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WHAT HAS COVID-19 TAUGHT US ABOUT ASIA'S HEALTH EMERGENCY PREPAREDNESS AND RESPONSES?

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Introduction

- This report highlights the lessons learned from the pandemic to inform preparedness and responses to health emergencies.
 - It systematically examines the elements of health emergency preparedness,
 - highlights data limitations that constrained countries' ability to rapidly evaluate and adapt their policies during the pandemic,
 - measure the cost-effectiveness of both pharmaceutical and non-pharmaceutical interventions.
- The report is necessarily limited in scope.
 - It focuses on key technical lessons from the recent pandemic, particularly on areas where ADB support could offer useful facilitation.

It does not attempt to offer a comprehensive analysis of all elements of the COVID-19 response, many of which are highly political, context-specific, and remain contested even after several years.
 - While the analyses and lessons focused on Asia and the Pacific, the recommendations are useful for policymakers in other regions.

Outline

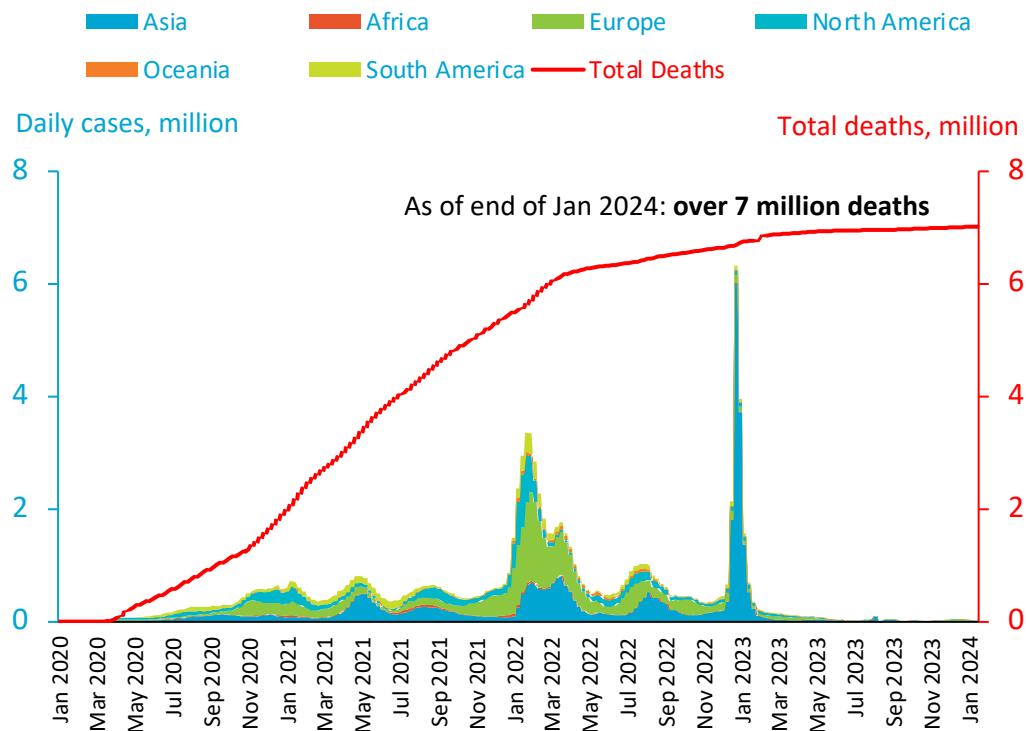
- **COVID-19 Inflicted Enormous Costs**
- Elements of Health System Preparedness
- Data Limitations Weakened the COVID-19 Responses
- What Have We Learned about COVID-19 Responses?

The pandemic caused significant loss of life and affected the economy

The COVID-19 pandemic had a dramatic impact on lives and livelihoods.

GDP dropped well below trend in 2020 and had not recovered back to trend even by 2023.

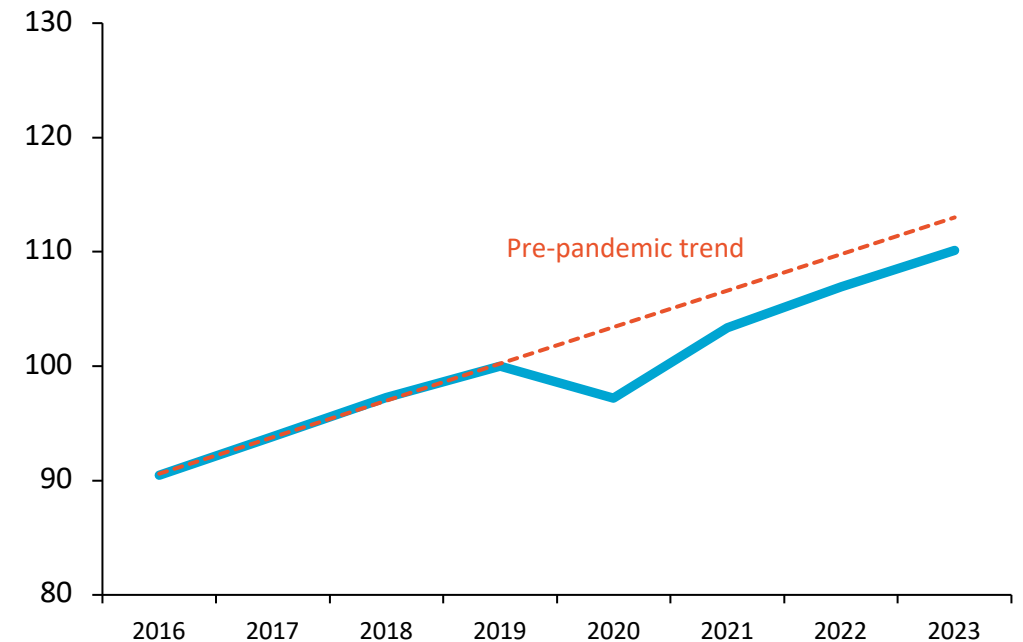
New COVID-19 cases and Deaths



Source: Our World in Data.

