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# The Regional Geopolitics of Health Crises in Latin America

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## Summary

The health crisis that Latin America is currently experiencing due to the spread of dengue fever highlights various structural problems that have not been resolved historically and have accumulated over the last four years. Therefore, this article analyzes how the region reacted to COVID-19, and then compares how many of those errors, inadequacies and inefficiencies, which occurred between 2020 and 2021, have reappeared in 2023 and 2024, although now in relation to dengue. The text focuses on regional and geopolitical aspects and analyzes the failure of crisis management by the limited Latin American integration mechanisms, as well as the weakness of cooperation and coordination policies at the regional, subregional or even bilateral level to solve challenges that involve the entire continent.

**Keywords:** Latin America, pandemic, dengue fever, integration, cooperation.

## Introduction

Four years after the COVID-19 crisis, Latin America is once again facing a new health crisis, this time involving dengue fever. Although this one is smaller, less extensive and less dangerous than the previous pandemic, it highlights several unresolved problems that have accumulated since 2020. This article analyzes how the region reacted to COVID-19, and then compares how many errors, inadequacies and inefficiencies committed between 2020 and 2021 have reappeared between 2023 and 2024, in relation to dengue. But, above all, the text focuses on regional, even geopolitical aspects, to interpret the failure in crisis management of the limited Latin American integration mechanisms, as well as the weakness of cooperation and coordination policies at the regional, subregional and even bilateral levels.

In 2020, Latin American countries showed a marked lack of coordination in the face of the spread of the virus, with unilateral and dissimilar responses, this was repeated during the subsequent vaccination process in 2021. The dominant note was the lack of regional leadership, which neither Brazil nor Mexico wanted or knew how to exercise. In Brazil, due to the denialism of Jair Bolsonaro and in Mexico, due to the ambiguities and constant rectifications of Andrés Manuel López Obrador (AMLO). Instead of a coordinated and multilateral response, unilateralism prevailed, generating great differences and distortions between countries when acquiring and applying vaccines. The division deepened Latin America's weakness and diminished its international negotiating capacity.

In the current health crisis, linked to the spread of dengue, the region has made mistakes similar to those of the COVID-19 pandemic between 2020 and 2021, related to the lack of coordinated national measures to address the challenge more efficiently. Regional integration mechanisms have once again shown their limitations in the face of the emergence of various crises of a global or regional nature. In health issues, as in other sectoral areas such as the environment or security, Latin America

lacks an integration framework capable of providing regional responses to common challenges. It is normal for each country to promote measures or take initiatives that are not coordinated with the others, in response to its own interests, without a vision of the whole.

### Development

Latin American integration, marked by its failures and limitations, is an old topic in regional history. Its origins date back to the 1950s and are embodied in a wide variety of institutions created for this purpose, although none of them has become a lasting, autonomous body capable of perpetuating itself and bringing regional interests to the world stage. Nor has it been able to coordinate its efforts in security, economics, trade or health. As a 2022 report published by Michael Reid in *The Economist* pointed out, the instruments of integration and cooperation in Latin America are showing signs of exhaustion. Most survive thanks to bureaucratic inertia.<sup>2</sup>

Latin America continues to be a fragmented region, rather than divided into two antagonistic blocs. It is separated into multiple pieces that are difficult to coordinate with each other. The proliferation of regional or trade integration schemes - Community of Latin American and Caribbean States (CELAC), Union of Southern Nations (Unasur), Forum for the Progress of South America (Prosur), Southern Common Market (Mercosur), Andean Community (CAN), Central American Integration System (SICA), Bolivarian Alliance of the Peoples of Our America (ALBA), Pacific Alliance, Caribbean Community (Caricom), and many others -, and the impossibility for them to cooperate efficiently among themselves. In this process there is a permanent flight forward, in which the new instances do not resolve the preceding situations nor those for which they were created. Given this reality, Latin America lacks a sphere of integration capable of providing effective regional responses to common challenges, be they general, commercial or sectoral. Each country usually promotes uncoordinated measures or initiatives in response to its own national interests without a regional vision.<sup>3</sup>

The integration deficit in Latin America has seen two significant chapters in recent years, both related to health crises: COVID-19 (between 2020 and 2021) and dengue (between 2023 and 2024).<sup>4</sup> Both show the need for regional institutions capable of providing common and coordinated responses to cross-border challenges. Today there is a health issue, but tomorrow there may be other issues that threaten economic and financial balances, or the survival of States in the face of the challenge of climate change and organized crime.

As Rafael Castro Alegría and Detlef Nolte point out, "Latin American regional organizations were ill-prepared to respond to the stress of the pandemic". Both the only organization representing Latin America and the Caribbean as a whole, Celac, and that including all South American countries, Unasur, were paralyzed or in the process of disintegration. The members of Mercosur were in disagreement over the future of the organization, while its social component had been weakened. Along with Unasur, the South American Health Council (CSS), which promised to be one of its greatest founding achievements, disappeared. The non-existence of the CSS directly affected the regional capacity to confront COVID-19. This undoubtedly increased subregional fragmentation. Thus, "the pandemic hit Latin America at a time of institutional weakness of its regional organizations".<sup>5</sup>

### The COVID-19 Crisis

In 2020, Latin American countries showed a lack of coordination in the face of the spread of the virus, with unilateral and different responses, which was repeated during the process of vaccination against COVID-19 in 2021. The dominant note was the absence of regional leadership, as well as of a coordinated multilateral response. Instead, national selfishness predominated, leading to major differences in vaccine procurement and injection. This division deepened Latin America's weakness and negotiating capacity.<sup>6</sup>

The vaccine procurement process, in 2021, was affected by five important characteristics: (1) the secondary role of integration organizations in coordinating negotiations with pharmaceutical laboratories or those governments that developed vaccines (China and Russia), (2) the absence of bilateral and/or subregional coordination or cooperation mechanisms, (3) the impact of global geopolitical struggles at the regional level, (4) domestic and international politicization surrounding vaccines, and (5) the heterogeneity of national strategies.

