

Review Article

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COVID-19 Pandemic Preparedness and Response in Latin American Countries: Scoping Review and Analysis Based on World Health Organization Standards

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Abstract

Objective: To describe COVID-19 pandemic preparedness and response in 6 countries during 2020 and 2021.

Methods: A literature search was conducted in MEDLINE, Web of Science, Epistemonikos, LILACS, and Google Scholar regarding the measures adopted to face the COVID-19 pandemic; the checklist of the international World Health Organization's (WHO) guide "COVID-19 Strategic Preparedness and Response Plan" was applied.

Results: Most countries coordinated their response at the central level with the establishment of management teams and the activation of emergency operations centers for the coordination of the response to the pandemic. The capacity to perform epidemiological surveillance activities such as early case detection, contact tracing, and real-time monitoring of data was exceeded. There was low capacity in laboratory infrastructure, specialized human talent, and deployment of molecular testing for SARS-CoV-2 detection.

Conclusions: This is the first review that addresses the importance of documenting how well-prepared countries in the region were to face a pandemic such as COVID-19 taking into account WHO standards and guidelines. In Latin America, the literature showed reports of heterogeneous responses to the pandemic, a gap in the literature on laboratory and diagnostic pillar activities, and a lack of literature reporting on epidemiological surveillance pillar activities in Argentina, Chile, and Ecuador.

Background

COVID-19 remains an event of public health concern. From 2020 to 2023, more than 760 million confirmed cases and 6.8 million deaths were reported worldwide. About 76 million cases and 1.5 million deaths occurred in Latin America,¹ one of the most affected regions in the world with unprecedented negative health, social, and economic impacts.²

One of the indices that allows measuring the ability of countries to respond to this type of threat is the Global Health Security (GHS) Index, which provides an assessment of preparedness in the areas of prevention, detection and notification, rapid response, health systems, and commitment to capacity building and financing.³ Latin America has an average score of 53.4/100 (Chile 56.2; Peru 54.9; Argentina 54.4; Colombia 53.2; Brazil 51.2; Ecuador 50.8), and it is likely that the magnitude of the impact of COVID-19 in the region reflects weaknesses in preparedness, detection, and response.³

Preparedness and response plans are a guide for countries to structure actions to be taken to deal with health emergencies. The World Health Organization (WHO) in the framework of the COVID-19 pandemic described guidelines to direct preparedness and adapt the response to the contexts of each country. These guidelines consist of several main domains including country-level coordination, planning and monitoring, epidemiological surveillance, laboratories, and case diagnosis and management.⁴

Global health leaders have called for investing in and prioritizing epidemic preparedness, as infectious diseases are a continuing threat.⁵ COVID-19 is an opportunity to build a future by

giving utility to the knowledge generated, understanding that a well-coordinated local preparedness and response action plays a fundamental role in detecting outbreaks and preventing their spread.⁶

Accordingly, it was necessary to map the available evidence on the preparedness and response measures implemented by Latin American countries and to verify whether they comply with WHO guidelines, in order to generate recommendations that will enable the countries of the region to face future health emergencies. This study sought to describe the pandemic preparedness and response measures implemented by COVID-19 in 6 Latin American countries (Argentina, Brazil, Chile, Colombia, Ecuador, and Peru) during 2020 and 2021 according to the guidelines established by WHO in the checklist of the international guide “COVID-19 Strategic Preparedness and Response Plan.”

Materials and Methods

This study is part of the final phase of the CoVIDA^{7,8} project which aimed to identify and describe preparedness and response measures, social, and economic incentives, infodemics, and political will in the studied countries. This manuscript will report the results related to the subsample of preparedness and response studies.

Study Design

A scoping review was developed based on the Joanna Briggs Institute reviewer’s manual,⁹ following the PRISMA-ScR checklist.¹⁰

Countries under study

The 6 countries with the highest number of confirmed cases and deaths from COVID-19 in Latin America (Argentina, Brazil, Chile, Colombia, Ecuador, and Peru) were selected for this review (see Supplementary Material 1).

Inclusion criteria

All publications that examined any preparedness and response intervention during the COVID-19 pandemic were included. All types of original research articles were considered. We included studies only conducted during the first two years of the COVID-19 pandemic (2020 to 2021), papers available as full publication in English, Spanish, and Portuguese, and pre-published, published studies, or gray literature.

Exclusion criteria

Editorials, commentaries, viewpoints, or press articles.