Global and regional GDP relative to pre-pandemic trends

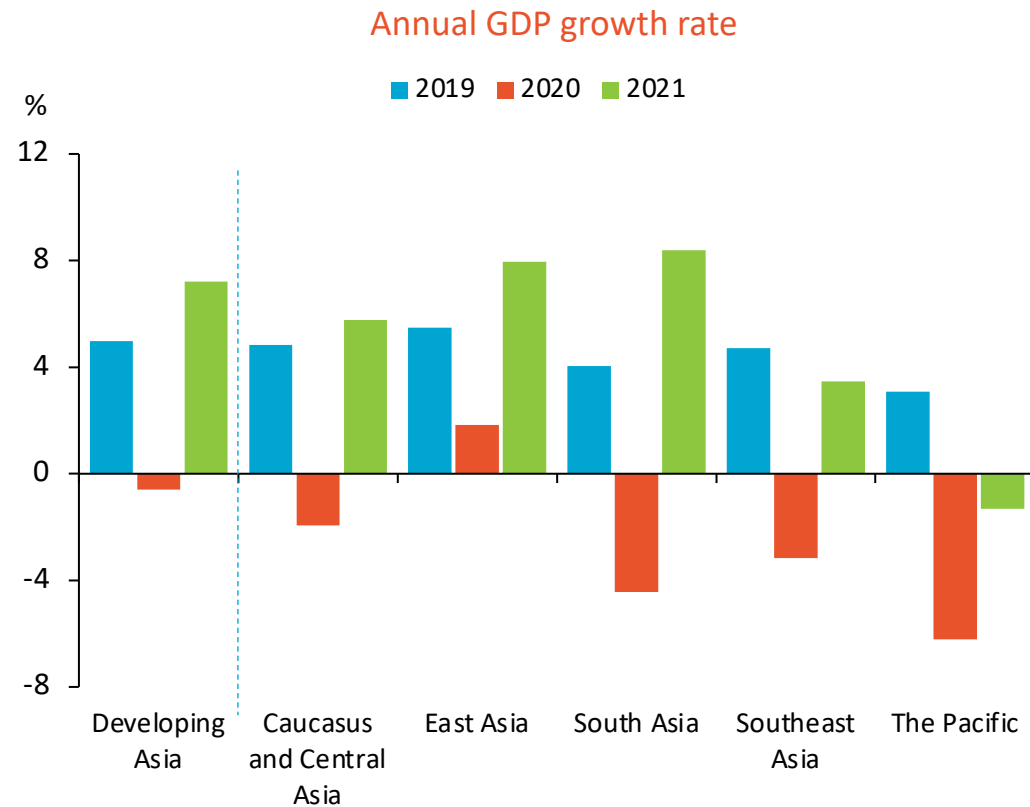
GDP level, 2019=100



Source: Asian Development Bank estimates using data from IMF World Economic Outlook October 2023 database.

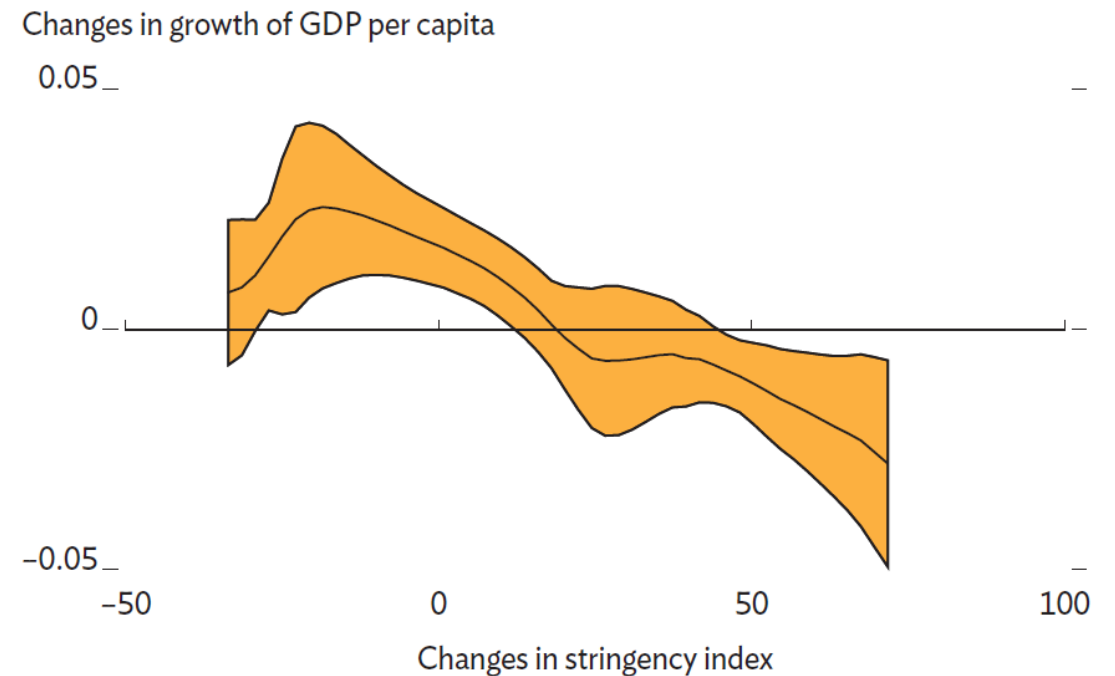
COVID-19 policy responses imposed substantial economic costs

Prior to vaccines, authorities relied on NPIs, which negatively affected developing Asia.



NPI stringency suppressed output and did not necessarily promote faster recovery.

Mobility restrictions and GDP per capita

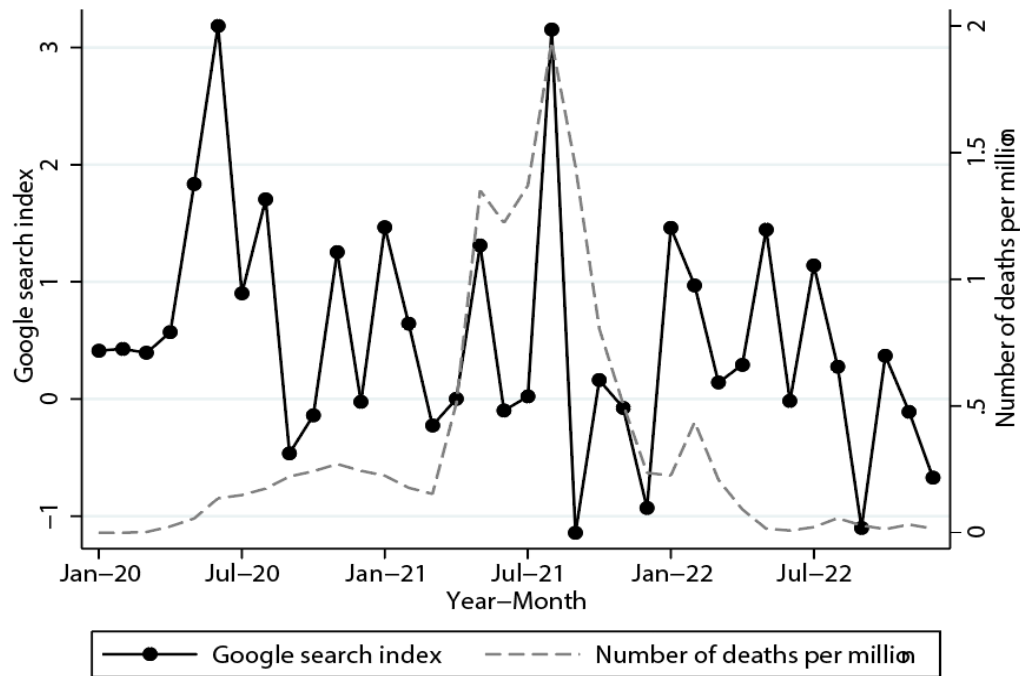


Sources: Kim et. al 2024b, Our World in Data, World Bank's World Development Index, Oxford COVID-19 Government Response Tracker, 2020–2021.

COVID-19 imposed a heavy toll on psychological wellbeing

Depressive symptoms surged significantly during the first and the second waves of COVID-19.

