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Building Resilient Health Systems in Latin America and the Caribbean

Lessons Learned from the COVID-19 Pandemic

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December 2022

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Report No: AUS0003188

Publication design: Danielle Willis

Executive Summary

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More than two years into the pandemic, the evidence is clear: COVID-19 has unleashed an unprecedented socioeconomic and health crisis, and devastated communities across Latin America and the Caribbean (LAC). Fundamental changes must be initiated to strengthen health systems to regain lost ground and avoid similar losses in the future.

A better recovery is imperative, but it will be challenging and will require innovation to better prepare for future crises, implementing effective universal health coverage and improving human capital outcomes.

This report summarizes key findings about the pandemic's impacts on health across the region. Drawing from a range of sources including World-Bank conducted research and phone surveys as well as research by partner organizations, governments, and academic experts, the first three chapters investigate three areas of impact: impacts on societies, impacts on people, and impacts on health systems. It then builds on those insights in a final chapter that maps out a five-pillar action plan and smart investments for decision-makers to consider in charting a way forward to build resiliency in health systems and improve health outcomes for all.

With an eye to usability for busy policy makers and practitioners, each chapter begins with a one-page graphics-based overview that summarizes key findings and action points—providing users with a visually rich snapshot to guide both consideration of the details presented in this report and also subsequent discussions to determine best courses of action for a given country. The balance of this executive summary section brings together much of the content of those one-pagers, looking first at the impacts of the pandemic and then turning to the way forward for health systems to enhance recovery and resilience.

Summary of Impacts

On Societies

unleashed an unprecedented socioeconomic and health crisis, devastated communities

On People

disrupted access to essential health care services and increased existing inequities in access, threatening future health and productivity

On Health Systems

preyed on pre-existing structural weaknesses and uncovered new challenges, but also catalyzed promising innovations

On Societies

Underinvestment in public health before the pandemic left systems in LAC severely underprepared and oriented towards curative care.

13% of world's cases — While home to only 8.5 percent of the world's population, the region accounted for 13 percent of all cases (July 2022).

Highest **excess mortality** in Peru, Mexico, Ecuador, and Bolivia, with a steepening curve in Bolivia.

Adaptations to meet high COVID-19 demands have caused **setbacks in health outcomes.**

Lack of preparedness prompted a government response to COVID-19 that worsened economic performance in LAC.

GDP — LAC GDP contraction in 2020 hit 7 percent—the largest in the last 100 years and the worst worldwide.

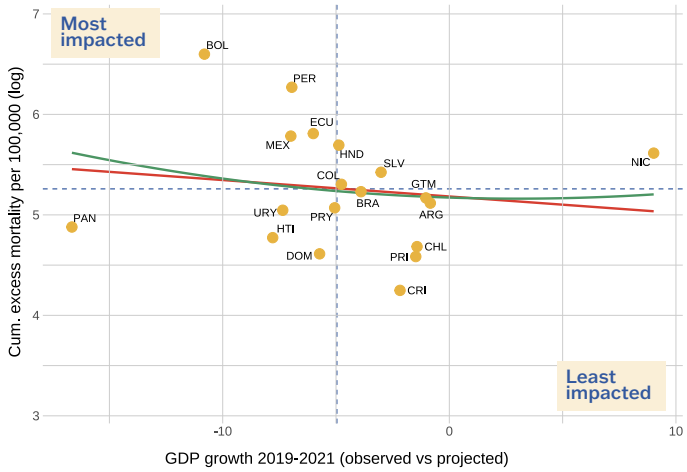
By mid-2020, Argentina, Chile, Costa Rica, and Mexico registered **20 percent drops in employment**; by 2021, almost **20 million people had left the labor force.**

The pandemic triggered a profound shock to the education sector which is critical to both quality of life and national long-term economic productivity and development.

Students risk **losing an amount equal to 14 percent of today's global GDP** due to school closures.

Unprecedented negative impacts on children's safety, health, and well-being (feeding programs, mental health, violence).

COVID-19 Excess Mortality Rate per 100,000 (2020–2021) and GDP Growth 2019–2021 (observed vs. projected)



Sources: COVID-19 Excess Mortality Collaborators 2022; IMF 2019; IMF 2022.

Note: GDP = gross domestic product.

On People

Declines in people accessing health services (evidence from phone surveys in 14 LAC countries)

The main reason people did not seek care was **healthcare system supply constraints** such as the lack of staff, appointments or supplies, and facility closures.

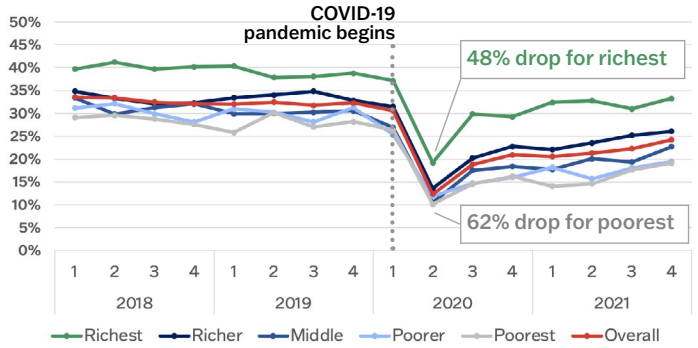
Inequities exacerbated and financial protection in health worsened (evidence from Peru)

14% At the end of 2021, healthcare use was 14 percent below pre-pandemic levels for the richest quintile and 32 percent lower for the poorest quintile.

Service disruptions across the life course with longer-term health effects for children and youth, adults, and older people.

Children	Decreases in vaccine coverage, childhood nutrition programs, and primary care services
Adults	Decreases in key services and care (e.g., diabetes and cardiovascular diseases)
Older People	Decreases in key services and care (e.g., cancer screening)

Formal Healthcare Use Among Population with Illness Symptoms in the Past Month



Source: Perú Instituto Nacional de Estadística e Informática n.d.b.

On Health Systems

Negative impacts: already known structural weaknesses exacerbated by the pandemic.

- System fragmentation
- Financial constraints
- Limitations in human resources and infrastructure
- Shortcomings in public perceptions

Negative impacts: newly exposed weaknesses, including significant service delivery disruptions.

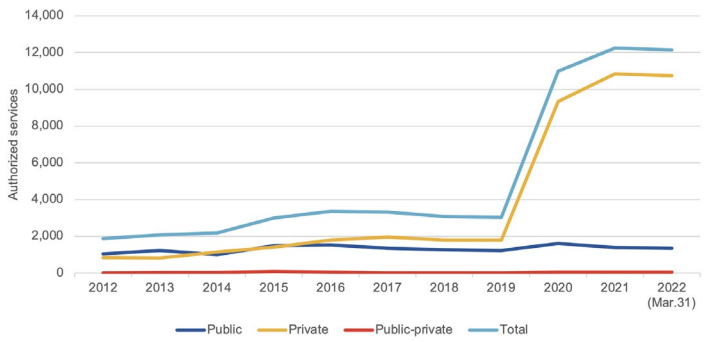
Countries with the greater pre-existing shortfalls in health system management had greater difficulties in coping with COVID-19.

Delayed care and lack of control in treatment adherence and filling prescriptions were the most frequent consequences.

Beneficial innovations: notable effective, innovative measures that mitigated constraints and merit consideration to improve health system resilience and efficiency going forward.

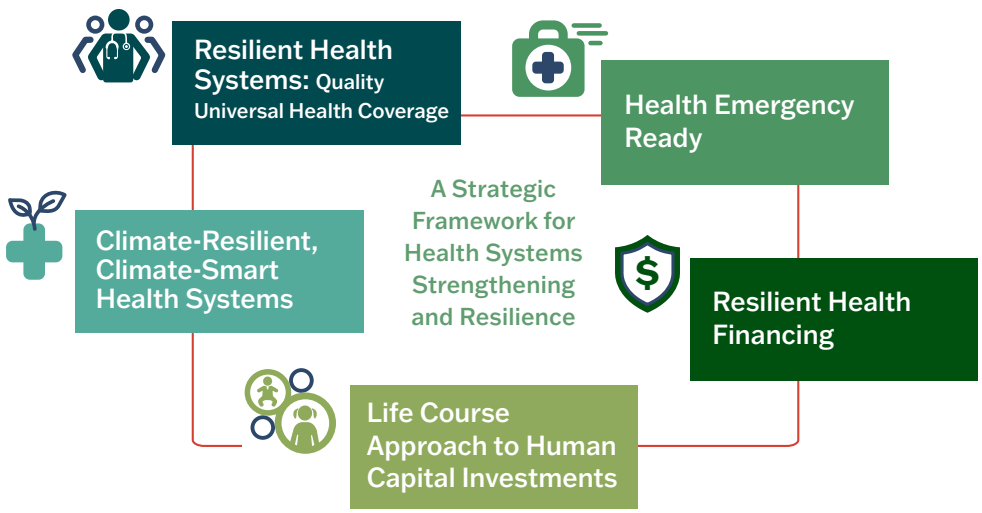
- Substantial expansions of telemedicine and telehealth services
- Use of data in decision-making
- Integrated use of public and private facilities

Telemedicine Services Authorized in Colombia 2012–2022



Source: Ministerio de Salud y Protección Social, Registro Especial de Prestadores de Servicios de Salud (March 31, 2022).

Five Key Investments



Resilient Health Systems: Quality Universal Health Coverage

IMPROVE effective access to health care especially for the most vulnerable and deliver quality universal health coverage based in high-performing primary health care and resilient health systems

- Invest in the frontline
- Invest in better prevention and health promotion
- Empower health workers to deliver quality care
- Leverage data and digital ecosystems for quality UHC

Investments and Policy Considerations

- Implement high-performing, people-centered primary health care (PHC) for all
- Reform service delivery to ensure quality of care
- Invest in a fit-for-purpose workforce for the health sector
- Expand digital transformation and create a digital ecosystem to improve access to and quality of services
- Engage the private sector with appropriate regulations to bridge gaps in service delivery and foster innovation

Health Emergency Ready

INVEST in better public health emergency prevention, preparedness, and response, and ensure effective collaboration in face of public health threats

- Invest in smart surveillance systems and coordination networks
- Build a multisectoral prevention and response system
- Invest in surge capacities including public health professionals
- Leverage PHC for better surveillance and response

Investments and Policy Considerations

- Invest in affordable surveillance systems for timely warning and response
- Scale up key multisectoral interventions
- Strengthen infection prevention and control in all healthcare settings to mitigate the disproportionate burden of epidemic-prone and hospital-acquired diseases
- Develop infrastructure and technical capabilities for development, manufacturing, and better procurement of drugs and vaccines
- Leverage PHC capacities for better pandemic preparedness and response
- Strengthen governance and international coordination for action in emergency situations

Resilient Health Financing

IMPLEMENT health financing reforms driving better population health and financial protection, reducing waste and inefficiencies, and ensuring the financial sustainability of health systems

- Adequate financing for health sector resiliency including
- Boost investments in Pandemic Prevention, Preparedness and Response and break the cycle of panic and neglect contingency financing
- Boost health taxes
- Smart financing for efficiency and better population health

Investments and Policy Considerations

- Improve domestic resource mobilization through smarter taxation to boost government revenue
- Increase fiscal space for health and enhance pooling of health funds to reduce health system fragmentation
- Expand financial protection while achieving efficiencies and reduce waste
- Implement strategic purchasing mechanisms to incentivize the provision of high-value service ecosystems to improve access to and quality of services
- Establish emergency funds that can be quickly accessed during emergencies to accommodate fast-changing needs

Life Course Approach to Human Capital Investments

IMPLEMENT highly effective human development interventions over the life course, especially in early childhood

- Commit to health and nutrition in the first 1,000 days of life
- Re-commit to vaccination for all, including adults
- Invest to reduce teen pregnancy and tackle risky behaviors
- Invest in key multisectoral interventions promoting healthy longevity

Investments and Policy Considerations

- Implement effective interventions targeting the first 1,000 days of life to strengthen early childhood development
- Enact vaccination strategies tailored at national and subnational levels including for adults
- Strengthen multi-pronged strategies to reduce teenage pregnancy
- Leverage multi/inter-sectoral strategies to reduce behavioral risks
- Extend proactive community-based education and health promotion
- Establish and expand healthy longevity strategies

Climate-Resilient, Climate-Smart Health Systems

STRENGTHEN adaptation of health systems to climate change to protect health and well-being in the medium and long term

- Integrate public health, population health, and climate change surveillance systems
- Invest in adaptation efforts to provide essential services
- Invest in efforts to reduce the health sector's carbon footprint

Investments and Policy Considerations

- Integrate public health, population health, and climate change surveillance systems
- Invest in adaptation efforts to provide essential services despite climate-related hazards and risks
- Invest in efforts to reduce the carbon footprint of the health sector over the mid- to long-term

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Acknowledgments

This work was made possible through the collaborative effort of several colleagues. Hortensia Reyes and Clara Juarez (National Institute of Public Health of Mexico) who led the qualitative component that was the basis for chapter 3 and the work in Mexico; Paula Bedregal (P. Universidad Católica de Chile) who led both quantitative and qualitative data collection in Chile and Peru; Task Team Leaders and World Bank colleagues from countries: Daniela Romero (Uruguay and Paraguay), Vanina Camporeale and Maria Eugenia Barbieri (Argentina), Gabriel Aguirre (Peru), Edson Araujo (Brazil), Juan Pablo Toro (Colombia), Victoria Haldane (costs review), and Mikhael Iglesias (climate change); and data experts: Maura Alvarez, Alexandru Titeu, Kiara Bardales, Fanor Balderrama, John Sina Moin, Pedro Pairazaman and Matias Muñoz. Authors would like to acknowledge Niek Klazinga (OECD and University of Amsterdam) as external advisor and peer reviewer, and Sulzhan Bali (World Bank) and Marcelo Bortman (World Bank) as peer reviewers. Finally, we are thankful for the support and guidance of Michele Gragnolati, Practice Manager of the LAC Health, Nutrition and Population Global Practice and Luis Benveniste, LAC Regional Director of Human Development. The authors would like to gratefully acknowledge and thank graphic designer Danielle Willis and translator Antonio Posada.

Acronyms

BMI	Body mass index
EAP	East Asia and the Pacific
ECA	Europe and Central Asia
ECLAC	Economic Commission for Latin America and the Caribbean
ENAHO	National Household Survey (quarterly) (Peru)
ENDES	Demographic and Family Health Survey (annual) (Peru)
ENIGH	Household Income and Consumption Survey (bi-annual) (Peru)
EPS	Health insurance companies (Colombia)
GDP	Gross domestic product
GGE	General government expenditure
GHE	Government health expenditure
HFPS	High frequency pulse survey
ICD-10	International Statistical Classification of Diseases and Related Health Problems, 10th Revision
ILO	International Labor Organization
IPS	Institution providing health services (Colombia)
LAC	Latin America and the Caribbean
MNA	Middle East and North Africa
NCD	Noncommunicable disease
n.d.	No date
OECD	Organization for Economic Cooperation and Development
OOP	Out-of-pocket
PAHO	Pan America Health Organization
PHC	Primary health care
PPE	Personal protective equipment
RIPS	*Registro Individual de Prestacíon de Servicios*
SAR	South Asia Region
SDG	Sustainable Development Goal
SSA	Sub-Saharan Africa
UHC	Universal health coverage
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
U.S.	United States
WFP	World Food Program
WHO	World Health Organization

Chapter 1: Impacts on Societies

Despite unprecedented advances in health, education, and economic productivity over the past two decades, chronic underinvestment in public health left countries unprepared to tackle the COVID-19 pandemic, resulting in substantial losses to these hard-earned gains.

Overview: Impacts on Societies

More than two years into the pandemic, the evidence is clear: COVID-19 has unleashed an unprecedented socioeconomic and health crisis, and devastated communities across the diverse region of Latin America and the Caribbean (LAC).

Fundamental changes must be initiated to strengthen health systems to regain lost ground and avoid similar losses in the future.

Photo credit: Fernweh Impressionen (CC BY-NC-ND 2.0)

Underinvestment in public health before the pandemic left systems in LAC severely underprepared and oriented towards curative care.

- 13% of world's cases — While home to only 8.5 percent of the world's population, the region accounted for 13 percent of all cases (July 2022).
- Highest **excess mortality** in Peru, Mexico, Ecuador, and Bolivia, with a steepening curve in Bolivia.
- Adaptations to meet high COVID-19 demands have caused **setbacks in health outcomes.**

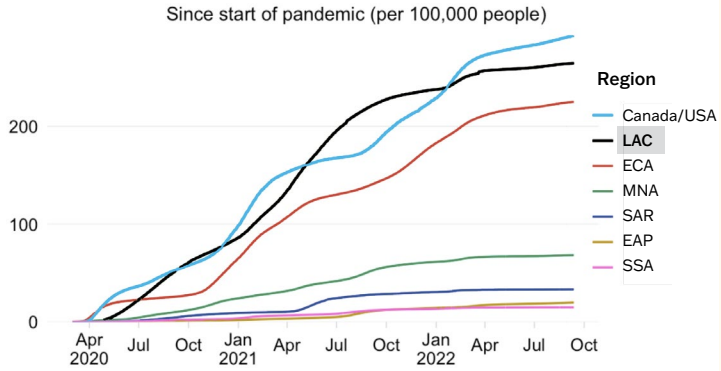
Lack of preparedness prompted a government response to COVID-19 that worsened economic performance in LAC.

- Governments adopted **confinement measures that led to a steep contraction in economic activity in 2020.**
- GDP — **LAC GDP contraction in 2020 hit 7 percent**—the largest in the last 100 years and the worst worldwide.
- By mid-2020, Argentina, Chile, Costa Rica, and Mexico registered **20 percent drops in employment**; by 2021, almost **20 million people had left the labor force**.

The pandemic triggered a profound shock to the education sector which is critical to both quality of life and national long-term economic productivity and development.

- 50 percent of **schools closed for half of the effective number of school days.**
- Literacy and mathematics **achievement levels** of primary school students **falling to levels like those of more than 10 years ago.**
- Students risk **losing an amount equal to 14 percent of today's global GDP** due to school closures.
- Unprecedented negative impacts on children's safety, health, and well-being (feeding programs, mental health, violence).

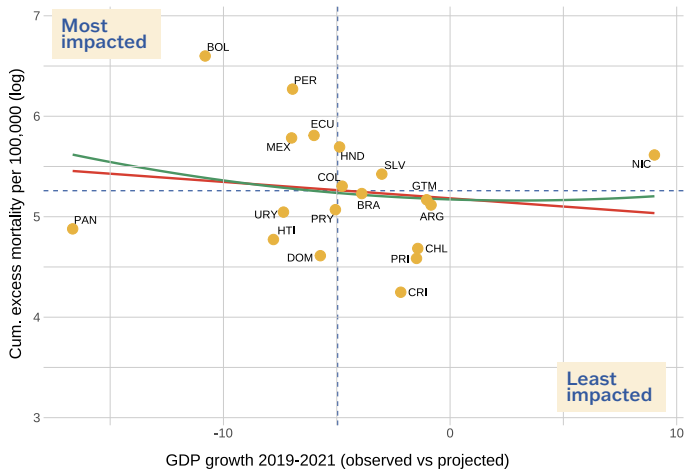
Evolution Over Time of the Cumulative COVID-19 Mortality Rate Across World Bank Regions



Source: Schellekens 2022; JHU CSEE 2022; United Nations DESA 2022; latest: Pandem-ic.com 2022c.

Note: LAC = Latin America and the Caribbean; ECA = Europe and Central Asia; MNA = Middle East and North Africa; SAR = South Asia Region; EAP = East Asia and the Pacific; SSA = Sub-Saharan Africa.

COVID-19 Excess Mortality Rate per 100,000 (2020–2021) and GDP Growth 2019–2021 (observed vs. projected)



Sources: COVID-19 Excess Mortality Collaborators 2022; IMF 2019; IMF 2022.

Note: GDP = gross domestic product.

The extent to which a shock event affects lives depends largely on the chronic vulnerabilities in the health system (WHO 2022b). In the age of COVID-19, debates around resilience have become more urgent, stressing that efforts should "focus not only on absorbing unforeseen shocks precipitated by emerging health needs, but also on ensuring continuity in health improvement, sustaining gains in systems functioning and fostering people centeredness, while delivering high-quality care (Haldane et al. 2021)." Developing resiliency—determining where, when, and how we invest our resources effectively and efficiently to have the greatest impact (Sauliner et al. 2021)—calls for learning the lessons from the COVID-19 pandemic so that we can manage and contain unexpected shocks while continue to protect people's overall health and wellbeing.

The first case of COVID-19 in Latin America and the Caribbean (LAC) was reported in late February in 2020. It then spread across the region eventually producing a high death toll that surpassed that of all other continents.

Facing a lack of treatments and vaccines, countries initially had to resort to a range of containment and closure policies to control the pandemic—measures that affected not only health, but also education and entire economies (Mathieu et al. 2022). Even with the rapid development and authorization of several highly effective vaccines, the continued impacts of COVID-19 as new strains emerge and spread, still pose serious challenges.

Two years into the pandemic, the evidence is clear: COVID-19 has unleashed an unprecedented crisis in health, education, and economics that has devastated communities across the region.

Photo credit: Jairo Bedoya Villa / World Bank

Context: Demographic and Epidemiological Diversity and Complexity

Latin America and the Caribbean (LAC) has an aging population with a high-burden of noncommunicable chronic diseases and great social inequities that have deepened with the COVID-19 pandemic. The heterogeneity of the population within countries and across the region, as well as social circumstances (e.g., migration, forced displacement, and labor informality) have long posed important challenges in the planning of health care service provision.

This complexity fueled by the demographic and epidemiological contexts in each country must be born in mind when considering options for the road ahead.

Demographic Diversity

The LAC region is extremely demographically diverse and also the fastest aging region in the world, including 50 million indigenous people belonging to 500 different ethnic groups. Many of the LAC countries also experience significant internal and external migration as well as population displacement due to internal conflicts, among other demographic phenomena. Other affected groups include populations traditionally lagging in access to health services, such as people in isolated and border areas.

Epidemiological Complexity

Countries across the region, including the four examined for this analysis, also reflect considerable variations in their epidemiological profiles, all of which pose significant, complex challenges that affected health systems operations in the face of the pandemic. For example, in

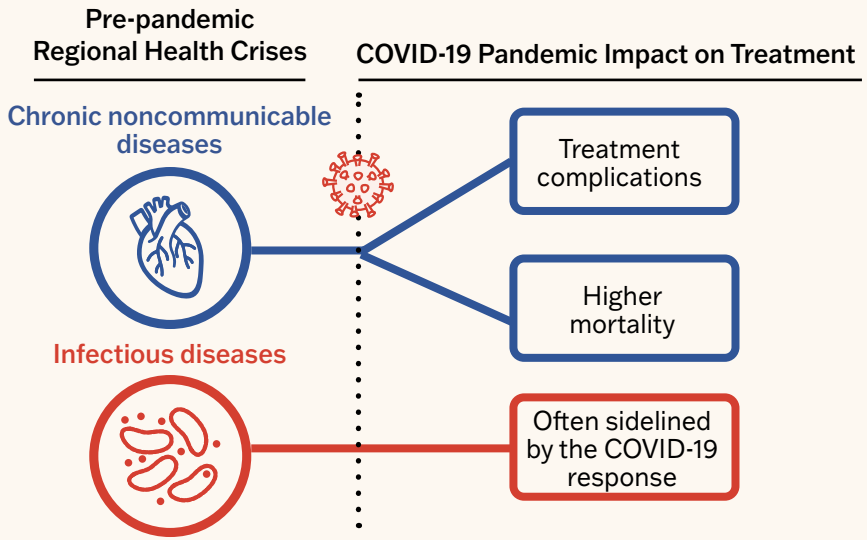
Table 1. Percentage of the Population Affiliated to Health Care Services (various years)

	Health care services	
	Affiliated	Non-affiliated
Mexico (2020)*		
Afro-descendant population	74.8%	25.2%
Non-Afro-descendant population	73.7%	26.3%
Indigenous population	83.7%	23.1%
Chile (2017)**		
Indigenous population	86.4%	13.6%
Colombia (2019)***		
Indigenous population	82.1%	17.9%
Non-indigenous population	97.5%	2.5%
Afro-descendant population	94.6%	5.4%
Peru (2017)****		
Non-indigenous population	74.4%	25.6%

Sources: *México Instituto Nacional de Estadística y Geografía 2020; **Microdata Center, Dept. of Economics, University of Chile et al. 2017; ***Ministry of Health (Columbia) 2018 and Ministry of Health (Columbia) 2019; ****National Institute of Statistics and Informatics (Peru) 2017.