Sources of information

A bibliographic search was performed in the electronic databases MEDLINE, Web of Science, Epistemonikos, and LILACS of the measures adopted to face a public health crisis such as the pandemic due to COVID-19.

Gray literature was reviewed through Google Scholar using the same terms as the searches in the English, Portuguese, and Spanish databases; it was complemented with the review of the references of the studies found in a snowball search.

Search strategy

A search strategy was designed, composed of controlled vocabulary such as MeSH (Medical Subject Headings), DeCS (Health Sciences Descriptors), and free language. Synonyms, abbreviations, acronyms, spelling variations, and plurals were considered. MeSH terms such as “Pandemics,” “Preparedness,” “Response,” “Government Programs,” “Latin America,” “Argentina,” “Chile,” “Colombia,” “Ecuador,” “Peru,” and “Brazil” were used. The strategy was complemented with field identifiers, truncators, proximity operators, and Boolean operators. This strategy was validated with thematic and methodological experts and adapted for the different databases (see Supplementary Material 2). The search was conducted between February 1 and April 30, 2022.

Selection of sources and evidence

The list with the bibliographic references identified in the electronic searches was downloaded into the Rayyan[®] software¹¹ where duplicate references were eliminated. Three reviewers independently carried out the selection by title and abstract to eliminate articles that did not meet the inclusion criteria. Subsequently, the reviewers independently downloaded and assessed the full text of potentially relevant articles and excluded studies that did not meet the eligibility criteria.

Data extraction process

Three reviewers independently extracted data (EOVD-AVM-LSRB) on a data collection instrument specially designed for the review. The matrix included year of publication, article title, country, study design and type, study setting, population, intervention, comparison, outcome, results, and observations.

WHO checklist verification

The subsample of studies identified as preparedness and response was taken, and a verification was performed using the checklist of the international guide “COVID-19 Strategic Preparedness and Response Plan,”¹² which includes 4 pillars: 1) coordination, planning, and follow-up at the country level; 2) epidemiological surveillance, immediate response teams, and case investigation; 3) laboratories and diagnosis; and 4) case management.¹² This verification was carried out to identify whether the countries had reported literature indicating that they had a response in accordance with the standards established by WHO.

Synthesis of findings

The results of the screening and final study selection process were summarized in a PRISMA-10 flowchart.¹³ Initially, the subsample of preparedness and response studies was summarized by means of a characterization table with general information. The narrative synthesis of the literature extraction and verification of the countries’ literature was presented according to the checklist established by WHO in the framework of the pandemic.

Results

Selection of Studies

A total of 3446 references were identified: 924 in Pubmed, 140 in LILACS, 70 in Epistemonikos, 1230 in Web of Science, and 1082 in