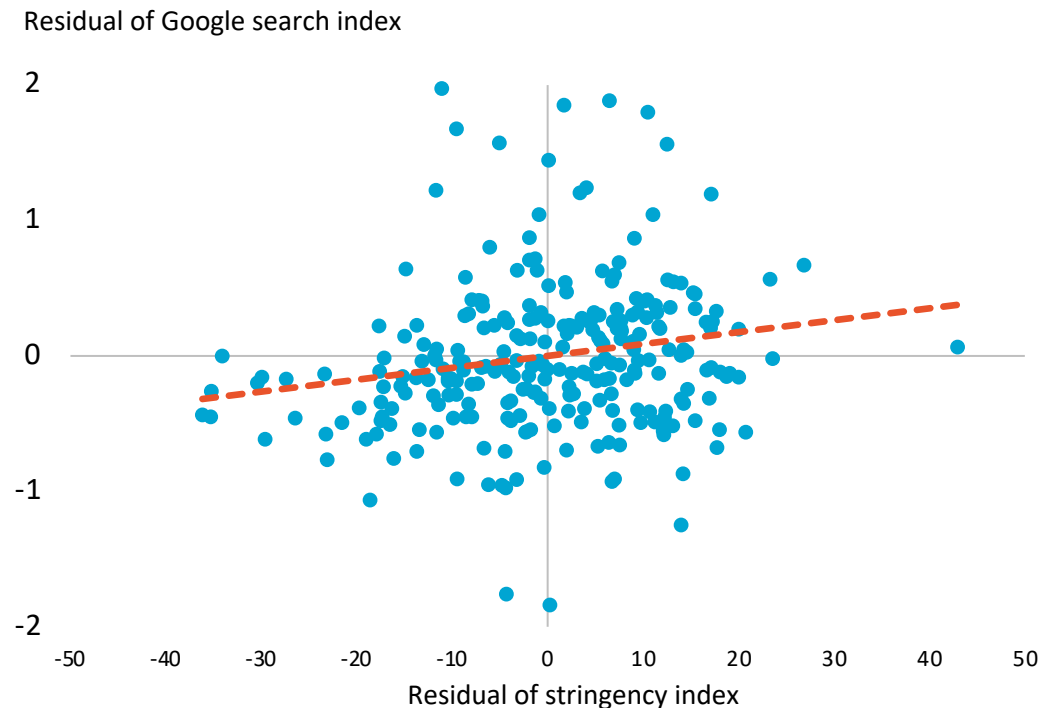
Trends of Google Search Index data on depressive symptoms and number of deaths per million during COVID-19



Sources: Kim et. al 2024a, Google's Search Index Data on Depressive symptoms (eight Asian economies) and Oxford COVID-19 Government Response Tracker.

Depressive symptoms worsen with stricter NPIs.

Google Search Index on Depression Symptoms and COVID-19 Stringency Index

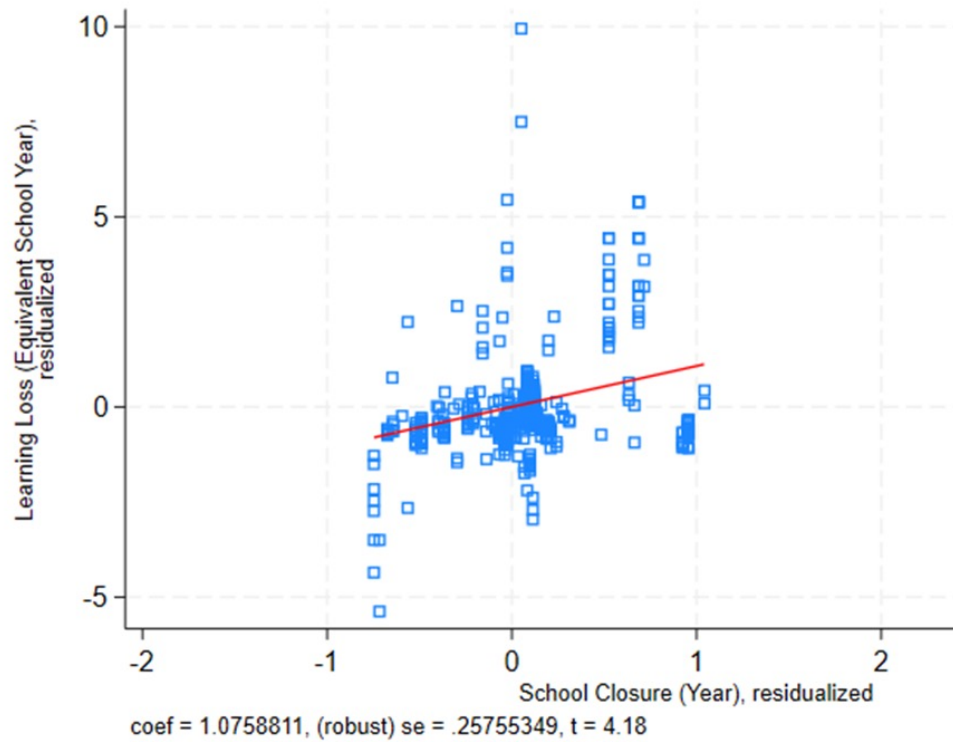


Sources: Kim et. al 2024a, Google Trend Data (eight economies) and Oxford COVID-19 Government Response Tracker.

School Closures Had a Devastating Impact on Learning

The longer the school closes, the larger the learning loss.

COVID-19 School Closures and Learning Loss



Source: ADB staff estimates using data from Dela Cruz et al. (2024).

- COVID-19 resulted in the longest school closures in recent history.
- School closures led to significant learning loss, which hurts future economic prospects by potentially lowering permanent income.
- The school closures also aggravated pre-existing learning poverty and widened learning gaps.

Outline

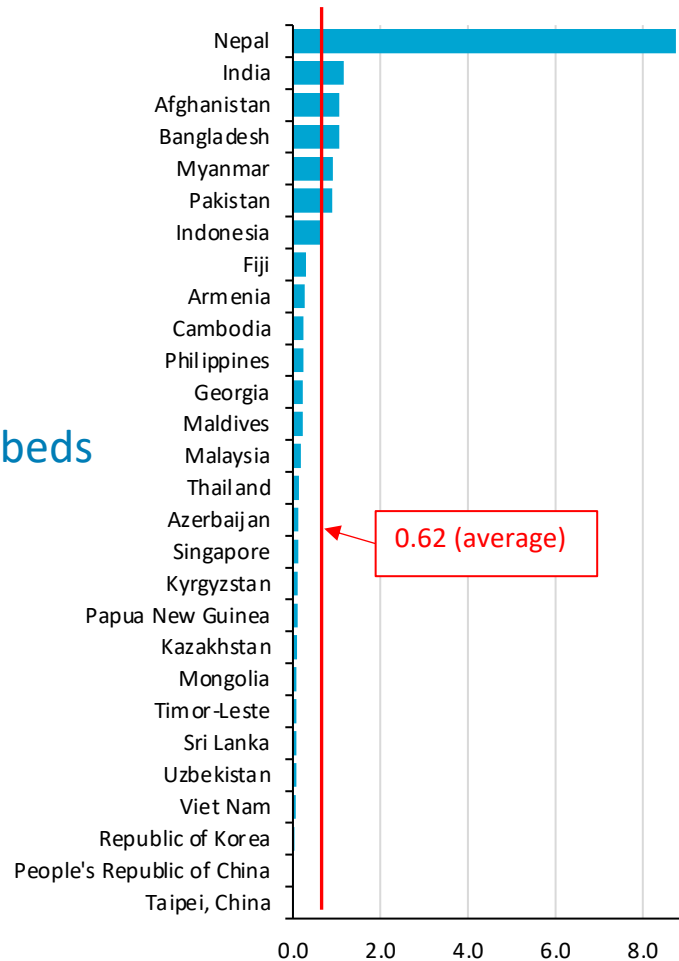
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Health Systems were Unprepared for COVID-19