Mexico, chronic noncommunicable diseases were linked to treatment complications and higher mortality from COVID-19 (Denova-Gutierrez et al. 2020; Monterrubio-Flores et al. 2021). On the other hand, Peru had to continue addressing the burden of infectious diseases, such as tuberculosis, while also dealing with the impact of the pandemic in terms of registration of new cases, care, and prevention actions. The slowdowns in the fight against infectious diseases during the COVID-19 pandemic have also been reported in other countries (Cardenas-Escalante, Fernandez-Saucedo, and Cubas 2022). These examples speak to a common challenge across LAC: the increased difficulty of managing the pre-existing disease burden, with the pandemic often reversing hard-earned gains and complicating service delivery.

Complicating Pre-existing Disease Burdens



Health Impacts: Lost Lives, Lost Health, and Strained Systems

When COVID-19 hit, despite improvements in health care over the last 30 years, remaining shortfalls meant that 230 million vulnerable people in Latin America and the Caribbean (LAC) struggled to comply with water hygiene and sanitation practices and social distancing measures. As of 2017, an average of 25 percent of the rural population and 12.5 percent of people living in urban settings lacked basic sanitation, with the percentage rising to as high as 50 percent in some settings (OECD 2020).

Health system underperformance, fragmentation, and insufficient spending were also an issue. Most healthcare systems in LAC underperform compared to the average for the Organization for Economic Cooperation and Development (OECD). Healthcare fragmentation (related to the existence of parallel subsystems) is a key source of waste in the region, leading to duplication of tasks, substantially reducing system efficiency, and exacerbating inequalities. On average, health spending, although it grew in recent years, stands at only 25 percent of OECD countries' expenditure per capita adjusted for purchasing power. Furthermore, spending patterns do not always align with efficiency and equity. Spending is higher on curative care than on preventative care. Moreover, 34 percent of health spending is out-of-pocket, which hits the poorest and most vulnerable hardest.

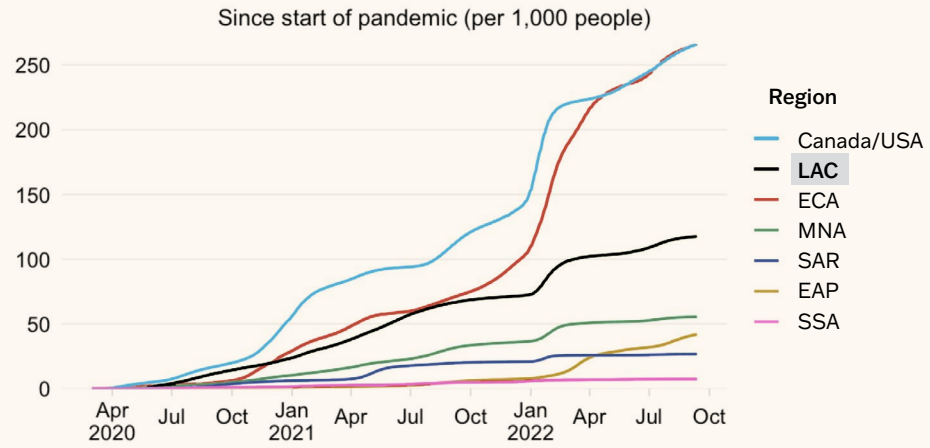
Limited health system capacity also impaired countries' abilities to deal with shocks and surges in demands. For example, Chile, Colombia, Costa Rica, and Mexico have at most 2.1 beds per 1,000 people, while the OECD average of 4.7 per 1,000 people. Similarly, countries in LAC have an average of two doctors per 1,000 people, compared a level of 4.45 doctors per 1,000 people suggested in recent report from the World Health Organization (WHO 2016).

Hence, even though COVID-19 hit LAC later than most advanced economies—thereby giving governments more time to implement containment measures—the pandemic has caused immense human suffering and loss of lives across the region.

COVID-19 Cases and Deaths

LAC is home to only 8.5 percent of the world's population. However, as of July 2022, it accounted for 13 percent of all cases globally and almost 1.5 million deaths (Manuel et al. 2022) (figures 1, 2, and 3).

Figure 1. Evolution Over Time of Cumulative COVID-19 Cases Across World Bank Regions



Source: Schellekens 2022; JHU CSEE 2022; United Nations DESA 2022; latest: pandem-ic.com 2022a.

Note: LAC = Latin America and the Caribbean; ECA = Europe and Central Asia; MNA = Middle East and North Africa; SAR = South Asia Region; EAP = East Asia and the Pacific; SSA = Sub-Saharan Africa.

LAC COVID-19 Statistics: Cases, Mortality, and Fatality

Brazil, Mexico, Argentina, and Colombia are amongst the top 20 countries with the ***largest number of people infected*** worldwide (WHO n.d.).

Peru heads the world ranking with the **largest number of deaths per million people** (WHO n.d.).

Deaths among adults aged 60 and older represented **74 percent of all deaths in LAC** (March 2020–June 2021) (PAHO n.d.).

Most people in LAC who contract the virus (aged 20–40 years old) suffer from **mild to moderate respiratory illness** and recover without any special treatment.

Eight percent of LAC cases required **hospitalization** and 2 percent required admission to intensive care and ventilation.

The **highest fatality rate** was seen in those aged 70 or more (PAHO n.d.).

Some who initially recover later experience **Long COVID** (see box 1 below).

Figure 2. Evolution Over Time of the Daily COVID-19 Mortality Rate Across World Bank Regions

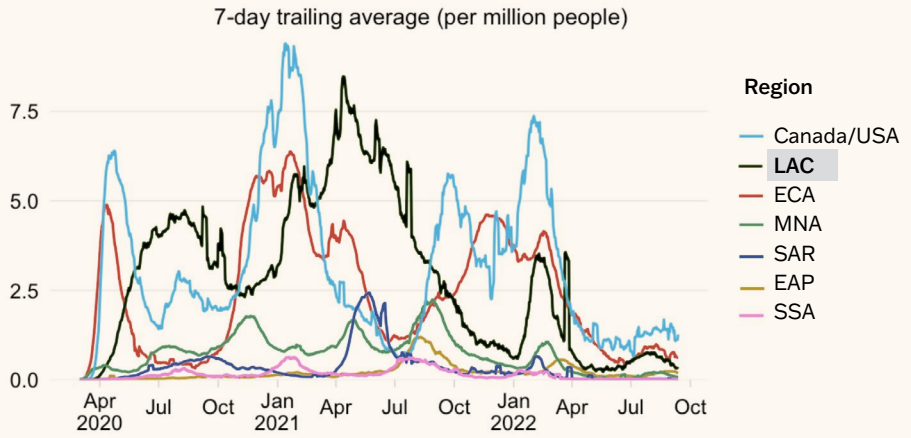


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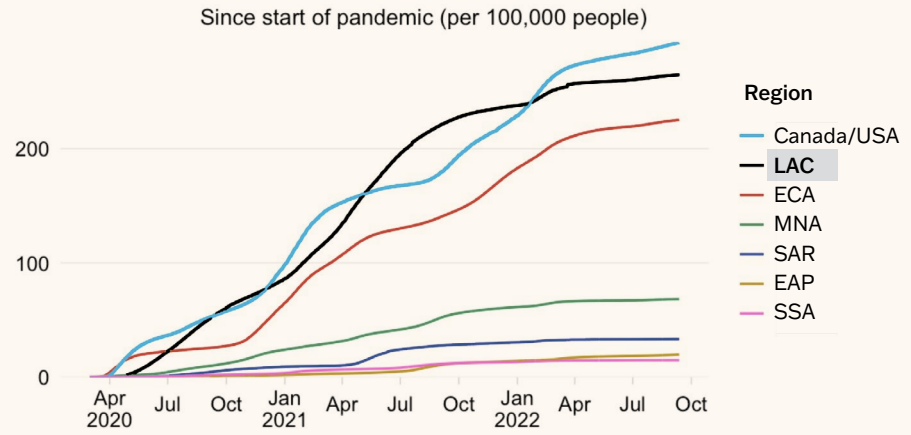
Figure 3. Evolution Over Time of the Cumulative COVID-19 Mortality Rate Across World Bank Regions



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Box 1. COVID-19 Is Also Compromising Health in the Long Run

COVID-19 includes a wide range of new, returning, or ongoing health problems that people experience after first being infected. Research suggests that in the 12 months after contracting COVID-19, one in five people between the ages of 18 and 64 have at least one medical condition that may be due to COVID-19 (Mayo Clinic n.d.).

People who experience post-COVID-19 conditions most commonly report fatigue that interferes with daily life; respiratory and heart symptoms such as difficulty breathing and chest pain; difficulty thinking or concentrating (sometimes referred to as "brain fog"); sleeping problems; as well as diarrhea and stomach pain. Long COVID-19 can substantially limit major life activities (Centers for Disease Control 2022). It is important to note because the understanding of the direct impacts of COVID-19 on health is still evolving, and the full picture is not yet known. Moving forward, we need to understand how this will impact health costs, health behaviors, and long-term care.

Photo credit: Mediabanco Agencia (CC BY 2.0)

Excess Mortality and Essential Health Care Utilization

As high transmission rates put pressure on health systems—with health workers increasingly affected and demands for hospitalization and testing rising—many health centers had to turn their focus to COVID-19 support, which often entailed cuts in other services.

The public health picture becomes far worse when also considering indirect deaths due to the pandemic's impact on health systems and society. **In this regard, the Latin American region has been at the epicenter of the pandemic.** Observed differences spotlight that the pandemic was superimposed on a continent with unresolved tensions and the world's highest inequalities in health outcomes (World Bank, Human Capital Project 2020). The death toll has been more concentrated among the poor as pandemic preparedness planning was not developed and did not have an equity approach (Varkey et al. 2022). In Lima, for example, areas with lower Human Development Index (HDI) values had significantly higher excess mortality (Hernández-Vásquez et al. 2020). Similarly, in Santiago de Chile, the COVID-19 fatality rate in the poorest neighborhoods was four times higher than in the wealthiest neighborhoods (World Bank 2020).

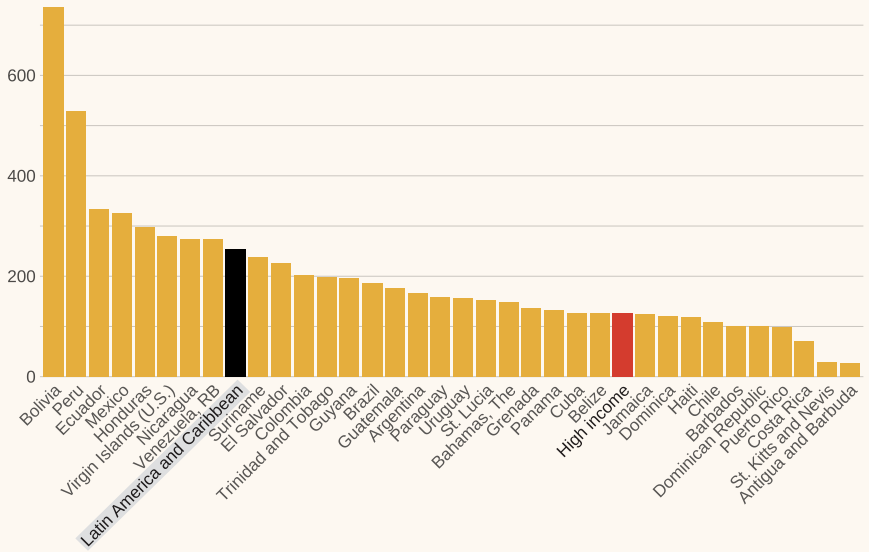
For 2022, trends are showing a steepening curve of excess mortality across Chile and Uruguay, followed by Brazil and Paraguay. Predictions suggest that Bolivia is the country with the highest excess mortality (figure 4).

Underinvestment in public health before the pandemic left systems in LAC severely underprepared and oriented towards curative care. A rapidly aging population in LAC and a shift in the disease burden towards noncommunicable diseases (NCDs) threaten fiscal sustainability.

Despite innovative responses against NCDs risk factors in LAC (Legetic et al. 2016),[1] the economic consequences of the NCD burden

1 Such as the introduction of sugar taxes in Mexico, national smoke-free laws in 17 countries, and front-of-package nutrition labels, amongst others.

Figure 4. Cumulative Total Excess Mortality Rate per 100,000 (2020–2021)



Source: COVID-19 Excess Mortality Collaborators 2022; GHDx n.d.

are still rising. This failure to promote and prevent chronic diseases likely accounts for the high death toll during the COVID-19 pandemic. A recent study found that people living with obesity had a 113 percent higher risk of hospitalization and almost twice the risk of death from COVID-19 (Popkin et al. 2020). According to a World Economic Forum report, NCDs will cost countries and health care systems more than $30 billion by 2030. Thus, investing adequate resources to ensure access and coverage to NCD health services will be critical—particularly investments in promotion and prevention, areas that evidence shows yield substantial economic benefits (ECLAC 2022).

Even before the pandemic, health system performance in LAC was lagging.

Maternal, adolescent, and child health

- Mortality rate of children aged 5 and under fell by 70 percent between 1990–2019, but some countries still experience increases (Sharrow et al. 2022).
- Despite a regional 35 percent reduction in the last 17 years, maternal mortality increased in some Caribbean countries.

Injuries

- High rates of traffic accidents and mortality related to violence in large urban centers.

Infectious diseases remain a threat

- Though the average has been reduced, 36 percent of the countries have experienced increased or stagnant country Tuberculosis incidence in the last 18 years.
- South American countries have seen an increase in HIV incidence in the last two decades.
- 36 percent of the countries fall below the minimum immunization levels as defined by WHO.

NCDs cause 82 percent of deaths in LAC

- In Peru, only one in five patients have their hypertension under control.
- All LAC countries are off course in meeting all NCD diet-related targets as set in the Sustainable Development Goals (SDGs).
- While LAC has only 8 percent of the global population, it is home to 16 percent of all obese individuals in the world.
- Survival rates for cancer in LAC are far lower than the OECD average.

Adaptations to meet high COVID-19 demands have caused setbacks in maternal and child health. In 2021, Castro et al.[2] estimated that life expectancy at birth decreased by 1.3 years that year, representing a setback of at least 7 years of progress on this indicator (ECLAC 2022).

2 With an annual COVID-19 prevalence of 5 percent of the population.

Photo credit: Fernweh Impressionen (CC BY-NC-ND 2.0)

Box 2. Mental Health and Violence: Disproportionate Impact on Women, Children, and Adolescents[3]

In 1995, a study evaluating the relationship between health and habitat in the capital cities of Argentina and Chile found that anxiety and depression were among the main problems of residents of poor neighborhoods (Faye 2006). Furthermore, LAC falls short on both the number of psychiatrists and the availability of beds for such treatment (five and three times lower, respectively, than the OECD average).

With the onset of the pandemic, lockdowns to contain transmission and subsequent job losses led to increased need while also disrupting, or even halting, critical mental health services in 93 percent of countries worldwide (World Bank n.d.). Lockdowns also were accompanied by numerous episodes of domestic violence (World Bank 2022c). Calls to domestic violence helplines increased by 91 percent in Colombia, 38 percent in Mexico, and 48 percent in Peru. In Costa Rica and Ecuador, cases of femicide rose by 25 percent (OECD 2020b).

3 Worldwide, estimates suggest that nearly 1 billion people live with a mental disorder and that every 40 seconds, a person commits suicide

Photo credit: Ivan Radic (CC BY 2.0)

Severe Public Health and Economic Crisis

The COVID-19 response worsened already declining economic performance in Latin America and the Caribbean (LAC). While the world grew at 3.1 percent for the last decade, LAC grew at only 2.2 percent per year (the lowest rate recorded in since 1951) (World Bank 2020b).

To halt the pandemic, governments adopted confinement measures that led to a drop in economic activity: (i) workers remained locked down at home; (ii) households cut consumption by 1.3 percent from January to May 2020; (iii) border crossing restrictions affected key sectors such as tourism and international travel; and (iv) the global economic slowdown and the disruption of global and regional value chains led to a declining in exports from Latin America.

Compounding the effects of the social unrest that erupted across the region in 2019 and the later collapse of commodity prices, COVID-19 led to an economic contraction for the region. The pandemic has touched every aspect of people's lives. Lockdowns as well as mitigation and containment policies imposed by governments to contain the spread and support fragile health systems, severely affected millions of workers, depriving many of their only means of subsistence, and pushed large numbers into poverty (Mahler et al. 2021; World Bank 2020b; United Nations 2020).

To alleviate the effects of the pandemic, LAC countries applied counter-cyclical fiscal policies. During the pandemic, cash transfer coverage was extended to an additional 39 percent of the population in the LAC region. In countries such as Brazil, Chile, Colombia, the Dominican Republic, and Peru, subsidies and currency transfers increased by 2.5 percentage points or more as a share of gross domestic product (GDP) (ECLAC 2021). The pandemic has been particularly difficult for micro and small businesses. Many countries created tax breaks for house-

Box 3. The Pandemic Pushed Millions of People into Poverty

© Maria Fleischmann / World Bank

Before COVID-19, informal work already accounted for nearly 60 percent of work in the region. Since the pandemic began, LAC has been the region with the largest increase in unemployment rates. Between the start of the pandemic and mid-2020, Argentina, Chile, Costa Rica, and Mexico registered 20 percent drops in **employment** (World Bank 202e), and by 2021 around 20 million people had left the labor force (ILO 2021). LAC also recorded the largest loss of working hours in the world, which translated into lower household incomes.

Despite efforts including remote work and income support programs, the impact has been uneven across population groups (World Bank 2020f), undermining continued progress for nearly a generation. Women have been disproportionately affected—too often facing limited or no options to telework, or forced to leave the labor force to care for children due to school closures. In Uruguay, for example, 14 percent of women work informally, accounting for 90 percent of domestic services workers. Likewise, in Costa Rica, 17 percent of women work informally. A study evaluating the gender gap in this regard showed increases in women's unemployment rates in the Andean countries (31 percent during the pandemic vs. 13 percent pre-pandemic), the Southern Cone (35 percent vs. 20 percent), and Mexico (33 percent vs. 24 percent), as opposed to Central America and the Caribbean (de Hoop et al. 2022).

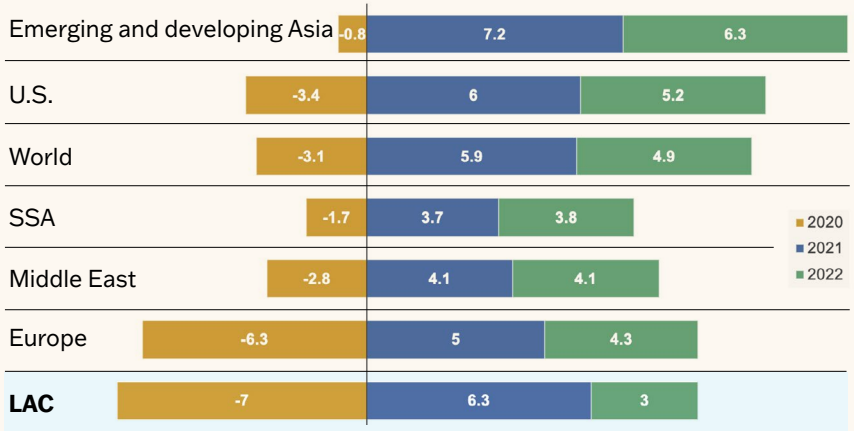
Employment and activity rates began recovering in the third quarter of 2020, as the gradual lifting of containment measures eased the return of workers to the labor market (ECLAC/ILO 2021). The disruption and growing instability of employment as well as unemployment pose short- to medium-term challenges to the transition to a post-pandemic era (Beylis et al. 2020).

holds and businesses that helped many in the region. However, these fiscal efforts were undertaken in an environment of limited fiscal space. By the end of 2021, the region's fiscal accounts showed significant deficits and inflation across LAC had risen.

The region's GDP contraction in 2020 hit 7 percent—the largest in the last 100 years and the worst worldwide (WHO and World Bank 2021) (figure 5). However, the dynamics of the pandemic and the health and economic impacts of containment measures vary across countries, as do the tradeoffs between health and economic costs.

The pandemic weakened long-term growth prospects for the region. The rapid advances in COVID-19 vaccines, and in particularly in their delivery across the region, are partially responsible for the more positive recent global market assessments. While the recovery started in 2021 and is predicted to continue through 2023, it is expected to be uneven and leave the region on an economic course below pre-pandemic projections.

Figure 5. Growth Projections by Region (Oct 2021)



Sources: IMF 2021.
Note: U.S. = United States; SSA = Southern Africa; LAC = Latin America and the Caribbean.

Growth Projections for 2021 and 2022

Inflation in the region has risen and is in most cases above targets set by central banks and governments. The increase reflects firming demand related to the reopening of economies, higher global food and energy prices, power outages in some areas, and carryovers and sharp currency increases in some countries. The decline to the labor market participation has raised concerns about the reintegration of the long-term unemployed.

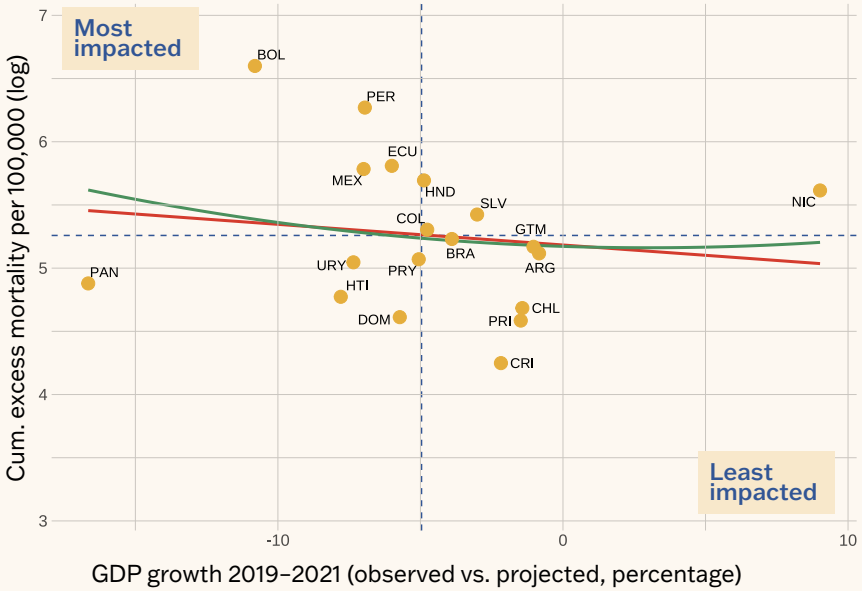
The weaker and more fragile recoveries that LAC economies are experiencing reflect the pandemic's adverse impact on physical and human capital (figure 6). In 2020 before the pandemic, LAC countries already had account deficits, mostly financed by foreign direct investment. With the arrival of pandemic, by mid-2020, inflows fell by 25 percent. Peru has experienced the hardest fall (-72 percent), followed by Colombia and Brazil, with Mexico (-6 percent) experiencing the smallest fall. Further shocks and the likelihood of new strains emerging could see investors reappraise growth outlooks and debt-carrying capacity in LAC.

Photo credit: Jenny Villone (CC BY-NC-ND 2.0)

Resilient health systems are essential supports to future health and productivity and the key to effective and efficient responses to future crises.