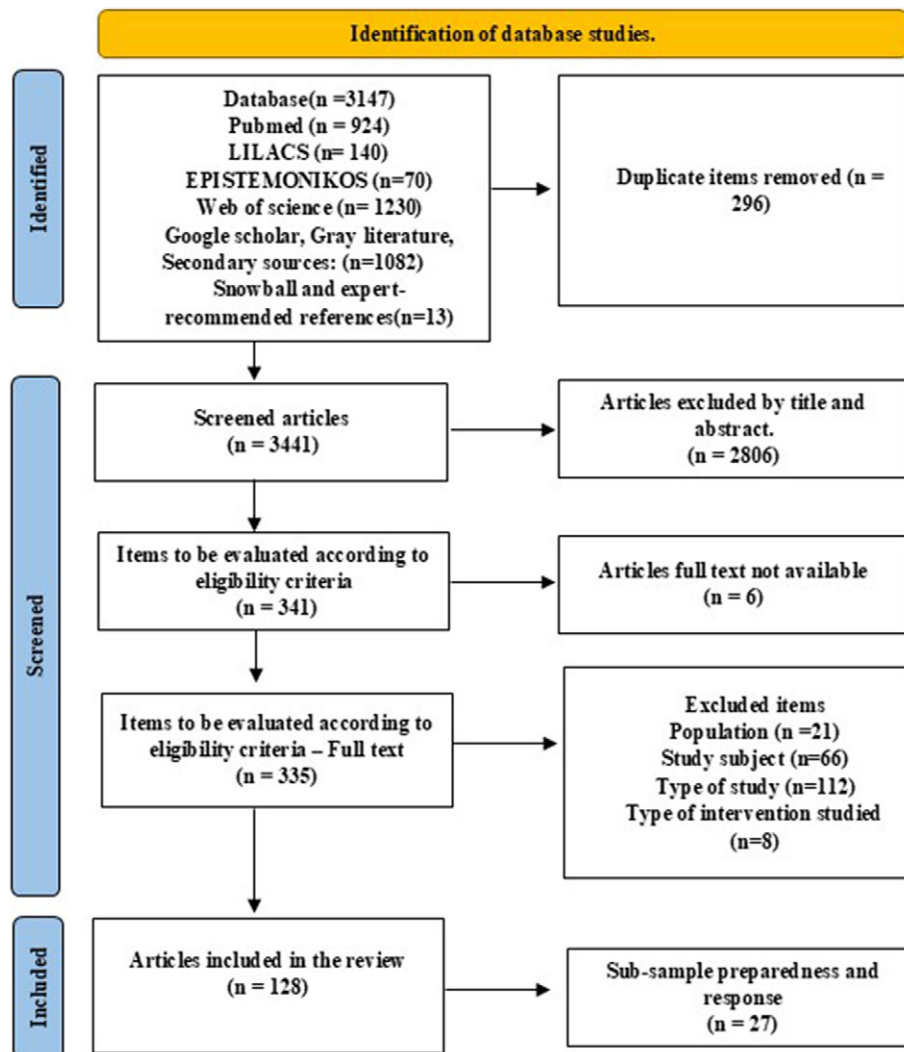


Figure 1. Identification and selection of studies - PRISMA ScR flowchart.

secondary sources and Google Scholar. After eliminating duplicates, 3441 references remained. Screening by title and abstract left 341 references of which 335 were available for full-text evaluation. Finally, 128 studies were included in the review, of which 27 were part of the preparation and response subsample, which corresponded to the scope of the study (see Figure 1).

Characteristics of the Subsample of Readiness and Response Studies

Table 1 summarizes the key characteristics of the subsample of studies on preparedness and response. Half of the studies ($n = 14$) were published in 2021. Brazil was the country with the largest number of studies reported ($n = 11$), and the literature found concentrated on reporting activities related to pillar 1 country-level coordination ($n = 17$).

Pillar 1. Coordination, planning, and follow-up at country level

In this pillar, all countries reported the sub-items of the checklist, with the exception of Argentina (see Table 2). In this review, 63% of the studies reported activities on pandemic coordination, planning, and follow-up.^{14–30} The main reports were related to the activation

of the Emergency Operations Centers (EOC), which were used as platforms to coordinate preparedness and response to the health emergency due to COVID-19. It was found that, in general, the countries coordinated the response at the central level with the exception of Brazil where the lack of leadership by the federal government led to actions being coordinated by each administrative level.²²

In addition, it was found that countries implemented planning and follow-up measures such as surveillance at all potential entry points (international airports, seaports, and borders with neighboring countries), restrictions on international travel and some domestic travel, closure of schools and universities, prohibition of large mass events, and mandatory national quarantine, with the exception of Chile where a local quarantine was implemented (see Figure 2).^{16–18,22,26}

Pillar 3. Epidemiological surveillance, immediate response teams, and case investigation

Epidemiological surveillance activities were reported by 22% of the studies and only half of the countries reported the checklist topics (see Table 2).^{18,21,31–34} The main activities identified in this pillar

Table 1. Characteristics of the subsample of readiness and response studies included in the review ($N = 27$)

