

# 1 The impact of the COVID-19 pandemic on Latin American and Caribbean healthcare systems

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Latin America and the Caribbean (LAC) were massively affected by the COVID-19 pandemic, with death tolls proportionally higher when compared to other regions. The most severe mortality-related outcomes were observed in the elderly, men, and those who were socio-economically disadvantaged. Meanwhile, major disruptions in routine healthcare provision exposed fragile health systems and exacerbated excess deaths. Countries that identified their weaknesses and implemented a comprehensive pandemic response were able to mitigate loss of life. Policies aimed at reducing the health and socio-economic impact of the pandemic and strengthening the healthcare sector proved highly effective, especially when accompanied by popular adherence to pandemic measures. At the same time, structural limitations amplified the challenge of COVID-19, with health workforce shortages presenting a major bottleneck in strategies to confront the virus.

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## 1.1. Introduction

Three years have passed since the COVID-19 crisis galvanised attention to health systems worldwide. Between December 2019 and October 2022, 631 million cases and 6.59 million deaths were reported. Moreover, the re-prioritisation of healthcare resources to deal with the immediate pandemic response has affected regular healthcare, generating significant backlogs of postponed services in every level of care. An estimated 2 273 620 excess deaths were experienced in the region in 2020 and 2021 compared to the expected deaths for these years as estimated by WHO (WHO, 2022<sup>[1]</sup>). At the same time, social and economic effects driven by the loss of life and the multidimensional effects of containment measures will have long lasting implications for health systems and, ultimately, the people they serve.

The effect of COVID-19 in Latin America and the Caribbean (LAC) is proportionally much larger when compared to other regions of the world. By July 2022, LAC accounted for only 8.5% of the world population but 13% of the world's documented COVID-19 cases and 27% of the documented deaths (Herrera et al., 2022<sup>[2]</sup>). The health, social, and economic effects in the region have been catastrophic and have brought long-standing weaknesses and challenges of health systems to light (ECLAC, 2022<sup>[3]</sup>).

Previous literature has analysed extensively different aspects of the health and socio-economic impact of the pandemic (ECLAC, 2022<sup>[3]</sup>; Herrera et al., 2022<sup>[2]</sup>; OPS/PAHO, 2021<sup>[4]</sup>). However, there is still a significant knowledge gap in the understanding of the determinants of the pandemic impact and the characteristics of the most effective emergency responses.

In this chapter, we examine the mortality impact of the COVID-19 crisis and the factors that determined its severity across 33 countries in LAC<sup>1</sup> as well as, whenever feasible, the OECD average. Given that four LAC countries are part of the OECD (Chile, Colombia, Costa Rica and Mexico), and two more have started the accession process (Brazil and Peru) readers should be aware of some overlap between groups. The impact of COVID-19 is evaluated from the perspective of the performance of LAC health systems at three levels: Outcomes, process, and structure (Donabedian, 1988<sup>[5]</sup>).

- At the outcome level, the focus is on the mortality impact resulting from the COVID-19 virus itself and as extended consequences of the health emergency. Further, the chapter analyses disruptions to the routine provision of care as an intermediate outcome, in an effort to understand how the fragility of LAC health systems influenced the loss of life during the pandemic.
- At the process level, the analysis considers and compares the actions taken by the authorities to manage and mitigate the effects of COVID-19, together with the public response and adherence to these measures.
- At the structure level, the chapter builds on the analysis of variables defining care delivery, including health status, equipment, and human resources, explored in chapters three to nine of this publication. The analysis focuses on the main characteristics influencing preparedness to deal with the COVID-19 health emergency.

Assessing the pandemic impact in this order is essential for the objectives of the chapter. Starting at the outcome level allows for an analysis of the pandemic's most devastating consequence in the LAC region, the loss of life. Later, this is compared to performance in intermediate outcomes and at process level to understand the effectiveness of the pandemic response; and at the structure level, to examine the importance of baseline health system capacities.

The selection of indicators at each assessment level prioritises the availability of information for a wider set of LAC countries (Box 1.1) and actionability of these measures towards health system improvement (Carinci et al., 2015<sup>[6]</sup>). Given that no formal causal analysis is intended, the report considers these criteria to be most important for an accurate and comprehensive understanding of the performance of LAC countries during the pandemic.

### Box 1.1. Key information sources for evaluating the impact of COVID-19 in Latin America and the Caribbean

#### Main data sources used in the chapter

- World Health Organization, including Estimates of Excess Mortality Associated With COVID-19 Pandemic; Pulse survey on continuity of essential health services during the COVID-19 pandemic; WHO COVID-19 detailed surveillance data dashboard; WHO Coronavirus (COVID-19) Dashboard; Global Health Expenditure Database 2020. (WHO, 2022<sup>[7]</sup>; WHO, 2022<sup>[8]</sup>; WHO, 2021<sup>[9]</sup>; WHO, 2020<sup>[10]</sup>)
- The World Bank, including: COVID-19 High-Frequency Monitoring Dashboard; World Development Indicators. (The World Bank group, 2021<sup>[11]</sup>; The World Bank, 2022<sup>[12]</sup>)
- COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (Dong, Du and Gardner, 2020<sup>[13]</sup>)
- The University of Maryland Social Data Science Center Global COVID-19 Trends and Impact Survey, in partnership with Facebook (The University of Maryland Social Data Science Center & Facebook, 2020<sup>[14]</sup>)
- Government Response Tracker (Oxford COVID-19 Government Response Tracker, 2022<sup>[15]</sup>)
- Economic Commission for Latin America and the Caribbean, including: Public expenditure on Health and Social; Data from Household Surveys Database (BADEHOG) (ECLAC, 2021<sup>[16]</sup>)
- A global database of COVID-19 vaccinations (Mathieu et al., 2021<sup>[17]</sup>)
- OECD Health Statistics (OECD, 2022<sup>[18]</sup>)

These sources complement data collected for *Health at a Glance: Latin America and the Caribbean*, including national statistics collected through questionnaires of the OECD, or directly extracted from national sources.

The chapter is organised as follows. LAC countries' performance at the outcome level is presented in Section 1.2. The analysis of routine and essential care disruptions is presented in Section 1.3. Process-level performance is assessed in Section 1.4, focusing on countries' pandemic response. Structural components and their effect on COVID-19 mortality impact is addressed in Section 1.5. Finally, Section 1.6 discusses the results of the assessments at the three levels in aggregate and provides policy recommendations for strengthening resilience of LAC health systems.

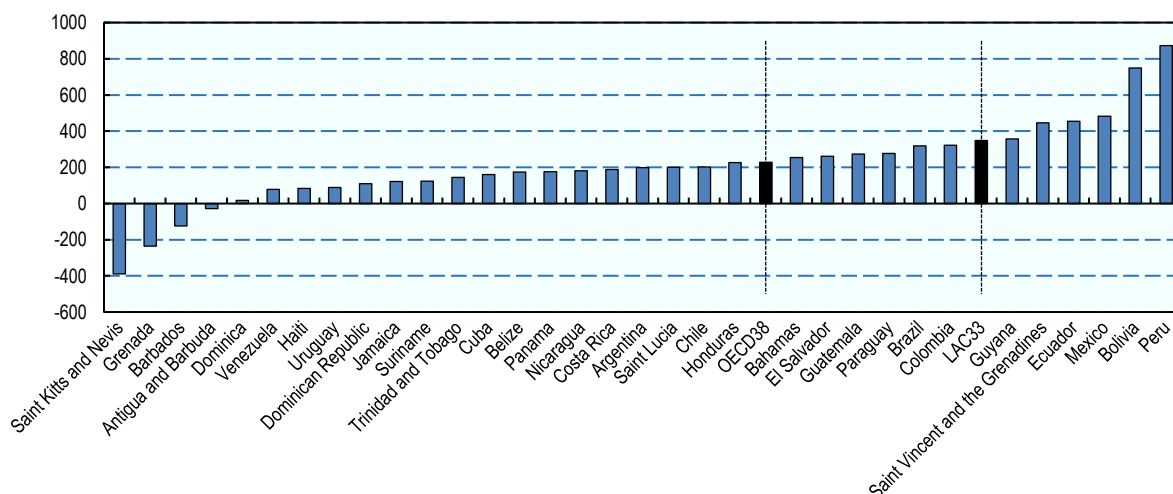
## 1.2. The death toll of COVID-19 was proportionally higher in Latin America and the Caribbean than in other regions

Excess mortality is calculated as the difference between expected and estimated deaths from all causes (Figure 1.1). In WHO's calculation of excess deaths, estimated deaths are based on historic data from five to 20 years before the pandemic (WHO, 2022<sup>[1]</sup>). Excess mortality is considered a more accurate indicator of the direct health impact of COVID-19 due to limitations in the cross-country comparability of COVID-19 crude mortality data (Box 1.2). It is estimated that LAC had 2 273 620 excess deaths combining 2020 and 2021, the later year being by far the deadliest of the pandemic (Figure 1.2). This represents 15% of the total excess deaths in the world (WHO, 2022<sup>[7]</sup>). Considering LAC only accounted for close to 8.5% of the world population in this period (UN, 2022<sup>[19]</sup>), the disproportionate effect of COVID-19 in the region is undeniable.

Figure 1.1 presents the accumulated estimated excess mortality per 100 000 population for years 2020 and 2021. Only six of the 33 countries experienced particularly high excess deaths above the LAC average: Peru, Bolivia, Mexico, Ecuador, Saint Vincent and the Grenadines, and Guyana. The cases of Saint Vincent and Guyana need to be taken with caution, as their small population might exacerbate the perceived impact of the number of COVID-19 related deaths. Peru experienced the highest impact within the group (and region) with 873 excess deaths per 100 000, 150% more than the LAC average. The average of these six countries is 560 excess deaths per 100 000 (60% higher than the LAC average). Together, this group accounted for 48% of all excess deaths in LAC in the period 2020-21, but only 25% of the region's population.

**Figure 1.1. Twelve countries are above the OECD average of excess deaths**

Estimates of cumulative excess deaths combining 2020 and 2021 per 100 000 population



Note: Excess mortality is calculated as the difference between expected and estimated deaths from all causes. Estimated deaths are based on historic data from 2015 to 2019 for countries reporting monthly deaths and from 2000 to 2019 for countries reporting annually. More information about the estimation method can be found in (WHO, 2022<sup>[1]</sup>). COVID-19 deaths in 2020 are reported for BOL, BRA, CHL, COL, CRI, ECU, GTM, MEX, PER, PRY, SUR, URY. Deaths in 2021 reported by BOL, CHL, GTM, SUR. COVID-19 deaths for rest of LAC33 are predicted. From OECD38; IRL, JPN and TUR use predicted deaths, the rest of OECD38 uses reported deaths.

Source: WHO (2022<sup>[7]</sup>), "Global excess deaths associated with COVID-19 (modelled estimates)", as of 25 March 2022, <https://www.who.int/data/sets/global-excess-deaths-associated-with-covid-19-modelled-estimates>.

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## Box 1.2. Cross-country comparability of COVID-19 mortality data

### Comparable data is specially limited in LAC

There is no standardised methodology in the region to measure COVID-19 deaths. Instead, several methods are used across the region, with some countries, like Peru, using up to three different classifications for determining COVID-19 deaths. In addition, because of limited capacity of local health authorities, there is a significant underestimation of COVID-19 mortality for deaths occurring outside of the hospital and in remote areas. Finally, the testing capacity to determine a COVID-19 infection had substantial heterogeneity in the region, making it impossible for some countries to accurately determine the presence or absence of the virus in all deaths occurring during the pandemic years.

### Excess mortality as a proxy of health impact

Excess mortality is considered to have fewer limitations for cross-country comparability and hence is a more accurate indicator to compare the direct health effects of COVID-19 across countries. However, the indicator is not specific to COVID-19 and hence, susceptible to heterogenous underlying death rates related to any event and country characteristics. Second, because the indicator compares reported mortality against expected mortality based on previous years, it is not only susceptible to events at the time of analysis, but also to events at baseline. Finally, excess mortality depends on the accuracy of death reporting, and while some LAC countries made efforts at improving quality of death reporting during the pandemic (like Colombia), in many countries data quality is more difficult to assess. As such, is important to consider:

- Country specific events which might disturb the indicator of excess mortality at the time of analysis or baseline. For example, natural disasters or severe flu seasons. The calculation method for the indicator of the excess mortality in this report uses several baseline years (from 5 to 20 depending on the country specific reporting periodicity) to smooth these effects. However, countries with low performance in overall mortality might disturb the relationship between excess mortality and actual health system performance.

- Waves of infections and deaths had different schedules across countries. To account for these differences, we consider the cumulative excess deaths combining years 2020 and 2021.
- Lockdowns and other interventions can lead to negative excess mortality during the pandemic because of reduced risk for several mortality causes, such as injury or other communicable diseases (WHO, 2022<sup>[1]</sup>).
- Lastly, the selected estimation of excess deaths by WHO (WHO, 2022<sup>[1]</sup>) is only one of several estimations available in literature. Other estimations, such as the one by Wang et al. (Wang et al., 2022<sup>[20]</sup>), might lead to a different order than the one presented in Figure 1.1. For this reason, we consider the sensibility of our conclusions to different estimations of excess mortality.

Source: Morgan et al. (2020<sup>[21]</sup>), "Excess mortality: Measuring the direct and indirect impact of COVID-19", <https://doi.org/10.1787/c5dc0c50-en>; Wang et al. (2022<sup>[20]</sup>), "Estimating excess mortality due to the COVID-19 pandemic: a systematic analysis of COVID-19-related mortality, 2020-2021", [https://doi.org/10.1016/s0140-6736\(21\)02796-3](https://doi.org/10.1016/s0140-6736(21)02796-3); WHO (2022<sup>[1]</sup>) Methods for estimating the excess mortality associated with the COVID-19 pandemic, <https://www.who.int/publications/m/item/methods-for-estimating-the-excess-mortality-associated-with-the-covid-19-pandemic>.

Comparing the performance of the LAC region to the OECD average can be used as the boundary for defining a second group of countries, with excess mortality higher than the OECD average but lower than LAC average. Colombia leads this group with 323 excess deaths per 100 000 population. This is 8% lower than the LAC average and 40% higher than the OECD average. The group (Colombia, Brazil, Paraguay, Guatemala, El Salvador and Bahamas) has an average of 285 estimated excess deaths per 100 000 population, 25% above OECD average and 18% below LAC average. These six countries accounted for 41% of all the excess deaths in the region while representing 45% of the region's population.

The rest of the region can be interpreted as a third group of countries, with lower than OECD average excess deaths. This 21-strong group has an average of 81 estimated excess deaths per 100 000. This is 64% less than the OECD average. Together, this group accounted for 11% of the excess deaths and 30% of the region's population.

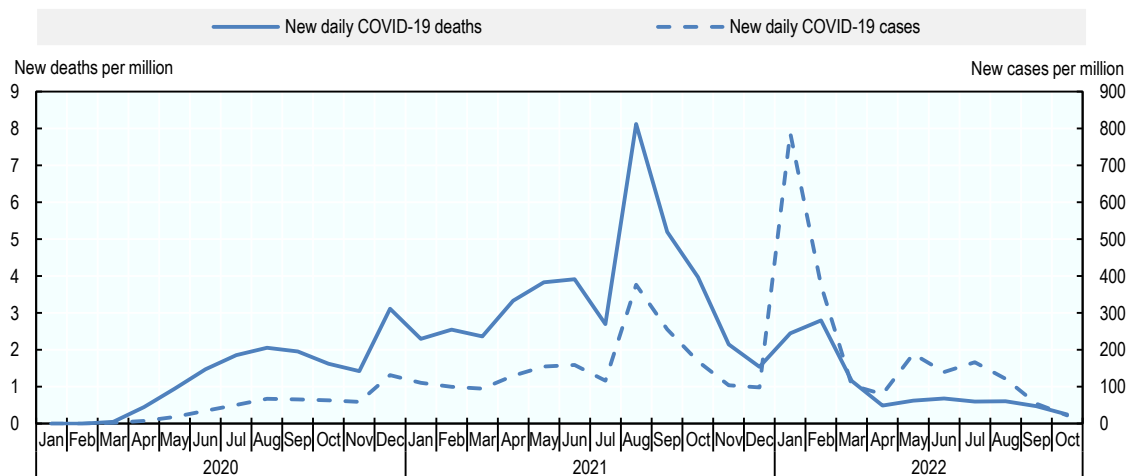
However, the group of countries performing better than the OECD average is composed by several countries affected by the limitations of the excess mortality indicator (Box 1.2). For countries affected by these limitations, the excess mortality indicator does not accurately represent the health impact of the pandemic and, hence, should not be used for comparison. In this line, countries suitable for comparison in the group that experienced milder health effects can be identified using the following three criteria:

- **Excess mortality accumulated in 2020 and 2021 below the OECD average**, given that these were the countries with the lowest excess mortality during the first two years of the pandemic.
- **Age-standardised mortality rate (all causes) below the LAC average in 2019**. This criterion enables filtering out countries where high overall mortality disturbs the accuracy of the excess mortality indicator to signal a positive pandemic response. Age-standardised mortality rate is taken from the Global Burden of Disease Collaborative Network (IHME, 2021, 2021<sup>[22]</sup>).
- **Countries with more than 500 000 inhabitants**. Finally, this criterion filters out countries where unintended consequences of the pandemic response, such as lower traffic and injury deaths are usually more volatile. Furthermore, estimations of excess mortality for countries with small population are considerably less precise (WHO, 2022<sup>[1]</sup>).