Photo credit: UN Women/Ryan Brown (CC BY-NC-ND 2.0)

Figure 6. COVID-19 Excess Mortality Rate per 100,000 (2020–2021) and GDP Growth 2019–2021 (observed vs. projected)



Sources: COVID-19 Excess Mortality Collaborators 2022; IMF 2019; IMF 2022.
Note: Cum. = cumulative; GDP = gross domestic product.

Education Impacts: Learning Losses Causing a 10-Year Setback

The pandemic triggered not only a worldwide health and economic crisis, but also a profound shock to the education sector—**which is critical to both quality of life and national long-term economic productivity and development** (World Bank 2022f)**.** Latin America and the Caribbean (LAC) was already suffering from a serious learning crisis before the COVID-19 outbreak. Three decades ago, one out of every four of children and adolescents (25 percent) were out-of-school (World Bank 2022f). In the following years the rate decreased, and now stands at 1 in 10 children not attending school (World Bank 2022d). However, this number still reflects a deep educational crisis in the region when compared with the OECD average (11 percent of out-of-school population vs. 1 percent in 2019) (UNESCO Institute of Statistics n.d.).

The pandemic hit LAC when the school year started in the Southern hemisphere. By the end of March 2020, almost all countries across the region had shut down their schools, starting what would become one of the longest closures globally (figure 7).

Closures left about 170 million children out of school for almost seven months, and more than 50 percent of schools closed for half of the effective number of school days.

Social Impacts and Learning Losses

While it is too early to fully understand the long-term impact of the lost time regarding social interaction between peers, some regionally calculated estimates suggest a severe impact. Though most children will experience learning losses, some might be more severely affected, especially adolescents who permanently drop out of school and those without access to distance-learning initiatives or without literate family members to support their learning, all of which increases learning poverty. This has the potential to further perpetuate historical inequalities in education.

School closures have had multidimensional impacts that amplify pre-existing socioeconomic structural inequalities at the intersection of education and child protection. School closures also saw increases in child labor, surges in intimate partner violence and adolescent pregnancy, and lost access to school-based healthcare nutrition programs, predominantly impacting the most vulnerable (World Bank 2022d).

Projected Learning Loss Due to School Closures

Lustig, Neidhöfer, and Tommasi (2020) project a drop from 61 percent to 46 percent in the **likelihood that students in the region will complete secondary education.**

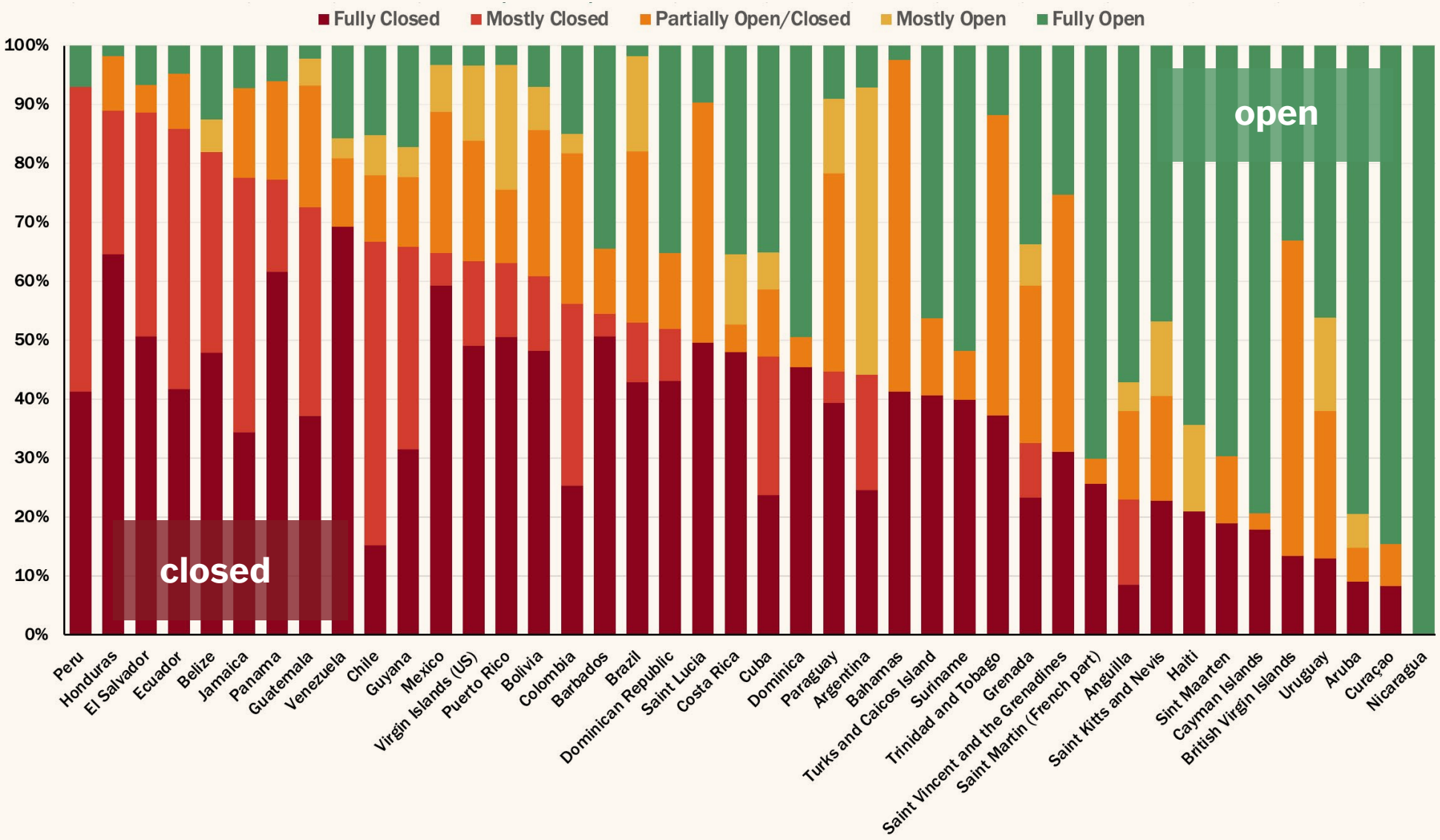
Four in five sixth graders in Latin America and the Caribbean (LAC) are **expected to lack basic reading comprehension proficiency** by age 10.

Literacy and mathematics achievement levels for primary students are projected to fall to levels last seen 10 years ago.

Today's students in LAC risk losing **$17 trillion in lifetime earnings** (an amount equal to 14 percent of today's global GDP) due to pandemic-related school closures.

Figure 7. School Closure Intensity (%) by Country, March 2020–March 2022

(share of school weeks, by intensity of closure)



Source: World Bank 2022d.

Mental health challenges have also increased, including rises in anxiety and loneliness in adolescents, as well as sadness, indiscipline, and frustration in children (Bakrania et al. 2020). For example, in a 2021 survey of high school students in Ecuador, Asanov et al. found that 16 percent scored for major depression.

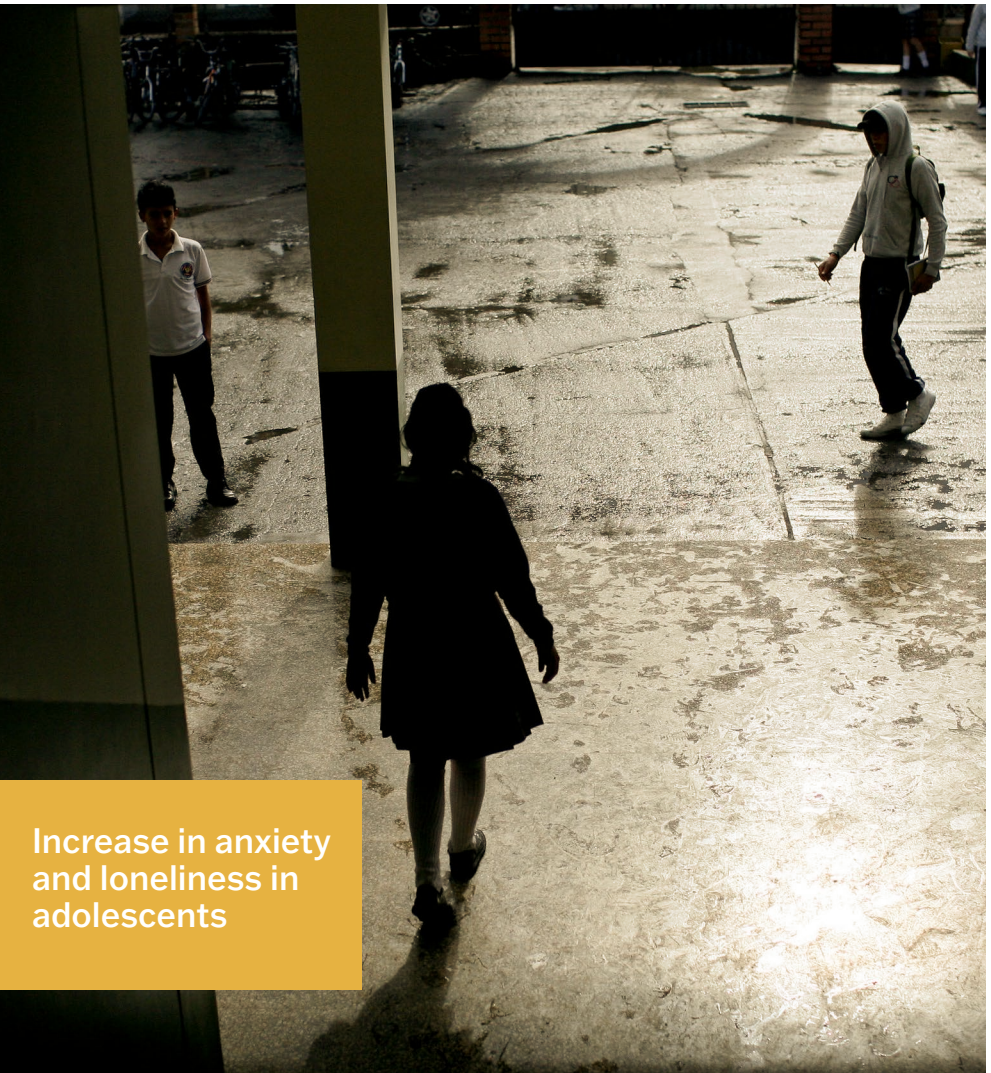


Photo credit: Charlotte Kesl / World Bank (CC BY-NC-ND 2.0)

Box 4. COVID-19: Missing More than a Classroom

While closing schools appeared to be important in reducing the spread of COVID-19 in the short term, it also caused unprecedented negative impacts on children's learning, safety, health, and well-being (WFP et al. 2020), which, in turn, affect human capital across the region.

During this crisis, coverage of essential school nutrition services (e.g., school meal programs, iron and folic acid supplementation, deworming, and nutrition education) decreased by 30 percent, bringing an end to a decade of global growth in school feeding programs—programs that have significantly benefited families, constituting up to 15 percent of a family's daily income (Bundy et al. 2018).

There is also a strong link between quality nutrition and the cognitive development of children (Bryan et al. 2004). Globally, 370 million children who had benefited from in-school meals before the crisis missed them in 2020. In Brazil, this accounted for 48 million disadvantaged children (WFP 2019).

Evidence from past crises such as Ebola in Liberia shows that the adequacy of such programs benefits the poorest quintile of the population the most and reduces poverty as a result, confirming the importance of continuing or adjusting school nutrition provision in crisis situations (World Bank, UNESCO, and UNICEF 2021).

The Need for Health Sector Transformation

COVID-19 revealed important pre-existing weaknesses that prevented health systems from continuing to deliver quality essential health services and reversed hard-won health gains in the region. As we move forward to achieve equitable quality health care and better prepare for future shocks, there is, as WHO Director-General Dr. Tedros Adhanom Ghebreyesus has noted, "a need for all countries to invest in more resilient health systems that can sustain essential health services during crises" (WHO 2022a).

The region has ranked highest in terms of deaths and excess mortality, educational impact, and effect on GDP, **highlighting the fact that deep reform of the health sector cannot wait.** Even though LAC has largely overcome the Omicron variant, vaccination rates have increased, and hospitalization and fatality rates are down, it cannot be said that the pandemic is over. Although discussions and reforms are underway, an agenda has not yet been clearly defined (ECLAC 2022b). Ministers of finance and of health, multilateral agencies, local healthcare actors, and nongovernmental organizations must initiate fundamental changes and find new ways to strengthen health systems to regain lost ground and avoid similar losses in the future.

Building on previous authoritative work and leveraging new research, this report, *Lessons Learned from the COVID-19 Pandemic: The Way Forward to Build Resilient Health Systems in Latin America and the Caribbean*, explores the latest state of evidence on the disruption of health services across LAC, and reflects on the weaknesses of health systems for effective health coverage and where successful innovations have occurred. Paying attention to these factors will be imperative because they expose ways in which the combination of geographical location, physical infrastructure, and social conditions reveal the different priorities that will be needed in different places.

Photo credit: Jairo Bedoya Villa / World Bank

LAC has ranked highest in terms of deaths and excess mortality, educational impact, and effect on GDP.

Chapter 2: Impacts on People

During the COVID-19 pandemic, people in Latin America and the Caribbean have experienced disruptions in essential healthcare services across the life course, increased inequities in access, and worsened financial protection.

Overview: Impacts on People

The COVID-19 pandemic has disrupted people's access to essential health care services and programs across the life course, increasing existing inequities in access and threatening future health and productivity.

Photo credit: Michelle Snow / USAID (CC BY-NC 2.0)

Declines in people accessing health services (evidence from phone surveys in 14 LAC countries)

The main reason people did not seek care was **healthcare system supply constraints** such as the lack of staff, appointments or supplies, and facility closures.

The biggest impacts were in **Ecuador, Peru, and Bolivia.**

Service disruptions across the life course with longer-term health effects for children and youth, adults, and older people.

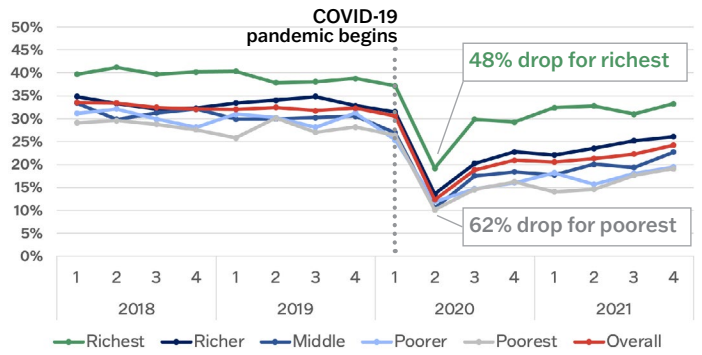
Age group	Disruptions	Future consequences
Children	Decreases in vaccine coverage	Epidemics of vaccine preventable diseases
	Decreases in childhood nutrition programs	Increase in both malnutrition and obesity
	Decreases in primary care services	Decreased health, well-being and productivity
Adults	Delayed monitoring of people with diabetes	Increase in people with complications of diabetes
	Decreases in essential hospital care for people with cardiovascular diseases	Failure to meet commitments to reductions in noncommunicable disease mortality
Older People	Delayed breast cancer screening	Missed opportunities to effectively treat early-stage breast cancer
	Decreases in key services (e.g., hospital care for people with cancer	Increased cancer mortality and morbidity in older people

Inequities exacerbated and financial protection in health worsened (evidence from Peru)

While inequities existed pre-pandemic, the onset of the pandemic triggered a collapse in healthcare use across all socioeconomic levels.

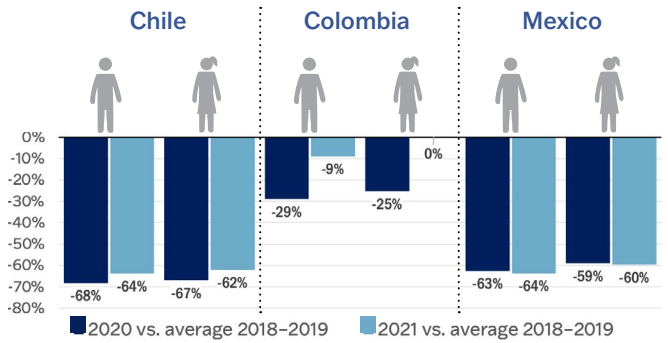
At the end of 2021, healthcare use was 14 percent below pre-pandemic levels for the richest quintile and 32 percent lower for the poorest quintile.

Formal Healthcare Use Among Population with Illness Symptoms in the Past Month



Source: Perú Instituto Nacional de Estadística e Informática n.d.b.

Percent Change in Number of Consultations for Children, by Gender



Source: Original figure based on Programa Sumar 2022; Ministry of Health, Chile 2022; RIPS, Colombia 2022; Ministry of Health, Mexico 2022.

Impacts on Households: Health Service Disruptions Across the Region

During the COVID-19 pandemic, families across Latin America and the Caribbean (LAC) experienced disruptions in essential healthcare services that will likely have significant short and long-term consequences for health and human capital, according to results from multiple rounds of high frequency pulse surveys.

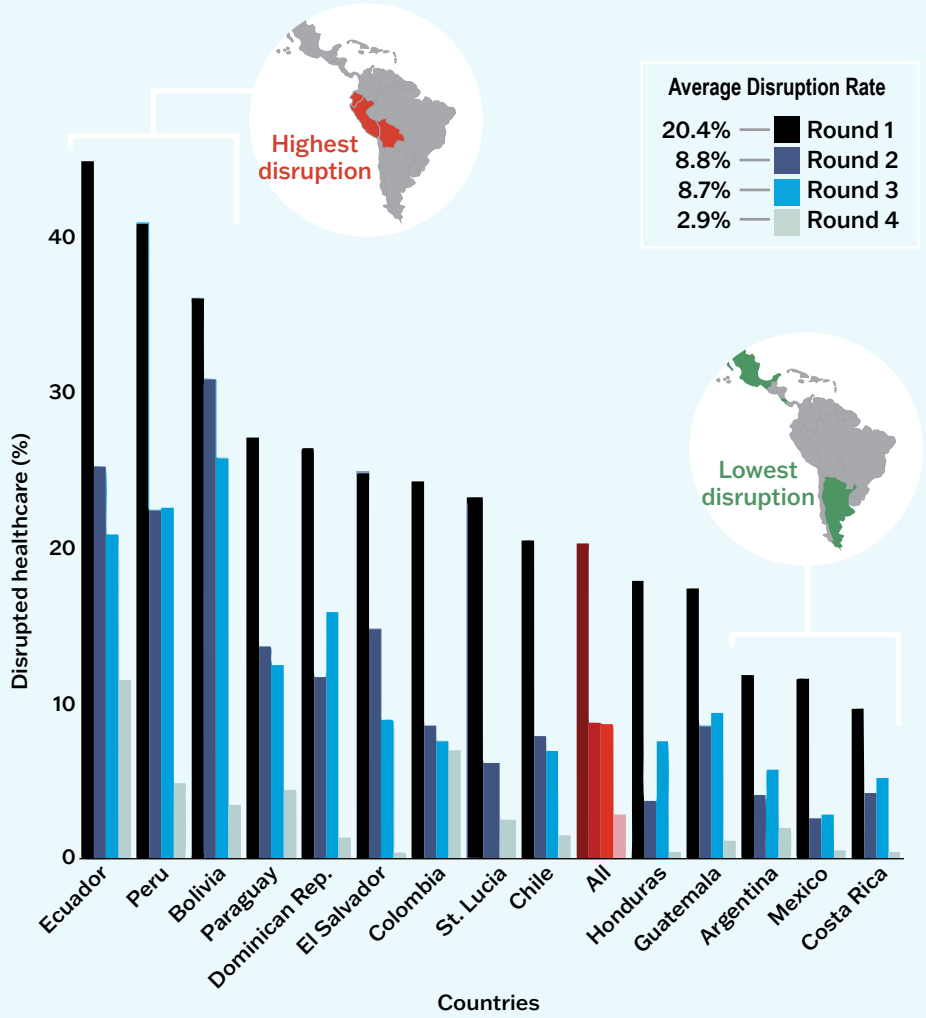
The Survey

Three rounds of a high frequency pulse survey (HFPS) were conducted between May and August 2020 at the beginning of the pandemic, and a fourth round was completed between May and July 2021. The HFPS collected nationally representative information about people's access to services when they perceived the need for them in 14 countries: Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Paraguay, Peru, and Saint Lucia.

Key Findings

The largest disruption occurred in the first round of 2020, with an average of 20.4 percent of households reporting a healthcare disruption (figure 8); country percentages ranged from 44.9 percent in Ecuador to 9.7 percent in Costa Rica. The disruption rate dropped to an average of 8.8 and 8.7 percent in rounds 2 and 3 of 2020, respectively, and to 2.9 percent by round 4 in 2021. Ecuador, Peru, and Bolivia experienced the highest levels of disruption across the four rounds, while Costa Rica, Mexico, and Argentina registered the lowest.

Figure 8. Share of Households Reporting Needing Healthcare Whose Healthcare Services were Disrupted in 14 LAC Countries, 2020 and 2021

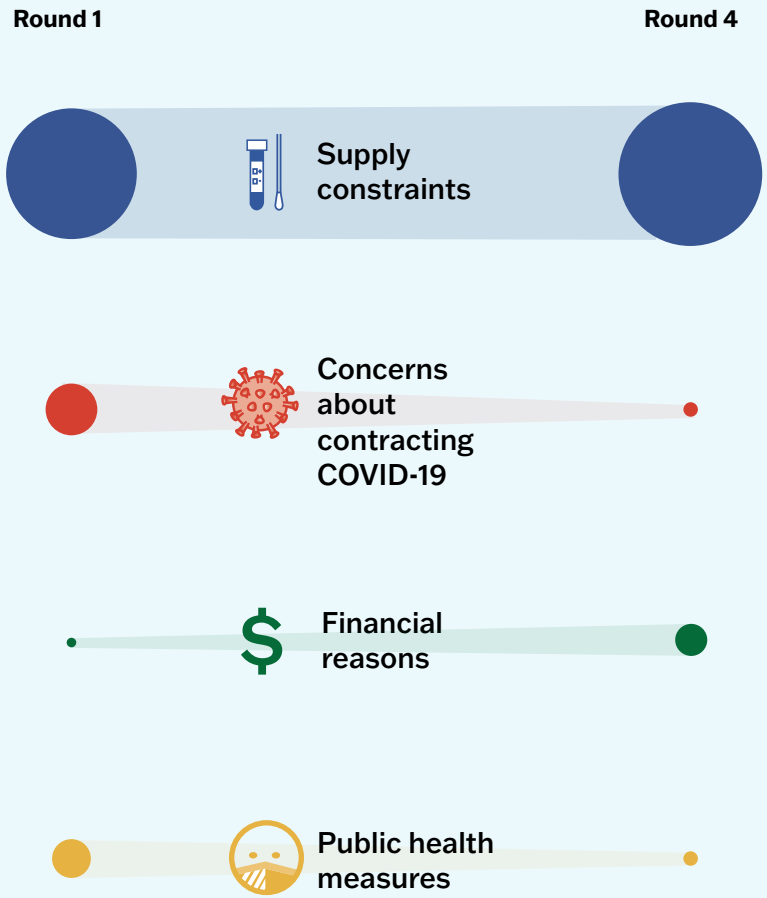


Source: Herrera et al. 2022.

The most common reasons for care disruption were factors related to healthcare supply constraints (e.g., no medical staff or no appointments available, closed facilities, not enough supplies/tests or medication/drugs, only treating emergencies, only treating COVID-19 patients, waiting for a long time, etc.); these factors accounted for over 50 percent of all reports in each round. Concerns about contracting COVID-19 followed, with 20 percent reporting this reason in the first survey round, declining to 5.6 percent in round 4. Financial reasons (e.g., lack of money or health insurance) varied between 3.7 percent and 12.4 percent of all reports. Public health measures (e.g., stay-at-home orders, movement restrictions, transportation interruption) accounted for 15.5 percent in the first round and declined to 5.6 percent in the fourth round (figure 9).