Features		
Year	N (%)	Evidence
2020	13(48.0%)	Canals <i>et al.</i> , ¹⁴ Romo <i>et al.</i> , ¹⁵ Hernández <i>et al.</i> , ³¹ Grebe <i>et al.</i> , ¹⁶ Croda <i>et al.</i> , ¹⁷ Carrasquilla, ¹⁸ Otoyá-Tono <i>et al.</i> , ¹⁹ García-Huidobro <i>et al.</i> , ³⁷ Slomp <i>et al.</i> , ³² Paredes <i>et al.</i> , ²⁰ Gonzalez <i>et al.</i> , ²¹ García <i>et al.</i> , ²² Santos <i>et al.</i> ²³
2021	14(52.0%)	Alves <i>et al.</i> , ²⁴ Caceres <i>et al.</i> , ²⁵ Rees <i>et al.</i> , ³³ Milet <i>et al.</i> , ²⁶ Kameda <i>et al.</i> , ³⁵ Donida <i>et al.</i> , ³⁴ Silva <i>et al.</i> , ³⁸ Torres <i>et al.</i> , ³⁶ Silberman <i>et al.</i> , ³⁹ Fleury <i>et al.</i> , ²⁷ Szylovec <i>et al.</i> , ²⁸ Campo <i>et al.</i> , ²⁹ Nair <i>et al.</i> , ⁴⁰ Olivier <i>et al.</i> ³⁰
Country of study		
Argentina	2(7.4%)	Romo <i>et al.</i> , ¹⁵ Silberman <i>et al.</i> ³⁹
Brazil	11(40.7%)	Croda <i>et al.</i> , ¹⁷ Slomp <i>et al.</i> , ³² Paredes <i>et al.</i> , ²⁰ Santos <i>et al.</i> , ²³ Kameda <i>et al.</i> , ³⁵ Donida <i>et al.</i> , ³⁴ Silva <i>et al.</i> , ³⁸ Fleury <i>et al.</i> , ²⁷ Szylovec <i>et al.</i> , ²⁸ Campo <i>et al.</i> , ²⁹ Nair <i>et al.</i> ²⁵
Chile	3(11.1%)	Canals <i>et al.</i> , ¹⁴ Grebe <i>et al.</i> ¹⁶
Colombia	4(14.8%)	Hernandez <i>et al.</i> , ³¹ Carrasquilla, ¹⁸ Otoyá-Tono <i>et al.</i> , ¹⁹ Olivier <i>et al.</i> ³⁰
Ecuador	1(3.7%)	Torres <i>et al.</i> ³⁶
Peru	4(14.8%)	Gonzalez <i>et al.</i> , ²¹ Milet <i>et al.</i> ²⁶
Multinational	2(7.4%)	García <i>et al.</i> , ²² Alves <i>et al.</i> ²⁴
Study design		
Quantitative	8(29.6%)	Canals <i>et al.</i> , ¹⁴ Hernández <i>et al.</i> , ³¹ Grebe <i>et al.</i> , ¹⁶ Santos <i>et al.</i> , ²³ Alves <i>et al.</i> , ²⁴ Silva <i>et al.</i> , ³⁸ Torres <i>et al.</i> , ³⁶ Olivier <i>et al.</i> ³⁰
Qualitative	18(66.7%)	Romo <i>et al.</i> , ¹⁵ Croda <i>et al.</i> , ¹⁷ Carrasquilla, ¹⁸ Otoyá-Tono <i>et al.</i> , ¹⁹ Slomp <i>et al.</i> , ³² Paredes <i>et al.</i> , ²⁰ Gonzalez <i>et al.</i> , ²¹ García <i>et al.</i> , ²² Caceres <i>et al.</i> , ²⁵ Rees <i>et al.</i> , ³³ Milet <i>et al.</i> , ²⁶ Kameda <i>et al.</i> , ³⁵ Donida <i>et al.</i> , ³⁴ Silberman <i>et al.</i> , ³⁹ Fleury <i>et al.</i> , ²⁷ Szylovec <i>et al.</i> , ²⁸ Campo <i>et al.</i> , ²⁹ Nair <i>et al.</i> ⁴⁰
Mixed methods	1(3.7%)	García-Huidobro <i>et al.</i> ³⁷
World Health Organization Pillars		
Coordination	17(63.0%)	Canals <i>et al.</i> , ¹⁴ Romo <i>et al.</i> , ¹⁵ Grebe <i>et al.</i> , ¹⁶ Croda <i>et al.</i> , ¹⁷ Carrasquilla, ¹⁸ Otoyá-Tono <i>et al.</i> , ¹⁹ Paredes <i>et al.</i> , ²⁰ Gonzalez <i>et al.</i> , ²¹ García <i>et al.</i> , ²² Santos <i>et al.</i> , ²³ Alves <i>et al.</i> , ²⁴ Caceres <i>et al.</i> , ²⁵ Milet <i>et al.</i> , ²⁶ Fleury <i>et al.</i> , ²⁷ Szylovec <i>et al.</i> , ²⁸ Campo <i>et al.</i> , ²⁹ Olivier <i>et al.</i> ³⁰
Surveillance	6(22.0%)	Hernández <i>et al.</i> , ³¹ Carrasquilla, ¹⁸ Slomp <i>et al.</i> , ³² Gonzalez <i>et al.</i> , ²¹ Rees <i>et al.</i> , ³³ Donida <i>et al.</i> ³⁴
Laboratories	6(22.0%)	Canals <i>et al.</i> , ¹⁴ Romo <i>et al.</i> , ¹⁵ Grebe <i>et al.</i> , ¹⁶ Kameda <i>et al.</i> , ³⁵ Torres <i>et al.</i> ³⁶