The resulting list of countries with positive outcomes in terms of the health effect of COVID-19 is composed (in order of population size) of Argentina, Venezuela, Chile, Cuba, Costa Rica, Panama, Uruguay, Jamaica, and Trinidad and Tobago. As presented by Herrera et al (2022<sup>[21]</sup>), a different estimation of excess mortality by the COVID-19 Excess Mortality Collaborators 2022 shows Venezuela as the only country in this group that considerably changes their relative position in the region and presents a higher than LAC average excess mortality. Consequently, conclusions regarding this country will be examined with care.

**Figure 1.2. In LAC, 2021 was the deadliest year of the pandemic**

Monthly average daily cases and deaths in LAC



Source: Dong, Du and Gardner (2020<sup>[13]</sup>), "An interactive web-based dashboard to track COVID-19 in real time", [https://doi.org/10.1016/s1473-3099\(20\)30120-1](https://doi.org/10.1016/s1473-3099(20)30120-1).

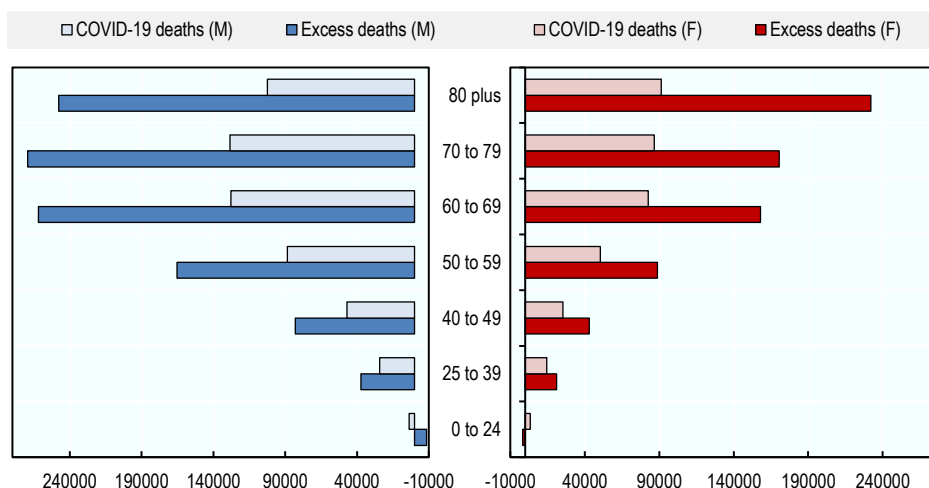
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### 1.2.1. Mortality by COVID-19 was more severe in men, elderly people, and socio-economically disadvantaged groups

The stark differences between reported deaths and excess mortality (Figure 1.3), validates the use of excess mortality as a more accurate indicator of the pandemic effect on population health. Further, the age and sex stratification shows that males carried a heavier burden in terms of mortality during the pandemic, in line with previous studies (Huang et al., 2021<sup>[23]</sup>; Gebhard et al., 2020<sup>[24]</sup>; de Souza et al., 2021<sup>[25]</sup>; PAHO, 2021<sup>[26]</sup>). Finally, the difference between reported COVID-19 deaths and excess mortality during this period increased with age, either because of under-reporting COVID-19 deaths (OECD, 2021<sup>[27]</sup>) or due to deaths by other causes.

**Figure 1.3. The gap between excess and COVID-19 deaths widens with age**

Excess and confirmed deaths by age group and sex, cumulative 2020 and 2021



Note: Figure includes ARG, BHS, BRA, CHL, COL, CRI, DOM, ECU, GTM, JAM, LCA, MEX, PAN, TTO. COVID-19 deaths include confirmed and probable COVID-19 deaths.

Source: WHO (2022<sup>[7]</sup>), "Global excess deaths associated with COVID-19 (modelled estimates)", as of 25 March 2022, <https://www.who.int/data/sets/global-excess-deaths-associated-with-covid-19-modelled-estimates>; COVID-19 deaths: WHO COVID-19 detailed surveillance data dashboard based on WHO case report forms.

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Around 60% of estimated excess deaths were in men and 75% of estimated excess deaths were attributed to people aged 60 years or more. When comparing estimated excess deaths by 100 000 population, males aged 70 years or more had an 80% higher risk of death than females from the same age group. The risk of death for females is on average 50% lower for every age group. These findings are consistent with previous literature (OPS/PAHO, 2021<sup>[4]</sup>).

### *COVID-19 evidenced severe inequities in healthcare*

Vulnerability and socio-economic inequities determined the burden of COVID-19 direct health impacts. This is clearly seen in the differences in mortality and hospitalisation of COVID-19 among vulnerable populations. As highlighted by ECLAC (ECLAC/PAHO, 2021<sup>[28]</sup>), socio-economic vulnerability is correlated with COVID-19 infection, severity of the disease, and death (de Souza et al., 2021<sup>[25]</sup>). Low-income areas had disproportionately high numbers of COVID-19 deaths in Brazil (Bermudi et al., 2021<sup>[29]</sup>) and Argentina (Macchia et al., 2021<sup>[30]</sup>). At the same time, higher education has shown a higher-than-expected protective effect during 2020 in Chile (Bilal, Alfaro and Vives, 2021<sup>[31]</sup>) and Brazil (SUS, 2022<sup>[32]</sup>). Studies exploring ethnic differences in COVID-19 deaths in 2020 in Brazil, Chile, Colombia, Mexico, and Peru, indicated that mortality affected non-white populations disproportionately (NU. CEPAL/German Agency for International Cooperation, 2021<sup>[33]</sup>). Further, a positive association has been found between countries with more COVID-19 cases and a higher migrant population (Migration data portal, 2022<sup>[34]</sup>). This is consistent with other sources, stating that migrants in Latin America are at a disadvantage in terms of pandemic preparation (Cabieses et al., 2020<sup>[35]</sup>).

### *Female health workforce was more exposed to the virus*

The health workforce at the front line of the pandemic response is at higher risk of COVID-19 infection. During 2020, more than 1.3 million cases among health personnel were reported in the region and more than 6 000 died due to the disease (OPS/PAHO, 2021<sup>[4]</sup>). Women comprise a disproportionately greater share of frontline health personnel in the region: 86% of nurses in the region are female and 70% of the worldwide pandemic response front line are female (PAHO, 2021<sup>[26]</sup>; OECD, 2020<sup>[36]</sup>). This translates to 72% of COVID-19 cases (from March 2020 until January 2021) in health personnel being among women (OPS/PAHO, 2021<sup>[4]</sup>).

## **1.3. Severe disruptions to routine care evidenced fragile health systems**

In 2020, COVID-19 disrupted all healthcare services worldwide at some level. During 2021, the disruption to essential health services remained in 90% of countries. Workforce shortages and supply chain disruptions were reported in more than 30% of countries responding to the WHO PULSE survey (WHO, 2022<sup>[8]</sup>). Primary and rehabilitative, palliative, and long-term care remained the most heavily affected services during this time (Kuehn, 2021<sup>[37]</sup>).

An important lesson from the pandemic is that health systems need to strengthen their resilience: the ability to prepare for shocks, absorb disruptions and recover as quickly as possible with minimal cost, and adapt by learning lessons to improve performance and manage future risks (OECD, 2023<sup>[38]</sup>). For this purpose, it is important to understand the extent to which COVID-19 altered the normal functioning of healthcare and how this reflected on health outcomes during the pandemic. Measuring the extent of disruption to healthcare services generates important information for minimising negative consequences and to recover as quickly as possible to respond to the next emergency.

### **1.3.1. Foregone care was higher in countries with higher excess mortality**

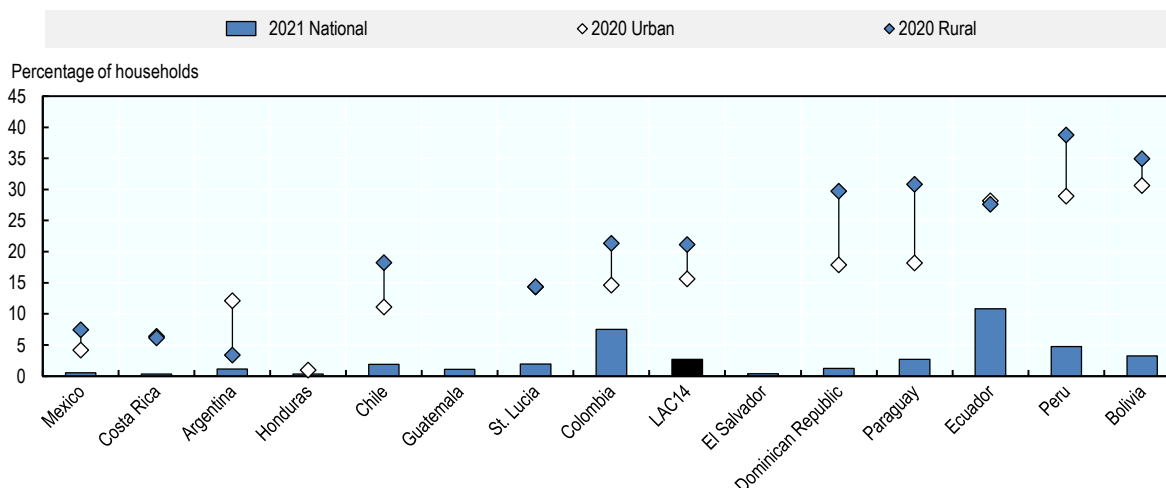
In 14 LAC countries on average during 2020, 16% of urban households and 21% of rural household reported not being able to attend healthcare services when needed (Figure 1.4). In Ecuador, Peru and Bolivia (three countries in the highest excess deaths group) this percentage was higher than 27% of households in the country. While the relation between the severity of the pandemic and the disruption of in healthcare is undoubtedly endogenous, the fact that the disruption presented in the graph was one year before the highest point of excess deaths in the region suggests that the early disruption of healthcare was a key determinant in the later severity of excess deaths.

Most countries showed important recovery capacities during 2021, where on average only 2.7% of households didn't receive medical care when needed. The biggest disruptions during the second year of the pandemic coincide with countries that had high excess deaths. On the contrary, in several countries with lower than OECD average excess deaths (Costa Rica, Argentina, Honduras and Chile) there were lower disruptions during 2020, with between 18% (rural Chile) and 3% (Rural Argentina) of households reporting disrupted care and almost none during 2021 (below 2%). The exception is Mexico that reported very low percentage of households perceiving disrupted care during the two years (less than 7.5%), but at the same time had the third highest estimated number of excess deaths in the region. These findings are congruent with those exposed by ECLAC (ECLAC, 2022<sup>[3]</sup>) and the World Bank (Herrera et al., 2022<sup>[2]</sup>).



**Figure 1.4. Rural populations faced higher disruptions in health services**

Proportion of households that did not receive healthcare services when needed, rural vs urban



Note: Data from high-frequency mobile surveys designed to be representative of the underlying population. Data from 2020 is an average of four rounds of survey occurring in 2020 (Round 1 between May and June, round 2 in June, round 3 between July and August, and round 4 in August).

Source: World Bank (2021<sub>[11]</sub>), COVID-19 High-Frequency Monitoring Dashboard, <https://www.worldbank.org/en/data/interactive/2020/11/11/COVID-19-high-frequency-monitoring-dashboard>.

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Reasons for people not receiving care when needed can be classified in two ways. The first relates to the supply of services, when no care is available. Understanding the extent of this effect allows countries to provide the appropriate focus on strengthening care provision. The other option is on the demand side when people do not seek care. The varying reasons behind this choice affect policy recommendations: those who elect to not seek care as a personal decision account for different considerations than those who did not seek care because of a perceived mandate such as a stay-at-home restriction. In the latter case, the communication strategy of the authorities is a critical issue, and authorities must ensure that options to access care are well-communicated to hard-to-reach populations.

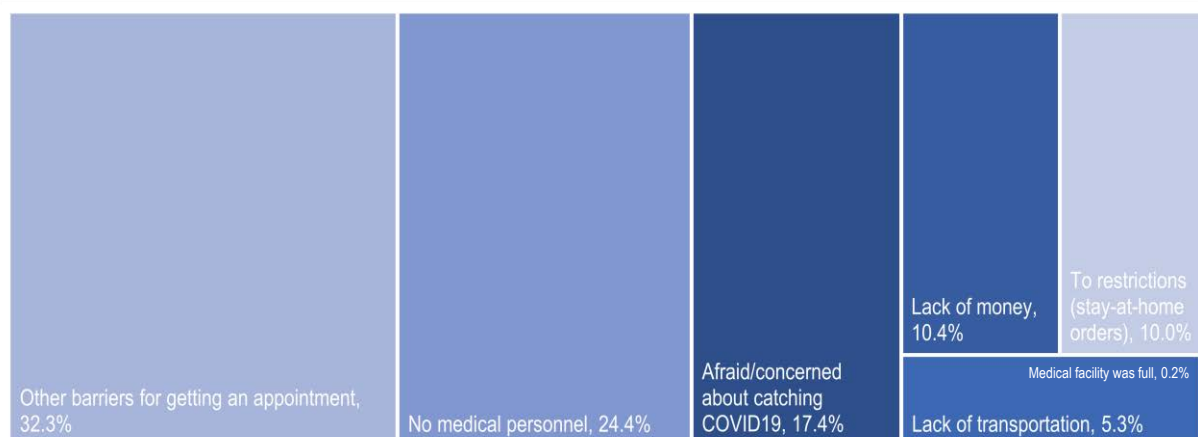
Figure 1.5 shows that out of the households that did not receive medical care when needed, 24% attributed this to no availability of medical personnel. This is directly related to the redistribution of healthcare resources because of the pandemic. In the same category, 0.2% of households could not receive medical care because the health facility was full. Furthermore, the “other reasons” (32%) category includes answers to the questions “hospital/clinic did not have enough supplies or tests” and “medical facility was closed” as well as “other reasons”. In this sense, it can also be considered a supply-side barrier.

On the demand side, 17% of households reported not receiving medical care because of being afraid of catching COVID-19, while 10% reported lack of money. These reasons resonate with the heavy health, social and economic impacts of the pandemic, and consequent high levels of mental distress. Finally, restrictions and a lack of transportation affected 15% of households not receiving healthcare when needed.



**Figure 1.5. Redistribution of healthcare resources led to disruptions**

Proportion of households out of households that could not receive medical attention needed during 2020 in 14 LAC countries



Note: Data from high-frequency mobile surveys designed to be representative of the underlying population. "Other barriers for getting an appointment" includes the categories "hospital/clinic did not have enough supplies or tests" and "medical facility was closed". Data includes 14 LAC countries. Data is an average between waves 1 (May 2020) and wave 4 (August 2020).

Source: World Bank (2021<sup>[11]</sup>), COVID-19 High-Frequency Monitoring Dashboard, <https://www.worldbank.org/en/data/interactive/2020/11/11/COVID-19-high-frequency-monitoring-dashboard>.