Photo credit: Governo do Estado de São Paulo (CC BY 2.0)

Figure 9. Reasons for Disrupting Healthcare Services, Four Survey Rounds 2020 and 2021, Average of 14 LAC Countries (weighted by population)



Source: Original figure based on Herrera et al. 2022.

Photo credit: Michelle Snow / USAID (CC BY-NC 2.0)

Impacts Across the Life Course: Disruptions for Children and Youth, Adults, and Older People

During the COVID-19 pandemic, people at all stages of life from childhood through old age experienced significant disruptions in healthcare services that will have significant impacts for the foreseeable future.

Detailed data collected[4] from several countries in the region of Latin America and the Caribbean (LAC) indicate that the impacts experienced by people were not only widespread across the region as discussed in the previous section, but also experienced by people of all ages and affected both preventative and treatment care: from children who missed out on key primary care services, vaccinations, and nutrition programs, to adults in need of diabetes and cardiovascular care, and older adults who experienced decreases in cancer care.

Children and Youth

Health services were disrupted, while economic and social stressors also increased their need for services, with particular impacts on:

- Primary care access
- Nutrition services
- Vaccinations for children

First and foremost, essential health and nutrition services for children have been disrupted. Primary and community-based programs that are the cornerstones of essential care for children were disrupted during

4 See Annex 1 for details on the data collection and analysis process.

the pandemic. Also of significant concern, nutrition and vaccination programs that have excellent rates of return as human capital investments were disrupted during the pandemic.

Children have also experienced COVID-19-related economic and social stressors that could notably impair their health and productivity now and in the future. Interventions such as social distancing and school and business closures, as well as family deaths, illnesses, and economic strains, have triggered material and social deprivations that significantly affect children's health. In the short term, these deprivations can lead to despair, anxiety, and depression, manifested as mental health conditions, self-harm, and drug and alcohol abuse. In the longer term, increases in material and social deprivations will affect health and productivity.

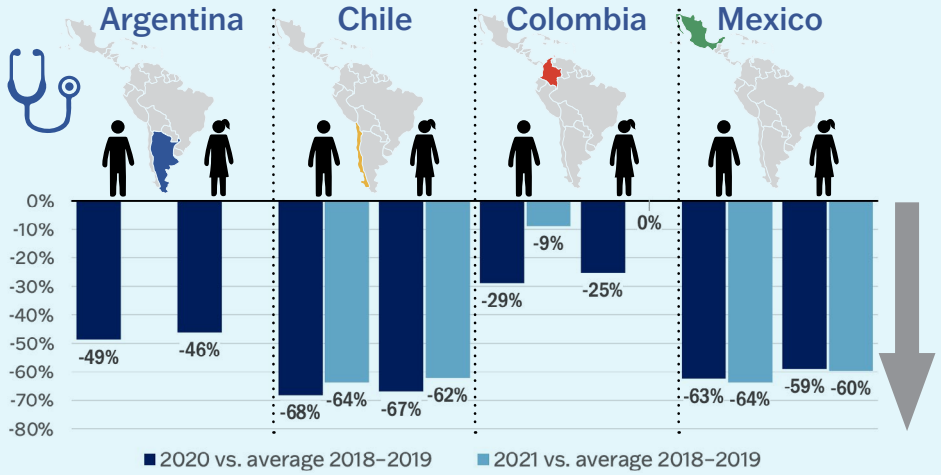
Primary care access

Routine contact with community-based primary care providers is very important for the health of children. These primary care visits provide opportunities for screening, prevention, and health promotion programs and often are the first point of access for essential care. Argentina, Chile, Colombia, and Mexico experienced large decreases in these types of contacts, decreases that continued into 2021 (figure 10). Investing in primary care is key to keeping children healthy as countries recover from the pandemic.

Nutrition services

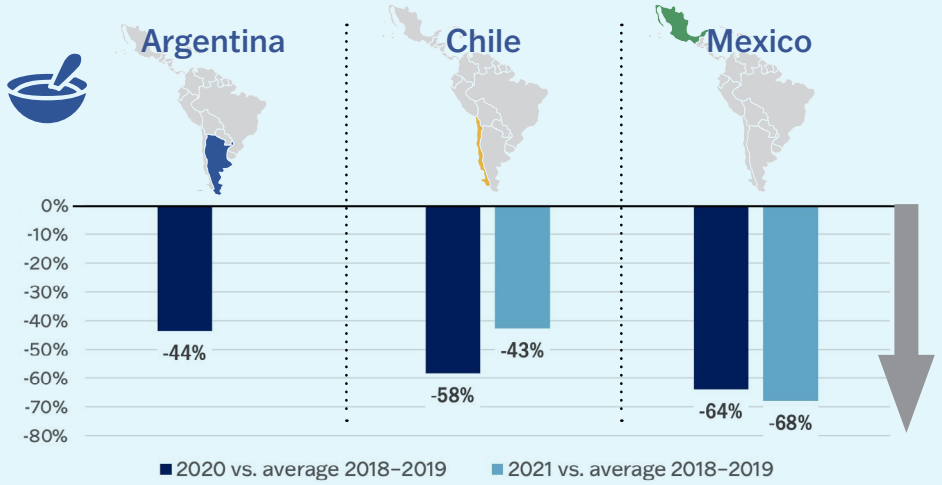
Nutrition programs are essential to improving children's health and longer-term prospects. They can be provided as part of routine primary care visits (as in Chile), or they can involve specific encounters in community settings (as in Mexico). In Argentina, Chile, and Mexico, children's visits to nutrition programs decreased dramatically at the start of the pandemic and continued at lower rates in 2021 (figure 11). If children do not get ongoing access to nutrition programs, there will be increases in both malnutrition and childhood obesity, both of which impair long-term health outcomes and economic prospects.

Figure 10. Percent Change in Number of Consultations for Children, by Gender, Argentina, Chile, Colombia, Mexico 2020 and 2021 vs. Average 2018–2019



Source: Original figure based on Programa Sumar 2022; Ministry of Health, Chile 2022; RIPS, Colombia 2022; Ministry of Health, Mexico 2022.

Figure 11. Percent Change in Number of Active Children in Nutritional Programs, Argentina, Chile, Mexico 2020 and 2021 vs. Average 2018–2019



Source: Original figure based on Programa Sumar 2022; Ministry of Health, Chile 2022; Ministry of Health, Mexico 2022.

Box 5. Modeling the Effects of COVID-19 Pandemic on Food Insecurity and Malnutrition and the Cost of Increasing Health and Nutrition Services Coverage for Children in Mexico

What the study found

Reductions in employment and income have been associated with increased food insecurity. Comparing 2021 to 2018, children were more likely to be stunted nationally, in rural areas, in the South, and in low marginalized areas. In the same period, children were more likely to be overweight at the national level and in the South.

What the authors concluded

The COVID-19 pandemic raised food insecurity in households with children, and disruptions to health and nutrition services led to increased malnutrition and mortality.

What the authors suggested

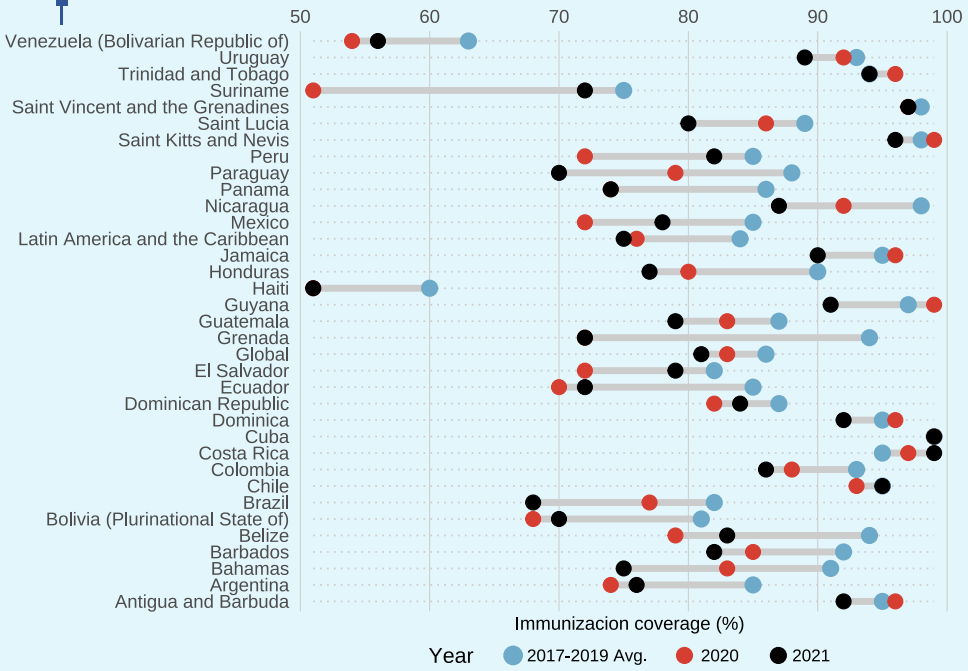
Investing in nutritional interventions for pregnant women and children is a cost-benefit strategy that must be guaranteed, especially in crisis situations, to prevent and mitigate malnutrition and its long-term effects on child development and economic burden.

Source: Gaitán-Rossi et al. 2021.

Vaccinations

Vaccination programs for children are complex and involve multiple vaccines given at different time intervals. Disruptions in vaccine delivery decrease coverage or protection from infection. Even relatively small reductions in coverage can have large impacts on herd immunity and can lead to epidemics. In almost all LAC countries, the COVID-19 pandemic resulted in lower vaccine coverage in both infants and older children, persisting into 2021 (figure 12). Prompt investment in efforts to increase vaccine coverage rates back to appropriate levels is crucial.

Figure 12. DPT3 Immunization Coverage in Latin America and the Caribbean (2017–2019, 2020–2021)



Source: WHO and UNICEF n.d

©UNICEF Ethiopia/2015/Meklit Mersha

Box 6. Impact of the COVID-19 Pandemic on Routine Childhood Immunization in Colombia

What the study found

The greatest reduction in proportion of the population vaccinated was observed in children less than 12 months of age for pneumococcal vaccine (second dose) with a 19.2 percent drop in coverage between 2019 and 2020. Among children 5 years of age, the biggest decrease occurred for the oral polio vaccine (second dose), with a difference of absolute decrease in coverage of 11.4 percent between 2019 and 2020. Vaccine coverage decreased more in rural areas than in urban ones.

What the authors concluded

Previous research has shown that 5 percent reductions in mass immunizations have been associated with a threefold increase in cases of vaccine-preventable diseases. Reduced uptake of immunizations during the COVID-19 pandemic poses a serious risk of vaccine-preventable disease outbreaks. Colombia and other middle-income countries need to continue to monitor immunization program coverage and disease outbreaks at the national and subnational levels and undertake catch-up vaccination activities.

What the authors suggested

The finding of lower vaccine uptake indicates the need for urgent immunization catch-up programs in Colombia. Rural areas have been disproportionately affected, with greater differences in vaccine coverage between 2019 and 2020, and must be a focus of vaccination efforts.

Source: Moreno-Montoya et al. 2022.

Adults

Disruptions in diabetes and heart disease care will increase future needs for health care services

Investments in care for adults with diabetes and heart disease are very cost-effective

- Cardiovascular disease and diabetes are major health burdens for adults in Latin America and the Caribbean (LAC).
- Investments in outpatient monitoring, and support for self-management and drug therapy are very cost-effective.
- Hospital-based interventions and care are essential services.

Adults have used less of these cost-effective services during the pandemic

- Adults with diabetes and/or heart disease are at high risk from COVID-19 and may have avoided care to avoid contracting COVID-19.
- Primary care was curtailed and hospitals diverted efforts to treat COVID-19 patients.

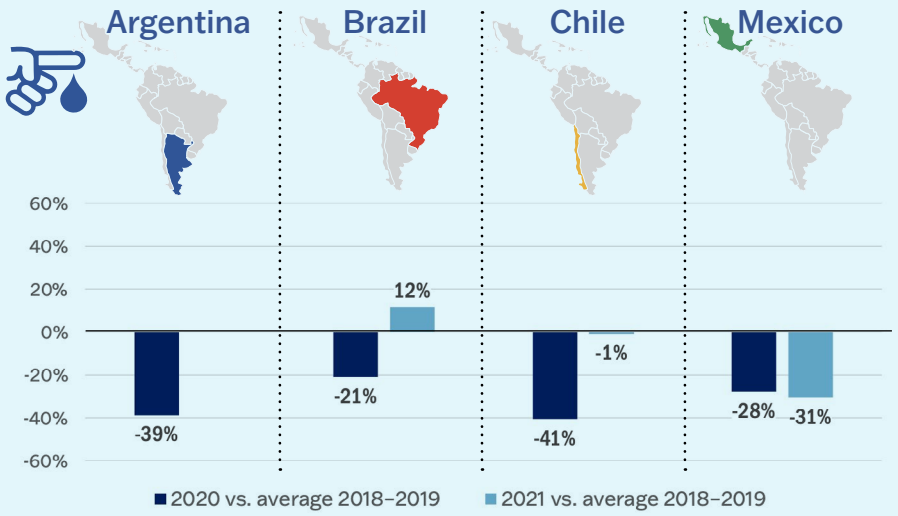
Diabetes programs

Cost-effective care for people with diabetes requires careful monitoring, using blood testing to guide appropriate drug therapy and prevent complications. In the first year of the pandemic, people in Argentina, Brazil, Chile, and Mexico were far less likely to get diabetes blood tests (figure 13). By 2021, Brazil, and Chile were able to make up for these decreases; but in Mexico, the substantial decreases in these tests continued. Unless action is taken quickly to catch up on these blood tests, there will be an increased number of people with diabetes complications in the future.

Hospital care for cardiovascular disease

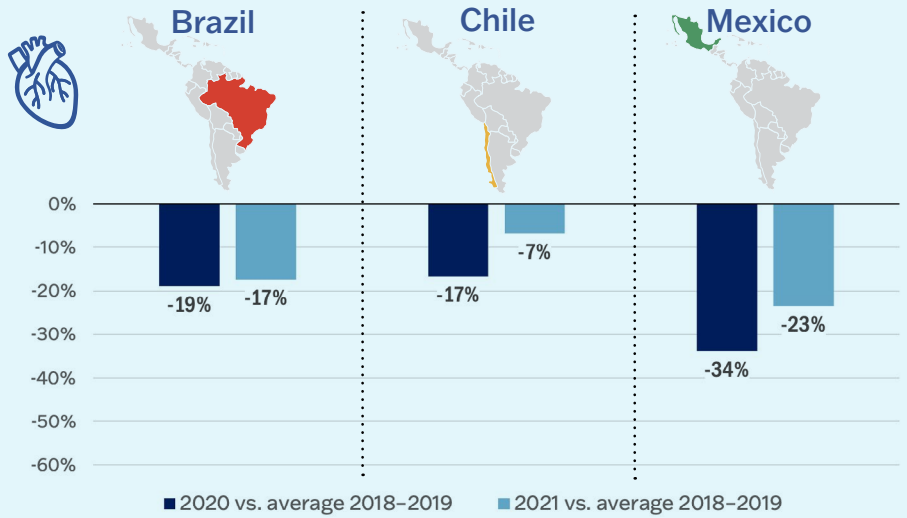
Hospital-based care services are essential in diagnosing and treating heart disease. Brazil, Chile, and Mexico have seen large and persistent decreases in hospital admissions for people with heart disease during the COVID-19 pandemic (figure 14). Unless investments are made to deal with this backlog of essential services, there will be increases in costs and in preventable mortality and morbidity in the future.

Figure 13. Percent Change in Number of Diabetes Blood Tests, Argentina, Brazil, Chile, Mexico, 2020 and 2021 vs. Average 2018–2019



Source: Original figure based on Programa Sumar 2022; Ministry of Health, Brazil 2022; Ministry of Health, Chile 2022; Ministry of Health, Mexico 2022.

Figure 14. Percent Change in Number of Hospitalizations for ICD-10 Chapter IX. Diseases of the Circulatory System, Brazil, Chile, Mexico, 2020 and 2021 vs. Average 2018–2019



Source: Original figure based on Ministry of Health, Brazil 2022; Ministry of Health, Chile 2022; Ministry of Health, Mexico 2022.

Note: ICD-10 = International Statistical Classification of Diseases and Related Health Problems, 10th Revision.

Box 7. Efficient Pathways and Strategic Investments to Accelerate Progress Towards SDG Target 3.4

What the study found

Most countries have made little progress on Target 3.4 of the Sustainable Development Goals (SDGs) on reducing premature mortality from noncommunicable diseases (NCDs) by a third from 2015 to 2030.

What the authors concluded

There are many interventions that countries at all income levels can feasibly implement to reduce premature mortality from major NCDs over the next decade. Cost-effectiveness data and other information can be used to define locally tailored packages. The greatest gains would be for cardiovascular disease mortality.

- Health taxes on products such as tobacco, alcohol, and sugar-sweetened beverages.
- Multi/inter-sectoral strategies to reduce behavioral risks
- Proactive community-based health promotion (e.g., nutritional coaching and supplementation, and sustaining adherence with support from community health workers and trusted leaders).
- Integrated care management models for chronic conditions and patient navigation schemes.

What the authors suggested

Scaling up these interventions is especially crucial in the context of COVID-19-related disruptions. Implementing the most efficient package of interventions in each world region would require, on average, an additional $18 billion annually over 2023–30. It could avert 39 million deaths and generate an average net economic benefit of $2.7 trillion ($390 per capita).

Source: NCD Countdown 2030 collaborators 2022.

Older People

Disruptions in cancer screening and treatment will have important consequences

Cancer screening and early treatment are cost-effective in older people

- Cancer is a major cause of death and morbidity in older people
- For many common cancers such as breast cancer there are cost-effective ways to screen in order to identify cancer at a stage where it can be effectively treated
- Screening takes place in the community, and surgical and drug therapy is often provided in hospitals

COVID-19 has caused disruptions in cancer screening and treatment

- Older people at risk of COVID-19 may have foregone services such as cancer screening
- Hospitals were overwhelmed and were forced to delay surgery or chemotherapy
- Curable cases may have been missed, decreasing survival and wellbeing

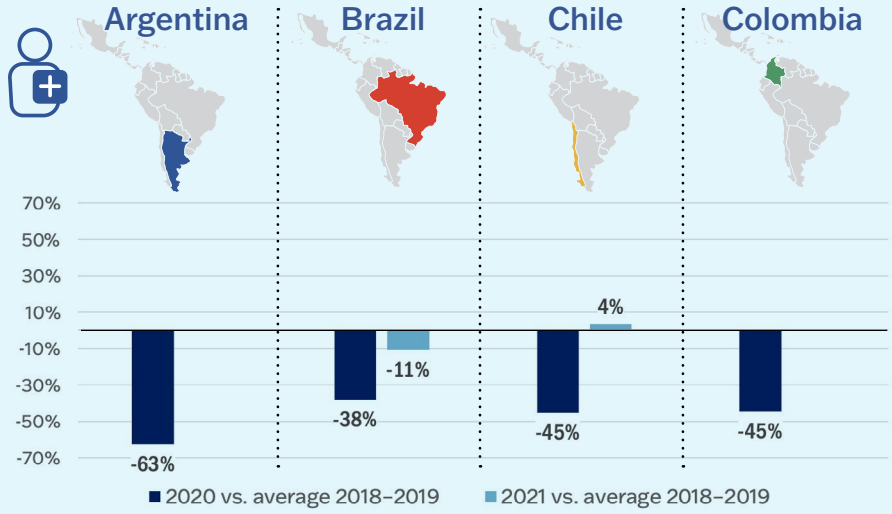
Breast cancer screening for older women

Breast cancer screening can be cost-effective in older women, especially in particular age groups, also taking a healthy longevity approach where the continuity of preventive exams across the life course is more beneficial. Screening involves routine mammography in community or hospital-based clinics and should be done routinely, as per national guidelines. In 2020, breast cancer screening decreased substantially in Argentina, Brazil, Chile, and Colombia. In Chile, the rates rebounded in 2021 but remained reduced and did not make up for tests missed in 2020. For screening to successfully identify early-stage cancer, countries will need to quickly make up for these delayed tests.

Cancer hospitalizations in older people

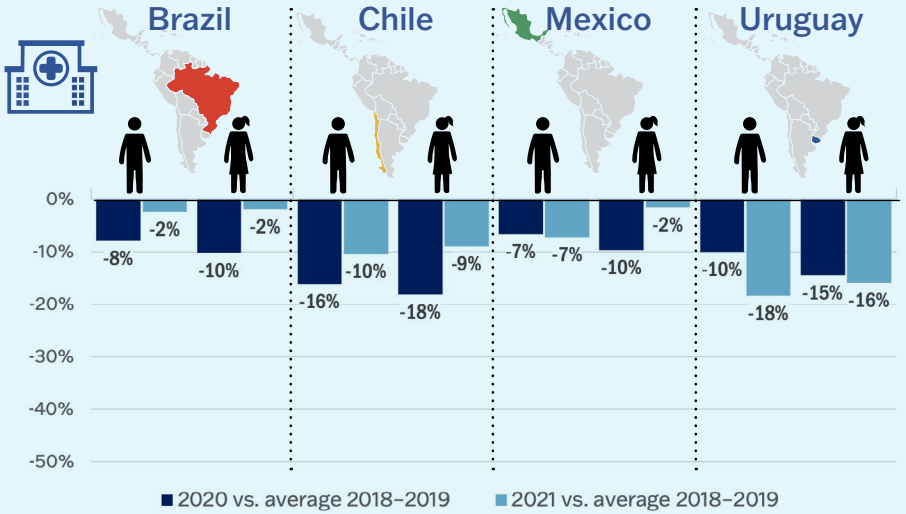
There are effective surgical and chemotherapy treatments for several early-stage cancers including breast and colon cancer. These treatments are often provided in hospitals. The COVID-19 pandemic has seen large and persistent decreases in hospital admissions for cancer in Brazil, Chile, Mexico, and Uruguay. Unless action is taken quickly, this will result in people not getting timely access to effective therapy for early-stage cancers. Unless this backlog in access to effective care is addressed promptly, there will be decreases in the quality and length of life of people with treatable cancers.

Figure 15. Percent Change in Screening for Breast Cancer for Older People, Argentina, Brazil, Chile, Colombia, 2020 and 2021 vs. Average 2018–2019



Source: Original figure based on Programa Sumar 2022; Ministry of Health, Brazil 2022; Ministry of Health, Chile 2022; RIPS, Colombia 2022; Ministry of Health, Mexico 2022.

Figure 16. Percent Change in Hospitalizations for Cancer for Older People, by Gender, Brazil, Chile, Mexico, Uruguay, 2020 and 2021 vs. Average 2018–2019



Source: Original figure based on Ministry of Health, Brazil 2022; Ministry of Health, Chile 2022; Ministry of Health, Mexico 2022; Ministry of Public Health, Uruguay 2022.

Box 8. Impact of COVID-19 in Cervical and Breast Cancer Screening and Systemic Treatment in São Paulo, Brazil: An Interrupted Time Series Analysis

What the study found

During the COVID-19 pandemic, 1,713,616 mammograms were missed or delayed during the COVID-19 pandemic, compared with those in the years immediately before the COVID-19 stay-at-home restrictions. There was a 25 percent reduction in the rate of initiation of adjuvant systemic treatment for early breast cancer (stage I/II).

What the authors concluded

The COVID-19 pandemic significantly reduced the performance rate of mammograms. The initiation of adjuvant treatment for early-stage breast cancer was most susceptible to COVID-19's health system disruptions.

What the authors suggested

The consistency of the findings, in addition to others reported in different countries, clearly show and support the need for public health strategies focused on mitigating the long-term effects of COVID-19 in cancer-related mortality.

Source: Duarte et al. 2022.

A 25 percent reduction in the rate of initiation of treatment for early breast cancer occurred in Brazil.