(Continued)

Table 1. (Continued)

Features		
Year	N (%)	Evidence
Case management	6(22.0%)	Carrasquilla, ¹⁸ García-Huidobro <i>et al.</i> , ³⁷ Milet <i>et al.</i> , ²⁶ Silva <i>et al.</i> , ³⁸ Silberman <i>et al.</i> , ³⁹ Nair <i>et al.</i> ⁴⁰

were early case detection, contact tracing, and isolation orders for international travelers and suspected cases.

In Brazil, a mobile application was developed that facilitated contact tracing.³⁴ Through this system, the numbers of persons with suspected infection, persons with confirmed disease, and deaths were obtained.³⁴

In Colombia, the “Testing, Tracing, and Sustainable Selective Isolation Strategy” (PRASS) was implemented at the national level, and a call center was installed for contact tracing throughout the country,¹⁸ while in Peru, to manage the pandemic, the regional and local governments used immediate response teams that participated in the support of clinical evaluation, testing, and sampling of COVID-19.³⁵

Pillar 5. Laboratories and diagnostics

Only 22% of the studies reported findings related to SARS-CoV-2 diagnostic response capacity; no activities related to virus sequencing, or the implementation of tests prioritized in scenarios of diagnostic insufficiency, were reported (see Table 2).^{14–16,18,35,36}

The countries studied sought to increase diagnostic capacity by creating new laboratories and training human talent in molecular techniques. In these countries, SARS-CoV-2 diagnosis was carried out by public, private, and university laboratories.^{14–16,18,35,36} Colombia was the first country in Latin America to apply the Berlin Protocol with the leadership of the National Institute of Health (INS),¹⁸ and Chile was the country with the highest testing capacity per person.¹⁶ Ecuador had a centralized PCR testing system in which samples from each province were sent to a limited number of regionally located laboratories for processing.³⁶

Differences in diagnostic capacity were found to exist between countries at the subnational level, with greater deployment of testing in urban areas.^{14,35,36} In addition, diagnosis was limited by the dependence on imported supplies and reagents in the richer countries and the scarce human and physical resources needed for its implementation.³⁵

Pillar 7. Case management

In this pillar, not all countries reported evidence, and only 22% of the studies described activities related to case management (Table 2).^{18,26,37–40}

The countries under study focused on increasing the capacity for clinical care with the creation of new Intensive Care Unit (ICU) beds, the acquisition of mechanical ventilators, and implementation of telemedicine. It was found that outpatient care was reduced, and elective surgery was suspended. Also described was the increase in the hiring of health human talent, as well as their training for the clinical management of COVID-19.

In Peru and Brazil, there were significant regional disparities in infrastructure and professional resources that affected health outcomes during the pandemic.^{25,26,38} In addition, a lack of critical

Table 2. Number of studies identified by 2021 by country and activities from the World Health Organization preparedness and response checklist