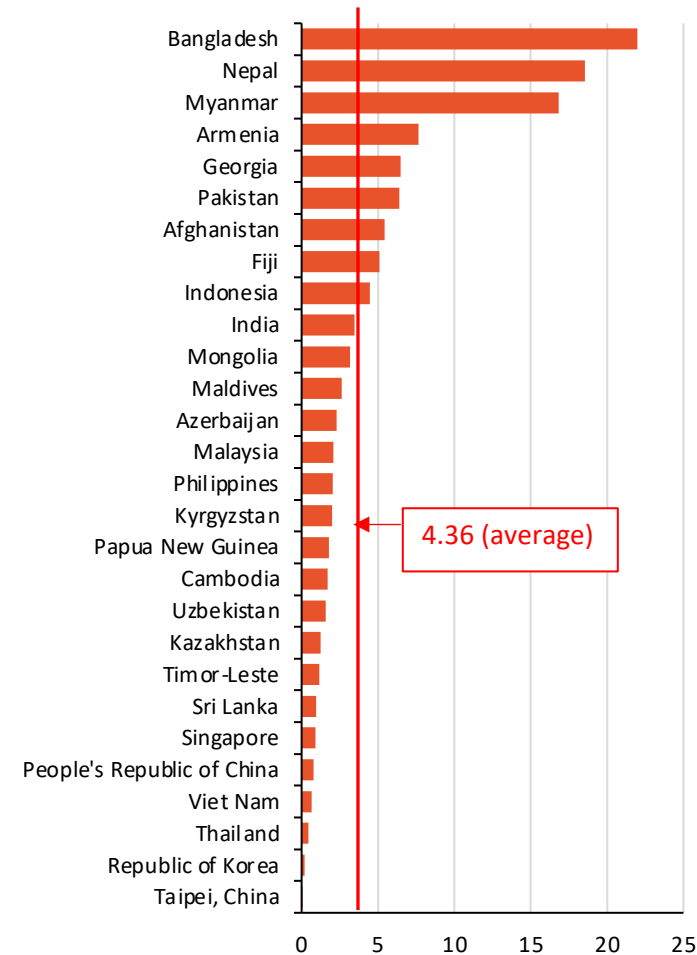
Availability of health system infrastructure varied across the region, but all were mostly under severe pressure during the peak of COVID-19 infections.