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The impact of restrictions is particularly notable, as they are directly related to the planning of the authorities when imposing restrictions and remained fully within their control. Securing essential services such as transportation and correctly informing people of the nature of the restrictions is essential for the effectiveness of the pandemic response. Health systems also have space for action regarding the supply-related disturbances. The redistribution of resources during the pandemic response should secure services for important health needs. Finally, while health systems can only indirectly affect the disturbances related to the demand side, effective communication campaigns the distribution of protective equipment, and interventions for reducing the financial burden of healthcare, can be very effective in improving health systems responsiveness during a pandemic.

### *Essential services were severely affected*

The pandemic disrupted several essential services. As exposed by the survey conducted by the University of Maryland in collaboration with Facebook (2020<sup>[14]</sup>), seasonal flu vaccination decreased in at least 10 countries (with available data<sup>2</sup>) between the flu season 2019 (June 2019 to Feb 2020) and the one in 2020 (after July 2020). The average decrease in the proportion of immunised population in these countries was to the order of 27%. On the other hand, Colombia and Honduras saw a small increase (2 percentile points) in the proportion of flu-immunised people. Furthermore, Diphtheria, tetanus toxoid and pertussis (DTP3) immunisation coverage<sup>3</sup> amongst children aged 1 decreased from 90% to 82% on average in LAC (Chapter 7 – Childhood vaccination programmes).

Additionally, in 2020, medical consultations decreased in Brazil (30%), Mexico (9% – estimated), Costa Rica (17%), and Chile (32%) (OECD, 2022<sup>[18]</sup>). Furthermore, medical consultations of children decreased 67% in Chile and antenatal consultations decreased 56% in Peru (OECD, 2022<sup>[39]</sup>).

Hospitalizations for non-COVID-19 related reasons diminished considerably. Even though data in the region is scarce, between 2019 and 2020 Chile and Costa Rica decreased their non-COVID related hospitalisation discharges by 23% (OECD, 2022<sup>[18]</sup>). In 2020, Peru and Guatemala (out of 24 LAC countries reporting data) reported disruptions larger than 5% to 24-hour emergency room services. By the end of 2021, the disruption reached more than 50% of services in both countries. At the same time, ambulance services reached disruptions of more than 26% (WHO, 2022<sup>[8]</sup>). Excess deaths in these two countries were among the highest in the region and peaked in the second half of 2021.

### People with chronic conditions in LAC experienced important disturbances in routine care

While standardised and comparable data for the region is scarce, information can be obtained from individual cases. General care was drastically affected for people with cancer, heart attacks and strokes in Chile (Pacheco et al., 2021<sup>[40]</sup>). For example, from April to September 2020 diabetes consultations dropped 80% and hypertension consultations dropped 81% when compared to the previous year. A similar situation occurred in Mexico, where one source reports drops of 26% and 28% in diabetes and hypertension respectively (Arsenault et al., 2022<sup>[41]</sup>), while another reports drops of 32% for both types of consultations (Doubova et al., 2021<sup>[42]</sup>). In Peru, diabetes treatment dropped 8% during 2020, while no disruptions to hypertension treatment were recorded (INEI, 2021<sup>[43]</sup>). In Costa Rica, the decrease was of 32% for diabetes and 20% for hypertensive patients (CCSS, 2020<sup>[44]</sup>). Additionally, diabetes screening coverage rates decreased 32% and hypertension screening coverage rates decreased 23% in both Brazil and Chile (OECD, 2022<sup>[39]</sup>). In Mexico, a decline in diabetes and hypertension diagnoses was observed to the order of 17% and 22%, respectively (Doubova et al., 2021<sup>[42]</sup>).

In addition, large disparities in the level of disruption across socio-economic groups were observed in Peru, where patients with lower education (11.5%) presented a reduction in diabetes care almost twice as high as people with higher levels of education (6.3%) (INEI, 2021<sup>[43]</sup>).

In a research study surveying a group of 704 oncology physicians from 19 LAC countries, 70% of respondents reported a reduction of new patients, 72% noticed a decrease in follow-up consultations and 58% affirmed having changed the treatments offered to patients with cancer (Bernabe-Ramirez et al., 2022<sup>[45]</sup>). This is consistent with records showing cervical cancer screening decreases in Mexico (68%), Peru (49%), Brazil (45%) and Chile (9%) and breast cancer screening decreases in Mexico (79%), Peru (51%), Brazil (43%) and Chile (10%) (OECD, 2022<sup>[39]</sup>). Referrals for oncology patients were also affected: the study by Bernabe-Ramirez et al. (Bernabe-Ramirez et al., 2022<sup>[45]</sup>) found that 65% of surveyed doctors in LAC reported referral delays and 20% of them reported that surgeries had to be cancelled.

As a result of the disruption in cancer screening, registries management and cancer care services, recorded cancer cases decreased in Peru in 2020 by 50% when compared to the previous 4 year average (MINSA, 2021<sup>[46]</sup>). Furthermore, treatment for advanced-stage cancer decreased 37% between March 2020 and March 2021 (Chávez Amaya, 2021<sup>[47]</sup>). As a result, cancer mortality increased in the country by 5.3% when comparing 2020 with 2018 values (WHO, 2020<sup>[48]</sup>) (OECD, 2022<sup>[39]</sup>). In Chile, treatment for cervical cancer was reduced by 55% between 2019 and 2020 and a further 8% in 2021, with the reduction in services greater for patients using public health insurance (Superintendencia de Salud, 2022<sup>[49]</sup>). Brazil saw a decrease of 42% in oncological patient referral between 2019 and 2020 (Borges et al., 2020<sup>[50]</sup>).

Table 1.1 presents the proportion of countries by levels of disruption of essential healthcare services in 2021 (highest disruption reported during the year), disaggregated by excess deaths performance. Notably, countries experiencing lower than OECD average excess deaths had lower levels of disrupted services during 2021. The disruption in cancer treatment is particularly worrisome, given the immediate health impact it has on the population. Mental healthcare was also severely affected, where challenges included the limited capacity of health services to use virtual/telemedicine platforms to provide care to mental health patients (Antiporta and Bruni, 2020<sup>[51]</sup>).

**Table 1.1. Disruption in healthcare services by excess mortality performance group**

Proportion of countries by level of disruption in 2021

Healthcare service	Proportion of disrupted services	Excess deaths higher than OECD average (10 countries*)	Excess deaths lower than OECD average (selected) (8 countries**)
Cancer screening	Less than 5%	20%	50%
	5-25%	10%	13%
	26-50%	30%	0%
	More than 50%	40%	38%
Cancer treatment	Less than 5%	40%	37%
	5-25%	10%	25%
	26-50%	30%	13%
	More than 50%	20%	25%
Child mental health services	Less than 5%	37%	71%
	5-25%	13%	29%
	26-50%	25%	0%
	More than 50%	25%	0%
Antenatal care	Less than 5%	38%	82%
	5-25%	50%	18%
	26-50%	0%	0%
	More than 50%	12%	0%

Note: \* Data for Colombia and Guyana was not available. \*\* Data for Trinidad and Tobago was no available. Not all countries responded every question. Selected countries in the lower than OECD average excess deaths groups according to criteria explained in Section 1.2. If a country had two levels of disruption during 2021, the highest disruption is presented.

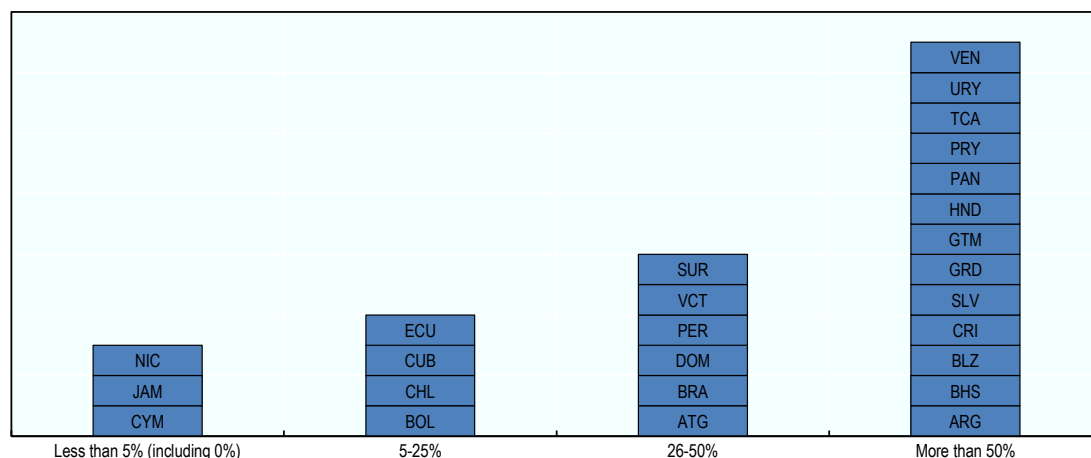
Source: WHO (2022<sup>[8]</sup>), Pulse survey on continuity of essential health services during the COVID-19 pandemic, <https://apps.who.int/iris/handle/10665/351527>.

### **Countries postponed elective surgeries to redistribute health resources**

During 2021, elective surgeries were disrupted in 59% of countries reporting data to the WHO PULSE survey (WHO, 2022<sup>[8]</sup>). In LAC, 19 out of 27 countries in the survey reported disruptions larger than 25% (Figure 1.9). While most countries in the region severely decreased elective surgeries, some countries with higher than LAC average excess deaths, such as Peru, Bolivia, Ecuador and Saint Vincent, experienced disruptions of less than 50%. Disrupting elective surgeries can have accumulating consequences on health and well-being, especially in the long run. However, given its non-emergency status, it is an area where authorities can re-distribute staff and resources to provide care for patients with COVID-19, as they did for most countries in the world (Nepogodiev et al., 2022<sup>[52]</sup>).

**Figure 1.6. Most countries severely disrupted elective surgeries during 2021**

Maximum disruption March or December 2021



Note: Two waves of the PULSE survey are considered in the graph, those of March and December. The highest disruption between the two is reported.  
 Source: WHO (2022<sup>[8]</sup>), Pulse survey on continuity of essential health services during the COVID-19 pandemic, <https://apps.who.int/iris/handle/10665/351527>.

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### *The collapse of health systems and the death toll of COVID-19 affected mental health*

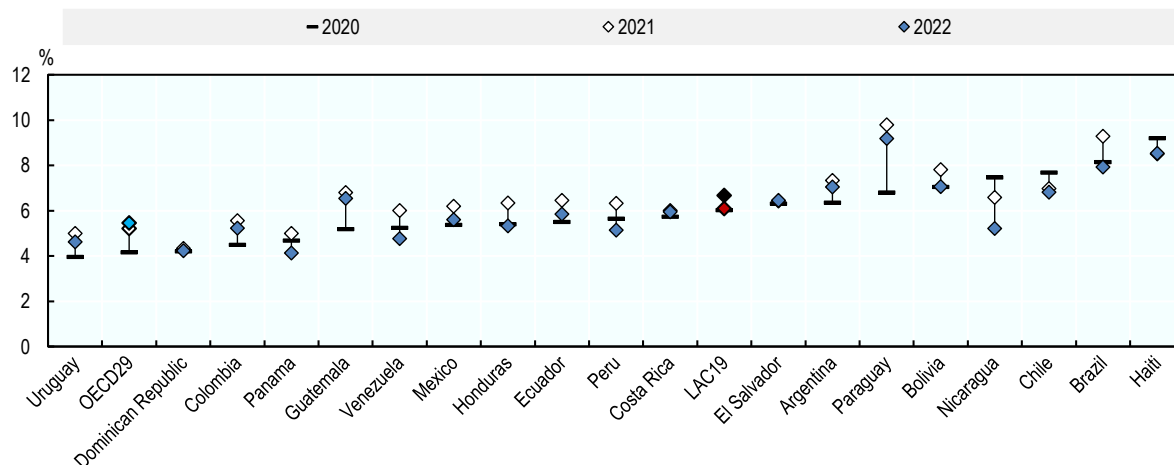
Population's mental health was directly affected by the state of emergency and restrictions to meet family, friends, and other social communities. Research in the region reported that the most frequent reactions to both the pandemic itself and the public health measures that countries implemented were anxiety, stress, and fear. Because of the urgency to intervene the pandemic generated, anxiety was considered by mental health experts to be the number one indirect health effect concern. Given the overwhelming situation and the collapse of healthcare systems, community-based mental healthcare and strengthening the capacities of non-specialised primary health providers were highlighted to be effective interventions to minimise the effect on mental health (Antiporta and Bruni, 2020<sup>[51]</sup>).

Figure 1.7 presents the percentage of the population out of a representative sample of Facebook users that self-reported feeling nervous over the three years of the pandemic. Only in three countries the level of nervous people decreased between 2020 and 2021, and for all other countries the peak of self-reported nervousness was reached in 2021, coinciding with the peak of reported COVID-19 deaths. In addition, the chart shows how the sense of normality started to settle during 2022, with nervousness levels decreasing compared to 2021 in all the countries in the region. Other factors may also have affected this indicator. The OECD average shows a peak of nervousness in the population in 2022. This could be related to the ongoing conflict in Ukraine, as well as the surge in COVID-19 deaths during the first months of this year.

The percentage of people that reported wanting more information on how to remain mentally healthy during the pandemic is a good indicator of the responsiveness of the systems in this topic. Among the 19 LAC countries with available data, 41% of the population on average reported wanting more information. In contrast, only 29% of the population reported this along 29 OECD countries. In Peru and Chile, about 50% of people in 2021 would have liked to have more information on mental health. In contrast, 30% and 34% of people in Uruguay and Argentina were in this situation (The University of Maryland Social Data Science Center & Facebook, 2020<sup>[14]</sup>).

**Figure 1.7. The proportion of people in mental distress peaked in 2021**

Respondents who reported feeling nervous most or all the time over the past 7 days



Note: Data is a representative sample of Facebook users. Data from April 2020 to June 2022.

Source: The University of Maryland Social Data Science Center (2020<sup>[14]</sup>), Global COVID-19 Trends and Impact Survey in partnership with Facebook, <https://covidmap.umd.edu/>.

StatLink  <https://stat.link/2a167o>

## 1.4. Countries that adopted a comprehensive pandemic response were able to minimise loss of life

Countries' pandemic response were in large part defined by the capabilities of their health systems, but also by structural factors that affected circulation of the virus in their countries. This analysis begins by comparing public health and social measures directed at mitigating the spread of the virus among the population. Second, a comparison of policies directed at strengthening the healthcare system is conducted, examining those put in place to treat COVID-19 patients as well as securing the provision of essential non-COVID-19 care during the pandemic.

### 1.4.1. Public health policies to mitigate the impact of the COVID-19 pandemic reduced excess deaths

The range of public health policies directed at mitigating the effects of the pandemic was summarised by the Oxford COVID-19 Government Response Tracker in four areas; containment and closure, economic, health system, and vaccination, and included 21 indicators (Oxford COVID-19 Government Response Tracker, 2022<sup>[15]</sup>). Most countries in LAC (26 out of 28 in the database) implemented all the containment and closure measures (eight indicators) at some point and at some level between 2020 and June 2022. However, the length and stringency of the measures varied between countries. Table 1.2 shows the length of time LAC countries implemented containment and closure measures at the strictest level. The most significant differences can be found in the lockdown indicator, where Chile leads the region with 426 days under orders of not leaving the house without a formal excuse. In contrast, nine countries did not implement the strictest level of lockdown for different reasons, one of them being complex legal procedures and congressional approval (Costa Rica). On average, countries that had lower than OECD average excess deaths had seven out of eight measures at the strictest level for longer than countries with higher excess mortality (Table 1.2). However, the average is heavily influenced by one or two countries in each group with exceptionally high or low values. Peru is a notable outlier in a counterintuitive direction, as the country implemented one of the strictest policies in the region but still had a low performance in terms of excess deaths.