Pillar 1. Coordination, planning, and follow-up at the country level.	Argentina	Brazil	Chile	Colombia	Ecuador	Peru
To establish an incident management team, including rapid deployment of designated personnel from national and partner organizations, within a public health emergency operations center (PHEOC) or equivalent if available.	0/2	6/11	2/3	3/4	1/1	2/4
Putting in place the resilience of the whole society, reorienting government, business continuity, and community services.	0/2	6/11	2/3	3/4	1/1	2/4
Pillar 3. Epidemiological surveillance, first responders, and case investigation	Argentina	Brazil	Chile	Colombia	Ecuador	Peru
Improve surveillance to detect suspected cases within 48 hours of symptom onset, with testing of suspected cases within 24 hours of detection.	0/2	2/11	0/3	2/4	0/1	2/4
Adapt existing surveillance systems to monitor transmission intensity and spatial distribution (e.g., through sentinel sites).	0/2	2/11	0/3	2/4	0/1	2/4
Identify, follow up, and, when possible, quarantine contacts for the 14-day incubation period of the virus; Actively engage communities for contact tracing, with a focus on high-risk areas.	0/2	2/11	0/3	2/4	0/1	2/4
Establish a national contact tracing system (including contact database) through a whole-of-society approach.	0/2	2/11	0/3	2/4	0/1	2/4
Improve existing surveillance systems to enable tracking of SARS-CoV-2 (COVID-19) transmission (through qualitative and quantitative indicators) and adapt contact tracing tools and protocols to COVID-19.	0/2	2/11	0/3	2/4	0/1	2/4
Actively monitor and report disease trends, impacts, and population perspectives to global laboratory/epidemiology systems such as the Global Influenza Surveillance and Response System. Share with World Health Organization all data needed to conduct global risk assessments including anonymized clinical data, case fatality rate, high risk groups (pregnant women, immunocompromised), and children.	0/2	2/11	0/3	2/4	0/1	2/4
Pillar 5. Laboratories and diagnostics	Argentina	Brazil	Chile	Colombia	Ecuador	Peru
Ensure that sample collection, management, referral network, and procedures are functional.	1/2	1/11	2/3	1/4	1/1	0/4
Share genetic sequence data and virus materials according to established protocols for SARS-CoV-2 (COVID-19).	0/2	0/11	0/3	0/3	0/1	0/4
Develop and implement plans to link laboratory data with other key epidemiological data for timely data analysis.	1/2	1/11	2/3	1/4	1/1	0/4
Develop and implement plans to manage increased demand for testing; consider conservation of laboratory resources in anticipation of possible widespread transmission of SARS-CoV-2 (COVID-19).	1/2	1/11	2/3	1/4	1/1	0/4
If diagnostic capacity is insufficient, implement prioritized testing and measures that can reduce spread (e.g., isolation), including prioritized testing of: - Individuals who are at risk of developing severe disease and vulnerable populations, who will require hospitalization and advanced care for COVID-19 (see clinical management of acute respiratory infections when a new coronavirus is suspected). - Health care workers (including emergency services and non-clinical) personnel regardless of whether they are a contact of a confirmed case (to protect health care workers and reduce the risk of transmission). - First symptomatic persons in a closed environment (e.g., schools, long-term housing facilities, prisons, hospitals) to quickly identify outbreaks and ensure containment measures.	0/2	0/11	0/3	0/4	0/1	0/4
Pillar 7. Case management	Argentina	Brazil	Chile	Colombia	Ecuador	Peru
Disseminate regularly updated information, train and update health care personnel (including community health workers, medical staff, nurses, respiratory therapists, physiotherapists, outpatient teams) in the management of COVID-19, using specific protocols based on international standards and World Health Organization clinical guidance.	1/2	2/11	1/3	1/4	0/1	1/4
Assess and triage patients at all points of access to the health care system.	0/2	2/11	1/3	1/4	0/1	1/4
Care for all suspected and confirmed patients according to disease severity and acute care needs.	0/2	2/11	1/3	1/4	0/1	1/4
Establish screening and triage zones in all health care facilities; establish community screening capabilities.	0/2	2/11	1/3	1/4	0/1	1/4
Expand emergency plans for health centers and community centers, including improvement of the COVID-19 referral system.	0/2	2/11	1/3	1/4	0/1	1/4
Increase clinical care capacity according to the epidemiological scenario; establish dedicated COVID-19 treatment areas to effectively isolate and treat all COVID-19 cases.	0/2	2/11	1/3	1/4	0/1	1/4