Hospital and ICU beds needed during the peak of COVID-19 infections in Asia

Hospital beds

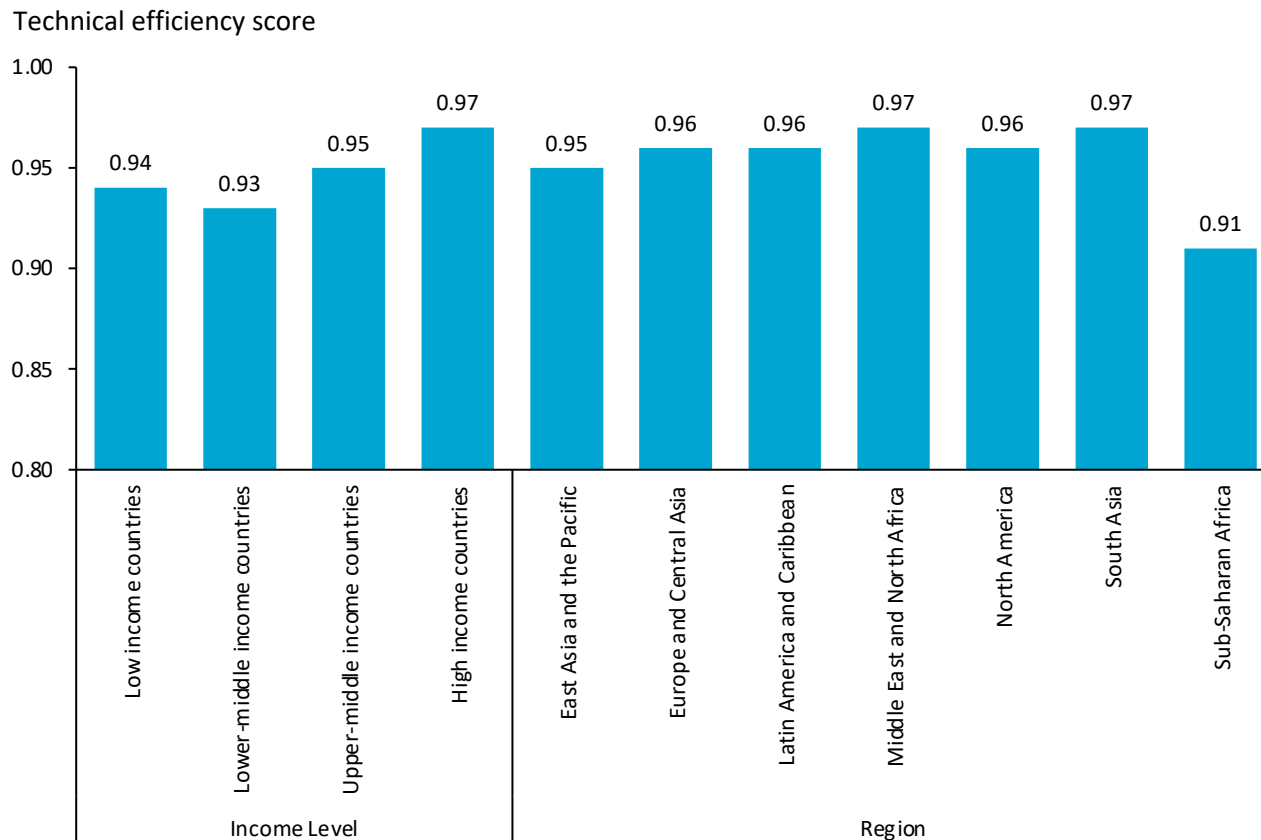


ICU beds



A key element of health system preparedness is its efficiency

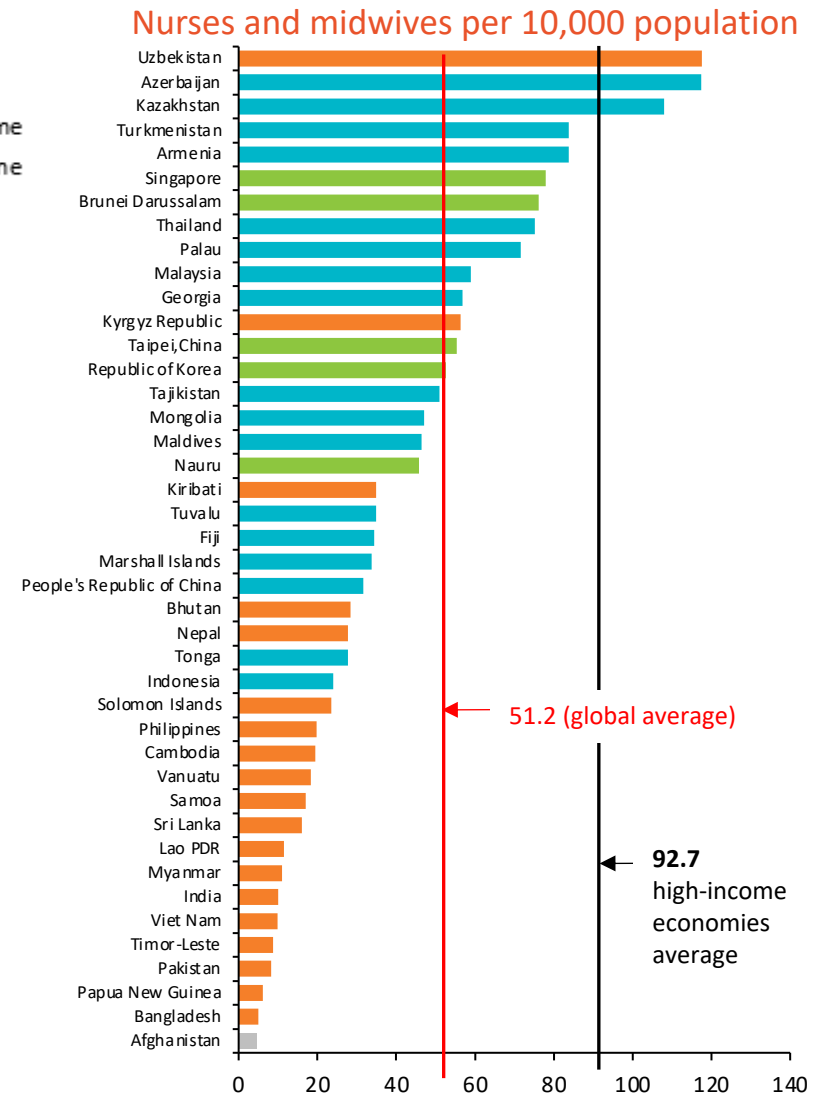
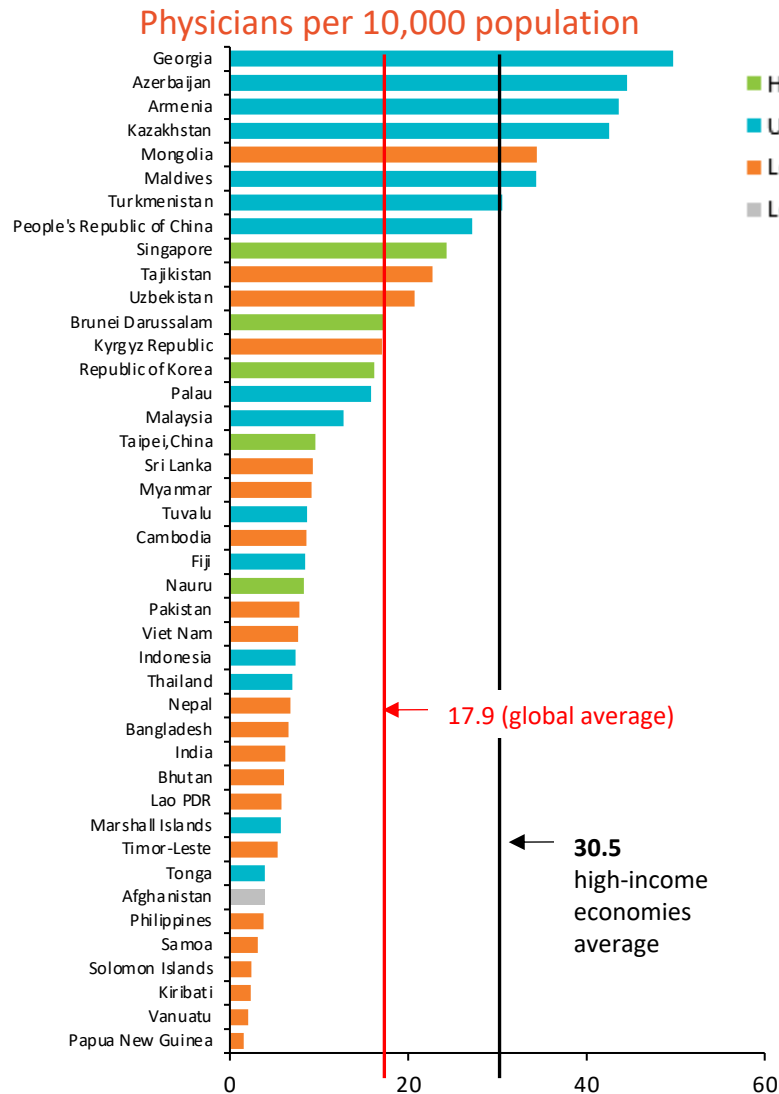
Richer countries tend to have better healthcare system efficiency.



The technical efficiency of health systems is measured for 189 economies across the world using pre-COVID-19 data.

- **Input variables:** health expenditure per capita, hospital beds per 1,000 people, and medical doctors per 10,000 people.
- **Output variables:** life expectancy at birth and the infant mortality rate.

Shortage of health care workers compromised health system efficiency

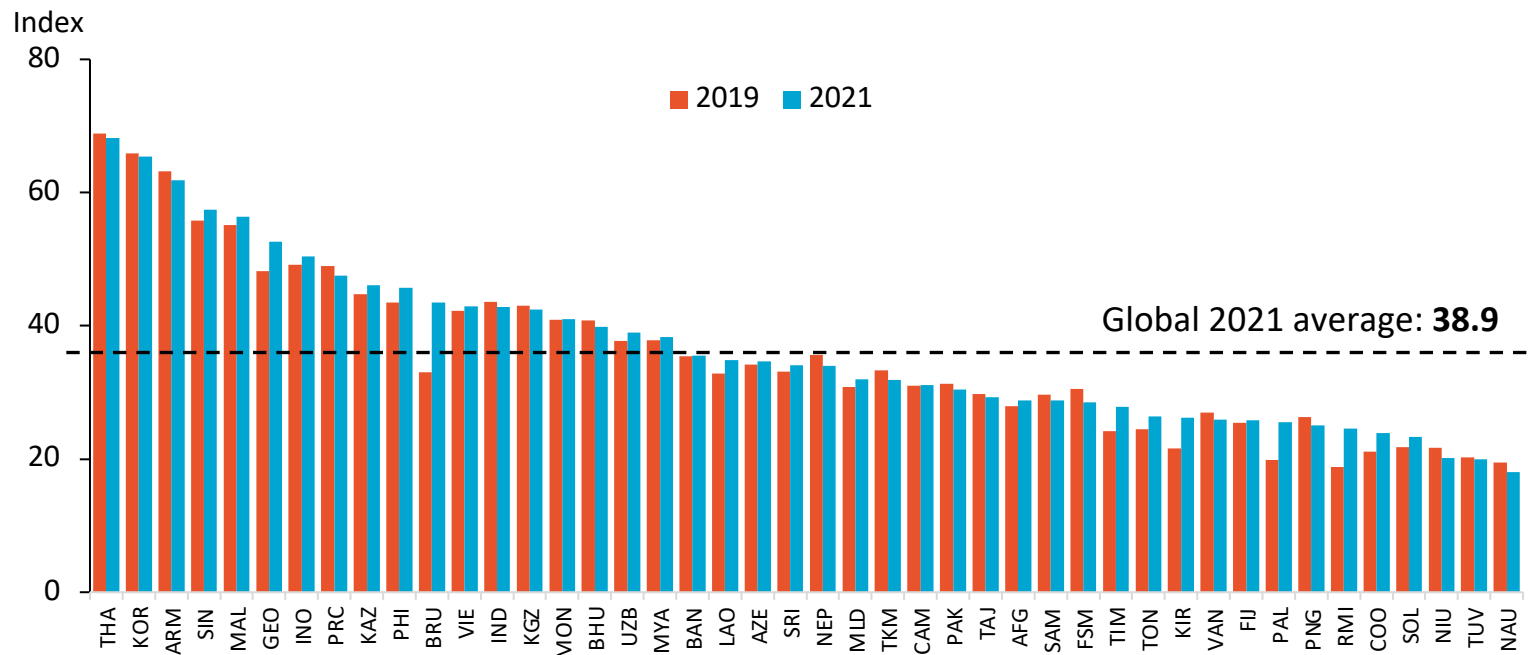


Source: Sy et al. 2024.