Inequities Exacerbated, Financial Protection Worsened: Evidence from Peru and Mexico

The Surveys

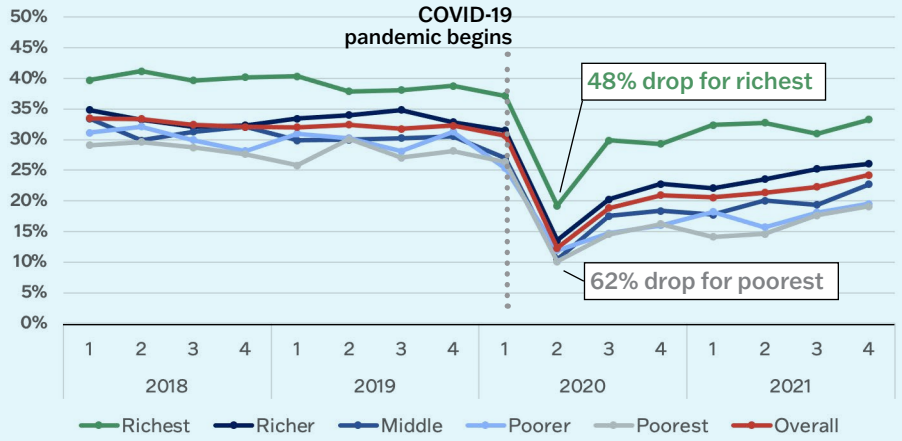
Peru and Mexico are among the few countries globally which, despite the COVID-19 pandemic, continued their household survey programs throughout 2020 and 2021. Peru's quarterly National Household Survey (ENAHO) which includes health service coverage and medical spending data[5] and its annual Demographic and Family Health Survey (ENDES) with information on access to a large number of specific health services are available for both years. Mexico conducted its bi-annual Household Income and Consumption Survey (ENIGH) which includes medical spending in 2020. Because pre-pandemic baselines are available for these surveys, they provide a rare window into how COVID-19 affected equity in health service coverage and financial protection in health.

Inequities in Health Service Coverage During the COVID-19 Pandemic in Peru

For the five quintiles of household per capita consumption in Peru, figure 17 shows quarterly trends in formal healthcare use among people with illness symptoms in the four weeks preceding the survey. Inequities existed before the pandemic, with formal care use rates of 39 percent for the richest quintile and 28 percent for the poorest quintile in the fourth quarter of 2019. The onset of the pandemic triggered a collapse in formal healthcare use in the in second quarter of 2020 across all socioeconomic levels, with drops ranging from 48 percent in the richest quintile to 62 percent in the poorest quintile. The recovery has also been starkly uneven, leading to a substantive increase in inequity compared to pre-pandemic levels; **as of the fourth quarter of 2021, formal care use stood 14 percent below its levels of the fourth quarter of 2019 for the richest quintile, while remaining 37 and 32 percent reduced for the poorer and poorest quintiles.**

Figure 18 shows trends in childhood measles vaccination in Peru by wealth quintile. The share of children having received the measles vaccination peaked at 87 percent in 2019, with only minor differences across children from rich and poor households. Vaccination rates then dropped across all quintiles in 2020. This initial decline was less pronounced for the poor, but while the upper three wealth quintiles all partly recovered the

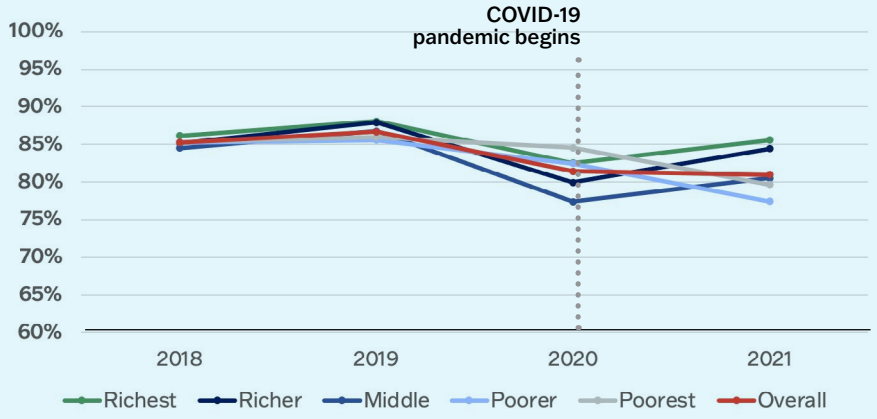
Figure 17. Formal Healthcare Use Among Population with Illness Symptoms in the Past Month, 2018–21 by Quarter



Source: Perú Instituto Nacional de Estadística e Informática n.d.b.

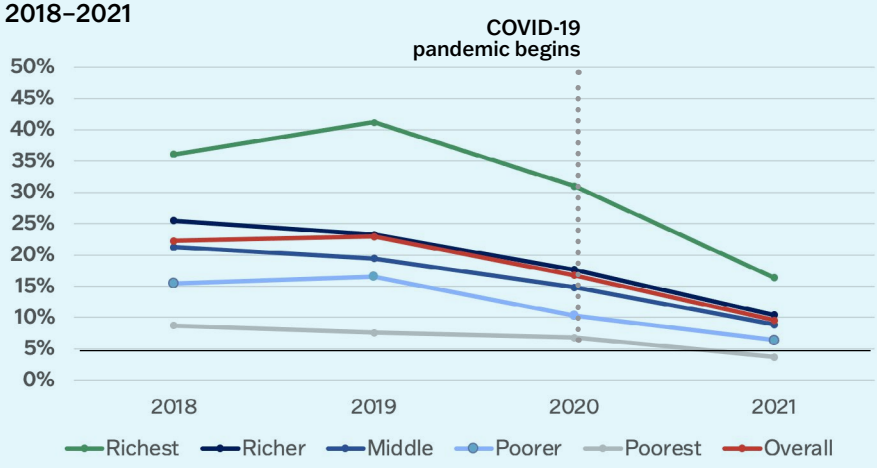
5 ENAHO changed to phone interviews in the second and third quarters of 2020 but returned to face-to-face interviews in the fourth quarter of the same year.

Figure 18. Children Aged 15–23 Months with Measles Vaccination in Peru 2018–2021



Source: Perú Instituto Nacional de Estadística e Informática 2022.

Figure 19. Women Aged 40–70 with a Breast Exam in the Last Year in Peru 2018–2021



Source: Perú Instituto Nacional de Estadística e Informática n.d.a.

2020 reductions in the following year, vaccinations continued to trend downwards for the poorer and poorest in 2021, leading to a stark increase in inequity compared to prior to the pandemic.

A somewhat different picture emerges for the share of women undergoing breast cancer screening (figure 19). Prior to the pandemic, access to this type of preventative care was highly inequitable with rates of 41 percent for the women in the richest quintile compared to just 8 percent among the poorest. Then 2020 brought about drastic reductions in cancer screening across all wealth quintiles, and screening rates continued to decline in 2021.[6] However, in contrast to formal care use and measles vaccination, the much larger and persistent absolute drops in vaccination rates among the richer rather than the poorer quintiles led to an overall reduction in cancer screening inequities as of 2021.

Financial protection in health during the COVID-19 pandemic in Mexico and Peru

As shown in figure 20, for both Mexico and Peru, indicators of financial protection in health show a substantive deterioration during the pandemic. In Mexico, the population share with catastrophic health payments—defined as a household using more than 10 percent of its consumption budget for out-of-pocket (OOP) medical spending—increased from 3.6 percent in 2018[7] to 5.7 percent in 2020 in Mexico, a relative gain of 60 percent. In Peru, catastrophic health payments

6 Because the ENDES breast cancer screening questions have a one-year reference period, it is possible that the lower rates in 2021 compared to 2020 are in part due to reference periods in the 2021 round of the survey almost exclusively capturing pandemic months whereas there was still substantive overlap between pre-pandemic and pandemic months for questions with one-year reference periods in 2020.

7 The catastrophic spending rates shown here for pre-pandemic years are substantively lower than the rates presented in the Global Monitoring Report on Financial Protection in Health 2021. The reason for this discrepancy is that the Global Report uses the Luxembourg Income Study version of the ENIGH which is not yet available for 2020.

rose from 8.1 percent in 2019 to 9.7 percent in 2020 and reached 12.9 percent in 2021.[8]

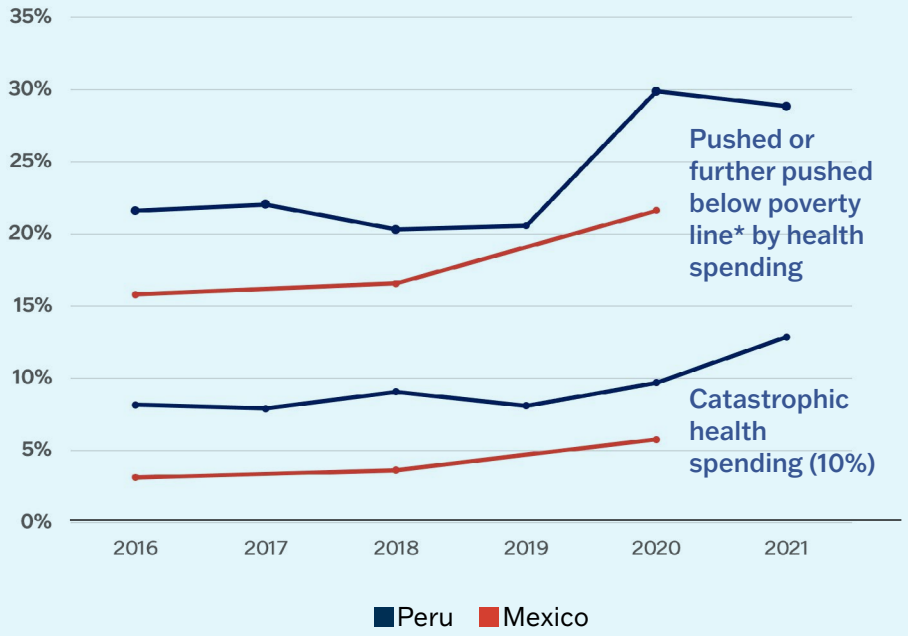
The prevalence of impoverishing medical payments (here defined as the population being pushed below or further below the international upper-middle-income poverty line of $5.50[9] (PPP) by OOP health spending) stood at 30 percent in Peru in 2020—a 45 percent increase over 2019 levels—and remained heavily elevated, at 29 percent, in 2021. The increase in medical impoverishment was somewhat less pronounced but still substantive in Mexico, where the rate rose from 17 to 22 percent of the population between 2018 and 2020, or 29 percent in relative terms.

Evidence from national household surveys in Mexico and Peru reveal that COVID-19 caused service coverage declines across all socioeconomic levels. For health services where recovery is happening, it favors the rich and is hence associated with increases in inequity compared to pre-pandemic levels. In terms of financial protection in health, a persistent worsening is observed for both catastrophic and impoverishing payments. In summary, **the survey data provide strong indications that the pandemic is eradicating hard-won progress towards universal health coverage (UHC) in Mexico and Peru. These worrisome findings likely translate to many other countries in the LAC region.**

8 Besides persistent income losses and new OOP health spending needs, an additional methodological reason for the further increase in OOP medical spending in 2021 relates to different recall periods in the ENAHO questionnaire.

9 All currency is in U.S. dollars unless otherwise indicated; PPP = purchasing power parity.

Figure 20. Population with Catastrophic and Impoverishing Out-of-Pocket Health Spending in Peru and Mexico 2016–2021



Sources: Perú Instituto Nacional de Estadística e Informática n.d.b.; México Instituto Nacional de Estadística, Geografía e Informática n.d.

*$5.50 poverty line

Chapter 3: Health System Impacts: Constraints and Innovations

The COVID-19 pandemic preyed on pre-existing structural weaknesses and uncovered new challenges to health systems. But it also catalyzed notable innovations that offer significant promise, if integrated and taken to scale, to improve health systems resilience and the health of populations.

Photo credit: UNICEF Ethiopia/2013/Sewunet (CC BY-NC-ND 2.0)

Overview: Impacts on Health Systems

The COVID-19 pandemic preyed on pre-existing structural weaknesses and uncovered new challenges to health systems. But it also catalyzed relevant innovations that offer significant promise, if integrated and taken to scale, to improve health systems resilience and the health of populations.

Photo credit: Jairo Bedoya Villa / World Bank

Negative impacts: following the onset of the COVID-19 pandemic, health systems experienced two significant types of constraints: (i) known structural weakness that the pandemic exacerbated; and (ii) system constraints newly exposed by the pandemic.

Previously identified weaknesses that worsened during the pandemic included:

- System fragmentation
- Limitations in human resources and infrastructure
- Financial constraints
- Shortcomings in governance and trust

Example

In **Peru**, 30–40 percent of health personnel stopped working because their own health was at risk and 7,000 centers of first contact care were closed due to lack of personnel and personal protective equipment (PPE).

Negative impacts: newly exposed weaknesses most notably included significant service delivery disruptions.

Countries with the greater pre-existing shortfalls in health system management had greater difficulties in coping with COVID-19.

Delayed care and lack of control in treatment adherence and filling prescriptions were the most frequent consequences.

Beneficial innovations: notable effective, innovative measures that countries undertook that mitigated constraints and should be considered in determining how to improve health system resilience and efficiency going forward.

Innovations fell into the following categories:

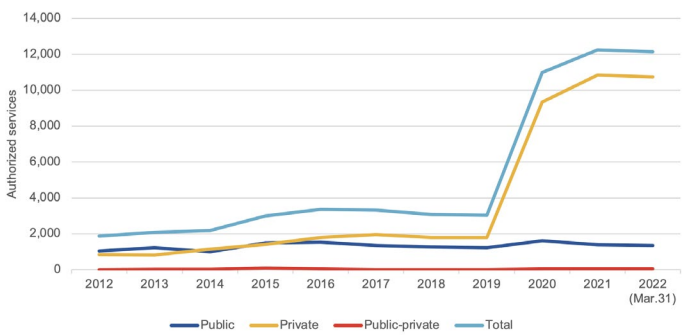
- Substantial expansions of telemedicine and telehealth services
- Integrated use of public and private facilities
- Use of data in decision-making
- Other innovations to improve access to services

Examples

In **Chile**, authorizations of many telemedicine services rose by 400–500 percent in a matter of months and those gains have been sustained into 2022.

In **Mexico**, the population was allowed to access any health subsystem, regardless of their social security affiliation.

Telemedicine Services Authorized in Colombia 2012–2022



Source: Ministerio de Salud y Protección Social, Registro Especial de Prestadores de Servicios de Salud (March 31, 2022).

Understanding the impacts of the COVID-19 pandemic on health outcomes requires careful consideration of the effects on both people and the health systems they rely on. Chapter 2 explored the first part of that equation: delving into the pandemic's far-reaching impacts on patients seeking health care and how those experiences were exacerbated by existing gaps and vulnerabilities in health service delivery.

This chapter turns its attention to the other side of the equation: how the pandemic has affected health systems, exploring the main constraints and innovations experienced by decision-makers in LAC countries. This includes considering how the pandemic exacerbated existing gaps and vulnerabilities in health service delivery. But it also includes two other critical components: (i) the ability of health systems to respond to shocks and stresses; and (ii) the use of innovations. In this regard, it is important to note that the ability of health systems to respond to and recover from shocks and stressors while continuing to provide essential care is a critical capacity for effective health systems and it requires the system's building blocks, such as the following (Sheikh et al. 2011), to be integrated and well-functioning.

Hardware elements

- Human and financial resources
- Medicines and information technology
- Infrastructure (e.g., health facilities, transport systems, electricity, and WASH (water, sanitation, and hygiene)
- Health information systems

Software elements

- Organizational structure within and across micro, middle, and macro levels (relationships, dialogue, alliances, and power)
- Governance and regulations
- Communication, trust, and social participation and engagement

This chapter addresses these issues and highlights some important lessons that have been learned on how to further enhance resilient and integrated health systems. Moving forwards, given that many of these actions were ad hoc, the challenge and opportunity will be to determine how health systems can take smart steps to further implement these lessons and innovations. Those lessons and opportunities are then explored further in chapter 4, which considers the road ahead, offering a framework for key investments to build resilient health systems.

Photo credit: Jairo Bedoya Villa / World Bank

Constraints on Health Systems

Health system constraints following the onset of the COVID-19 pandemic fall into two groups: (i) structural weakness that were already known prior to the pandemic and which the pandemic further highlighted; and (ii) health system constraints newly exposed by the pandemic.

Known Structural Weaknesses of Health Systems Exacerbated During the Pandemic

Fragmentation of health systems and inequalities

Across the region of Latin America and the Caribbean (LAC), health systems are marked by significant, long-standing fragmentation, including fragmentation between public and private health systems and fragmentation within public health systems—fragmentations with a track record of exacerbating inequalities in health access and which worsened with the arrival of COVID-19. As one respondent noted:

> *"We have a highly fractionated system and that prevents us from having a correct… epidemiological management, data. That is, everything is segregated in the public system, in the public health system… in private clinics, and there is no reliable dataset that collects all this information. I think we have another chance… it has to do with the use of systems that allow us to collect, have interconnection of data between the public and the private [sector] to favor the exchange of benefits."*

The type of health subsystem determined the pathway of care followed by the various populations infected with COVID-19 during the pandemic. In this regard, in the four countries analyzed, the interviewees agreed that the most affected groups were the vulnerable populations living in rural areas, indigenous populations, and poor people living in the peripheries of large cities who could not move into the city to get health care services. An interviewee from Peru commented that people without social security were also affected.

Other populations were also affected as the pandemic evolved: patients with chronic diseases and older adults during the first wave; and people with comorbidities and unvaccinated, as well as pregnant women and children under five years of age during the second wave.

Photo credit: Charlotte Kesl / World Bank (CC BY-NC-ND 2.0)

The most affected groups were the vulnerable people living in rural areas, indigenous people, and poor people living in the peripheries of large cities.

Financial resource constraints

Although Chile, Colombia, Mexico, and Peru were all able to expand their hospital capacity to address the pandemic, difficulties abounded in obtaining financial resources, adapting infrastructure, paying for renovations, and acquiring equipment and supplies.

The change in the focus of medical care toward COVID-19 included financial readjustments to set up COVID-19-specific hospital areas, purchase personal protective equipment for health personnel, hire more workers, and deploy them in both urban and rural areas, with the last requiring greater investment in Peru due to infrastructure deficiencies in medical facilities.

Another constraint was the combination of shortages and exorbitant price increases in critical supplies and medicines.

In Colombia, difficulties arose in relation to personal protective equipment (PPE) and the financial support offered by occupational risk insurers (*Administradoras de Riesgos Laborales*, ARLs). Although the ARLs supplied inputs, they did not manage to cover even 5 percent of the total PPE required, so these expenses were borne by the clinics, creating a lack of protective equipment for health workers that complicated the provision of care for both COVID-19 and other patients. Likewise, the health insurance companies (*Entidades Promotoras de Salud*, EPS) to which the clinics sold services did not consider the challenges of maintaining the services and developing alternative strategies for patient follow-up.

Moreover, a fiscal gap occurred, due to a decrease in the provision of services to patients by health insurance companies (EPS). This was caused by confinement measures at the national level and by non-payments by the health insurance companies to the hospitals because of the financial imbalance of budget deficits caused by the pandemic.

Health human resources and infrastructure

All four countries also faced a lack of human resources. Insufficient nurses, respiratory therapy personnel, and doctors led to overloaded staff, with consequences for their physical and emotional health.

Health personnel shortages also prompted changes in the requirements for hiring staff from other countries.

In Peru, 30–40 percent of health personnel stopped working because their own health was at risk; 7,000 centers of first contact care were closed due to lack of personnel and PPE, which affected, among others, children, as immunizations and access to anemia medicines for children under 3 years of age were disrupted.

In Chile, health workers went on medical leaves of absence or resigned due to burnout. As one interviewee noted: “During 2020, we did not receive resources to hire personnel, and so all the personnel worked everywhere. We had a psychologist, a dentist, a nutritionist delivering medicines in pharmacies and at home; social workers and paramedics receiving people at the hospital entrance...we all worked across the board.”

In Peru, staff from Bolivia and Venezuela were hired. An ongoing related challenge is to retain and improve the conditions for the workers hired during the pandemic and to reassign them to regions with the greatest need, such as rural areas.

An important challenge to hospital care was the lack of infrastructure.

In Mexico City, of 34 hospitals, 14 general hospitals provided a range of in-patient services; the rest, which are maternal-child and pediatric hospitals, did not care for COVID-19 patients. Care to pregnant women continued to be offered, but to a lesser extent.

Another barrier was the shortage of ambulances to transfer both routine and COVID-19 patients.

Photo credit: Jan Friedrich (CC BY-NC-ND 2.0)

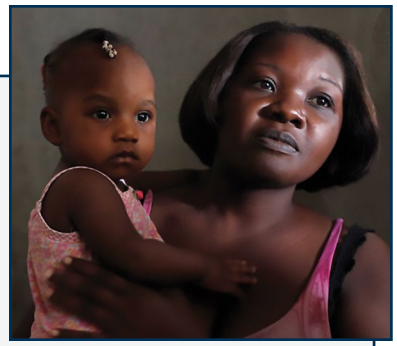
Governance and trust

Whereas fragmentation, financing, human resources, and infrastructure all speak to critical supply-side constraints, the pandemic also underlined an important demand-side challenge: public perceptions concerning the health system and the impacts of COVID-19. All COVID-19-specific constraints came on top of long-standing distrust of public institutions, including health systems, by significant swaths of the populations. In Chile, for example, efforts to provide in-home care proved difficult because people were reluctant to admit health personnel into their homes.

At the same time, doctors expressed frustrations with teleconsultation, noting that it prevented them from having the usual direct contact with the patient.

In the context of home care, doctors also mentioned concerns about biosecurity and hygiene conditions to which they were exposed in patients' homes.

In Peru, the indigenous population displayed distrust about vaccines, but that distrust was not adequately addressed. In this regard, an interviewee pointed out: "The indigenous health program was given a lot of resources; we made a special effort to make them the first to be vaccinated....We were not successful in all cases....We have difficulty with vaccine coverage because they are very resistant to vaccines. They have a very high level of distrust. But on the side of the State, they were considered as part of the priorities of national public policy."



Box 9. COVID-19 Vaccination Rates in the Caribbean Lower than the Rest of LAC

LAC has seen a striking difference in vaccination progress between Caribbean countries and the rest of the region, with the former having a lower overall vaccination rate (averaging 35.7 percent versus a 77.2 percent region-wide average for LAC). Furthermore, there are disparities within the Caribbean: in 40 percent of Caribbean countries full vaccination rates are below 50 percent of the population, and Haiti has the lowest vaccine coverage (1.6 percent).

New evidence from the World Bank high-frequency phone surveys on COVID-19 vaccine acceptance and uptake in the Caribbean ***shows that while the vaccine supply was initially slow, this is no longer the primary reason for low vaccination rates.***

- While vaccination rates and vaccine acceptance among respondents significantly improved in 2021, vaccine acceptance remains a challenge.
- By the end of 2021, the countries with the highest proportions of adults reporting to be unvaccinated or people with vaccination concerns (no plan to be vaccinated or unsure) were Haiti (45 percent), Saint Lucia (29 percent), and Dominica (28 percent).
- The main reasons for not planning to vaccinate were concerns about (i) the relationship between benefits and risks of the vaccines; and (ii) a lack of trust, including lack of information and concerns around vaccine effectiveness.
- People living in households without internet access were more likely to have concerns.
- On the positive side, the data suggest that efforts to address concerns related to COVID-19 vaccines are not leaving any socio-economic group behind.

What is the way forward?

