMJ.2017.v108i4.12755

Risk Management and Healthcare Policy

Dovepress

Publish your work in this journal

Risk Management and Healthcare Policy is an international, peer-reviewed, open access journal focusing on all aspects of public health, policy, and preventative measures to promote good health and improve morbidity and mortality in the population. The journal welcomes submitted papers covering original research, basic science, clinical & epidemiological studies, reviews and evaluations, guidelines, expert opinion and commentary, case reports and extended reports. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/risk-management-and-healthcare-policy-journal>