Assessing the relationship between public health policies and excess mortality requires unravelling an important timing effect in pandemic response. On one hand, countries amid a COVID-19 surge of cases and deaths are pressured to strengthen their containment measures. On the other hand, if a country has stricter measures, it can minimise future surges in cases and deaths. Figure 1.8. presents the Containment Index for 27 countries in the region in the second quarter of three years of the COVID-19 pandemic (2020 to 2022). Six countries – Jamaica, Chile, Barbados, Suriname,

Venezuela, Costa Rica, and Uruguay – had stricter containment measures in the second quarter of 2021 than the year prior in 2020. All of these countries had lower-than-OECD-average excess deaths. Furthermore, except for Peru and Guyana, countries in the graph that had higher-than-OECD-average excess deaths during 2020-21 decreased the stringency of their containment measures in 2021 by more than 11% compared to the same quarter in 2020 (Peru and Guyana decreased 5 and 6% in this period, respectively).

Considering that the surge in COVID-19 deaths happened during 2021 (Figure 1.2), Figure 1.8. shows how LAC adopted a strict approach early in 2020, with most countries in the region having a higher containment index than the OECD average at this stage. The objective of this strategy was to minimise the initial spread of the virus, in line with the world-wide “Flattening the curve” approach (The Economist, 2020<sup>[53]</sup>; OECD, 2020<sup>[54]</sup>) and was somewhat effective in the short term. However, following a mix of economic and political exhaustion, lowered public adherence with containment measures, and public health prospects brought forth by the COVID-19 vaccine, many countries were not able to maintain the stringency of their measures during 2021 which directly affected the death toll of the pandemic. This hypothesis is supported by Figure 1.9, where it is shown that the containment index in the second quarter of 2020 has a counterintuitive positive correlation with the cumulative excess mortality during the pandemic, but this correlation is negative (as it should be) when considering the same index one year later.

**Table 1.2. Length of public measures by excess mortality group**

In number of days, from March 2020 until December 2021

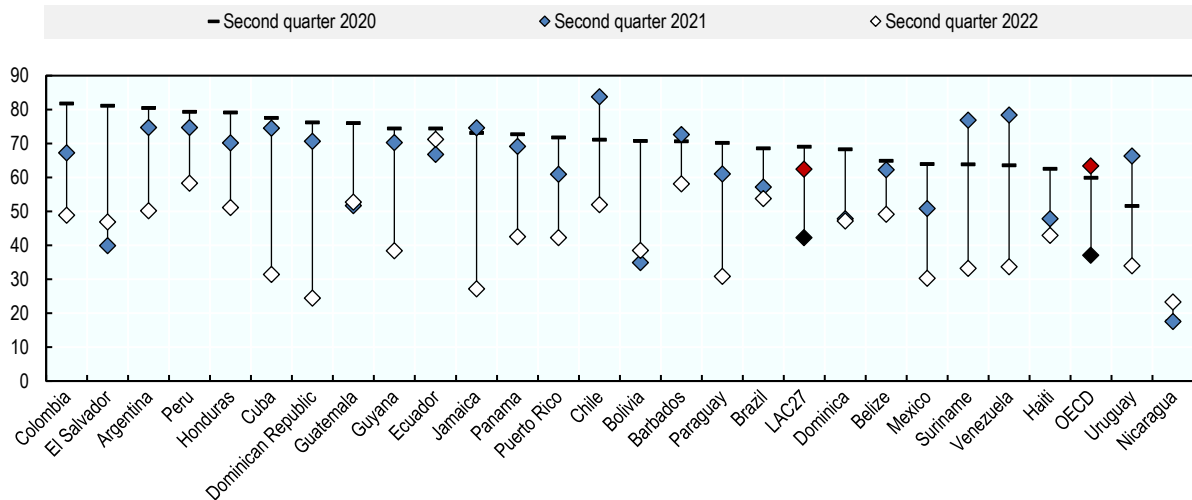
Excess deaths groups	Country	People gatherings	Lockdown	School closure	Border closure	Internal movement	Workplace	Public events	Public transport
Less than OECD average (*)	Venezuela	543	47	601	383	487	439	605	37
	Uruguay	154	0	140	403	28	16	407	0
	Jamaica	332	71	136	86	654	87	631	161
	Trinidad and Tobago	526	0	331	481	252	136	651	111
	Cuba	561	38	515	178	602	241	613	461
	Panama	215	165	530	177	337	161	620	158
	Costa Rica	0	0	377	137	323	39	601	23
	Argentina	554	39	420	385	546	137	569	557
	Chile	323	426	465	226	647	431	564	209
	<b>Average</b>	<b>356</b>	<b>87</b>	<b>391</b>	<b>273</b>	<b>431</b>	<b>187</b>	<b>585</b>	<b>191</b>
Between OECD and LAC averages	Bahamas	556	17	390	99	502	141	443	152
	El Salvador	70	87	391	191	185	73	342	109
	Guatemala	560	0	336	153	211	132	535	252
	Paraguay	165	61	338	205	154	98	381	27
	Brazil	272	54	388	124	655	369	579	271
	Colombia	218	124	323	404	273	231	444	124
	<b>Average</b>	<b>307</b>	<b>57</b>	<b>361</b>	<b>196</b>	<b>330</b>	<b>174</b>	<b>454</b>	<b>156</b>
Over LAC average	Guyana	613	0	145	199	390	89	638	0
	Ecuador	375	28	352	133	338	122	601	131
	Mexico	42	0	525	0	636	285	385	0
	Bolivia	279	4	326	288	255	96	284	260
	Peru	623	220	250	199	456	112	660	243
	<b>Average</b>	<b>386</b>	<b>50</b>	<b>320</b>	<b>164</b>	<b>415</b>	<b>141</b>	<b>514</b>	<b>127</b>

Note: (\*) Selected countries as defined in Section 1.2. Strictest level corresponds to the following: People gatherings: Limited to 10 people or less; Lockdown: Not leaving the house without a formal excuse and minimal exceptions; School closure: Complete closure of schools, online classes only; Border closure: Total border closure for foreign travellers with minimal exceptions. Internal movement: Restricted movement; Workplace: require closing (or work from home) all but essential workplaces (e.g. grocery stores, doctors); Public events: Required cancelling; Public transport: Require closing (or prohibit most citizens from using it).

Source: Oxford Government Response Tracker (2022<sup>[15]</sup>) as reported in Our World in Data: <https://ourworldindata.org/grapher/covid-containment-and-health-index>.

**Figure 1.8. The stringency of containment measures did not align with waves of excess deaths for most countries**

The index is calculated as the mean score of 13 response metrics, taking a value between 0 and 100



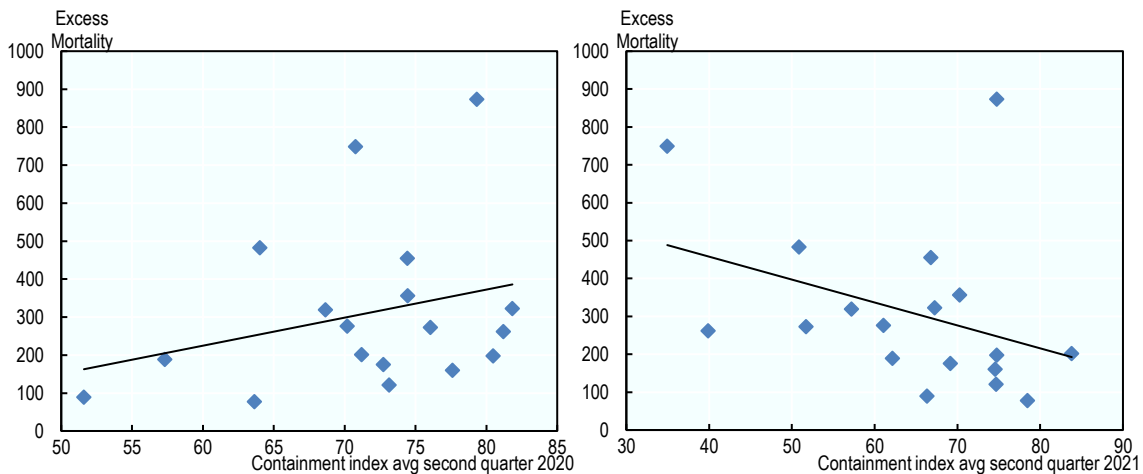
Note: The Containment index is a composite measure based on 13 policy response indicators including school closures, workplace closures, travel bans, testing policy, contact tracing, face coverings, and vaccine policy rescaled to a value from 0 to 100 (100 = strictest). If policies vary at the subnational level, the index is shown as the response level of the strictest sub-region.

Source: Oxford Government Response Tracker (2022<sup>[15]</sup>) as reported in Our World in Data: <https://ourworldindata.org/grapher/covid-containment-and-health-index>.

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**Figure 1.9. Stricter containment policies in the second quarter of 2021 are associated with lower excess mortality**

Cumulative excess mortality 2020 and 2021 vs containment index in second quarter of 2020 and 2021



Note: Excess mortality measured as excess deaths (as estimated by WHO) per 100 000 population.

Source: Government Response Tracker (2022<sup>[15]</sup>) as reported in Our World in Data: <https://ourworldindata.org/grapher/covid-containment-and-health-index>; WHO (2022<sup>[7]</sup>), "Global excess deaths associated with COVID-19 (modelled estimates)", as of 25 March 2022, <https://www.who.int/data/sets/global-excess-deaths-associated-with-covid-19-modelled-estimates>.

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### Box 1.3. Response to other epidemics or pandemics in LAC

#### 2009 AH1N1 pandemic in Mexico and LAC

Latin America and the Caribbean has not been spared from previous epidemics and outbreaks, whether they be human-to-human infectious diseases or vector-borne diseases. For example, the 2009 pandemic of the infectious respiratory disease produced by the influenza A virus subtype H1N1 greatly affected the LAC region.

In a country-specific case, Mexico began preparing a National Influenza Preparedness Plan (NIPP) shortly after the SARS 2003 epidemic emerged in Asia. Completed in 2005, this plan was already being tested at a national level by 2006. In the absence of LAC regional health mechanisms, Mexico's NIPP was complemented with the North American Plan for Avian and Pandemic Influenza developed by the governments of Canada, Mexico, and the United States. This national plan allowed Mexico to face the 2009 AH1N1 pandemic with stockpiles of strategic medicines and personal protective equipment (PPEs), pre-tested risk communication campaigns, and networks to distribute vaccines more efficiently. Nevertheless, the preparedness for intensive care units' beds, ventilators, and the number of qualified personnel to use these tools were not sufficient, as has been the case during the COVID-19 pandemic. Furthermore, even if vaccines were available, they arrived late and in limited amounts, signalling another aspect to improve.

Many lessons that ought to have been learned from the 2009 AH1N1 pandemic were not applied consistently not only in Mexico but also in most of LAC. For example, the late involvement of the highest-level authorities convening after the arrival of SARS-CoV-2 to the region delayed inter-sectoral readiness. In addition, the slow reaction to acquire strategic medical resources such as PPEs, drugs, and laboratory supplies allowed regions affected before LAC to exponentially increase their demand for these goods, thus distorting global markets and making these medical supplies more scarce and more expensive, hindering the capacity of LAC countries to face the COVID-19 pandemic.

#### Epidemiological surveillance: The 2015-16 Zika virus outbreaks in the northeast of Brazil

The northeast of Brazil has experienced significant Zika virus outbreaks, which included cases associated with microcephaly and other birth defects. During certain peaks, more than 200 000 cases were reported in Brazil (by the end of 2016), having the highest number of cases worldwide as well as the most cases associated with birth defects (2 366). To track the evolution of this outbreak, a genomic and epidemiological surveillance effort was undertaken.

The ZiBRA mobile genomics laboratory screened 1 330 samples from patients in 82 municipalities across the federal states of Alagoas, Bahia, Paraíba, Pernambuco and Rio Grande do Norte, with the support of the Ministry of Health and other institutions. The samples that were provided by public health laboratories and the Fundação Oswaldo Cruz (FIOCRUZ) were screened for the presence of Zika virus using real-time quantitative PCR tests. The analyses undertaken with these samples allowed to estimate that Zika virus was present in northeast Brazil by early 2014 and was likely to have spread from there to other areas of Brazil and the rest of LAC.

Source: Di Paolantonio (2020<sup>[55]</sup>); "Fostering resilience in the post-COVID-19 health systems of Latin America and the Caribbean", <https://www.oecd.org/about/civil-society/youth/Shaping-the-Covid-19-Recovery-Ideas-from-OECD-s-Generation-Y-and-Z.pdf>; OECD (2022<sup>[39]</sup>), *Primary Health Care for Resilient Health Systems in Latin America*, <https://doi.org/10.1787/743e6228-en>.

*Financial assistance to mitigate social and economic consequences of the pandemic was widespread*

To facilitate adherence to containment measures, and to mitigate economic and social consequences of the pandemic, one of the most important policies implemented by countries worldwide were the direct transfers of resources to a large portion of the population (ECLAC, 2022<sup>[31]</sup>).

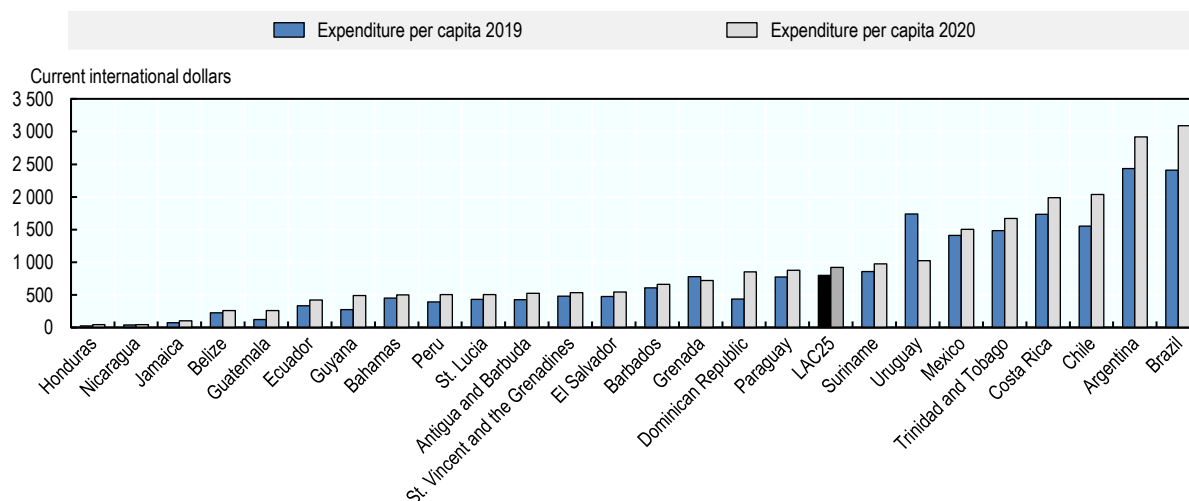
Figure 1.10 shows public spending per capita in social protection in 2019 and 2020 in the LAC region. Uruguay is the only country in the region (with available data) that considerably decreased (in nominal terms) the amount spent on social protection in 2020. This decrease is explained by the creation of the "Fondo Solidario COVID-19" an off-budget fund that centralised resources for the pandemic response (Restrepo, Palacios and Espinal, 2022<sup>[56]</sup>). Moreover, a

significant portion of economic relief expenses came from unemployment insurance (Amarante, 2022<sup>[57]</sup>). Other countries also implemented off-budget resource transfers to mitigate the economic effect of the pandemic which are not reflected in the figure. For instance, in Chile, people were allowed to withdraw 10% of their individual social pension scheme four times between 2020 and 2022.

Moreover, eight countries (Brazil, Argentina, Chile, Costa Rica, Trinidad and Tobago, Mexico, Uruguay and Suriname) spent over the LAC average in social protection in 2020, the same countries which were below the LAC average of excess deaths except for Mexico. On the other hand, Ecuador and Peru are at the lower end of social protection spending while being over the LAC average of excess deaths. The relation between the variables is, however, not so evident. Honduras, Belize and Jamaica (among others) had lower than the OECD average excess deaths, while having some of the lowest levels of per capita spending in social protection during 2020.

**Figure 1.10. Most countries increased public expenditure in social protection**

Public expenditure in social protection per capita, PPP (current international dollars)



Note: Social protection includes Sick leaves and disability allowances, old age, survivor family member allowance, family and children, unemployment, housing, social exclusion, research and development related to social protection, and other social protection expenditures.

PPP: Purchasing power parity.