- Safety concerns around vaccination should be urgently addressed to improve COVID-19 vaccine uptake.
  - » Accurate information must be provided through various communication mediums to reach populations, including those without internet, and should include in-person communications from health workers or other trusted sources.
  - » Concerns about vaccine safety may also extend to other types of vaccination. Looking forward, preventing a decline in basic immunizations is critical to avoid undoing years of public health progress achieved in the LAC region.
- We need to better understand socio-behavioral motivations and constraints to vaccination.
  - » Demand promotion strategies have been effective when they target identified barriers to vaccine acceptance and uptake—drawing on local data on behavioral and social drivers and using local understanding of the context, concerns, and needs of communities.
  - » Rapid phone surveys can be a timely and cost-effective way to gather information on vaccine acceptance and uptake and to monitor changes over time under rapidly changing circumstances.

Photo credit: Jairo Bedoya Villa / World Bank

New Challenges Exposed by the Pandemic: System Resilience and Access to Key Services

The pandemic also exposed new challenges for health systems as they struggled to meet pandemic-related needs while also continuing access to other essential services.

In all four countries, the greatest disruptions occurred in treatments for noncommunicable diseases (NCDs), general consultation, early detection of conditions, and preventive programs.

Greatest Disruptions by Country as Reported in Interviews

Countries with the greater pre-existing shortfalls in health system management had greater difficulties in coping with COVID-19.

Gradually, all hospitals in the region became COVID-19 hospitals, and even within that realm, some services were overstretched, particularly oxygen therapy and intensive care services. As one interviewee noted:

> *"The blow to health services was systemic....the epidemiological surveillance system, the laboratory systems were completely overwhelmed. Demand far exceeded the capacity to process diagnostic tests....as for the first level of care, without possibilities of making a diagnosis and without possibilities of giving treatment, they were exceeded too. Hospitalization was also overwhelmed, especially for oxygen therapy and intensive care therapy...."*

Disruptions in care for high-burden diseases such as tuberculosis will cause the greatest short- and long-term consequences.

In **Peru**, advances in early detection and continuity of treatment of those diseases have been put at risk; while basic infrastructure deficiencies, such as lack of drinking water and internet in 30 and 70 percent of medical facilities, respectively, affected health system responses, especially in rural areas.

Delayed care and lack of control in treatment adherence and filling prescriptions were the most frequent consequences.

Colombia saw delays in surgeries, general medicine, and pediatrics consultations—delays that most affected people with late diagnoses and populations that have traditionally had less access to health services.

In **Colombia**, the interruption of services was aggravated because the health insurance companies (EPS) did not inform users in a timely manner about health service management measures, such as schedules and modalities of care (virtual or face-to-face); as an interviewee explained:

> *"There was no communication from the EPS so the patients didn't know how to move around the system. They never put a large sign on the IPS [institutions providing health services] so that people could see the information. The philosophy was "the problem is the patient"; the EPS did not solve anything....call centers were flooded with calls."*

In **Chile**, decisions taken—including the cancellation of "elective surgeries"—represented **the cancellation of approximately 5 percent of services routinely provided every month. In this regard, a hospital director commented that the cancellation of these services took for granted that "elective" meant not urgent.** Yet, postponing health services entailed risks of complications for patients, such awaiting surgeries, medical specialties, and dental services.

Photo credit: Don Harder (CC BY-NC 2.0)

In primary care, the **main disruption occurred in preventive services requiring face-to-face and group management of patients,** such as pregnant women and patients with chronic diseases.

Shortfalls in care for acute illnesses, such as peritonitis, gallbladder gangrene, and heart attacks were also noted, as was an expected increase in mental health problems, such as psychotic symptoms, anorexia, and suicide attempts.

In **Mexico and many other countries in the region**, the **lack of breast cancer detection** will affect many women who will be diagnosed in more advanced stages.

Photo credit: Curt Carnemark / World Bank (CC BY-NC-ND 2.0)

Health System Innovations During COVID-19

While it is important to map the constraints the pandemic caused to health systems, it is equally essential to document effective, innovative measures that countries took that succeeded in addressing some of these constraints and that should be considered when determining best steps to improve health system resilience and efficiency going forward.

Substantial Expansion of Telemedicine and Telehealth Services

In **Colombia**, the first appointment for COVID-19 patients was in-person, with follow-ups conducted remotely (with difficulties due to infrastructure constraints) or through home visits. As one interviewee explained:

> *"From the regulatory point of view, there were also positive experiences [with the delivery of medicines to patients' home]. For example, controlled medicines....it is the first time in Colombia that they could be delivered at home, complying with all the control and inspection protocols, and that is an advance..."*

Chile, Colombia, Mexico, and Peru all made significant advances in their use of telemedicine and telehealth services in response to the pandemic. All four promoted teleconsultation, home care, and mobile phone applications to disseminate information on COVID-19 prevention measures how to use PPE. A particular focus was placed on care for people 70 years or older and those with chronic conditions.

In the four countries, much of the care was provided through telephone calls, teleconferencing, or social networks such as WhatsApp or Facebook.

However, not all medical facilities had the technology needed, so some options were only available in places with internet access, usually in cities.

Mexico and **Chile** set up **call centers**, with calls followed up by specialists who referred patients to the different levels of care.

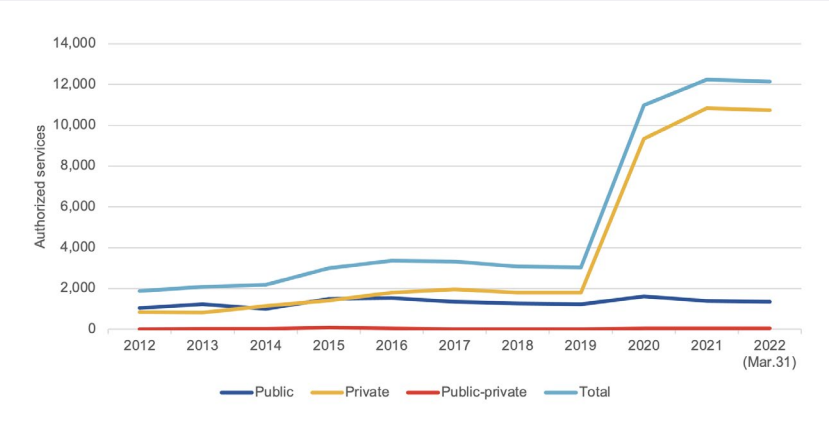
Chile tracked medicine prescriptions through a platform that allowed scheduling the delivery one week in advance; antenatal care was maintained, but appointments were spaced out.

Photo credit: Esther Vargas (CC BY-SA 2.0)

Case Studies in Telemedicine: Colombia

As a result of the COVID-19 pandemic, the use of telemedicine in Colombia has increased significantly (figure 21). The main services offered are general medicine, psychology, internal medicine, pediatrics, nutrition and dietetics, obstetrics and gynecology, dermatology, nursing, orthopedics and/or traumatology, and psychiatry. This has significantly changed access to services for both people in mandatory isolation and people in rural areas (36 percent of the public providers that deliver telemedicine services operate in areas belonging to the National Rural Health Plan).[10] Moving forward, telemedicine has the potential to increase access to health services in ways that improve the quality of life for patients, even in the absence of pandemics.

Figure 21. Telemedicine Services Authorized in Colombia 2012–2022



Source: Ministerio de Salud y Protección Social, Registro Especial de Prestadores de Servicios de Salud (March 31, 2022).

10 The National Rural Health Plan aims to close the urban-rural gap by improving health outcomes in rural areas of the country (Ministry of Health and Social Protection, *Plan Nacional de Salud Rural*, 2018).

Case Studies in Telemedicine: Argentina
SUMAR project

Since 2004, Argentina has been implementing a strategy to strengthen provincial health systems to compensate for the difficulties in accessing and using health services for the 36 percent of the population with Exclusive Public Health Coverage. In 2019, the National TELESALUD Plan was approved,[11] with telemedicine consultations incorporated into the SUMAR Program benefits package for second opinion consultations only. Due to the pandemic, telemedicine demand grew exponentially and was fully deployed for all types of consultations. This expansion helped to cover a gap of around 18.6 percent of medical services/consultations that were not able to be provided face-to-face. Almost 86 percent of the telemedicine consultations were COVID-19 related: contact tracing (47.8 percent), clinical follow-up of people with COVID-19 (26.1 percent) and with clinical suspicion (17.1 percent). The rest of the consultations were related to people searching for alternatives given the impossibility of face-to-face consultations (e.g., 3.9 percent for clinical checkups, and 3.7 percent for mental health).

As a result of the pandemic, telemedicine has had a transformative impact by providing new ways for people to access health services and changing the scale on which telemedicine services are available, particularly in the COVID-19 context. To further the goal of continually improving quality of care and patient safety and advancing efficient and person-centered care, in March 2022, the National Directorate for the Integration of Coverage and the National Directorate for the Quality of Health Services and Health Regulation, jointly developed the Good Practices Document for Teleconsultation, a reference tool for the standardization and normalization of practices and the improvement of the quality of the latter, within the framework of telemedicine.

11 To implement this policy, the Federal Platform for Telehealth and Distance Communication and the web conferencing system were made available to carry out second professional opinion teleconsultations, intra and inter jurisdictional, synchronous or asynchronous; and first opinion teleconsultations, which enable remote assistance and follow-up of patients at home.

Use of Data for Evidence-Based Decision Making

The sharing of data and analysis to improve decision making also increased.

In **Colombia**, the Ministry of Health **started a digital transformation that will enable incorporating interoperable clinical data systems** and establishing a fully electronic invoicing and a unified information system in the medium-term.

Government officials in **Chile** and **Mexico** sought out **scientific support from academic institutions to improve the accuracy of estimates of COVID-19 prevalence** and incidence as well as demand for services, and to better analyze regional epidemiological trends, institutional responses, and network resource capacities.

Colombia created the COVID-19 Safe Economic Reactivation dashboard. Updated daily, it brings together over two dozen health and economic datasets to support data-driven decision-making about school reopenings and the lifting of stay-at-home orders.

Peru concentrated much of the response capacity in the National Cancer Institute and merged the National Epidemiology System with the National Laboratory System at the National Institute of Health.

Box 10. World Development Report 2021: Data for Better Lives

Forge a new social contract for data

- Creating a social contract for data to enable data use and reuse, while ensuring equitable access to the value realized, as well as fostering participants' trust that they will not be harmed by data misuse
- Undertaking renewed efforts to improve data governance domestically and improve international cooperation

Increase data use and reuse to realize greater value

- Increasing access to more users through open data, interoperability standards, and data sharing initiatives
- Combining these data with traditional sources to tackle data gaps, provide timelier and finer-scale assessments of programs and policies, and support public policy needs

Create more equitable access to the benefits of data (production, use, and profit)

- Recognizing that both low- and middle-income countries lack the data infrastructure and statistical capacity/data literacy necessary to quickly and securely analyze, exchange, and store data
- Addressing challenges to data access for machine learning that constrain development of home-grown platform businesses that could be globally competitive
- Working to ensure efforts to improve the fairness of the global data system address these inequities

Foster trust through safeguards that protect people from harm caused by data misuse

- Recognizing that the more data are reused, the greater the risk of data misuse in forms such as: (i) cybercrime; (ii) politically or commercially motivated surveillance; and (iii) discrimination based on ethnicity, religion, race, gender, disability status, or sexual orientation
- Addressing these concerns through personal data regulation grounded in a human rights framework, supported by policies that secure both people and the data systems on which they depend

Work toward an integrated national data system (INDS) that allows the flow of data among a wide array of users

- Creating a well-functioning INDS requires explicitly building data production, protection, exchange, and use into planning and decision-making, while also actively integrating the various stakeholders into the data life cycle and into the system's governance structures
- Proper financing and incentives to produce, protect, and share data—essential foundations of an effective INDS
- Increasing investment in physical and human capital to improve data governance, specialized analytical and data security skills, as well as the data literacy of the public

Source: World Bank 2021c.

Health Systems as One System: Reducing Fragmentation Through Governance Reforms and Public-Private Health Care Provision

All four countries issued decrees to improve response management and system governance and the integrated **use of public and private facilities, in order to facilitate medical care and boost the ability of their health systems to adapt dynamically throughout the crisis.**

Top-level officials played an important role: (i) issuing regulations and laws to facilitate care strategies; and (ii) overseeing the setting up of inter-institutional agreements and public and private participation to promote efficient, effective governance.

Colombia created an emergency affiliation for the General Social Security System to guarantee care for people who lost their jobs and to facilitate the ability of health care institutions to provide care remotely. The Colombian government also moved quickly to pass key administrative acts such as Decree 538, which supplied the normative grounding for most of the changes made in the insurance system and the provision of health services, and Resolution 536, which adopted an action plan for providing health services. This resolution detailed the expansion, adjustment, and enhancement of capacities of the institutions providing health services and transportation and expanded the authorized service providers to include independent providers. It also adapted the qualification criteria so providers could operate using transitional authorizations under certain circumstances.

In **Chile**, the Ministry of Health assumed full authority to manage and dispose of all hospital beds in the country (public and private institutions).

In Mexico the population was allowed to access any health subsystem, regardless of their social security affiliation. And the General Health Council of Mexico implemented the "Hospitals for Mexico" strategy that allowed the private sector to provide beds to hospitalize patients and garnered the participation of the Mexican Foundation for Health, the National Association of Private Hospitals, the Mexican Consortium of Hospitals, and some private hospitals. Agreements were also made with higher education institutions, such as university medical schools, to organize diplomas in topics such as the certification model and the quality of medical care.

Healthcare Innovation to Improve Service Access

Countries across Latin America and the Caribbean (LAC) also made use of a range of other innovations to improve access to essential services. These have run the gamut, but the following section highlights some representative examples as follows:

- Peru's use of regulatory innovations to recruit and retain additional health workers to serve the vulnerable, including rural populations.
- Steps taken in Chile to develop integrated decision making on service demands and availability to inform a prioritization system to maintain essential services to the greatest possible extent.
- An innovative program in Colombia that emerged from a public-private partnership between Fundación Valle del Lili, as a private hospital, and ProPacífico, a nonprofit organization committed to sustainable development. Using a twinning model that pairs frontline facilities with hospitals accredited to handle higher complexities and drawing on telemedicine tools, the program was able to bring maternal deaths to zero and cut in half extreme maternal morbidity at a pilot facility and has since been expanded to 100 institutions.
- Community engagement and social mobilization are at the heart of a new push to increase COVID-19 vaccine uptake in Haiti.

Going forward, these interventions and others offer useful, practical examples of innovations developed during the pandemic that may merit continuation and expansion depending on particular country needs and contexts.

Case Studies in Innovation

Peru: Protecting Vulnerable Populations

Peru took steps to protect vulnerable populations; resources were allocated to prioritize care for the indigenous population, and subsidies were targeted to benefit the population dependent on the informal economy.

To address the increased need for health workers, Peru used a series of measures, including: (i) loosening the requirements for hiring of foreign health personnel, such as Venezuelan and Bolivian professionals; (ii) extending the rural social service term, so the personnel already working in rural areas remained place; (iii) having medical personnel do their internships at first level of care facilities and recognizing recent medical graduates as specialists; (iv) increasing the number of nurses; and (v) training health personnel on COVID-19 patient management and PPE use.

Surgeries continued to be performed, teleconsultation increased, and chemotherapy, radiotherapy, and surgery services were not disrupted, although demand was low.

Photo credit: IMF Photo/Ernesto Benavides (CC BY-NC-ND 2.0)

Case Studies in Innovation

Chile: Maintaining Access to Essential Health Services

Primary care family health centers implemented respiratory and non-respiratory emergency services 24 hours a day, as well as a "demand selection" strategy.

Consultation times were regulated to limit the number of people at facilities: 30 minutes for COVID-19 care and 20 minutes for other conditions.

Public hospitals managed to maintain a significant amount of surgical activity focused on people at risk of death. They identified services that did not interfere with the care of COVID-19 patients and focused on maintaining those services while postponing everything that was potentially elective. This allowed them to maintain trauma and cancer surgeries, cardiovascular and cerebrovascular care, and chemotherapy services.

Photo credit: Carlos Hernan Orellana Vaquero / Agriculture and Livestock Service (CC BY 2.0)

Colombia: Hospital Padrino Strategy

One of the main challenges at the regional level is effective access to health services, mainly in areas where there are too few primary and secondary care providers to guarantee an acceptable minimum quality of care. **In Colombia, Hospital Padrino is tackling this challenge by helping low-complexity hospitals and secondary hospitals improve their scientific, administrative, and health problem-solving capacities in ways that improve population health indicators.** To achieve this, the hospital has started a twinning program in which a hospital accredited to handle high complexity care accompanies and technically supports a hospital that operates at the primary or secondary care level. Telemedicine is a key component of the arrangement, used for providing second opinions, as well as for training both health professionals and administrative personnel in good management practices and quality of care.

The results have been impressive. It was piloted at the Hospital of San José de Buga in the Department of Valle del Cauca, where maternal deaths were reduced to zero and extreme maternal morbidity dropped by 50 percent following the implementation of a twinning program. Building on this success, the strategy has been extended to more than 100 public institutions in the Departments of Valle del Cauca, Cauca and Nariño, in southwestern Colombia, attending more than 430 patients through telemedicine, incorporating more than 2,000 health professionals. In the near future, the program will be expanded to also include pediatric services.

It is also worth noting that this program is an example of the public-private partnerships in action. Hospital Padrino's approach is an outgrowth of a joint initiative between Fundación Valle del Lili, as a private hospital, and ProPacífico, a non-profit organization working to advance the sustainable development of this region (ProPacífico n.d.).

Haiti: Increasing COVID-19 Vaccination Coverage through Community Outreach

Despite efforts to make the COVID-19 vaccine available and free to all, more than a year after the first doses arrived, Haiti still registers one of the lowest vaccination coverage rates in the world. By September 2022, while 17 countries and territories in LAC had reached 70 percent vaccination rates, only 1.9 percent of the Haitian population had received the first two doses.

In June 2022, the National Coordination Unit of the Ministry's Expanded Program on Immunization (EPI) launched an initiative to intensify vaccination operations against COVID-19. This community health workers approached includes information-sharing activities to increase people's knowledge around vaccines and community engagement dialogues to improve confidence in vaccination.

Key risk communication and community engagement strategies:

- Advocacy meetings in each department to inform and build support from religious leaders, administrative and political bodies, and media associations
- Messages promoting COVID-19 vaccination and interactive radio programs
- Sound trucks and town criers using megaphones to announce the arrival of vaccination teams and spread messages about the benefits of vaccines
- Communiqués in places of worship and at community meetings in each health institution

Provisional vaccination data collected in the six departments show that the number of people who received at least one dose of vaccine has doubled since the start of this new phase of the vaccination campaign (PAHO 2022).

Regional Collaboration on Vaccine Production Capacity for the Future

During the pandemic, several efforts were conducted at the national and regional levels to develop new capacities for vaccine production, which will be crucial to confront future epidemics and pandemics.

One of the regional examples is the Regional Platform to Advance Manufacturing of COVID-19 Vaccines and Other Health Technologies, launched in 2021 by the Pan American Health Organization, aiming to train and support national companies in using mRNA vaccine technology. At present, Sinergium Biotech from Argentina and the Institute of Immunobiology Bio-Manguinhos from Brazil are participating in this initiative and pursuing the goal of expanding the production of mRNA technologies in LAC.

At national level, countries with existing vaccine production capacities, such as Argentina, Brazil, Cuba, and Mexico, boosted their efforts. In addition, countries such as Chile have developed initiatives that built on foreign private investment. For example, Sinovac partnered with Pontificia Universidad Católica de Chile and has already begun the construction of factories in the country. Another example is the public-private partnership in which Universidad de Chile has partnered with Italian pharmaceutical companies like Reithera to generate new production capacities.

Chapter 4: Key Investments to Build Resilient Health Systems in Latin America and the Caribbean

Photo credit: Julio Pantoja / World Bank (CC BY-NC-ND 2.0)

Overview: Key Investments

Five interventions to build up resiliency in health systems in Latin America and the Caribbean

A Strategic Framework for Health Systems Strengthening and Resilience

Resilient Health Systems: Quality Universal Health Coverage

- Invest in the frontline
- Invest in better prevention and health promotion
- Empower health workers to deliver quality care
- Leverage data and digital ecosystems for quality UHC

Health Emergency Ready

- Invest in smart surveillance systems and coordination networks
- Build a multisectoral prevention and response system
- Invest in surge capacities including public health professionals
- Leverage primary health care for better surveillance and response

Climate-Resilient, Climate-Smart Health Systems

- Integrate public health, population health, and climate change surveillance systems
- Invest in adaptation efforts to provide essential services during future health crises
- Invest in efforts to reduce the health sector's carbon footprint

Resilient Health Financing

- Adequate financing for health sector resiliency including
- Boost investments in Pandemic Prevention, Preparedness and Response and break the cycle of panic and neglect contingency financing
- Boost health taxes
- Smart financing for efficiency and better population health

Life Course Approach to Human Capital Investments

- Commit to health and nutrition in the first 1,000 days of life
- Re-commit to vaccination for all, including adults
- Invest to reduce teen pregnancy and tackle risky behaviors
- Invest in key multisectoral interventions promoting healthy longevity

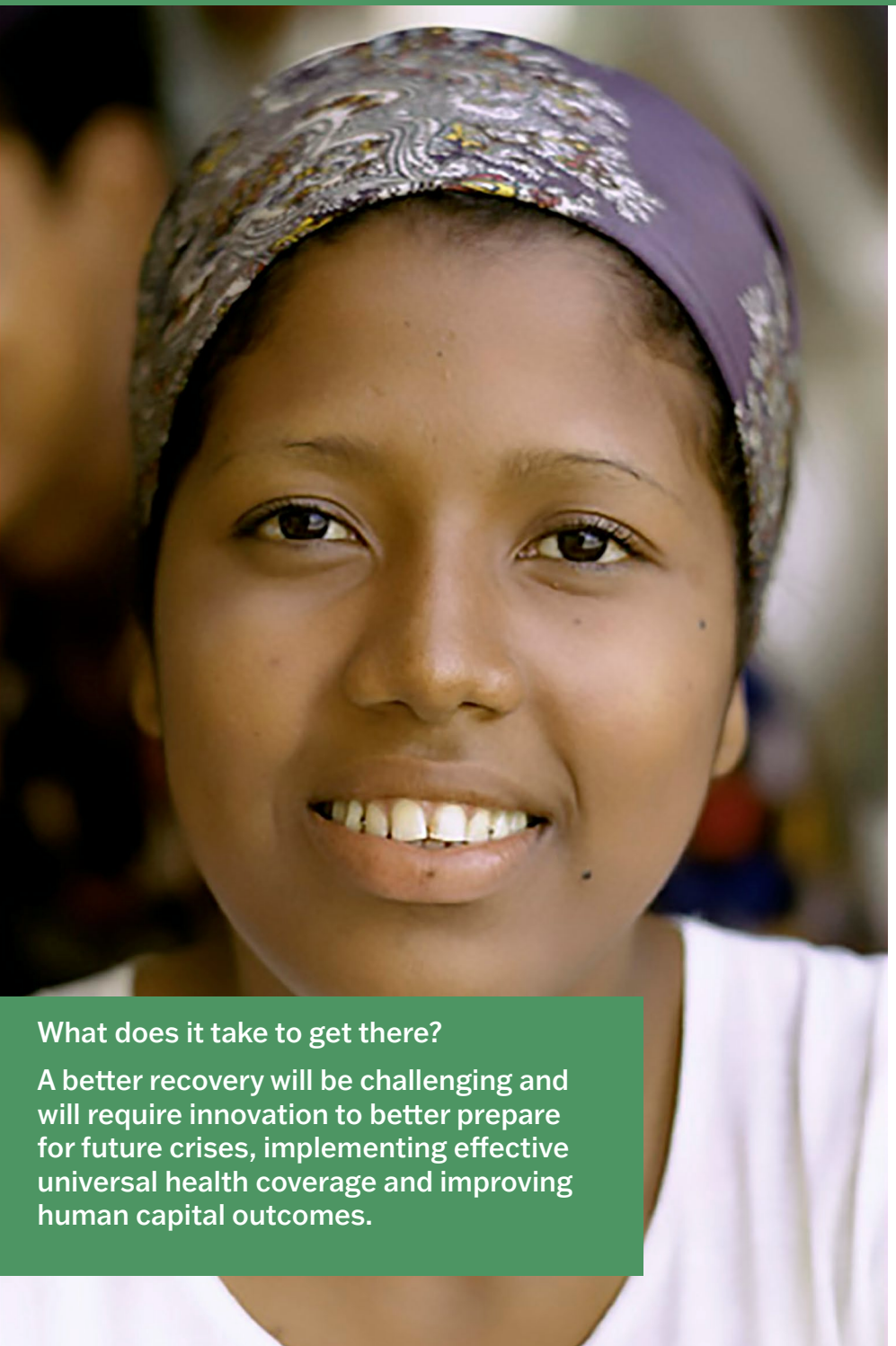


Photo credit: Jamie Martin / World Bank (CC BY-NC-ND 2.0)

What does it take to get there?