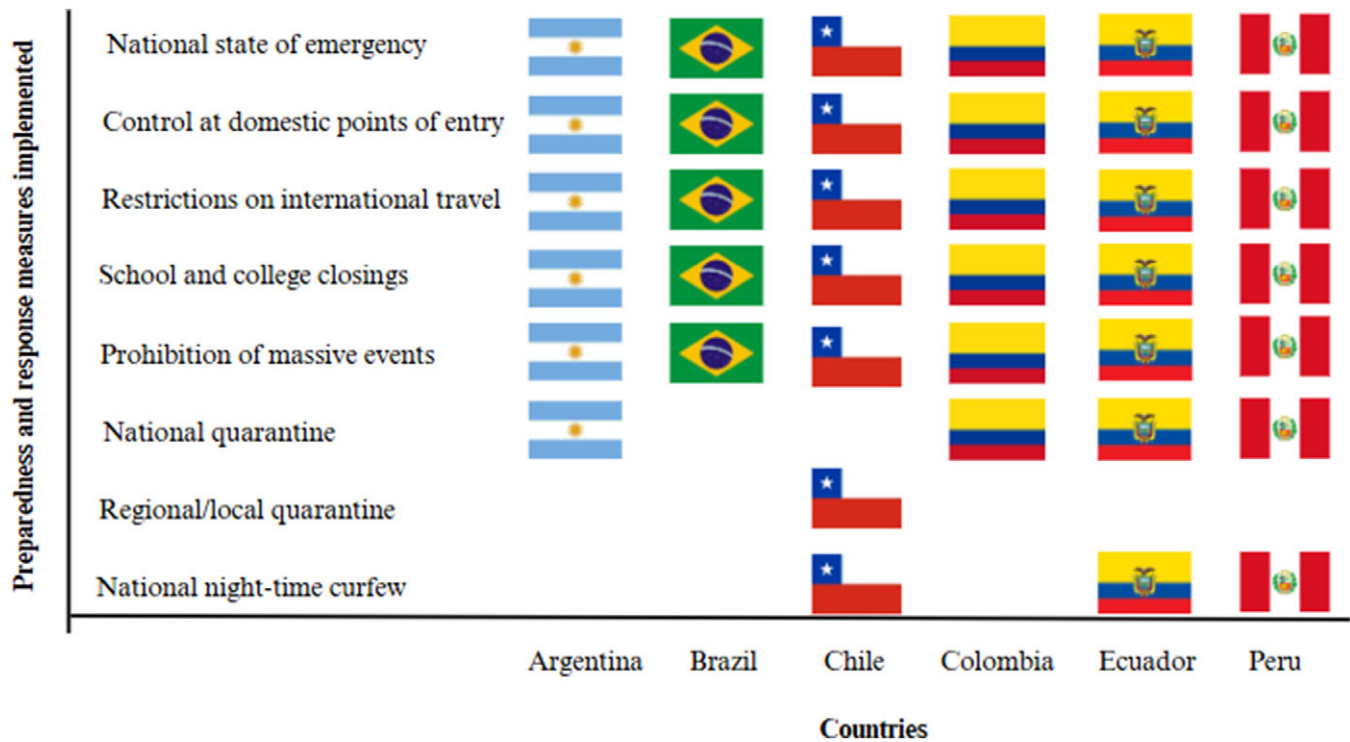


Figure 2. Pillar 1 preparedness and response measures implemented by Latin American countries in response to COVID-19.

beds was reported in the poorest regions, as well as a lack of essential supplies such as oxygen.^{26,38}

Discussion

To our knowledge, this is the only review that addresses the importance of documenting how prepared were countries in the region to face a pandemic such as COVID-19 according to WHO standards. The main findings for each pillar in this review include: 1) In Latin America, the literature showed reports of heterogeneous responses to the pandemic; most countries coordinated their response at the central level with the establishment of management teams and activation of emergency operations centers for response coordination; 2) The capacity to perform epidemiological surveillance activities such as early case detection, contact tracing, and real-time monitoring of data was quickly exceeded; 3) There was low capacity in laboratory infrastructure, specialized human talent, and deployment of molecular tests for SARS-CoV-2 detection; 4) There were deficiencies in infrastructure, and equipment and medical supplies were revealed, as well as large regional disparities in the distribution of health services; 5) A gap was identified in the literature on virus-sequencing activities, prioritization of tests in diagnostic failure scenarios, and epidemiological surveillance literature in Argentina, Chile, and Ecuador.

In Latin America, the response to the pandemic was heterogeneous, partly explained by different national and subnational policies on COVID-19 control with varying degrees of implementation and application of different restriction measures.²² Latin American countries were aligned with the coordination activities listed in Pillar 1 by WHO, with the activation of EOCs and central coordination at the national level with the exception of Brazil. This is similar to the findings of Mustafa *et al.* who reported 98% alignment of the preparedness and response plans of 106 countries with the WHO global guidance for Pillar 1 coordination.⁴¹ Also, WHO

reported that 180 countries have a COVID-19 response coordination mechanism such as an EOC that facilitates information sharing for decision-making.⁴ National leadership is crucial in the response and serves as a platform for decision-making with multi-sectoral participation.⁴²