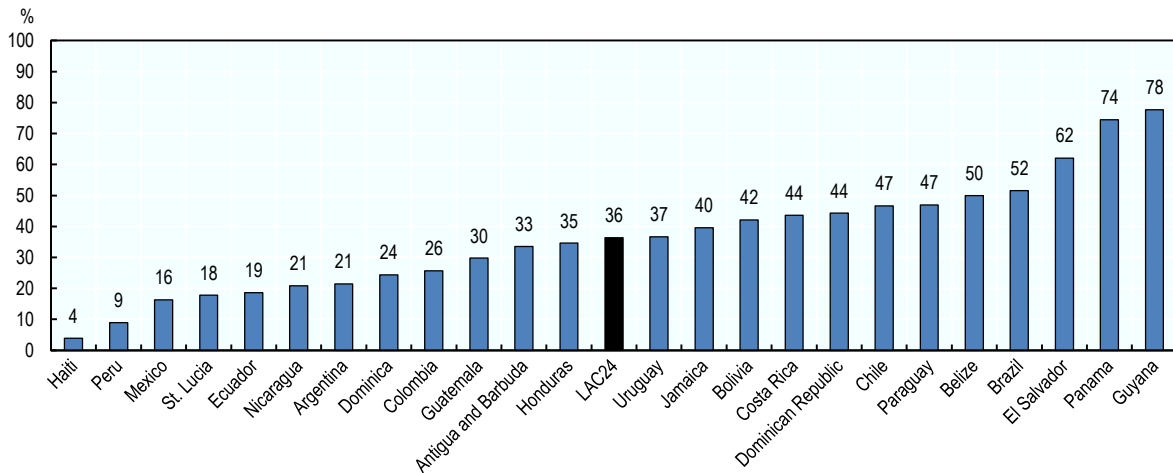
Source: ECLAC (2021<sup>[16]</sup>), Public expenditure on social protection. PPP conversion values: World Bank World Development Indicators database, [https://statistics.cepal.org/portal/cepalstat/dashboard.html?indicador\\_id=4409&area\\_id=2313&lang=es](https://statistics.cepal.org/portal/cepalstat/dashboard.html?indicador_id=4409&area_id=2313&lang=es).

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The scope of the social protection policies had a clear effect on the ability of countries to maintain as many people as possible complying with pandemic restrictions. Economies in LAC are marked by high levels of inequalities, a large middle class with low levels of household savings and high levels of debt and important labour informality (ECLAC, 2022<sup>[3]</sup>). In this sense, if more households were supported and could secure their livelihood, more would have been financially able to stay at home and limit the spread of the virus. Figure 1.11 shows the percentage of households that received any form of financial assistance during 2020-21. While the data is limited in informing about the amounts of the assistance, there are some patterns that proxy the relationship between public support to maintain public health measures and overall excess deaths. Some countries with lower performance in terms of excess deaths appear at the lower end of the graph, such as Peru, Mexico and Ecuador. However, countries like Guyana, El Salvador, Brazil and Paraguay provided financial assistance to more than 45% of households and still had higher than OECD average excess deaths.


**Figure 1.11. Efforts were made to financially assist the population**

Percentage of households that received any form of assistance since the start of the pandemic



Note: Data collected between 2020 and 2021. Data from high-frequency mobile surveys designed to be representative of the underlying population.

Source: World Bank (2021<sup>[11]</sup>), COVID-19 High-Frequency Monitoring Dashboard, <https://www.worldbank.org/en/data/interactive/2020/11/11/COVID-19-high-frequency-monitoring-dashboard>.

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#### 1.4.2. Strengthening the healthcare sector was key to weather the pandemic

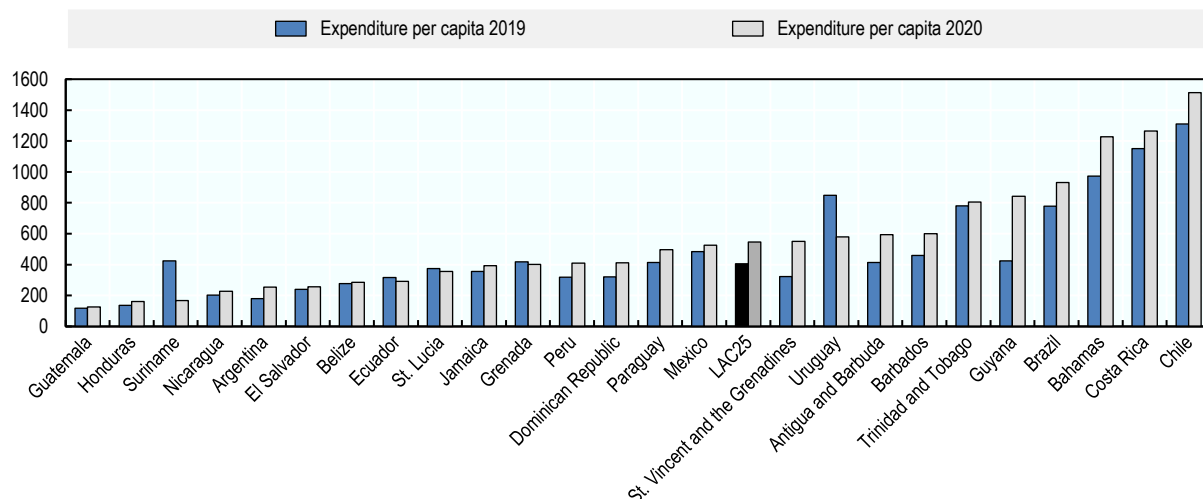
All countries in the region implemented policies to boost their budgets in health and to reorganise the system to better deal with the health emergency. While the average increase in public spending on health in the region in 2020 was nominally around 16% (12% when accounting for inflation) (ECLAC, 2021<sup>[16]</sup>), other important policies relate to enhancing the role of primary care, expanding the provision and incentives for healthcare workers, centralizing hospital care co-ordination and purchasing test kits, vaccines, respirators, protective equipment, and other supplies.

##### *Countries increased public spending in health*

Public expenditure in health in 2019 and 2020 is shown in Figure . The largest increases (without accounting for inflation) are found in Guyana (99%), St. Vincent and the Grenadines (71%), Antigua and Barbuda (43%) and Argentina (42%). Argentina is a special case, as the high inflation registered in 2020 (42% (OECD, 2023<sup>[58]</sup>)) neutralises the nominal increase to zero. The highest per capita expenditures are found in Chile (1 514 USD PPP), Costa Rica (1 264 USD PPP), and Bahamas (1 228 USD PPP), three countries below or near the OECD average of excess deaths (Figure ). Suriname and Uruguay are the only countries that significantly reduced their public health spending. For Suriname, the decrease responds to a general policy of fiscal austerity to deal with the economic crisis in the country (ECLAC/CEPAL, 2022<sup>[59]</sup>). Moreover, the creation of special funds for the pandemic (ECLAC/CEPAL, 2022<sup>[59]</sup>) might not be accurately reflected in the amount presented in the figure. In the case of Uruguay, the decrease is explained by the “Fondo Solidario COVID-19”, off-budget fund that centralised resources for the pandemic response (Restrepo, Palacios and Espinal, 2022<sup>[56]</sup>). Other mechanisms to finance pandemic health expenditure that are not reflected in the figure include the use of emergency and disaster funds, like in Costa Rica, where these funds were used to cover for the public use of private care service capacities.

**Figure 1.12. Most countries increased public expenditure in health**

Public expenditure in health per capita, PPP (current international dollars)



Note: Public expenditure in health includes medical equipment and supplies, outpatient services, hospital services, public health services, R&D related to health, other health expenditure.

PPP: Purchasing power parity.

Source: ECLAC (2021<sup>[16]</sup>), Public expenditure on Health. PPP conversion values: World Bank World Development Indicators database, [https://statistics.cepal.org/portal/cepalstat/dashboard.html?indicador\\_id=4409&area\\_id=2313&lang=es](https://statistics.cepal.org/portal/cepalstat/dashboard.html?indicador_id=4409&area_id=2313&lang=es).

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In contrast to total public health spending, additional fiscal efforts to deal with the pandemic are better represented in the database of country fiscal measures between January 2020 and October 2021 in response to the COVID-19 pandemic by the International Monetary Fund (IMF, 2021<sup>[60]</sup>). However, there is no discernible correlation between the per capita amounts spent in COVID-19 additional fiscal efforts and levels of excess mortality, highlighting the importance of both the total spending, as a proxy of a stronger health system, and the early spending increase for a swift response.

### *The role of primary care in early detection, treatment, and follow-up of COVID-19*

The WHO highlighted that gatekeeping and care-co-ordination for treatment and follow-up of COVID-19 patients are effective measures to improve the efficiency of health systems in responding to the pandemic (WHO, 2021<sup>[61]</sup>). In this principle, primary healthcare is an essential actor in countries' pandemic response. However, the overall response to the pandemic in LAC has been mainly centred on hospital care of severe COVID-19 patients. Despite countries having more emphasis in hospital care than primary care, the latter is likely to be an important determinant of better performance during the pandemic. In this sense, countries with stronger primary healthcare systems have shown signs of greater resilience during the pandemic (OECD, 2022<sup>[39]</sup>).

Primary healthcare (PHC) has been used in different capacities, summarised in prevention, early detection, and care management. Regarding prevention, PHC has been used to create awareness on COVID-19 risks and disseminating public health information, to identify and reach out to high-risk populations, and for contact tracing and quarantine supervision. In terms of early detection, PHC providers were a major actor in the countries' testing capabilities. Finally, PHC providers had an important role in the care for mild COVID-19 cases and patients with long-lasting symptoms ("Long COVID-19"), either in the healthcare facilities of co-ordinating community care through digital health and home visits.

Table 1.3 summarises the role of PHC in the pandemic response in seven LAC countries. Costa Rica, Argentina and Chile relied on PHC for more testing capacities than other countries in the group. At the same time, they had fewer excess deaths (lower than OECD average) when combining figures from 2020 and 2021. All countries in the assessment relied on PHC to care for mild COVID-19 patients and to co-ordinate care in the community with either home visits or telehealth and telemonitoring. Contact tracing and supervising quarantine was the least common capacity assigned to PHC. However, caring for long COVID in PHC has been overlooked by most countries in the assessment, with only small initiatives in this regard in Mexico, Costa Rica, Peru and Colombia (OECD, 2022<sup>[39]</sup>).

The availability of COVID-19 testing in these seven countries was rather limited at the start of the pandemic, together with limited laboratory and technical capacities to test at the needed scale. In addition, centralised guidance from ministries of health for COVID-19 diagnosis often came at a later stage, requiring local authorities to develop their own protocols early on (OECD, 2022<sup>[39]</sup>). On the other hand, while COVID-19 vaccinations were also limited when first available at large scale, guidelines were fairly organised for its implementation. Some countries included explicit guidelines for managing indirect health effects of COVID-19 at PHC level. In Colombia and Chile for example, mental health guidelines included recommendations on how to deal with gender-based and domestic violence (OECD, 2022<sup>[39]</sup>).

**Table 1.3. The role of primary care in pandemic response**

Selected Latin American Countries

	Informing and Educating about COVID-19	Identifying and reaching high risk population toward COVID-19	Contact tracing, and supervising quarantine since the beginning of the pandemic	PHC involved in immunisation for COVID-19	PHC facilities to carry out COVID-19 testing	Care for mild-COVID-19 cases
Costa Rica	Yes	Yes	Yes	Yes	Yes	Yes
Argentina	Yes	Yes	Yes	Yes	Yes	Yes
Chile	Yes	Yes	Yes	Yes	Yes	Yes
Brazil	Yes	Yes*	Yes*	Yes	Yes	Yes
Colombia		Yes	Yes			Yes
Mexico	Yes	Yes				Yes
Peru	Yes			Yes	Yes	Yes

Note: Countries are sorted according to the excess deaths during the pandemic. (\*) The original table omitted these two capacities for Brazil, however, ordinance No.1444; No. 2045; No. 2 222, No.2358; No.2994 from 2020 (available at <https://www.in.gov.br/inicio>) assign incentives for PHC centres to deliver these capacities. Nevertheless, it is not clear if the incentives effectively triggered the capacities systematically at the national level.

Source: Adapted from “OECD Secretariat based on the 2021 Policy Survey on the role of primary health care during the COVID-19 pandemic” in OECD (2022<sup>[39]</sup>), *Primary Health Care for Resilient Health Systems in Latin America*, <https://doi.org/10.1787/743e6228-en>.

### *Countries revamped telemedicine and remote services during the pandemic*

To mitigate the sharp reduction in patient consultations and disruption of routine care, telemedicine, and other practices for delivering services remotely were implemented in many countries in the region. Mexico, Chile and Argentina implemented initiatives to maintain drug adherence of patients, enable online refills, external pick-ups, community drug deliveries and electronic prescriptions (Arsenault et al., 2022<sup>[41]</sup>; OIT/ILO, 2021<sup>[62]</sup>). Panama started an initiative to co-ordinate home visits with telemedicine for daily monitoring of patients, while Uruguay established a free phone medical consultation service (OIT/ILO, 2021<sup>[62]</sup>).

National programs to co-ordinate electronic consultations with general practitioners and specialists were implemented in Argentina, Peru, Colombia, Guatemala, Panama, Uruguay, Mexico, Costa Rica and Chile (LeRouge et al., 2019<sup>[63]</sup>). The new national strategies involved updating legislation and guidelines to address challenges limiting the implementation of tele-medicine. In Costa Rica, from January to May 2020, out of 680 644 consultations registered at the first level of care, 188 108 (28%) were conducted through alternative methods of care (phone or video calls) (CCSS, 2020<sup>[64]</sup>).

### *The region focused on enhancing hospital care capacities*

Countries in the region had different approaches to enhancing their hospital capacities, in line with their structural needs. Brazil focused on procuring ICU beds with the help of new legislation, allowing for the federal government to transfers funds for this purpose. Other countries opted for a centralised approach creating new intensive care in-patient facilities, either by revamping wards of existing hospitals, like the case of “Hospital Español” in Uruguay and the Hospital facilities of the “Caja de Seguro Social” (National Insurance Fund) in Panama, or by creating emergency modular hospitals in Argentina, Chile, Paraguay, Peru and Costa Rica. Additionally, some countries, like Costa Rica, temporarily converted whole hospitals and hospital wards for COVID-19 care. At the same time, countries worked to secure provision of essential supplies, medical equipment and personnel, and other basic utilities in their health

facilities at all levels. Other infrastructure, such as stadiums, hotels and clubs have been converted to health centres to deal with mild or potential COVID-19 cases (OIT/ILO, 2021<sup>[62]</sup>).

The co-ordination between authorities and public-private health facilities was crucial for maximising countries' capacities and efficiency to care for patients (COVID-19 and non-COVID-19) during the pandemic. Chile and Colombia adopted a centralised approach including management of public and private hospitals, in terms of hospital beds, mechanic ventilators and triage. Mexico secured a deal with a large private hospital network to treat for non-COVID-19 patients and decompress public hospitals to care for COVID-19 patients (OIT/ILO, 2021<sup>[62]</sup>). A similar situation happened in Costa Rica, where the institution managing healthcare (Caja Costarricense de Seguro Social") directed private providers to care for non-COVID-19 patients to concentrate COVID-19 care in public hospitals.