Surge capacity is limited but an effective primary health system can help serve non-critical patients

Health security capacity varied substantially across the region and did not improve much by 2021.

Global Health Security Index Overall Scores, Developing Asia



Some countries were able to address their health system limitations.

- They relied on technology, such as telemedicine and mobile-based contact tracing.
- Some repurposed industrial oxygen for medical use.
- Combined with telemedicine, effective primary health systems can treat patients with mild symptoms.
- Primary Health System improves population health, reduces co-morbidity risks, and is also the first line of defense during health emergencies.

The GHS Index includes six categories (prevention; detection and reporting; rapid response; health systems; commitments to improving national capacity, financing, and global norms; and risk environment).

Source: Global Health Security Index; Bell and Nuzzo (2021).

Access to medical countermeasures is crucial

Many countries do not have the manufacturing capacity or approval process in place for producing medical countermeasures, such as surgical masks and oxygen, during emergencies

Vaccines distributed unequally across the globe.

Access to procure vaccines varied widely across economies.

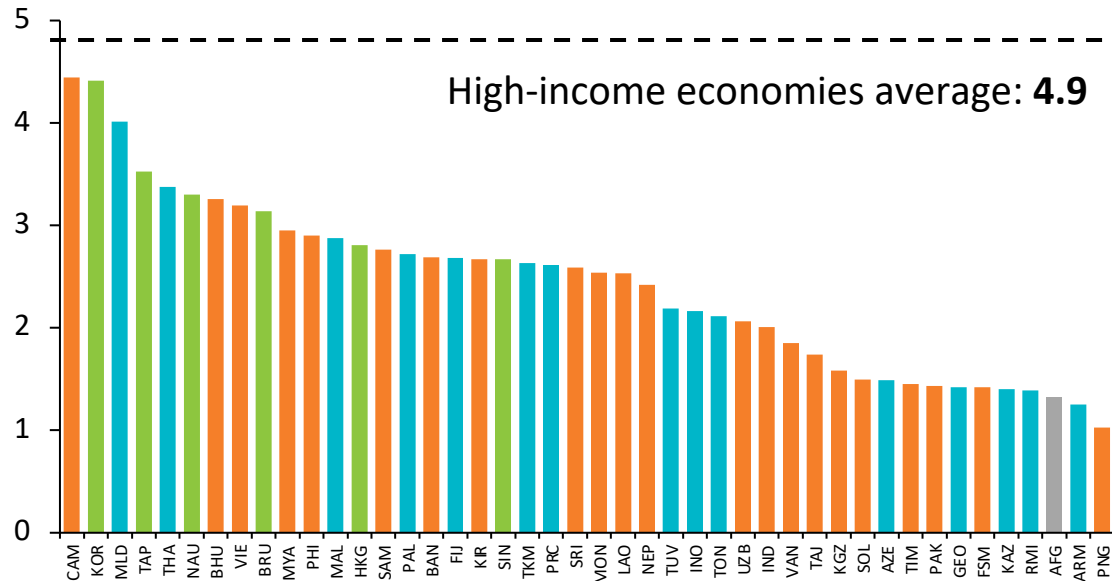
Secured and/or Expected Vaccines, Developing Asia

Deal/Report Date of Initial Bilateral Deals for Vaccine Supply, Developing Asia

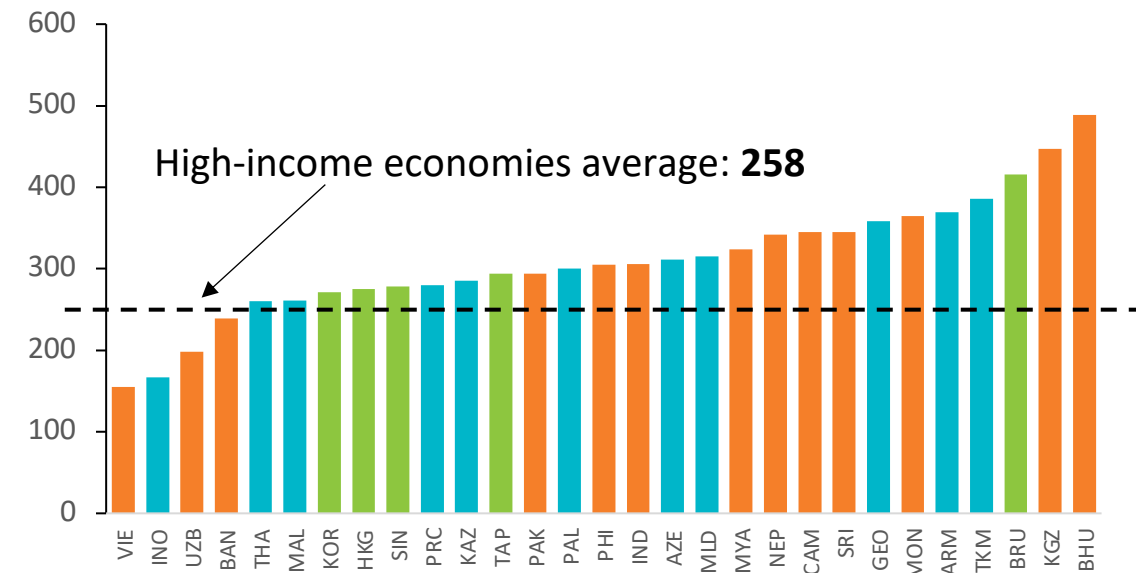
■ Low income ■ Lower-middle income ■ Upper-middle income ■ High income