A better recovery will be challenging and will require innovation to better prepare for future crises, implementing effective universal health coverage and improving human capital outcomes.

The COVID-19 pandemic has shown that investing in health must be a priority for governments in Latin America and the Caribbean (LAC). **Yet, the region's public health and health systems are fragile and inflexible, chronically underfunded and fragmented**—all of which raises significant challenges for future health prospects, both in normal times and in the face of emergencies.

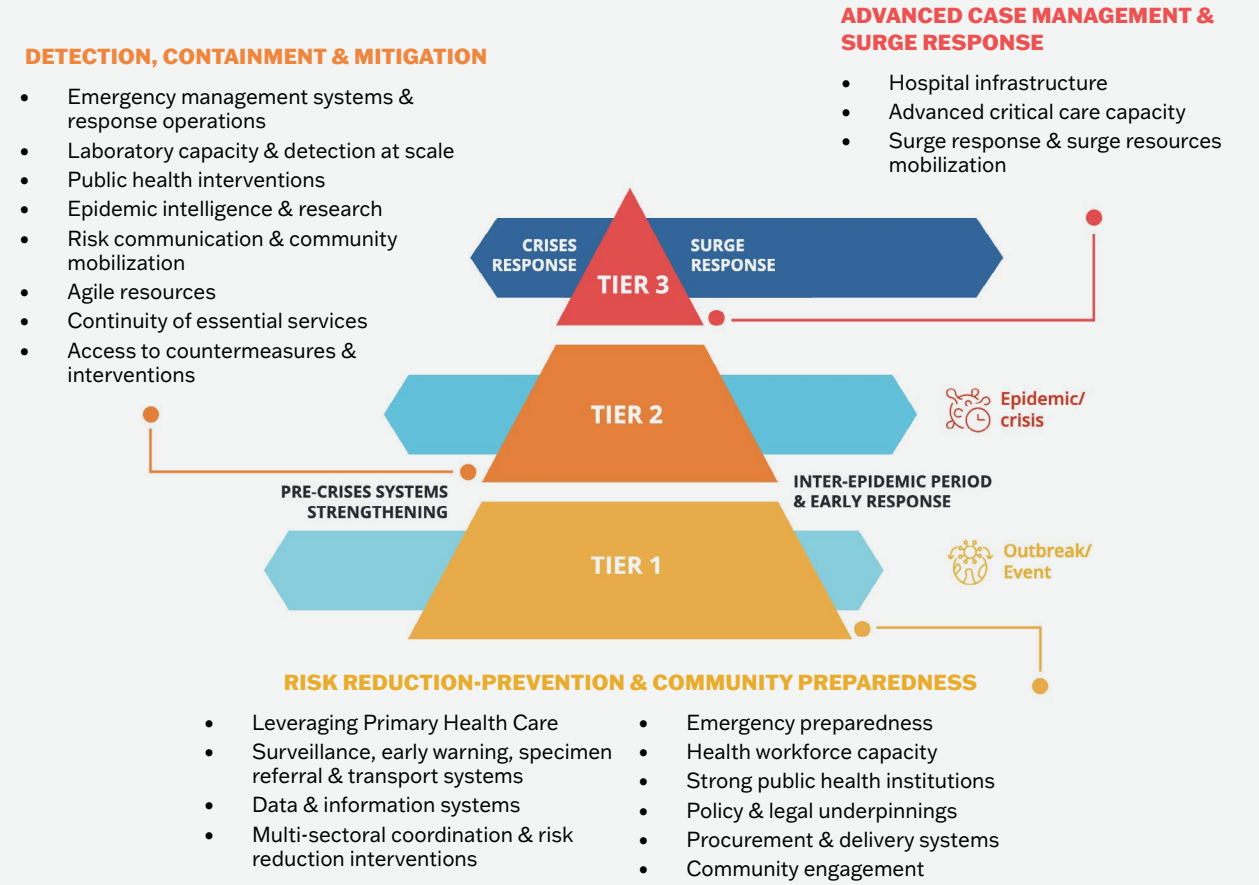
The loss of life, massive social disruption, and collapse of basic health services showed what happens when a crisis hits unprepared health systems. Structural weaknesses in health systems have exacerbated health and social inequalities. Bending the curve of decline in population health outcomes that occurred in many countries will require investments not only in health systems but also in major determinants of health such as education systems, social protection systems, social housing, and inclusive economic development.

Building on the World Bank's global report of resilient health systems, this chapter presents a framework for the key investments required to build resilient health systems in LAC, with an emphasis not only on public health emergencies but also on broader health reforms required to strengthen sustainability, quality, and equity that boost resilience. This is not a one-size-fits-all framework. Instead, it offers a general approach that can and should be adapted to reflect the tremendous diversity across the LAC region—a region where, for instance, countries range from fragile, conflict, and violence-affected situations to high-income economies, all facing stark inequalities. The framework in this chapter is offered as a tool governments can use to guide the prioritization of health—a process that will also require strong local and national leadership; dedicated and adequate health care infrastructure (including data infrastructure, models of care, and interventions, all tailored to local contexts); and international collaboration to invest in regional and global public goods.

Box 11. Change Cannot Wait: Building Resilient Health Systems in the Shadow of COVID-19

Change Cannot Wait is a World Bank global report that shows how strengthening resilience is within every country's reach, even those with low incomes. It offers recommendations on how countries can operationalize resilience based on a framework that prioritizes investments based on impact. The most important investments center on risk reduction, including prevention and community preparedness. The second tier focuses on disease detection, containment, and mitigation to contain outbreaks before they spread widely. The third tier and final tier focuses on advanced case management and surge response during an epidemic or pandemic, noting that these are the most expensive and least cost-effective investments. The final message of the report is urgency. Investments are needed to save lives and economies—before it is too late.

Figure 22. A Three-Tiered Investment Framework to Build Resilient Health Systems



Source: World Bank 2022f.

A Strategic Framework for Health Systems Strengthening and Resilience

Resilient Health Systems: Quality Universal Health Coverage

IMPROVE effective access to health care especially for the most vulnerable and deliver quality universal health coverage based in high-performing primary health care and resilient health systems

Health Emergency Ready

INVEST in better public health emergency prevention, preparedness, and response, and ensure effective collaboration in face of public health threats

Resilient Health Financing

IMPLEMENT health financing reforms driving better population health and financial protection, reducing waste and inefficiencies, and ensuring the financial sustainability of health systems

Life Course Approach to Human Capital Investments

IMPLEMENT highly effective human development interventions over the life course, especially in early childhood

Climate-Resilient, Climate-Smart Health Systems

STRENGTHEN adaptation of health systems to climate change to protect health and well-being in the medium and long term

While strong health-sector governance is critical, health sector leaders cannot build resilient health systems alone. Success requires coordination across multiple government sectors including finance and other aspects of human development. Governments also must work with the private sector and with civil society to build up trust in institutions and develop the capacity to response effectively to future health crises.

1. Resilient Health Systems: Quality Universal Health Coverage

Deliver quality universal health coverage (UHC) based in high-performing primary health care and resilient health systems

- Invest in the frontline
- Invest in better prevention and health promotion
- Empower health workers to deliver quality care
- Leverage data and digital ecosystems for quality UHC

The growing burden of chronic diseases and the bidirectional relationship between communicable and noncommunicable diseases (NCDs) underscore the need to overcome disease-specific silos, emphasizing needed reforms and investments that improve a wide range of health outcomes.

The region covering Latin America and the Caribbean (LAC) has an unfinished agenda in ensuring access to better quality, more cost-effective, and more equitable health services for the population. Universal health coverage remains a two-fold challenge: ensuring access to and quality of care for the most vulnerable populations. Trust is also important. Health systems that earn the trust and support of the people and local political leaders by reliably providing high-quality services before crisis have a powerful resilience advantage.

To this end, it is key to review existing care models and a wide range of enabling factors.

Primary health care (PHC) plays a fundamental role. It acts as a gateway for both case management and engagement on broader social determinants of health at community level.

Photo credit: Jean Fotso / Sanofi Pasteur (CC BY-NC-ND 2.0)

Countries must increase spending on primary health care by at least 1 percent of their gross domestic product if the world is to close glaring coverage gaps and meet the health targets agreed under the Sustainable Development Goals of ensuring healthy lives and promoting well-being at all ages (WHO 2019b).

Case Studies in Innovation

Photo credit: Sio (CC BY 2.0)

Mexico City: A Comprehensive Program to Detect and Reduce Diabetes, Obesity, and Hypertension (Gobierno de la Cuidad de México 2022)

In Mexico City, 13 percent of people over the age of 20 are diabetic, 32 percent have high blood pressure, and 36 percent are obese. Using the interactive technology developed to monitor COVID-19 cases, the *Health in Your Life* program is designed to promote (i) a better culture of prevention and self-care, (ii) knowledge about hypertension complications, (iii) community sports, and (iv) follow-up for diagnosed individuals.

To identify people, it uses an interactive tool for self-detection. To start the process, a person sends a text with the message “Take care” and completes a self-assessment of risk. After completing the assessment, the person receives a call, and from that moment on they will receive follow-up support from health personnel via telephone and automated personalized messages. Once a person is diagnosed with hypertension, they will be channeled into the appointment system of the relevant institution or the unit closest to their home to be monitored.

The designers of the system are also working to adapt it so it can be used in the future to identify and monitor other diseases such as certain types of cancer and to support vaccination campaigns.

Investments and Policy Considerations

Implement high-performing, people-centered PHC for all

- Implement a new model of care focused on PHC, which offers a comprehensive package of services, is delivered by multidisciplinary care teams, and reflects the health needs of the population.
- Develop and implement integrated care models adapted to local context to support the management for individuals with chronic conditions along with patient navigation schemes.[12]
- Implement innovative service delivery models designed for better outcomes, experience, and economics through participatory processes.
- Use predictive analytics to achieve better population health management at the community level, with a focus on disease prevention and health promotion, especially for the most vulnerable.

Reform service delivery to ensure quality of care

- Improve accountability and contracting mechanisms to incentivize quality, while also building continuous quality improvement in the health sector through training, collaborations, quality campaigns, and communities of practice.
- Improve the rigor and use of information on quality to stimulate patient choice in PHC and benchmarking of healthcare providers at all levels, including the introduction of patient-reported measures.
- For facilities: (i) use policies and regulations to strengthen certification standards and accreditation for low-complexity hospitals and PHC centers; and (ii) institute strategies to improve quality in rural areas including through the use of telemedicine.
- For health care professionals: strengthen skills by (i) creating quality core curriculum for future healthcare professionals and (ii) reforming systems for continuing education.

12 Patient navigation is a model of care that aims to improve access and integration of services by reducing the complexity of navigating health networks across the continuum of care and care settings. Adapted from Kokorelias et al. 2021.

Invest in a fit-for-purpose workforce for the health sector

- Broaden the skill mix of health care professionals so they can meet the needs of an aging population, ensure they work to their full scope of practice, and can work in multidisciplinary teams.
- Modernize pre-service and in-service education so health care professionals can deliver quality care for all.
- Create a medical reserve, with flexible, cost-effective surge capacity available for task-sharing and rapid redeployment in times of need.
- Ensure that health care professionals receive appropriate remunerations, decent and safe working conditions.

Expand digital transformation and create a digital ecosystem to improve access to and quality of services

- Invest in rigorously tested and evaluated telemedicine services to expand geographic access and availability of services, including for second opinion consultations and twining programs.
- Scale up interoperable health information systems for better and more consistent use of routine health data to improve quality of care, reduce medical errors, and reduce duplication of tests and analyses.
- Strengthen eHealth strategy with policies, a governance structure, regulation, and standardization of healthcare technology to facilitate digital innovation and guide implementation.

Engage the private sector with appropriate regulations to bridge gaps in service delivery and foster innovation

- Mobilize the private sector in ensuring effective universal health coverage—e.g., through public-private partnerships benefiting hard-to-reach populations and through regulations to assure universal and equitable access.

2. Health Emergency Ready

Invest in better public health emergency prevention, preparedness, and response across the LAC region and ensure effective collaboration in face of public health threats

- Invest in smart surveillance systems and coordination networks
- Build a multisectoral prevention and response system
- Invest in surge capacities including public health professionals
- Leverage primary health care for better surveillance and response

Health systems need to be built on strong foundations and be able to respond to public health emergencies—not only pandemics but also other health emergencies such as natural disasters and other catastrophes—to protect both people and economies.

Photo credit: Escuela Superior Politécnica del Litoral (ESPOL) / Luis Dominguez

Case Studies in Innovation

Implementing a COVID-19 Genomic Surveillance Regional Network for Latin America and the Caribbean (Leite et al. 2022)

The Pan American Health Organization (PAHO), working in collaboration with nineteen public health laboratories across Latin America and the Caribbean (LAC), implemented for the first time a large-scale, genomic sequencing network for strengthening timely generation of SARS-CoV-2 genomic data. In-house sequencing countries with next generation sequencing (NGS) capacity developed reliable protocols that were then made available to the network. Similarly, two countries provided primers for implementation. Where sequencing was not available, PAHO and the network supported the shipping of samples to other countries within the network. An open access metadata repository set up within PAHO gathered all regional information.

The establishment of this network has strengthened laboratory response capacity at the country level, fostered collaboration, and facilitated timely release of SARS-CoV-2 genomic information to complement the multiple response strategies for COVID-19 pandemic mitigation. Moving forward, this network lays the foundation for using genomic analysis as a tool for public health responses to future viral outbreaks in the region.

Box 12. The Potential of Wastewater-Based Epidemiology (Manuel et al. 2022)

Compared with clinical testing, wastewater-based epidemiology offers the following advantages, reflected in the experiences of several countries in LAC during the pandemic. Specifically, it does the following:

- ***Supports broad detection.*** Detects infection at all stages, including asymptomatic cases.
- ***Supports sustainable surveillance.*** Builds on existing water and sanitation infrastructure; and at less than $1 per year per person, costs less than clinical testing and requires little effort to implement at scale.
- ***Supports control.*** Enables control by quickly identifying outbreaks and waves, often before the first clinical case is detected.
- ***Supports equity and population-based surveillance.*** Includes everyone and can focus on vulnerable populations.

As of September 2021, 55 countries around the world were conducting wastewater testing, and its multifaceted nature offers potential beyond the current pandemic, including:

- ***Providing a lens into the broader health of communities.*** A single sample can be analyzed for a variety of pathogens such as influenza, hepatitis A, polio, and others.
- ***Helping communities monitor local exposure*** to drugs, toxins, pesticides, and other chemical compounds.
- ***Supporting a One Health approach*** that explicitly integrates human, animal, and environmental health with the goal of improving global health security and achieving gains in development.

Investments and Policy Considerations

Invest in affordable surveillance systems for timely warning and response

- Scale up interoperable information systems for timely data sharing to detect and interpret local warning signs and quickly call for support.
- Implement wastewater-based surveillance, in particular for low-resource settings and underserved groups and for health risks such as antimicrobial resistance and illegal drug use.
- Incorporate qualified public health professionals in public health surveillance and establish continuing education processes for the same.
- Establish a national laboratory network for surveillance and detection of priority diseases with epidemic potential—improved infrastructure, better distribution in national territories, and equipment.

Scale up key multisectoral interventions

- Implement One Health strategies at scale (including surveillance systems that incorporate animal health in order to monitor and prevent possible zoonotic diseases).
- Develop multi-hazard and management plans to address misinformation and build community trust—with engagement of civil society networks, leaders, religious bodies, decision-makers and healthcare workers.
- Improve coordination with other ministries involved in response to public health emergencies.

Strengthen infection prevention and control in all healthcare settings to mitigate the disproportionate burden of epidemic-prone and hospital-acquired diseases

- Train and boost competencies on procedures for donning and doffing personal protective equipment, handling waste, and caring for high-risk or contagious patients.
- Develop and implement plans to address antimicrobial resistance.

Develop infrastructure and technical capabilities for development, manufacturing, and better procurement of drugs and vaccines

- Review and update regulatory frameworks to facilitate procurement of critical goods and supplies.
- Set up a common regulatory framework for vaccine approval and institute permanent vaccine advisory committees to facilitate uptake of new technology and information and support evidence-based decision-making in national immunization programs.
- Build public-private partnerships to improve procurement and distribution and overcome logistical challenges.
- Strengthen transportation and storage to ensure cold chain maintenance and the availability of critical inputs.

Leverage primary healthcare (PHC) capacities for better pandemic preparedness and response (PPR)

- Prepare PHC adaptation plans to public health threats and train and disseminate them with health workers.
- Create mitigation centers strategically located in disaster-prone areas, proactively equipped with staff, vehicles, and emergency supplies ready to be deployed.
- Fight misinformation through community engagement and effective risk communication and invest in rumor monitoring
- Strengthen the mechanisms for social participation (citizen and community) in governance bodies in emergencies and disasters.

Strengthen governance and international coordination for action in emergency situations

- Institute a regional approach to PPR at the highest political level to advance collaborative strategies including for regional vaccine production.
- Develop institutional capacity to boost surveillance and information sharing across LAC on priority public health threats.
- Ensure the availability of strategic reserves of essential commodities at the LAC regional level.
- Develop country-level, fit-for-purpose private sector engagement strategy for better pandemic preparedness and response.

3. Resilient Health Financing

Implement health financing reforms driving better population health and financial protection, reducing waste, and ensuring the financial sustainability of health systems

- Adequate financing for health sector resiliency including
- Boost investments in Pandemic Prevention, Preparedness and Response and break the cycle of panic and neglect contingency financing
- Boost health taxes
- Smart financing for efficiency and better population health

Over recent decades, the fragmentation of health systems in Latin America and the Caribbean (LAC) has had large, negative impacts on the efficiency of health systems and has perpetuated inequalities in financial protection. Different resource mobilization and pooling arrangements are needed in a context of relatively low levels of formal employment in labor markets.

Financing efficiency and defragmentation to help reduce both inequities and catastrophic and impoverishing health spending.

Despite declines in out-of-pocket expenditures, LAC still has the highest percentage of population spending as catastrophic share of their income on health in the world at 15.1 percent (WHO and World Bank 2020).

Photo credit: Maria Fleischmann / World Bank (CC BY-NC-ND 2.0)

Box 13. From Double Shock to Double Recovery—Implications and Options for Health Financing in the Time of COVID-19 (Kurowski et al. 2022)

A new technical update to the World Bank's report *From Double Shock to Double Recovery* explores the IMF's most recent macroeconomic projections through 2027 for 177 countries and their real per capita general government expenditures (GGE) analyzing the implications of both for health spending.

Findings

If countries continue to give the same priority to health in government budget decisions as before COVID-19

- ***In 41 countries with GGE contraction***, per capita government health spending will decline annually, remaining lower than 2019 expenditures each year to 2027; This would be tantamount to a lost decade for progress on the health SDGs.
- ***In 69 countries with GGE stagnation countries***, the government health expenditure (GHE) per capita is expected to grow, but only slowly. In these countries, unless governments assign greater budget priority to health, annual health spending over the projection period will never catch up with pre-COVID-19 trends.
- ***In 61 countries with GGE expansion***, GHE per capita will rise continually even without higher priority to health.

Conclusion

If health-spending trends do not change, countries risk being left behind in their efforts to strengthen health security and for the achievement of the health-related SDGs, including universal health coverage.

Box 14. Smarter Taxation Can Help Boost Government Revenue and Health Outcomes (Summan et al. 2020; World Bank 2022a)

Tobacco use and the consumption of alcohol and sugar-sweetened beverages causes more than 11 million premature deaths annually and accounts for 20 percent of all deaths globally.

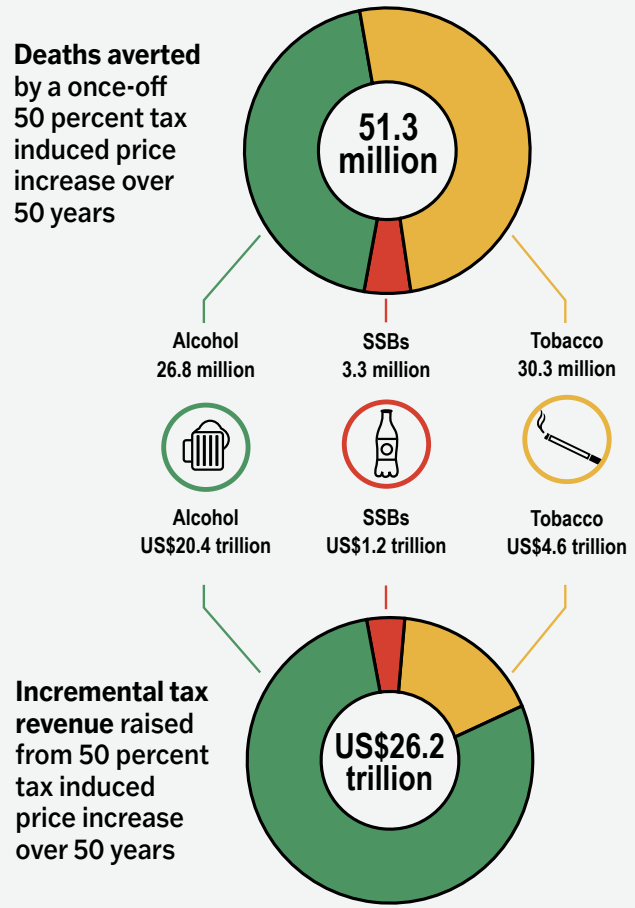
In LAC countries, already high and growing consumption of such products has serious implications for human capital and economic productivity.

Imposing health taxes on such products is not a new concept. It is an established and well-regarded fiscal policy tool underpinned by a strong economic framework. This approach focuses on supporting countries' efforts to generate more and better revenue while ensuring better health outcomes.

However, the success of health taxes depends on the way they are designed, implemented, managed, and monitored, and the ecosystem they develop. There is no one-size-fits-all approach. Specific aspects to note concerning these taxes include:

- ***They lead to better health outcomes than traditional ad valorem (value-based) taxes.*** This is mainly because these volume-based taxes lead to higher prices and lower consumption, which gives manufacturers an incentive to reformulate their products and ramp up marketing of less harmful products.
- ***They are easier to collect and improve tax compliance.*** This ensures that the impact of health taxes is maximized and not compromised by tax avoidance and evasion, including illicit trade.
- ***The ecosystem in which health taxes evolves is important.*** In times of high inflation, policymakers must be careful to ensure that inflation does not undermine the effectiveness of these taxes. Therefore, it is important to regularly review excise duties on unhealthy products to account for rising consumer prices (Estevão 2022).

Figure 23. Health Taxes' Powerful Potential to Prevent Deaths and Raise Revenues



Source: Blecher 2022; Summan et al. 2022.

Investments and Policy Considerations

Improve domestic resource mobilization through smarter taxation to boost government revenue

- Overall design of health taxes requires considering rates as well as the structure (i.e., ad valorem, mixed, or specific) and base (i.e., value or volume).
- Develop efficient and effective tax administration compliance and risk management to ensure that the impact of health taxes is maximized and not undermined by tax avoidance and evasion.