### *Health workforce played a crucial role in the pandemic response*

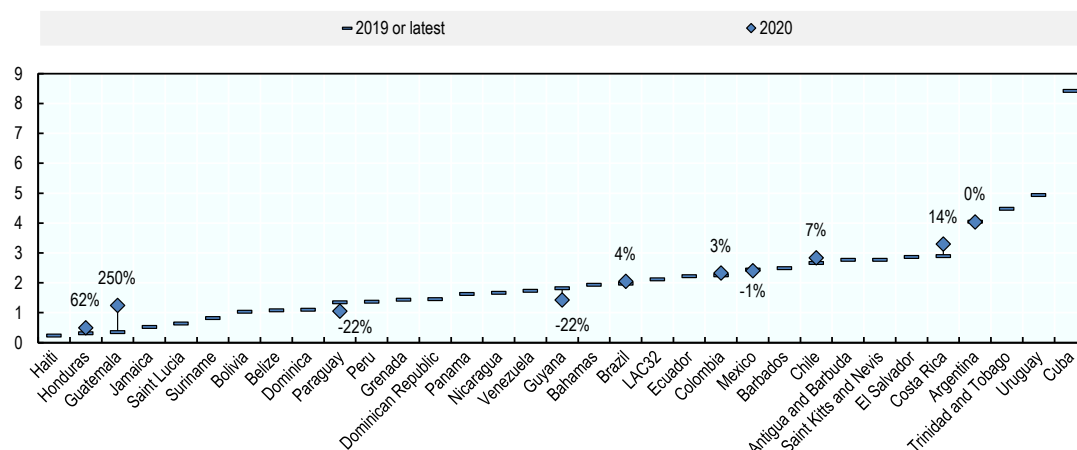
The COVID-19 pandemic evidenced the weaknesses of healthcare systems in the region to appropriately supply their medical facilities with healthcare personnel, particularly in rural areas and at the primary healthcare level. Countries in the region adopted new legislation to increase the amount and efficiently distribute healthcare workers for the pandemic efforts. For example, several countries created new criteria to allow for health workforces-in-training to work alongside professional staff in limited capacities. At the same time there was an observed increase in the budget for remuneration of healthcare workers. However, only a few countries focused the budget increase to strengthen PHC or in policies to strengthen human resources management in the long term. It is not clear if the increase and efficient management of healthcare workers will remain in the future as an effort to improve healthcare quality. The gender perspective regarding health workforce during the pandemic was overlooked, an especially important issue because of the disproportionate burden in women to care for COVID-19 patients and other functions related to the pandemic response (Cho and Levin, 2022<sup>[65]</sup>). On a positive note, the pandemic allowed for collaborative efforts between countries in the region aimed at improving the management, training, and planning of healthcare human resources.

Out of ten LAC countries with available data, six increased the rate of doctors per 1 000 inhabitants, while three countries decreased and one maintained said rate (Figure 1.13). There is a strong association between excess deaths and the baseline rate of doctors before the pandemic. The five countries in LAC with more doctors per population before the pandemic had lower than OECD excess deaths. A sixth country, Chile, was ninth in the region. All these countries had more than 2.7 doctors per 1 000 people, in 2019, 26% above the LAC average. At the same time, the two countries with highest rates of excess deaths, Bolivia and Peru, are among the lowest in number of doctors before the pandemic, with 1.03 and 1.37 per 1 000 population, respectively.

In terms of the changes in number of doctors to deal with the pandemic in 2020, two countries which substantially increased their number of doctors, Honduras and Guatemala, had lower than LAC average excess deaths despite being at the lower end of the region in number of doctors before the pandemic, and still below the LAC average in 2020. In contrast, countries that reduced their rate of doctors had higher than OECD (Paraguay) or higher than LAC average excess deaths (Mexico and Guyana). As mentioned previously, it is not clear if the increase in healthcare workers will remain in the future. For some countries, like Costa Rica, this will most certainly not be the case given that new hires were transitory and aligned with the virus waves.

**Figure 1.13. Countries with more doctors per inhabitant had lower levels of excess deaths**

Medical doctors per 1 000 inhabitants in 2019 or latest available year and 2020



Note: Labels indicate the proportional difference.

Source: WHO Global Health Observatory 2022; OECD Health Statistics (2022<sup>[18]</sup>) for OECD average, Argentina, Peru, Brazil and Mexico, <https://doi.org/10.1787/health-data-en>.

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Health workforce shortages during the pandemic have motivated other OECD countries to re-evaluate the scope of practice attributed to healthcare staff such as nurses and community health workers. Supported by literature (Maier, Aiken and Busse, 2017<sup>[66]</sup>), countries have recognised that non-physician healthcare workers with enhanced education and training can improve access to services, reduce waiting times, and deliver the same quality of care as doctors for limited services.

In this regard, several OECD countries used fast-track licenses and provided exceptional training to mobilise healthcare providers to address the COVID-19 pandemic. Australia, Austria, Finland, Latvia, Spain, Switzerland, the United Kingdom and the United States, for instance, created new roles and rearranged tasks from both physician and non-physician health workers to maintain care continuity for non-acute COVID-19 cases in the community or at home. LAC countries could follow this example and expand the role of community health workers and nurses to care for certain conditions, such as routine control of chronic diseases, to maximise capacity during health emergencies and minimise care disruptions. Brazil, for example, uses community health workers for improving medication compliance (OECD, 2021<sup>[67]</sup>).

### *Vaccination became the number one priority in LAC pandemic response*

The COVID-19 vaccine first became available to the general population in the region in December 2020 in Chile, Costa Rica, Mexico and Argentina. Soon after, all the other countries in the region had access to the vaccine, where Haiti was the last country that started vaccinating people in July 2021. Consequently, especially during 2021, the focus of health authorities for containing the pandemic was given to quickly and efficiently rollout the COVID-19 vaccine. Figure 1.14 shows the percentage of the population fully vaccinated in two different moments of the pandemic. In Latin America and the Caribbean, the COVID-19 vaccine had, in general, a slower rollout compared to OECD countries. In part, this was due to procurement issues. Furthermore, the rollout in the Caribbean nations was lower than in the rest of LAC (ECLAC, 2022<sup>[3]</sup>). When comparing the vaccination rollout between excess deaths groups defined in Section 1.3, several of the countries in the best performing group (Chile, Uruguay, Argentina, Cuba, Panama and Costa Rica) had higher than LAC average vaccination coverage by the 3<sup>rd</sup> quarter of 2021. On the other hand, most countries in the lower performance groups (Bolivia, Peru, Mexico, Colombia, Guyana and Brazil, among others) had around the average or lower than average vaccination coverage at the same period.

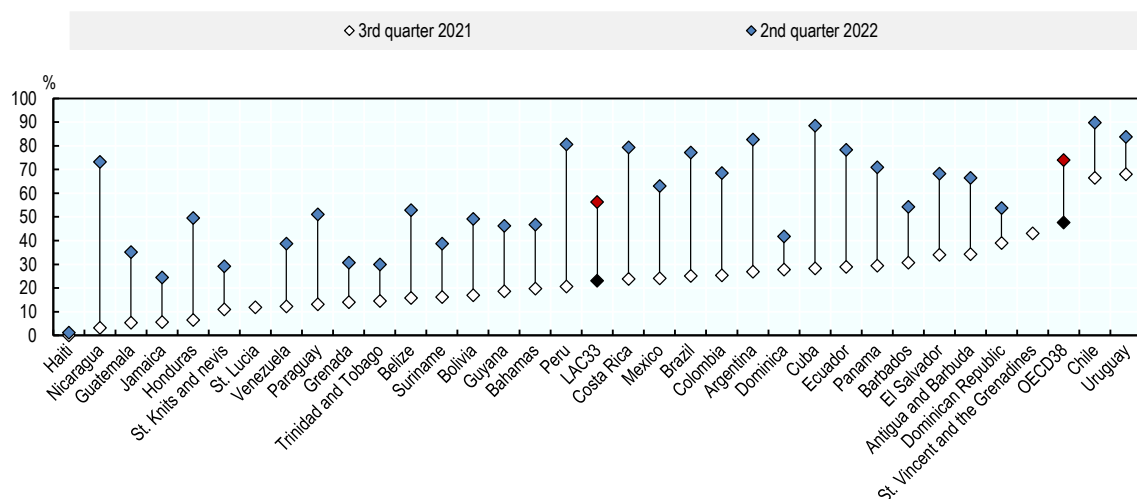
Primary healthcare facilitated the implementation of COVID-19 vaccine distribution in Argentina, Peru, Brazil, Chile and Costa Rica (Table 1.3). The involvement of PHC in these capacities was deemed an effective strategy to increase the efficiency of the pandemic response. By contrast, PHC did not play a central role in COVID-19 vaccination in



Colombia and Mexico. The effectiveness of using PHC for the vaccination rollout is partially reflected in the share of the population fully vaccinated in the second quarter of 2022, a time where vaccines were widely available worldwide. While Mexico and Colombia had 63% and 69% of their population covered respectively, countries using PHC for vaccination rollout had more than 77% of their population covered by this time (Figure 1.14).

**Figure 1.14. LAC had a slow start in vaccination, but quickly recovered by 2022**

Proportion of people who received all doses prescribed by the initial vaccination protocol



Note: The indicator considers the entire population and does not adjust by countries' age structure or vaccinateable population.

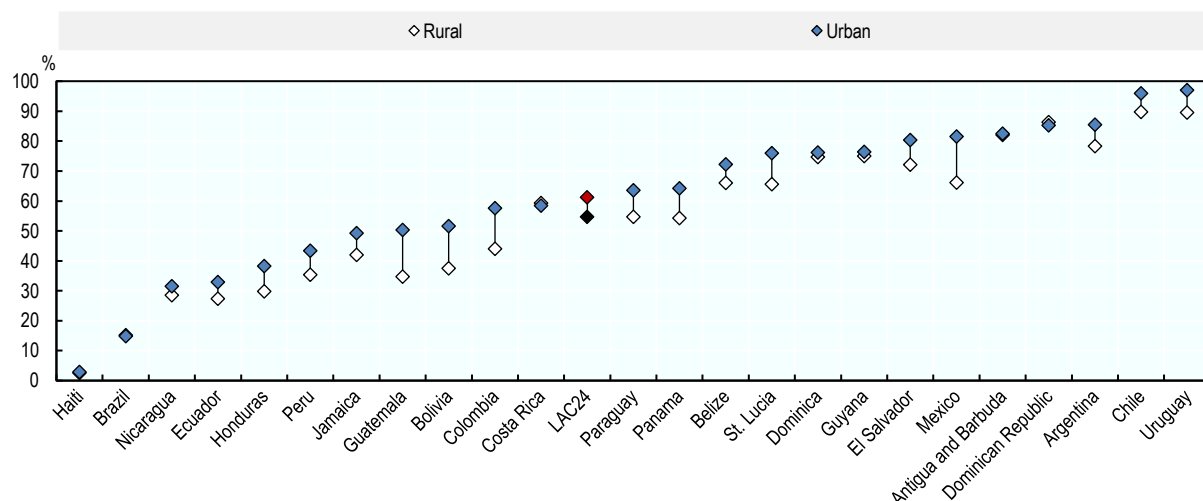
Source: Mathieu et al. (2021<sup>[17]</sup>), "A global database of COVID-19 vaccinations", <https://doi.org/10.1038/s41562-021-01122-8>, available at Ritchie et al. (2020<sup>[68]</sup>), "Coronavirus Pandemic (COVID-19)", Our World in Data, <https://ourworldindata.org/coronavirus>.

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Being able to communicate the vaccination plan was crucial for a swift and efficient vaccine rollout. Figure 1.15 shows the percentage of respondents of a country representative sample that were aware of the procedure to get the COVID-9 vaccine in their country of residence during 2021. Uruguay, Chile, Argentina, Dominican Republic, and Antigua and Barbuda led the group with between 78% and 97% of people living in both urban and rural areas aware of how to receive the COVID-19 vaccine. Coincidentally, all these countries are in the best performing group in terms of excess deaths, and three of them capitalised on PHC for their vaccination efforts. On the other hand, countries that were less effective in communicating their vaccinations plans correlate with countries with levels of excess deaths over the LAC average. The difference between vaccination knowledge between rural and urban areas was more pronounced in Mexico, Guatemala, Bolivia and Colombia with a difference of up to 15 percentage points. At the same time, Mexico and Colombia did not rely on PHC for this purpose. On average, only 59% of the population knew how to get vaccinated in LAC in 2021, disaggregated to 61% of people in urban areas and 55% in rural areas. The community-based approach of primary healthcare lends a strong argument to capitalise on PHC for this purpose (OECD, 2022<sup>[39]</sup>).

**Figure 1.15. Vaccine communication campaigns have room for improvement**

Percentage of respondents that know how to get a COVID-19 vaccine, 2021



Note: Data collected in 2021. Data from high-frequency mobile surveys designed to be representative of the underlying population.

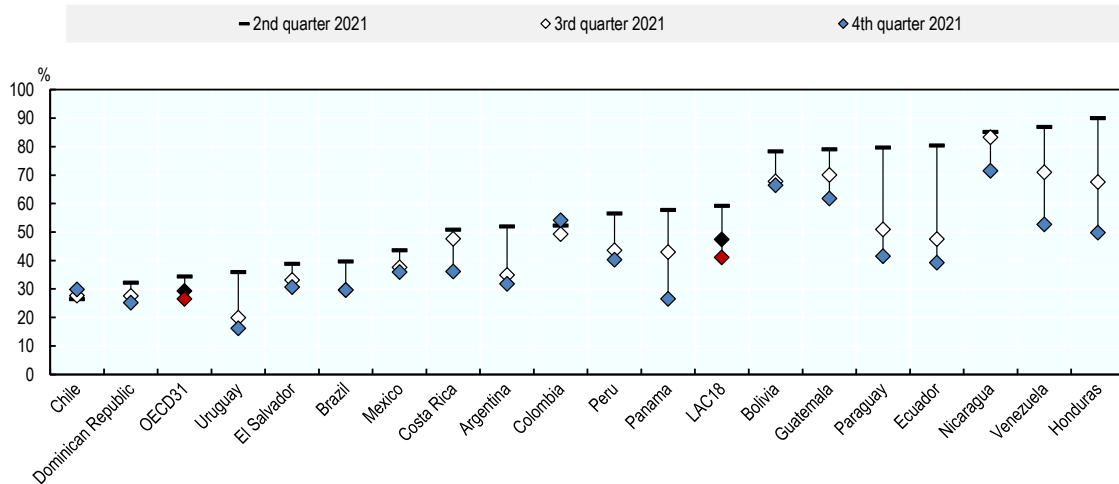
Source: World Bank (2021<sup>[11]</sup>), COVID-19 High-Frequency Monitoring Dashboard, <https://www.worldbank.org/en/data/interactive/2020/11/11/covid-19-high-frequency-monitoring-dashboard>.

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Effective implementation of vaccination plans entailed both the appropriate dissemination of information and the vaccination schedule. For a successful implementation, the potential barriers preventing people from getting a vaccine needed to be acknowledged and addressed. Figure 1.16 presents the proportion of people (out of Facebook users) that encountered barriers preventing them from getting vaccinated. Barriers included: not possessing adequate documentation, not being able to take time off work or school, no available appointments, restricted appointment times, and travel to the vaccination site, among others. Barriers in the first quarter of 2021 affected 59% of responders, significantly more than the OECD average at the same time (34% of responders). There are no evident patterns between vaccine barriers and performance in terms of excess mortality. Nevertheless, several countries (Chile, Dom. Republic, Uruguay and Argentina) with less than OECD average excess deaths are at the lower end of the graph, where only about 30% of responders reported barriers by the third quarter of 2021. However, countries with more challenging outcomes in terms of excess deaths, such as Brazil, Mexico, El Salvador and Peru, also present lower than LAC average percentages of people encountering barriers. At the other end of the graph, in Bolivia, Ecuador and Paraguay more than 75% of responders reported barriers to get vaccinated in the second quarter of 2021. While this situation improved dramatically for Ecuador and Paraguay by the third quarter of the same year, in Bolivia 66% of responders were still reporting barriers to get vaccinated by the fourth quarter. A similar situation occurred in Nicaragua, with Venezuela and Honduras also having a high percentage of the population reporting barriers.

**Figure 1.16. Vaccination campaigns faced obstacles**

Percentage of respondents that reported barriers to get the COVID-19 vaccine, 2021



Note: Data collected in 2021. Data is a representative sample of Facebook users.