■ Lower-middle income ■ Upper-middle income ■ High income

Vaccine per population



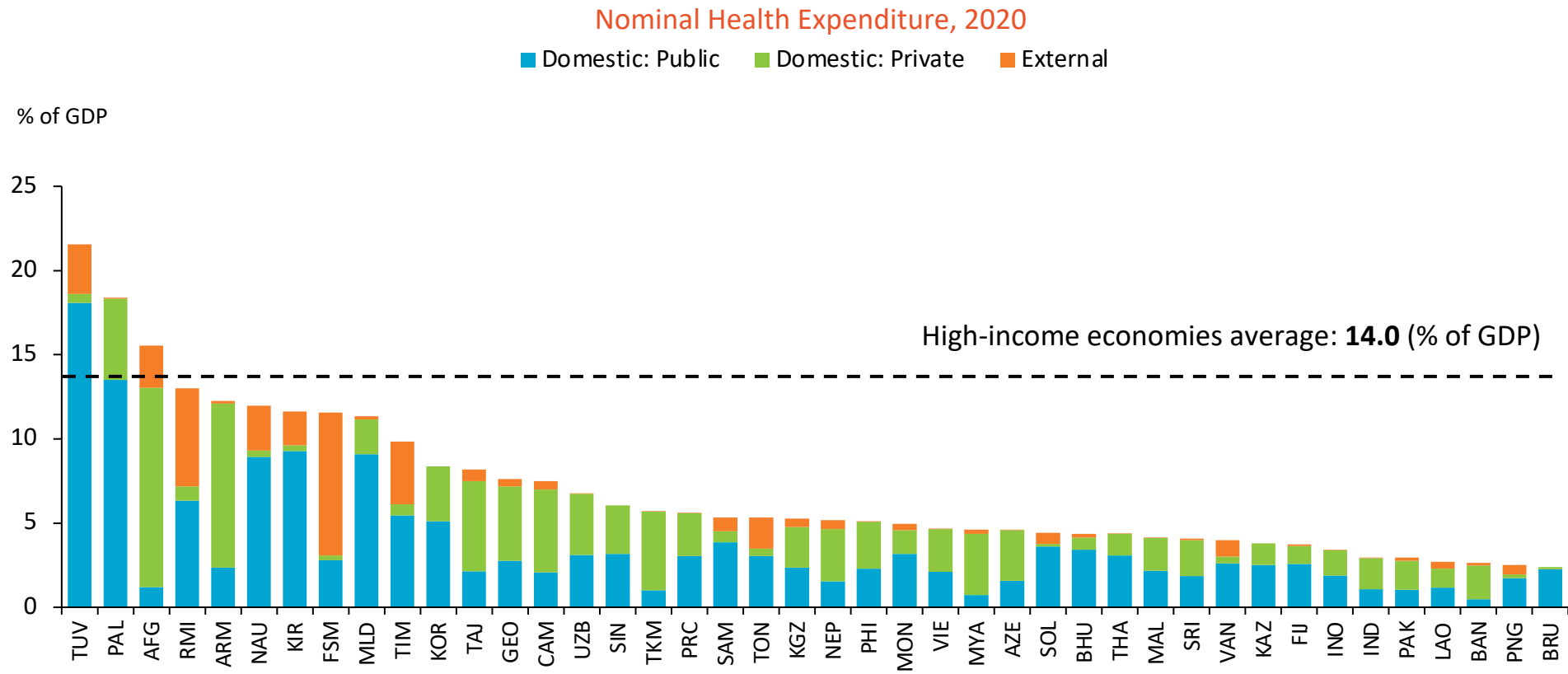
Number of days from WHO classification of COVID-19 as a pandemic



Source: IMF-WHO COVID-19 Vaccine Tracker; updated 31 August 2022; (Tabuga 2024).

Health emergency preparedness requires long-term financial investment

A large gap exists in the level and sources of health spending among ADB's developing members



Source: World Development Indicator, World Bank.

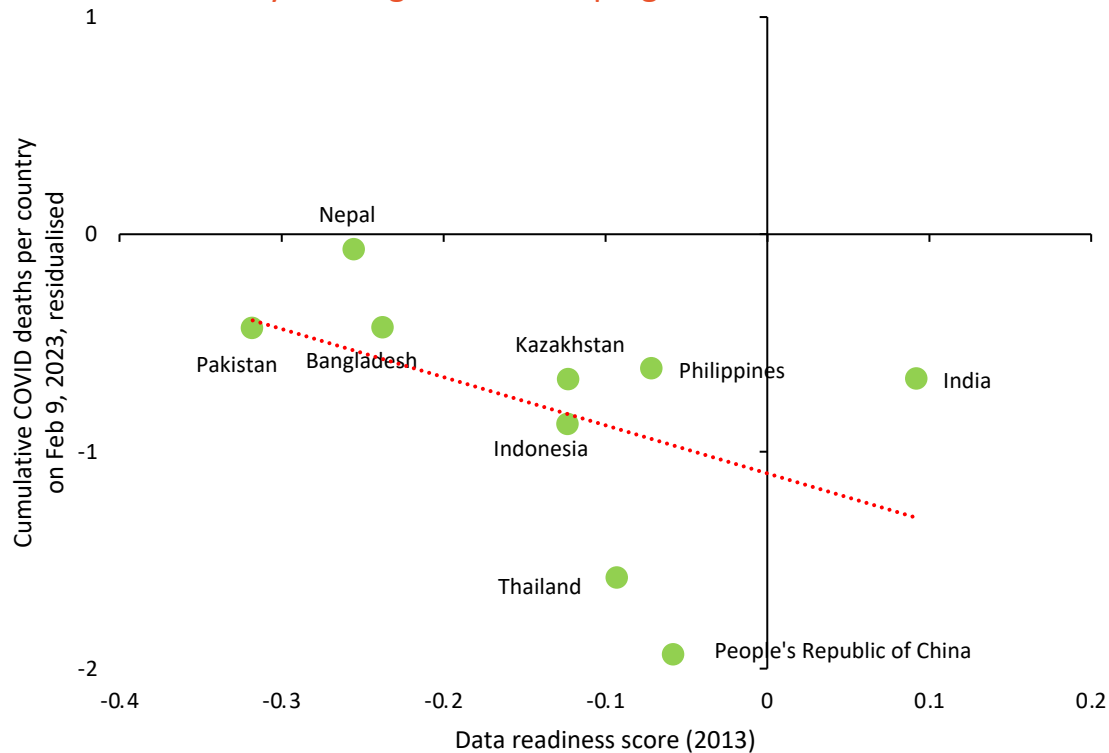
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Data is the foundation of evidence-based policymaking

Better data infrastructure was associated with lower severity of the pandemic.

Association between 2013 Data Readiness and Cumulative COVID-19 Mortality among ADB Developing Member Economies