Increase fiscal space for health and enhance pooling of health funds to reduce health system fragmentation

- Expand public financing for health to boost fiscal space and reduce private spending, particularly out-of-pocket health expenditures.
- Create an extensive pool of funds that covers larger parts of the population and enables population health risks management, while reducing inequities and inefficiencies.

Expand financial protection while achieving efficiencies and reduce waste

- Limit the use of low value-for-money technologies and align national benefits packages by institutionalizing health technology assessment.
- Implement strategies to expand medicines coverage and their rational use, and achieve more efficient and affordable pricing of pharmaceuticals.
- Strengthen health information systems for ongoing monitoring and evaluation of value of public investments.

Implement strategic purchasing mechanisms to incentivize the provision of high-value service ecosystems to improve access to and quality of services

- Use diagnostic-related groups and bundled payments for hospital and integrated care.
- Develop risk-adjusted capitation payments for primary care alongside strong monitoring systems.

Establish emergency contingency funds that can be quickly accessed during emergencies to accommodate fast-changing needs

- Set up special funds that: (i) can repurpose existing money and request supplementary resources; and (ii) have pre-negotiated procurement agreements with the private sector and other implementation partners.

4. Life Course Approach to Investments in Human Capital

Adopt integrated human development strategies focused on key investments over the life course

- Commit to health and nutrition in the first 1,000 days of life
- Re-commit to vaccination for all, including adults
- Invest to reduce teen pregnancy and tackle risky behaviors
- Invest in key multisectoral interventions promoting healthy longevity

Health ecosystems are complex, but they present opportunities to shift populations to healthier states at all stages of life, thereby accumulating more human capital, and realize the associated socioeconomic benefits.

Examples of Key Life Course Facts for a Healthy Longevity

The first 1,000 days of life are crucial for normal development and growth.

1 in 4 children in Latin America and the Caribbean (LAC) are exposed to diseases that can be prevented with vaccines.

Two percent of women of reproductive age in LAC reported having their first birth before the age of 15. LAC is the only region in which that rate is increasing.

People of all ages engage in risky behavior. Risky youth behavior imposes enormous costs for their futures and for society.

The aging of the population and the changing burden of disease threaten the financial sustainability of the healthcare sector.

Case Studies in Innovation

Uruguay: Dramatic Decreases in Adolescent Fertility Rates Achieved through Progressive Policies, Strong Multisectoral Responses, and Active Monitoring by Civil Society (PAHO and UNFPA 2020)

Uruguay's adolescent fertility rate has declined substantially over the last 25 years, and it 2018 the rate was 50 percent lower than the rate for the LAC region.

This progress was possible thanks to the implementation of various progressive laws. For example, the *Right to Sexual and Reproductive Health Law* (i) requires that all sexual and reproductive health policies and programs must guarantee universal coverage; (ii) provides the necessary conditions for users to be able to make decisions freely; and (iii) promotes inter-institutional coordination, with particular emphasis on the contribution that the education sector can make to the achievement of sexual and reproductive health and related rights of adolescents.

This commitment was accompanied by an intersectoral strategy that includes:

- Providing sexuality education to prevent unplanned pregnancies among adolescents
- Introduction of contraceptive implants, a measure that directly affected access to and the acceptability of free or low-cost quality contraceptive services
- Disseminating information to reaffirm the right to exercise one's sexual and reproductive rights and to seek assistance for voluntary termination of pregnancy
- Increasing social programs to address the needs of the most vulnerable adolescent population (e.g., the provision of out-of-school comprehensive sexuality education)

Finally, social protection policies and schemes are aimed at keeping children in school, reintegrating adolescent girls into the educational system who had dropped out due to pregnancy and facilitating the integration of the young population into the labor market.

Photo credit: UN Women/Gustavo Stephan (CC BY-NC-ND 2.0)

Investments and Policy Considerations

Implement effective interventions targeting the first 1,000 days of life to strengthen early childhood development

- Provide a combination of supportive interventions including baby friendly initiatives, timely nutrition-specific interventions, and improved linkages with early childhood development centers in communities with primary care clinics.

Enact vaccination strategies tailored at national and subnational levels including for adults

- Optimize annual immunization operations to boost effective coverage through measures such as reminder/recall systems and mobile units that provide door-to-door educational sessions in remote villages prior to the arrival of vaccination teams.

Strengthen multi-pronged strategies to reduce teenage pregnancy

- Build cross sectoral coordination for social and behavioral change activities that help adolescents understand the role contraception can play in determining positive life outcomes and the implications of their reproductive health decisions for their future.

Leverage multi/inter-sectoral strategies to reduce behavioral risks

- Use school engagement programs to provide key risk prevention messages (e.g., substances consumption, sexual education) and to identify at-risk youth in need of remedial support.
- Impose health taxes on products such as tobacco, alcohol, and sugar-sweetened beverages.
- Invest in highly effective interventions to address major determinants of health such as education, water and sanitation, agriculture, and housing

Extend proactive community-based education and health promotion

- Offer nutritional coaching and supplementation, identify subclinical illness, and help sustain adherence with the support of community health workers and trusted local community leaders and champions.

Establish and expand healthy longevity strategies

- Expand community-based PHC services and multisectoral interventions to ensure appropriate and timely prevention and control of NCDs and other diseases, including mental health.
- Establish age-friendly systems that improve the quality of care in nursing homes and home and community-based services.

5. Climate-Resilient, Climate-Smart Health Systems

Build climate change resilience to protect health in the medium and long term

- Integrate public health, population health, and climate change surveillance systems
- Invest in adaptation efforts to provide essential services
- Invest in efforts to reduce the health sector's carbon footprint

Along with the serious health, economic, social, and humanitarian crises caused by the COVID-19 pandemic, the region of Latin America and the Caribbean (LAC), and the world and the world are also experiencing a climate emergency.

Moving forward, health systems will need to incorporate climate-related variables as key enhancers of the burden of diseases.

Box 15. The Caribbean: PAHO's Smart Hospitals Methodology and Toolkit (PAHO 2017)

PAHO has developed the "Smart Hospitals" methodology and toolkit to assess and improve healthcare infrastructure, linking structural and operational safety with green interventions at a reasonable cost-to-benefit ratio in the Caribbean.

It helps facilities conserve resources, cut costs, increase efficiency, and reduce carbon emissions.

These facilities ensure (i) health systems function when affected by climate hazards and (ii) mitigate climate change by cutting emissions and building on adaptation strategies. The Smart Hospitals toolkit includes instruments to assess the current state of hospitals and guidelines for improvements.

This methodology has proven to be cost-effective and efficient in hospitals like the Pogson Medical Centre in St. Kitts & Nevis and Georgetown Hospital in St. Vincent.

Case Studies in Innovation

Costa Rica: Addressing the Impacts of Climate Change on Health and Health Systems, in line with the Paris Agreement

Costa Rica's national plan highlights the links between climate change and vector-borne disease, zoonoses, and food security and nutrition, and it commits to monitoring such impacts. Moreover, adaptation considerations for healthcare systems are referred to in detail in its Nationally Determined Contribution (NDC) climate action plan submitted as part of the Paris Agreement on Climate Change.

In terms of climate co-benefits, Costa Rica incorporates the benefits of mitigation strategies in the healthcare sector, aiming at reducing the overall carbon footprint from the health system (Government of Costa Rica 2020).

On the other hand, health is considered a top priority in the financial planning, dedicating an entire section on health in the NDC, and incorporating health as a cross-cutting dimension for climate change adaptation and mitigation strategies (Global Climate Health Alliance 2021).

Since 2006 climate change has been a priority for Costa Rica. It has developed its approach to climate change based on (i) metrics, (ii) mitigation, (iii) vulnerability and adaptation, (iv) capacity building, and (v) education and public awareness. The country has prioritized environmental determinants of health, such as forestry management, increasing forest cover from 21 percent in 1986 to 51 percent in 2006. Vector-borne diseases such as dengue have also significantly decreased due to an Integrated Attention Strategy (EGI by its Spanish acronym). More recently, capacity building programs were launched to integrate climate change adaptation actions into planning and policymaking processes on the regional and municipal levels (Costa Rica 2021; Costa Rica 2009).

Investments and Policy Considerations

Integrate public health, population health, and climate change surveillance systems

- Incorporate climate-related hazards and climate-related health risks into current surveys and information systems where ministries of health (MoHs) monitor health risks (e.g., Demographic and Health Surveys).
- Bolster collaboration and communication between meteorological services, MoHs, health providers, and at-risk communities to implement early warning systems that effectively target vulnerable communities.

Invest in adaptation efforts to provide essential services despite climate-related hazards and risks

- Scale up implementation of PAHO's Smart Hospital Methodology, in order to adopt a climate-smart approach that includes both adaptation efforts and green features for healthcare facilities, ensuring resiliency to climate-related hazards.
- Strengthen PHC to ensure that climate-related health risks are addressed (e.g., heatstroke), and that health emergency response systems are climate resilient and adopt low carbon, climate-resilient strategies.

Invest in efforts to reduce the carbon footprint of the health sector over the mid- to long-term

- Adopt sustainable cooling measures in health infrastructure (e.g., natural ventilation, solar energy)
- Ensure sustainability in the selection of procurement strategies for procedures and products, (e.g., ensuring no equipment contains mercury and that there are guidelines for water use and consumption in healthcare facilities)
- Develop regulations that support green waste management.

How Much Will Key Interventions for Pandemic Recovery Cost?

A range of costs have been estimated to describe the amount of investment necessary to fund universal, high-quality, sustainable, and resilient health systems. OECD estimates report that $627 billion globally is needed to strengthen health systems in the wake of COVID-19 (OECD 2022). Other academic studies estimate that in low and middle-income countries (LMICs) between $1.6 billion and $15.4 billion is needed annually for capacity building, excluding up front capital costs (Clarke et al. 2022). Countries eligible for funding from the Global Fund to Fight AIDS, Tuberculosis and Malaria need an estimated $76 billion over the next three years for surveillance and laboratory systems, combating anti-microbial resistance, and health workforce development (Eaneff et al. 2022). Using the International Health Regulations framework country capacity data, it estimated that for the 196 states party to the IHR, annual costs for health systems strengthening are $24.8 million (Clarke et al. 2022).

Investments in resilient health systems:

- **Investing in the health workforce** means increasing the number of skilled health workers, as well as protecting and retaining this workforce before, during, and after health emergencies. Investments in protecting, retaining, and supporting the health workforce working on the front line will cost an estimated 0.7 percent of GDP (OECD 2022). Community health workers (CHWs) play an increasingly important role in delivering health education and preventive care in communities; however, there is a $2 billion funding gap for scaling up CHW programs in sub-Saharan Africa alone (Masis et al. 2021).
- **Investments in risk reduction** can be made through enhanced prevention activities, with investments in preventive care expected to cost 0.3 percent of GDP on average (OECD 2022).
- **Continued investment for PHC-oriented health systems grounded in UHC** would require an additional $32 per capita invested. To make greater gains in LMICs, it is estimated that PHC spending per capita needs to increase from $25 to $65 (Stenberg et al. 2019). Indeed, the WHO has called for countries to invest at least 1 percent more of their GDP to close health coverage gaps and ensure access to care (WHO 2019a).
- **For core equipment,** investments of 0.4 percent of GDP on average are needed—in particular for information technology infrastructure and more robust linkages for data generation and sharing, as well as investment to better harness health information by scaling up telemedicine capacity for remote delivery of primary care, establishing and expanding electronic health records, and strengthening vital registration mechanisms (OECD 2022).

Investments in making systems health emergency ready:

- **Using a One Health approach,** annual investment of approximately $1.9–$3.4 billion is required to build and operate systems for effective prevention and control of diseases with pandemic potential in LMICs (World Bank 2021b). Success in preventing onset of pandemics has an expected 86 percent annual rate of return.
- **Investments to strengthen infectious disease surveillance** in communities include wastewater surveillance. The European Union estimates the annual cost of wastewater sites in their member states to be $30,000, which is a cost range from $3 per person for a site covering 10,000 people to $0.3 per person for a population of 100,000 (Manuel et al. 2022).

Investment in resilient health financing:

- **Boost health taxes:** a once-off 50 percent tax induced price increase can avert 51.3 million deaths over 50 years and raise an incremental tax revenue of $26.2 trillion over 50 years (World Bank 2022a).

Investments in a life course approach:

- **When investing in optimum nutrition focused on the first 1,000 days** of life, estimates call for investing around $13 billion globally every year for 10 years to bridge gaps caused by COVID-19 and stay on track to reach targets that reduce stunting among children and anemia in women, increase breastfeeding rates, and mitigate the impact of wasting (Standing Together for Nutrition 2021).
- **Vaccination campaigns** are key investments for prevention and health promotion. Importantly, when considering vaccines for emerging infectious hazards, spending $60 billion up front to expand production capacity and supply chain inputs, followed by $5 billion annually thereafter, is estimated to be sufficient to ensure production capacity to vaccinate 70 percent of the global population against a new virus within six months (Glennerster et al. 2022).
- **Health systems must be strengthened to respond to both infectious threats and the growing burden of noncommunicable diseases** (NCDs), particularly in LMICs. It is estimated that an investment of $18 billion annually is needed for a package of interventions to accelerate declines in NCD mortality (NCD Countdown 2030 collaborators 2022).

Investments in climate-resilient, climate-smart health systems:

- **Accelerate efforts to decarbonize health care systems** and align the sector with the ambition of the Paris Agreement to keep the global temperature increase below 2°C (World Bank 2021a).

Broader architecture:

These costs ultimately build on and enhance existing investments across public health, health systems and health care delivery, and public services more broadly.

- **Strengthening existing primary health care capacities**
  - For surveillance at the most local levels to enhance preparedness and signal detection
  - For health promotion and disease prevention
  - For ongoing management of NCDs and prevention of multi-morbidity.
- **Leveraging recent investments in expanded surveillance capacities and laboratory networks**
  - Expanding these for surveillance of other diseases or linking these with existing surveillance capacities
  - Scaling up and institutionalizing novel surveillance methods that rely on public infrastructure, such as wastewater surveillance, to detect emerging signals on key diseases.
- **Invest early in existing multisectoral interventions and scale up new efforts that promote population health, address risk factors for health, and reduce the burden of NCDs (Hanson et al. 2022).**

Annex I: Methods Section for Data on Country-Level Program and Hospitalization Data

This annex details the methods used for the data collection and analysis presented in the life course impacts section chapter 2 of this report (impacts on people).

The research team identified contacts in each country with experience in administrative data for healthcare programs. In collaboration with these country contacts, the team developed a standard data collection tool to obtain information on: (i) primary care and nutrition programs for children (aged 0 to 19); (ii) diabetes management programs and hospital admissions for cardiovascular disease (ICD-10 Chapter IX—Disease of the Circulatory System) for adults (aged 20 to 59); and (iii) breast cancer mammography screening and admissions to hospital for cancer, excluding skin cancer, (ICD-10 codes: COO.x–C26.x, C30.x–C34.x, C37.x–C41.x, C43.x, C45.x–C58.x, C60.x– C76.x, C81.x–C85.x, C88.x, C90.x–C97.x, C77.x–C80.x) for older people (aged 60 and older).

Each participating country was asked to provide data, if available, on these programs and services on a monthly basis from January 1st 2015 through December 31, 2021. The team reviewed the data with country contacts in order clarify technical issues with the data and to provide context for understanding changes in program delivery prior to the COVID-19 pandemic. After this review and inspection of the monthly run charts, the team decided on a standardized approach to the analysis. This approach involved using the average of the annual counts in the calendar years 2018 and 2019 as the denominator and the difference between the counts in calendar years 2020 and 2021 respectively and that 2018/2019 average as numerators to calculate the annual proportional change. This was then presented in the figures in this report as a percentage change in 2020 and 2021 respectively compared to the 2018/19 average. For example, if the average count in 2018/19 was 100,000 and the count in 2020 was 80,000, then the percentage change would be -20 percent. This approach is easily reproducible and simple to interpret. The team will make the data available on request contingent on approval of the country contacts and compliance with all data privacy rules and regulations.

In order to get the most recent data, the team relied on data sources within each country rather that on data that had been aggregated by international organizations. This means that each country has it own data sources and that the sources may vary from program to program within a country. The data sources for each measure in each country are summarized below. More detailed descriptions of the data sources are available from the research team on request.

Data Sources and Program Descriptions by Country

Argentina

Number of consultations for children — El Programa Sumar de la Subsecretaria de Equidad en salud (https://www.argentina.gob.ar/salud/sumar) y la Secretaria de Acceso a la Salud del Ministerio de Salud de Argentina. Data received September 28, 2022. Includes consultas y teleconsultas. Age 0–19.

Number of active children in nutritional programs — El Programa Sumar de la Subsecretaria de Equidad en salud (https://www.argentina.gob.ar/salud/sumar) y la Secretaria de Acceso a la Salud del Ministerio de Salud de Argentina. Data received October 5, 2022. Age 0–19.

Number of Diabetes Blood Tests (HbA1c) (adults) — El Programa Sumar de la Subsecretaria de Equidad en salud (https://www.argentina.gob.ar/salud/sumar) y la Secretaria de Acceso a la Salud del Ministerio de Salud de Argentina. Data received September 12, 2022. Se incluyen las siguientes prácticas: Realización del Test Monofilamento en diabetes tipo 2 (PRP060T89-T90), Teleinspección de pie diabético (TCP072T89-T90), e Interconsulta con oftalmología (CTC054T89-T90). Age 18–59.

Screening for breast cancer (seniors) — El Programa Sumar de la Subsecretaria de Equidad en salud (https://www.argentina.gob.ar/salud/sumar) y la Secretaria de Acceso a la Salud del Ministerio de Salud de Argentina. Data received September 12, 2022. Se incluye Mamografía (cada 2 años con mamografía negativa) (IGR014A98-X30). Age 50–69.

Brazil

Number of Diabetes Blood Tests (HbA1c) (adults) — SUS Outpatient Information System (SIA/SUS). Ministry of Health, Brazil. Data received June 23, 2022. Age all.

Number of hospitalizations by ICD-10 Chapter 9 (adults) — SUS Outpatient Information System (SIA/SUS). Ministry of Health, Brazil. Data received July 4, 2022. Age 20–59.

Screening for breast cancer (seniors) — Cancer Information System (SISCAN). Ministry of Health, Brazil. Data received June 23, 2022. Age 60+.

Number of hospitalizations for any cancer (skin excluded) (seniors) — Outpatient Information System (SIA); Hospital Information System (SIH); Cancer Information System (SISCAN), Ministry of Health, Data received June 23, 2022. Ministry of Health, Brazil. Age 60+

Chile

Number of consultations for children — Medical statistical records (REM) (primary and secondary care) from the Ministry of Health of Chile. Data received August 22, 2022. Includes consultas morbilidad aguda por médico. Age 0–19.

Number of active children in nutritional programs — Medical statistical records (REM) (primary and secondary care) from the Ministry of Health of Chile. Data received August 22, 2022. Age 0–19.

Number of Diabetes Blood Tests (HbA1c) (adults) — Medical statistical records (REM) (primary and secondary care) from the Ministry of Health of Chile. Data received August 22, 2022. Age all (not specified).

Number of hospitalizations by ICD-10 Chapter 9 (adults) — Database of hospital discharges from the Ministry of Health of Chile. Data received October 6, 2022. Age 18–59.

Screening for breast cancer (seniors) — Medical statistical records (REM) (primary and secondary care) from the Ministry of Health of Chile. Data received August 25, 2022. Age 60+.

Number of hospitalizations for any cancer (skin excluded) (seniors) — Database of hospital discharges from the Ministry of Health of Chile. Data received October 6, 2022. Age 60+.

Colombia

Number of consultations for children — MSPS:SISPRO:REGISTRO INDIVIDUAL DE PRESTACIÓN DE SERVICIOS (RIPS). OLAP QUERY. Data received September 30, 2022. Includes category 1 (consultas) and category 4 (hospitalizaciones) for todas las atenciones (numero de atenciones). Age 0–17.

Screening for breast cancer (seniors) — MSPS:SISPRO:PROTECCION ESPECIFICA DETECCION TEMPRANA (PEDT). OLAP QUERY. Data received June 1, 2022. Age 60+.

Mexico

Data presented in the indicators were collected from the Ministry of Health, representing the most up-to-date information. Therefore, it only corresponds to approximately half of the Mexican population, which is the one that does not have health insurance and is served by the Ministry of Health.

The Service Delivery Subsystem provides information about the care provided by the Ministry of Health to the requesting population. It is made up of two components: institutional and community. It records the activities carried out at the different levels of care.

Number of consultations for children — The Service Delivery Subsystem. Ministry of Health (https://sinba.salud.gob.mx/CubosDinamicos). Data received June 28, 2022. Includes número total de consultas. Age 0–19.

Number of active children in nutritional programs — The Service Delivery Subsystem (SIS). Ministry of Health (https://sinba.salud.gob.mx/CubosDinamicos). Data received May 26, 2022. Includes consultation status of nutrition weight for height (age 0-4) and body mass index (BMI) (age 5–17). Age 0–17. Nutrition consultation from 0 to 17 years of age takes the sum of the weight-for-height consultations that are measured in children under 5 years of age with the BMI that is carried out for children and adolescents from 5 to 17 years of age based on information from the Subsystem of Services granted from General Direction of Health Information.

Number of Diabetes Blood Tests (HbA1c) (adults) — The Service Delivery Subsystem (SIS). Ministry of Health (https://sinba.salud.gob.mx/CubosDinamicos). Data received May 26, 2022. Age all. Data shows an upward trend, although with some inconsistencies in the pre-pandemic period; This could be related to the increased availability of glycated hemoglobin (HbA1c) tests, mainly in primary care medical units; the decrease from 2020 may reflect a lack of supply or a decrease in medical control visits due to the pandemic confinement.

Number of hospitalizations by ICD-10 Chapter 9 (adults) — Automated Hospital Discharge System (SAEH). Ministry of Health. Data received July 1, 2022. Age 18–59.

Number of hospitalizations for any cancer (skin excluded) (seniors) — Automated Hospital Discharge System (SAEH). Ministry of Health. Data received May 26, 2022. Age 60+.

Uruguay

Number of hospitalizations for any cancer (skin excluded) (seniors) — Hospital discharge database of the Ministry of Public Health. Data received September 12, 2022.

Annex II: Methods Section for the Qualitative Component Analysis

This annex details the methods used for the qualitative component analysis presented in chapter 3 of this report (impacts on health systems).

Design — Qualitative exploratory study.

Sample — Purposive. Through the local contacts of the World Bank, the research team was provided with a list of key actors to be interviewed based on the following profiles:

- Public health policy makers;
- Health services provision planning;
- Second level hospital medical director;
- Primary health care network manager; and
- Representative of a network of civil society organizations.

These groups of actors represent key components of the community of high-level decision-makers in health.

Data collection technique — Semi-structured individual interviews were conducted, with an average duration of 30 minutes.

Procedures — Data were collection in Chile, Colombia, Mexico, and Peru.

Data analysis — All interviews were conducted via video call and were audio-recorded with prior informed consent. The recordings were transcribed and the research team conducted a manual content analysis. The three main axes of analysis are:

- Pandemic preparedness and response (health policy development, experience in care);
- Consequences in delivery and utilization (interruption of services, strategies for recovery of care, scope of action of organizations for the defense of patients' rights); and
- Governance (collaborations, barriers, and areas of opportunity).

Limitations of the study — Selecting the key actors to interview was challenging. The goal was to choose decision-makers with a global vision of the country, but this goal was not always achieved. On the other hand, the selection of the profiles to be interviewed was carried out through local World Bank contacts, which may have incorporated bias. In addition, the sample consisted of 5–7 key actors per country; therefore, the information presented here should be taken as a general and exploratory approximation of the topics addressed and in no way as an absolute representation of the diverse contexts and complexities that each country entails. Several factors related to conducting the interviews also posed challenges, namely: remote connectivity issues and time constraints due to the many demands on interviewees' time that limited the length of the interviews.

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