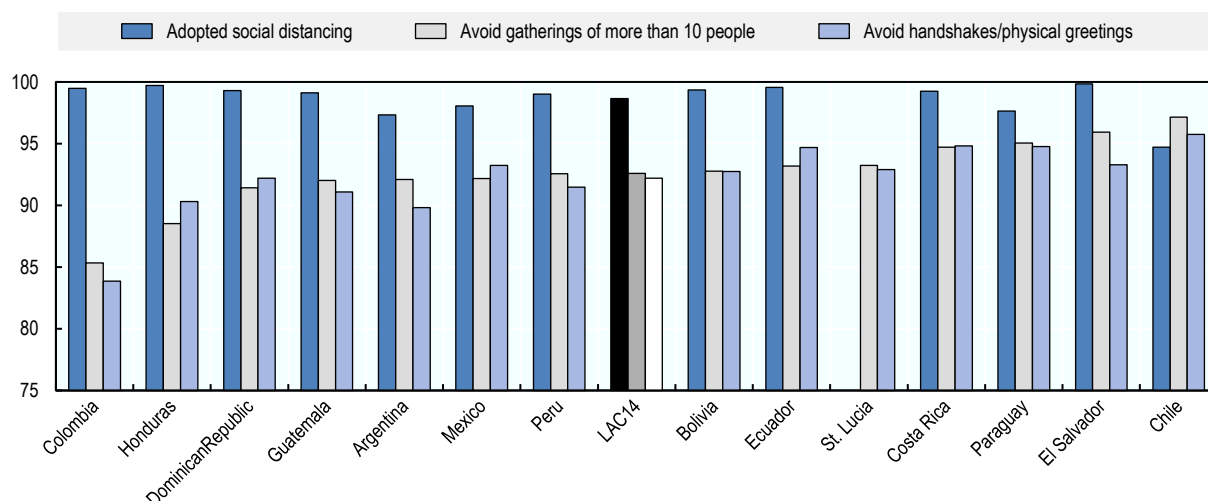
Source: The University of Maryland Social Data Science Center and Facebook (2020<sup>[14]</sup>), Global COVID-19 Trends and Impact Survey, in partnership with Facebook, <https://covidmap.umd.edu/>.StatLink  <https://stat.link/k390h2>**1.4.3. The population of LAC was willing to adhere to pandemic measures***Adherence to physical distancing was high across the region, but not for other preventive measures*

While regulations and public health mandates vary in the region and along the three (and counting) years of the pandemic, preventive recommendations were in place throughout 2020 and 2021 in all of LAC. In most countries, preventive measures were adopted by a significant majority of the population during this time. Among 14 LAC countries with available information (Figure 1.17), 98.6% of the population complied with physical distancing in 2020. Other preventive measures were not as popular. On average, 92.2% of the population complied with mandates to avoid gathering of more than ten people. In Chile this percentage increases to 95.7%, important considering the length of this mandate in the country (Table 1.2). In contrast, in Colombia adherence was 85%. A similar situation occurred with physical greetings (handshake, hugs) where on average 92.2% of the region complied with this measure.

Between May and July of 2020, there was substantial uncertainty about public health recommendations, restrictions and other mandates put in place to mitigate the effects of the pandemic. Campaigns were launched by governments to inform the population of actions to take. However, the knowledge of the population regarding actions taken by the government and authorities was, at this stage, quite low. Across the same 14 countries presented in Figure 1.17, on average 56.8% of the population knew that authorities were advising citizens to stay at home. However, only 6% on average knew about the temporary closing of business and schools, even though these measures were already being implemented at some level in each country. Imposing curfews or lockdowns was only known by 42% of the population on average, a percentage that diminished to 10.8% and 14.2% in Mexico and Bolivia, respectively. Perhaps the best indicators reflecting the lack of effectiveness in information campaigns in mid-2020 is the fact that, on average, only 11.1% of the population of these 14 countries (on average) knew that government or other authorities were disseminating knowledge about the COVID-19 pandemic.


**Figure 1.17. Adherence to preventive measures varied**

Proportion of respondents who adopted preventive measures during 2020



Note: Data collected between May and August 2020. Data from high-frequency mobile surveys designed to be representative of the underlying population.

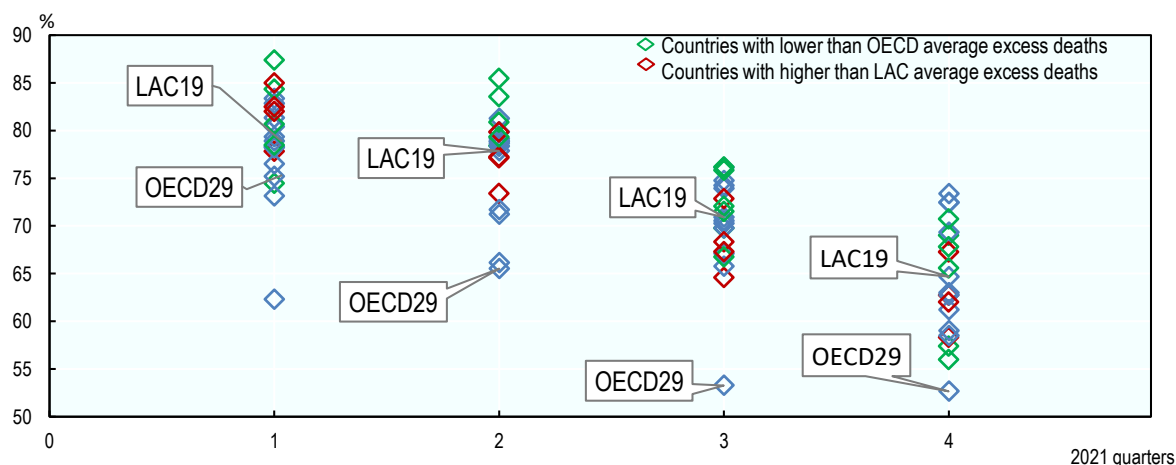
Source: World Bank (2021<sup>[11]</sup>), COVID-19 High-Frequency Monitoring Dashboard, <https://www.worldbank.org/en/data/interactive/2020/11/11/covid-19-high-frequency-monitoring-dashboard>.

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Physical distancing was widely adopted by LAC countries. However, data for the year 2021 shows that there is a clear diminishing adherence over time (Figure 1.18). This deviates from the trend in excess deaths that registered its peak on the 3<sup>rd</sup> quarter of 2021 and only diminished by the end of the year. Compared to an average of 75% of people on average across OECD countries, 78% of people complied with physical distancing measures in the LAC region in the first quarter of 2021. Afterwards, LAC countries maintained adherence to physical distancing throughout the year, diminishing slowly until only complied by 65% of the population, compared with 53% on average in the OECD (Figure 1.18). Among LAC countries, there was high heterogeneity in the level of adherence to this particular measure. Even though the patterns are not straightforward, the best performers in terms of excess deaths had higher than average adherence during quarters two and three (green diamonds are consistently higher than red diamonds in Figure 1.18), along with the rise in excess deaths (except for Uruguay in the 3<sup>rd</sup> quarter). On the other hand, countries with higher than LAC average excess deaths had lower than LAC average percentage of the population adhering to physical isolation during these six months (except for Mexico). The high levels of physical isolation resonate with the high levels of mental distress observed previously, a factor which most likely influenced willingness to adhere to the measure.

**Figure 1.18. Most people avoided contact in 2021**

Percentage of respondents who intentionally avoided contact with other people all the time or most of the time during 2021



Note: In red the countries with excess deaths higher than LAC33 average: Peru, Bolivia, Mexico, Ecuador. In green countries with excess deaths lower than OECD average, selected as explained in Section 1.3: Argentina, Venezuela, Chile, Cuba, Costa Rica, Panama and Uruguay. Data is a representative sample of Facebook users.

Source: The University of Maryland Social Data Science Center and Facebook (2020<sup>[14]</sup>), Global COVID-19 Trends and Impact Survey, in partnership with Facebook, <https://covidmap.umd.edu/>.

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The recommended or mandated use of face masks was also widely accepted in LAC countries since the start of the pandemic, where most countries report higher use than the OECD average. According to the survey by the University of Maryland in collaboration with Facebook (2020<sup>[14]</sup>), in the second quarter of 2020, 78% of the responders reported using a face mask all or most of the time when in public on average in LAC, compared to only 54% on average of OECD countries. One year later, during the second quarter of 2021, most countries reported their peak in face mask adherence, reaching 88% in LAC and 77% on the OECD average. Costa Rica presents an interesting case, as at the start of the pandemic it was the country with the lowest reported adherence (32%), but one year later it became the country that reported the highest adherence (92%), in line with the rise in cases and COVID-19 related deaths.

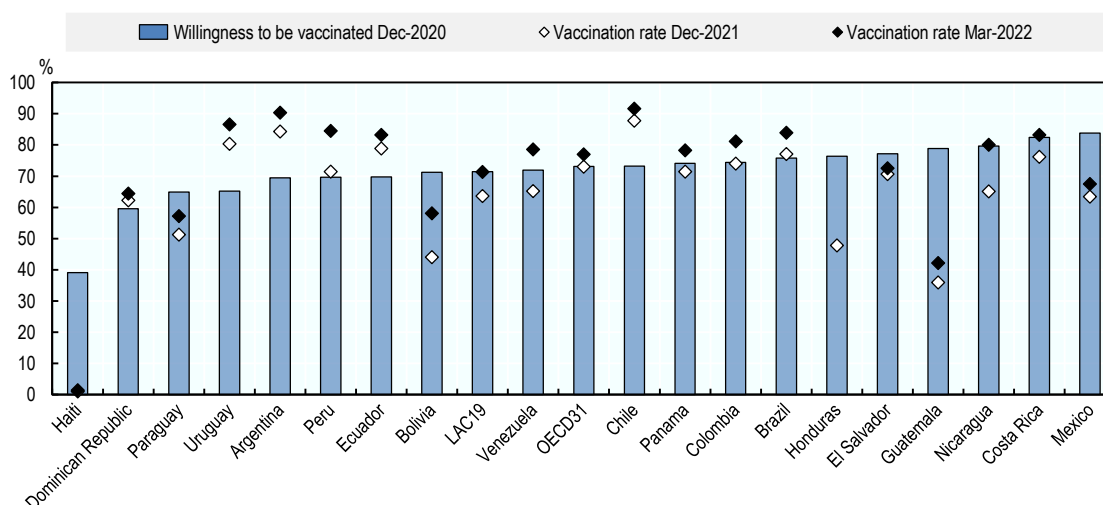
*In most countries, vaccine hesitancy was not the main impeding factor for vaccination coverage*

The COVID-19 vaccine is the single phenomenon that had the largest effect in the control of the pandemic. Vaccine acceptance was essential for an effective roll-out. Between June and July 2021, 80% of the population in 20 four LAC countries planned to get vaccinated against COVID-19 (The World Bank group, 2021<sup>[11]</sup>).

Based on a representative sample of Facebook users, Figure 1.19 shows how OECD countries, on average, reached all people that were willing to receive a COVID-19 vaccine in December 2020 after one year. In LAC, this level was reached three months after, in March of 2022. However, there is vast heterogeneity in the effectiveness of the vaccine rollout, and this is not explained by vaccine hesitancy. In 11 countries, a greater number of people were vaccinated with at least one dose than the proportion of the population reporting willingness to get vaccinated 12 to 15 months earlier. This speaks to the impact of effective communication and persuasion campaigns by health authorities. Two more countries (Nicaragua and Costa Rica) managed to reach the same level of coverage as people willing to receive a vaccine. On the other hand, Haiti, Paraguay, Bolivia, Honduras, Salvador, Guatemala and Mexico remained unable to reach the whole population that wanted to be vaccinated against COVID-19 and several of these countries had high levels of excess deaths.


**Figure 1.19. Most countries effectively managed vaccination hesitancy**

Proportion of people willing to receive a COVID-19 vaccine in 2020 and proportion of people with at least one dose of the COVID-19 vaccine



Note: Data for willingness to be vaccinated from a representative sample of Facebook users. Willingness to be vaccinated is considered out of respondents who definitely or probably chose to get vaccinated if a COVID-19 vaccine was offered to them, out of the respondents who have not been vaccinated.

Source: Vaccination acceptance from The University of Maryland Social Data Science Center and Facebook (2020<sup>[14]</sup>), Global COVID-19 Trends and Impact Survey in partnership with Facebook, <https://covidmap.umd.edu/>. Vaccination rate from Mathieu et al. (2021<sup>[17]</sup>), A global database of COVID-19 vaccinations, <https://doi.org/10.1038/s41562-021-01122-8>, available at Ritchie et al. (2020<sup>[68]</sup>), "Coronavirus Pandemic (COVID-19)", Our World in Data, <https://ourworldindata.org/coronavirus>.

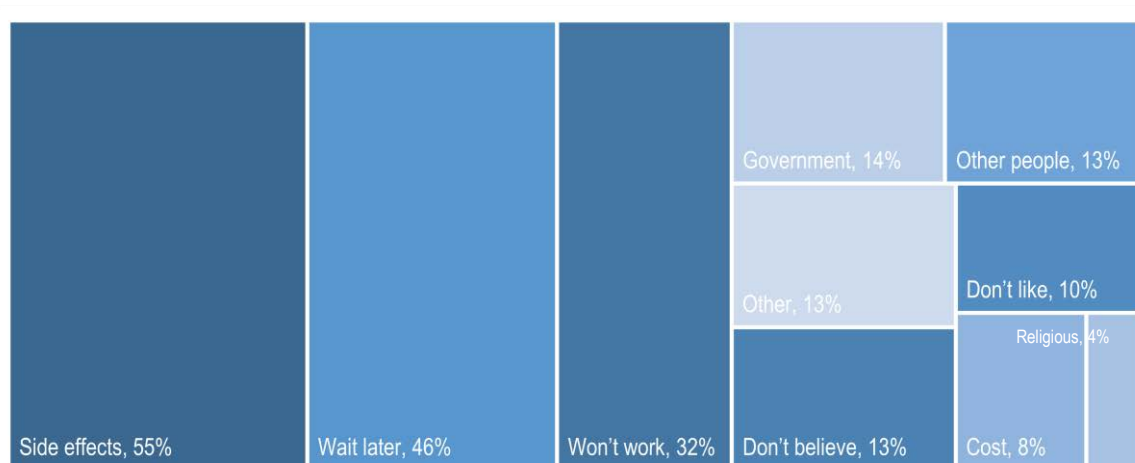
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Drivers of vaccine hesitancy are diverse (Figure 1.20). Based on the same sample of Facebook users (The University of Maryland Social Data Science Center & Facebook, 2020<sup>[14]</sup>), out of the Latin American and Caribbean responders that were hesitant about the COVID-19 vaccine, 55% reported concerns over potential side effects to be the reason for their hesitancy. While some effects of the COVID-19 vaccine have been found, research after more than one and a half years of mass implementation has established that the benefits outweigh the risks by a significant margin. Moreover, 46% of hesitant responders reported wanted to wait to see if the vaccine is safe and might get it later. Finally, 32% of respondents that reported being hesitant did not think the vaccine was effective. All three main reasons driving vaccination hesitancy can be substantially overcome by effective communication campaigns disseminating the latest research on the safety and effectiveness of the COVID-19 vaccine.

Other important drivers of vaccine hesitancy relate to trust in the government (14%), trust in vaccination (13%), influence by other people (13%), and not liking vaccination (10%) (Figure 1.20). People trust international (World Health Organization) and local health authorities the most when related to COVID-19 vaccines Figure 1.21. In LAC, the average portion of the population that trusts these institutions is around 70%, while in the OECD this percentage is only 53%. On the other hand, only 40% and 26% of respondents in LAC and the OECD trust politicians regarding vaccination. The data suggests expertise being an important factor driving trust in vaccination, which is positive for population health management in a crisis situation. However, closer social relationships and kinship, like family, have significantly more trustworthiness in LAC than compared with the OECD average, where 63% of LAC respondents trust their families' opinions regarding the COVID-19 vaccine compared to only 40% in the OECD. High levels of trust in non-experts leaves space for disinformation to spread. For example, 8% of respondents in LAC in mid-2021 thought that masks were not necessary after being vaccinated. There was some variability between LAC countries in this respect, ranging from 5% in Bolivia, Brazil and Chile, to 12% in Haiti.