The countries of the region had already faced other public health emergencies such as dengue, chikungunya, H1N1, and Zika. This experience provided them with important lessons on how to deal with epidemics and allowed them to strengthen their surveillance systems. However, these lessons learned were not enough to deal with COVID-19; the pandemic surpassed the capacities of these countries, which have had a tradition of dealing with emerging events.⁴³ Although this review shows the efforts made to comply with the activities listed in epidemiological surveillance, these were limited by the low deployment of tests that prevented effective contact tracing and isolation of cases. Countries such as Singapore with recent epidemic experiences already had structures and systems in place since the 2003 SARS experience, and the “test, trace and isolate” strategy was possibly the main factor in flattening the epidemic curve at the beginning of the pandemic.⁴⁴ However, this is the case for few countries. WHO described that case and cluster investigations, contact tracing, and contact quarantine were inadequate in most countries of the world. The situation was even more pronounced where diagnostic capacity was limited.⁴

Addressing the diagnosis of SARS-CoV-2 was a challenge for the countries of the region. The cost and complexity of molecular tests that require infrastructure, equipment, specialized supplies, and trained human talent, as well as global competition for supplies and reagents, limited diagnostic capacity.⁴⁵ In this review, there was a lack of reporting of information on activities such as virus sequencing and prioritization of tests in diagnostic failure scenarios. African countries had a similar situation; most had low diagnostic capacity compared to their population size

(31.7 million PCR tests for COVID-19 with a population of over one billion people) and an over-reliance on imported supplies and reagents.⁴⁶

Prior to the pandemic, health systems in Latin American countries were already deficient in infrastructure and human talent, and there were large health inequalities at the national and subnational levels.⁴⁷ Adapting services to increase the capacity for care made it possible to increase the supply for people with COVID-19 but had an impact on the provision of other services, especially in peri-urban, rural, and indigenous areas.⁴⁸ In China, Primary Health Care (PHC) was an essential component of the response, contributing to data collection and epidemiological studies that led to successfully containing the spread of the pandemic.⁴⁴ It is necessary to adopt responses with the One Health approach, and global health security must recognize the importance of also strengthening environmental and animal health systems, since it has been demonstrated that where there is capacity in the 3 systems, progress is made in the control of possible outbreaks and epidemics.⁴⁹

However, the literature from Argentina, Chile, and Ecuador did not report activities of the epidemiological surveillance pillar. The lack of literature on these activities may be explained by the nature of the evidence on epidemiological surveillance which, being of a local order, is not reported in indexed literature but generally in gray literature. Likewise, this gap in the literature could be attributed to the low investment in science, technology, and innovation in Latin American countries (between 0.6-0.7% of Gross Domestic Product),⁵⁰ which in turn hinders the publication of scientific evidence.

The COVID-19 pandemic exposed shortcomings in national responses and weaknesses in assessment frameworks, with high- and low-income countries showing that plans must be comprehensive, cross-sectoral, and supported by global coordination.⁵¹ Although complying with the activities listed in WHO international guidance is important, it is also true that these assessment frameworks have been undermined by their failure to consider the role and complexities of social, economic, political, regulatory, and ecological factors that enable effective preparedness and response.⁵² This review evidenced the efforts of Latin American countries to meet WHO standards in each of the pillars of the response; however, these were overwhelmed by the magnitude of the pandemic that surpassed the capacities of health systems and prevented the containment of its spread.

Latin American countries need to strengthen and improve existing surveillance systems with robust information systems that allow reliable monitoring of data in real time. They should also develop capacities in metagenomics and molecular diagnostic methods, with greater deployment of laboratory infrastructure and specialized human talent that will allow early detection of new infectious agents to guide public health response strategies. Regional disparities in the distribution of health services, especially highly complex services, should be reduced, seeking equitable access, especially for vulnerable groups.

Limitations

Since the nature of scoping reviews is to map literature, no quality assessment was performed in this review. Although rigorous search strategies were implemented in 4 bibliographic databases, this review may have missed studies that could have been identified through other databases. Most of the included studies were based on data from the early stages of the pandemic.

Conclusions

This is the first review that addresses the importance of documenting how prepared the countries of the region were to face a pandemic such as COVID-19 considering WHO standards and guidelines. Sixty-three percent of the literature reports concentrated on the activities of the coordination pillar at the country level. In Latin America, the literature showed reports of heterogeneous responses to the pandemic; 4 of the 6 countries coordinated their response at the central level with the establishment of management teams and the activation of emergency operations centers for the coordination of the response.

However, this review identified a gap in the literature on laboratory and diagnostic pillar activities such as virus sequencing and prioritization of tests in diagnostic failure scenarios. There was also a lack of literature reporting on epidemiological surveillance pillar activities in Argentina, Chile, and Ecuador.

Supplementary material. To view supplementary material for this article, please visit <http://doi.org/10.1017/dmp.2024.142>.

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