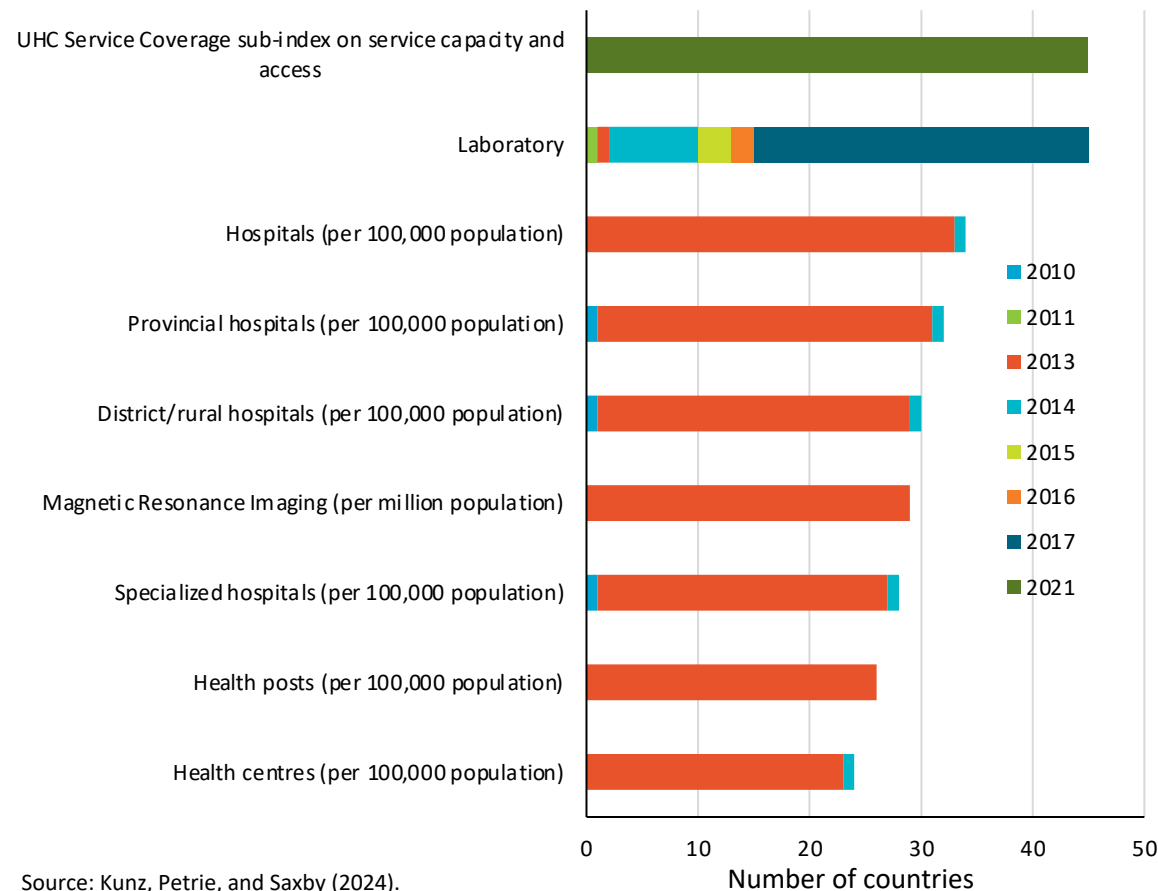


- Data are needed for ex-ante prediction and ex-post evaluations of policies, as well as course correction
- There is a suggestive negative correlation between data readiness and cumulative COVID-19 deaths.

In many ADB DMCs, health-related data are outdated or missing

Data on health system capacity are scant and, in many cases outdated.

Coverage and Latest Year Data Availability on Health Service Delivery



Source: Kunz, Petrie, and Saxby (2024).

- Of 46 ADB developing member economies, only between 20 to 30 economies provide official data on the number of health facilities or equipment. In many of these economies, the most recent data are more than a decade old.
- The rapidly evolving nature of COVID-19 combined with data deficiencies significantly compromised the effectiveness of responses.
 - Wrong policy decisions, lack of/late course correction
 - Erodes public trust, fueling a vicious cycle of worse data quality

Outline

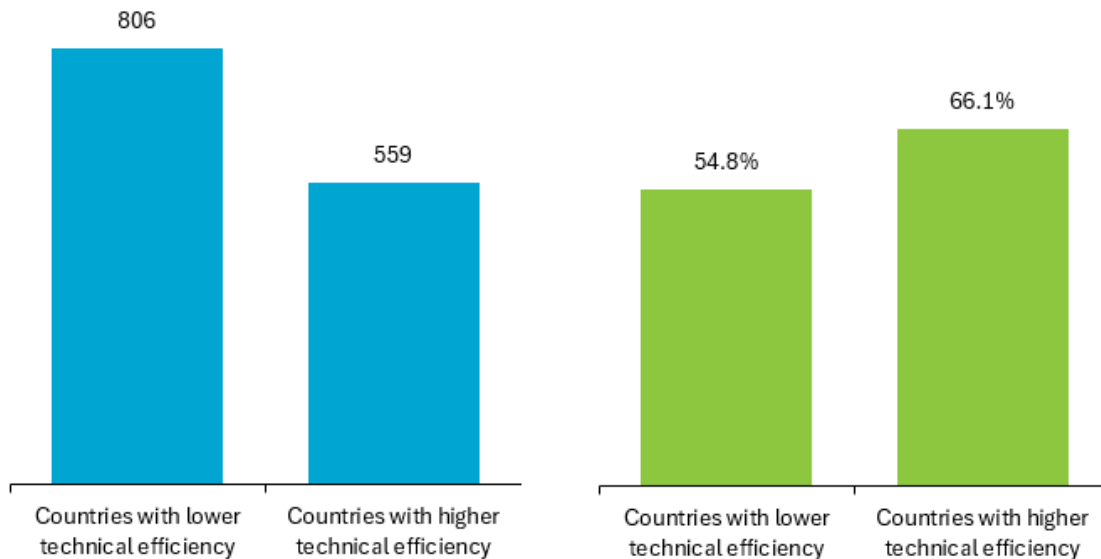
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From the early responses

Higher efficiency levels lead to better identification and treatment, and thus less deaths.

Excess deaths (per million population), 2021-2022

Vaccination coverage (% of population), 2022



Excess deaths = COVID-19 deaths + deaths indirectly associated with COVID-19 (e.g., impacts on health systems, behaviors change) - deaths under normal circumstances.

Source: Ahmed, et al. (2024)

- To buy time, many governments implemented strict NPIs.
 - Trust in scientists and government is a key determining factor of the population's adherence to these interventions
- Better health system quality led to better management of the pandemic.
- Data-driven decision-making is critical in formulating more effective responses.

Cost-effectiveness of Policy Responses

Vaccinations outperformed non-pharmaceutical measures in cost-effectiveness.

Cost-effectiveness of Vaccines and Non-Pharmaceutical Interventions during COVID-19

	Vaccinations	Mask wearing	School closure	Mobility restrictions	
				Strict	Partial
Bangladesh	0.52	8.61	6.23	1.37	0.10
Georgia	0.09	0.47	0.63	10.86	17.24
Republic of Korea	0.37	3.61	43.32	0.37	0.41
Thailand	0.14	0.10	0.10	1.77	0.06
Uzbekistan	0.02	0.48	3.49	0.71	1.24

- In general, pharmaceutical interventions were more cost-effective than non-pharmaceutical ones.
- The cost implications of policy interventions vary across economies and depend on their specific factors.
 - Mask-wearing is relatively less cost-effective for lower-income economies due to the high costs of mask distribution.
 - Mobility restrictions tend to be more cost-effective in economies with high population density.
- Mixing policy interventions can be more cost-effective than applying just individual measures.
 - The financial capacity to deliver packages of policy measures will also depend on the economy's level of income.

Source: Calculated from Shimul et al. (2024).

Key Policy Takeaways

- **The lessons from the COVID-19 pandemic underscored the importance of prioritizing investments in healthcare infrastructure and preparedness.** Policymakers are urged to conduct comprehensive evaluations and implement improvements, particularly in addressing surge capacity limitations and establishing robust stockpiling strategies for essential medical counter measures.
- **Strengthen data infrastructure, harness available administrative data, and put supporting regulations for data sharing.** These three aspects are the foundation that would allow researchers and government agencies access to more data, conduct more accurate analysis, and inform better policies and decisions.
- **Rely on flexibility, innovation, and collaboration in future health emergencies.** These aspects require an adequately funded healthcare system, well-equipped infrastructure, and motivated and skilled personnel. Successful implementation of pandemic response programs was attributed to broad partnerships, close coordination, flexibility, and risk-taking.



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