**Figure 1.20. Vaccination hesitancy was mostly driven by side effects**

Reasons for respondents to be hesitant about the COVID-19 vaccine, out of responders that don't want or are unsure about vaccination, 2021



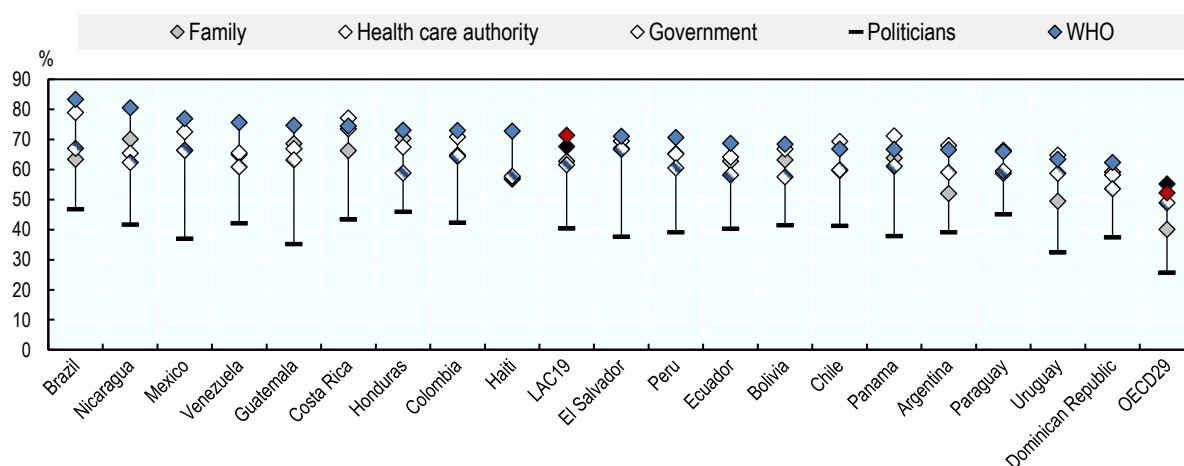
Note: Data is a representative sample of Facebook users. Multiple reasons were allowed.

Source: The University of Maryland Social Data Science Center and Facebook (2020<sup>[14]</sup>), Global COVID-19 Trends and Impact Survey in partnership with Facebook, <https://covidmap.umd.edu/>.

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**Figure 1.21. Expertise generates trust in the COVID-19 vaccine**

Proportion of respondents more likely to get vaccinated if recommended by stakeholders, December 2020



Note: Data is a representative sample of Facebook users.

Source: The University of Maryland Social Data Science Center and Facebook (2020<sup>[14]</sup>), Global COVID-19 Trends and Impact Survey in partnership with Facebook, <https://covidmap.umd.edu/>.

StatLink  <https://stat.link/hza8xj>

## 1.5. Structural components determined countries' response capacity

LAC countries baseline preparedness for the pandemic was at severe disadvantage when compared to other OECD countries. High levels of inequality and informality diminished the capacity of the population to adhere to public health measures, where those without access to social protection and health coverage faced additional barriers to



receive health when needed. The region also has high percentage of people living in inadequate housing or informal settlements, making them more vulnerable to the virus. While these topics are not analysed in depth in this chapter, chapters three to nine in this publication provide a comprehensive characterisation of LAC health systems. Instead, we focus on the main baseline characteristics influencing the level of excess deaths during the COVID-19 pandemic.

### **1.5.1. Under-resourced healthcare systems amplified the challenge of COVID-19**

Latin American and Caribbean countries had very different structural characteristics at the start of the pandemic. Some of these characteristics are highly associated with excess deaths during of the pandemic, while others are not. There are no clear patterns between the level of health in LAC countries (see Chapter 3) before the pandemic and the number of excess deaths between 2020 and 2021. Counterintuitively, there is strong association between countries with older population (see Chapter 9 – figure 9.1) and better performance in excess deaths. This is largely explained by income per capita, associated with both ageing and the ability to better respond to the pandemic. In contrast, the level of resources available in the health system behaves as expected, where best equipped countries perform better in terms of excess deaths, even though resource levels are lower than the OECD average.

Healthcare expenditure per capita in LAC is far below the OECD average of 3 999 USD PPP (see Chapter 6 – Figure 6.1). The LAC average was 1 155 USD PPP, 28% that of the OECD average. These low levels of total health expenditure could signal why health systems in the region were under-resourced and less prepared to face the challenges of the COVID-19 crisis. There is a strong association between higher health expenditure per capita and low excess deaths. Seven out of the nine countries in the best performing group had higher than 1 500 USD PPP expenditure per capita in health (except for Venezuela and Jamaica). On the other hand, the six countries with higher number of excess deaths in the region had an average health expenditure of 781 USD PPP, led by Mexico (1 117 USD PPP) and with Saint Vincent and the Grenadines being the lowest (620 USD PPP).

Health systems in LAC would benefit not only from more expenditure, but also from better expenditure. In fact, wasteful expenditure is a major issue in the region, especially in the areas of clinical care, operational, and governance waste, hindering the path towards universal health coverage (OECD/The World Bank, 2020<sup>[69]</sup>). During the COVID-19 crisis, the on-going wasteful expenditure has exacerbated the lack of health expenditure, hindering the capacity of health systems in the region to reallocate scarce resources to increase health workforce and resources.

### **1.5.2. Healthcare capacity was a bottleneck in the strategy against COVID-19**

LAC also lags the OECD average in terms of health workforce density. On average, LAC has 2.15 medical doctors per 1 000 population (latest data – 2017 to 2021) (see Chapter 8 – Figure 8.1). The OECD average in this period is 3.6 (68% more). As seen in 1.4.2, countries that performed best in terms of excess deaths had a higher density of doctors than countries that did not perform as well. The association with the number of nurses operates in the same direction (see Chapter 8 – Figure 8.4), but the correlation is weaker as the countries with the lower number of nurses per 1 000 population are situated in the middle group: with excess deaths above the OECD average but below the LAC average.

There are only three countries in LAC that have more hospital beds per 1 000 population than the OECD average (see Chapter 5 – figure 5.7). These are Barbados (5.8), Cuba (5.2), and Argentina (5.0), compared to the OECD average of 4.3. These three countries had strong performance in terms of excess deaths during 2020 and 2021. Likewise, countries with high excess deaths typically have a lower number of hospital beds than the LAC average (2.1 per 1 000 population), such as Peru (1.6), Bolivia (1.1), Mexico (1.4), Ecuador (1.5), Guyana (1.6), and Colombia (1.7).

Interestingly, some countries with similar numbers of hospital beds per 1 000 population had different performances in excess deaths. For example, Uruguay (2.8), Panama (2.3), Chile (2.1), Bahamas (2.9), and Brazil (2.3) had a similar rate of hospitals beds but major differences in the number of excess deaths, indicating that the efficiency of hospital bed management also played a crucial role. This trend is repeated when accounting for ICU beds capacity (OECD/The World Bank, 2020<sup>[69]</sup>). Among countries with low levels of excess deaths, Uruguay (19.9 beds) and Argentina (18.7 beds) have higher number of ICU beds per 100 000 population than the average of 22 OECD countries (12 beds) with available data. However, Chile (7.3 beds) and Costa Rica (2.7 beds), also countries with low number of excess deaths, have a considerably lower capacity. On the other hand, Brazil (20.6 beds) Colombia (10.5 beds) and Paraguay (10.3 beds) have more or similar levels to the OECD22 average but had higher levels of excess deaths. Finally, three countries with higher than LAC average excess deaths, Ecuador (6.9 beds), Mexico (3.3 beds) and Peru (2.9 beds), have low capacity of ICU beds (OECD/The World Bank, 2020<sup>[69]</sup>).

## 1.6. Discussion

While there is substantial variation in LAC countries' performance along the variables studied in the chapter, there are clear patterns among process and structure level performance and excess mortality. The assessment points towards fewer excess deaths being related to both the effective implementation and the comprehensiveness of the response, together with interventions to address identified weaknesses in response capacity and structural characteristics.

Table 1.4 puts together countries' performance on excess mortality with key variables summarizing pandemic response, systems responsiveness and structural characteristics affecting response capacity. The predominance of green at the top of the figure shows that a comprehensive pandemic response, performing above average in most categories, was associated consistently with lower levels of excess deaths. At the other side of the spectrum, countries with the highest number of excess deaths exhibit several variables where they are among the worst performing in the region. For these countries, a lower performance in these areas rendered these factors in the health system sufficiently weak for COVID-19 to severely disrupt care provision and reduce effectiveness of public health measures. However, low performance in some areas was not necessarily a weak point in dealing with the pandemic. Countries that recognised their shortcomings and put interventions in place to address them showed lower levels of excess deaths. For example, Chile and Costa Rica had around or below the median number of hospitals beds but addressed this challenge with centralised management of hospital capacities, including private providers, and based on triage and risk assessment.

Moreover, comprehensiveness in the pandemic response enhanced effective implementation of public health measures. Countries with lower excess deaths integrated the needs of the population and put complementary policies in place to mitigate the health and socio-economic effects of the COVID-19 response. This minimised the social cost of the pandemic and allowed countries to link the stringency of their public health measures with the infection waves and the idle capacity of their health system. When in 2021 the focus of the pandemic response shifted towards mass vaccination, countries that complemented a quick vaccine rollout with information campaigns enhanced the effectiveness of the measure by both easing public uncertainty and improving vaccine acceptance. In the same line, countries that addressed healthcare disruptions with centralised co-ordination of healthcare resources and a strong reliance on primary healthcare systems for promotion, prevention (including vaccination), treatment and follow-up of COVID-19 were able to stop the vicious cycle of health system disruption and excess deaths.

Counterintuitive outliers in both high and low performance groups enlighten the discussion about the many other potential variables influencing the pandemic effect. Venezuela and Jamaica had a good performance in terms of excess deaths but performed lower than most countries in most of the selected variables in Table 1.4. However, these countries had relatively strict containment measures, and increased their stringency in 2021 compared to 2020. Combined with the isolation the economic and political context in Venezuela carried and Jamaica's geography, these factors seemed to have been especially effective to mitigate the spread of the virus. Other island countries in the Caribbean with low levels of excess deaths might have benefited from the same effect. Venezuela's case needs to be interpreted with caution, because in other counts of excess mortality (Wang et al., 2022<sup>[20]</sup>) the country appears with higher than LAC average excess deaths. This might indicate that the country was not as effectively isolated as initially thought.

**Table 1.4. Comprehensive pandemic responses were effective in minimising loss of life**

Dashboard of pandemic performance, selected variables

Country	Excess deaths 2020-21	Containment Index Second quarter 2021	Financial assistance during the pandemic	Population fully vaccinated by Q3 2021	People who know how to get the vaccine in 2021	Disruption of services in 2020	Total health expenditure per capita in 2019	Hospital beds	Number of doctors
	Rate per 100 000 population	Containment Index (0-100)	Proportion of households	Proportion of population	Proportion of population	Proportion of people with foregone care	USD PPP	Number per 1 000 population	Number per 1 000 population
Venezuela	78	87		12%			385	0.8	1.7
Uruguay	89	69	37%	68%	96%		2145	2.8	4.9
Jamaica	121	73	40%	6%	46%		598	1.7	0.5
Trinidad and Tobago	145			15%			1835	3.0	4.5
Cuba	160	78		28%			2548	5.2	8.4
Panama	176	63	74%	29%	61%		2491	2.3	1.6
Costa Rica	189	60	44%	24%	59%	6%	1556	1.1	3.3
Argentina	198	79	21%	27%	84%	11%	2199	5.0	4.0
Chile	202	82	47%	66%	95%	12%	2297	2.1	2.8
Bahamas	254			20%			2228	2.9	1.9
El Salvador	262	27	62%	34%	77%	18%	782	1.3	2.9
Guatemala	273	51	30%	5%	43%	13%	529	0.6	1.2
Paraguay	276	55	47%	13%	61%	20%	950	1.3	1.1
Brazil	319	63	52%	25%	15%		1451	2.3	2.2
Colombia	323	68	26%	25%	55%	16%	1293	1.7	2.3
Guyana	356	61	78%	19%	76%		674	1.6	1.4
St. Vincent and the G.	446			43%			620		0.0
Ecuador	455	67	19%	29%	31%	28%	935	1.5	2.2
Mexico	483	45	16%	24%	78%	5%	1117	1.4	2.4
Bolivia	749	28	42%	17%	49%	32%	631	1.1	1.0
Peru	873	77	9%	21%	41%	31%	712	1.6	1.4

Note: Colour codes present a percentile scale in each column. Red represents the lowest performance (95th percentile), yellow represents the median performance (50th percentile) and green is the top performance (5th percentile) from countries in the table. Among countries with lower than OECD average excess deaths, only the ones selected in Section 1.2 are presented.

Source: Elaborated based on figures (ordered by column) 1, 9 (Q2-2021), 11, 13 (Q3-2021), 14 (National), 23 (2020-National) of this chapter, plus Chapter 6, Figure 6.1 and Chapter 8, Figures 8.1 and 8.4.

Mexico, on the other hand, has the third highest number of excess deaths in the region (fourth in the excess deaths estimation by (Wang et al., 2022<sup>[20]</sup>)), but it has average or better than average performance in most of the selected variables in Table 1.4. However, though not reviewed extensively in this chapter, Mexico has high prevalence of important risk factors for COVID-19, namely obesity and chronic conditions prevalence (see Chapters 3 and 4). In addition, there are still enhanced problems with care fragmentation and universal access to services arising from the transition that started in 2018, with the removal of “Seguro Popular” and the creation of the new universal health programme (OECD, 2022<sup>[39]</sup>). Health systems characteristics like the latter were not extensively reviewed in this chapter because of a lack of consistent and comparable indicators for the region but might have an important influence in the pandemic effect. In particular, system fragmentation, information systems for epidemiological control and care co-ordination, and medical supply chain management seem to have had an important effect and were a central part of countries’ pandemic response (OECD, 2023<sup>[38]</sup>). Moreover, while the emergency response of LAC countries was mainly managed at the central level of governance, the implementation of the response actions, together with the baseline preparedness of the health system, depended heavily in subnational governments. Following the shared responsibility central and subnational governments have on planning, financing, and delivering healthcare, future research studying the determinants of effective emergency response should explore the co-ordination and performance at and between these levels of governance.

### 1.6.1. Lessons learned for improving health system resilience in LAC

Combining the lessons of this chapter and extensively studied recommendations for improving health system resilience (OECD, 2023<sup>[38]</sup>; Herrera et al., 2022<sup>[2]</sup>; OECD, 2022<sup>[39]</sup>), we highlight important considerations that are of particular interest for improving health system resilience in the countries and topics examined in this chapter as follows:

- **Promote emergency readiness:** Improve co-ordination between providers (public and private) and enable centralised co-ordination in emergency situations. Introduce (or strengthen) mechanisms for swiftly releasing emergency funds. Prepare comprehensive response plans, considering the needs and perspectives of local communities, socio-economic costs of public health measures, mental health of the population, barriers and inequalities in care access and the importance of maintaining essential care services.
- **Promote workforce recruitment and strengthen primary care:** Workforce limitations proved to be an important constraining factor in the pandemic. Empowering healthcare workforces to deliver quality and comprehensive care can maximise staff capacity. At the same time, a strong primary health system minimised healthcare disruptions and expedited the implementation of public health measures (vaccination).
- **Promote governance, trust, and data collection:** Governance structures should integrate a whole-of-society approach for addressing shocks as severe as the COVID-19 pandemic. Trust is necessary for governance to be effective, and both communication campaigns and accurate decision making can improve confidence in government. Data collection and information systems are and will continue to be essential in informing accurate policy making and population health management during future shocks.
- **Promote population health and address health inequalities:** Addressed extensively in Chapters 3 to 9 of this publication, health and healthcare in LAC present several weaknesses compared to other OECD countries. Addressing health risks such as obesity and wider determinants of poor health, like poverty, sanitation, and unemployment, are critical to improving preparedness for the next shock. Moreover, given the important disruptions to healthcare during the pandemic, management strategies should be established to prevent further forgone care and the consequent worsening of conditions.

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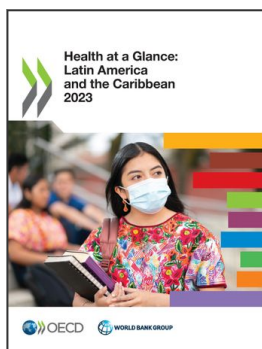
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## Notes

<sup>1</sup> The full list of included countries can be found in the foreword.

<sup>2</sup> Countries with available data: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras and Mexico.

<sup>3</sup> Immunisation coverage reflects the percentage of children at age one that receive the final dose of the primary immunisation series in the respective vaccination programme in the recommended timeframe (Chapter 7).



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