After almost 75 years of unsuccessful efforts to advance regional integration in Latin America, the COVID-19 and dengue pandemics have highlighted the absence of adequate regional, subregional or bilateral coordination and cooperation mechanisms to address such challenges. Despite the fine words, the COVID-19 crisis had no lasting effect in this regard. Collaboration on health policies is practically non-existent, as has been seen in the difficulties inherent in the development of research or the design and production of vaccines.

The great exception is the Pan American Health Organization (PAHO), although given its organizational nature it has a limited margin of action with respect to the sovereign decisions of the countries. On the other hand, the integration organizations do not have the appropriate policies to face these challenges and the tools for regional coordination have not been developed. According to María Victoria Álvarez, "the dismantling of bodies that could have served as a platform for working together with an important background in the matter, such as Unasur, Brazil's denialism, and the weakness, fragmentation and/or ideological polarization of subregional schemes, whether relatively new -Prosur or the Pacific Alliance- or mature, such as CAN or Mercosur," all "this deprived the countries of the region of a greater response capacity. The meager coordination exhibited was barely manifested in a few minor and low-flying initiatives".<sup>7</sup>

The negotiation and acquisition of vaccines once again highlighted the limits and shortcomings of coordination and cooperation mechanisms at the regional level beyond the usual mechanisms of integration institutions. Both continental (Celac and ALBA) and subregional organizations (Unasur, Prosur, Mercosur, Pacific Alliance, CAN and SICA) played a minor and peripheral role. Nor did they know how to coordinate a joint response to facilitate access to the drug and conduct negotiations with laboratories and pharmaceutical companies. This failure provoked bitter reflections among some leaders, such as that of Argentina's Alberto Fernández: "Sometimes I think that if we had been closer and more united, we would have been able to cope better".<sup>8</sup>

The peripheral role of supranational organizations led most Latin American governments to promote a mixed strategy to purchase vaccines, either by acquiring them on their own, through direct negotiations with pharmaceutical companies or

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certain governments, or by entering the COVAX program (Global Access Fund for Vaccines COVID-19), launched by the World Health Organization (WHO) and the European Union (EU).

The only Latin American coordination initiative that took on a certain entity, although in the end it did not materialize into anything concrete, was the one promoted by Mexico and Argentina, together with the Slim Foundation. The idea was to manufacture and distribute the Oxford-AstraZeneca University vaccine, making it available to the Celac countries. After its approval in Argentina (December 2020) and Mexico (January 2021), companies from both countries promised to produce and prepare for distribution 250 million doses in Latin America. These would be manufactured by the Argentine laboratory mAbxience and packaged by the Mexican company Liomont, although it was not possible to move beyond the initial stages.

Therefore, beyond certain minor measures, there were no significant steps to coordinate activities related to the pandemic, such as the purchase or production of vaccines. Celac, CAN, the Pacific Alliance, Mercosur, ALBA and Prosur were largely absent during the pandemic when it came to problem solving. Only Caricom and SICA acted diligently and made efforts to coordinate joint actions to renegotiate debt and request long-term technical support from the Inter-American Development Bank and the World Bank.<sup>9</sup> Caricom and SICA member states also made massive joint purchases of medical supplies to obtain better prices and deployed multidimensional actions covering health, risk management, trade, finance, security, justice, migration, gender, scientific research and food security.<sup>10</sup>

**Latin America in the Vaccine Geopolitical Struggle.** Latin America was immersed in the geopolitical struggle for the search of the vaccine and also in its production, marketing and distribution. This affected the Chinese (Sinovac, CanSinoBIO and Sinopharm) and Russian (Gamaleya and VECTOR) laboratories versus those of the United States (US) and the EU (Moderna, Pfizer, AstraZeneca, Janssen, Johnson & Johnson and Novavax). China and Russia planned to use the situation to gain international influence and prestige (soft power) by supplying countries with scarce financial resources and difficulties in accessing vials.

The massive purchase of vaccines by the U.S. and the EU initially left middle- and low-income countries without the necessary vials. This situation allowed them to Beijing and Moscow to increase their influence. Russia succeeded in getting Sputnik V produced in Brazil and Argentina, and began vaccinating with it in December 2021. Proof of the important role Russia assigned to its vaccine is that the Sputnik portal (whose name is a mere coincidence), one of the main Russian propaganda centers, focused on showing the successes of the product promoted by the Kremlin in the face of other people's problems.

However, this move showed, in the medium term, major limitations. China decided to become the major global supplier for countries with low purchasing capacity. President Xi placed vaccines at the center of his international strategy, considering them a "worldwide public good", and made them available to those who requested them. Faced with vaccine shortages and delays, Brazil began to distribute six million doses of Sinovac, manufactured by the Instituto Butantan of São Paulo, which is in charge of producing and distributing them for the rest of Latin America. Chile's Public Health Institute approved the use of the same vaccine.<sup>11</sup>

**The Politicization of Vaccination.** The acquisition of vaccines and the choice of which one to opt for sparked discrepancies and controversies in several countries, evidencing the fragmentation, polarization and absence of consensus on public policies in much of the region. The division was not only regional, but also occurred within countries. In Brazil, vaccines became a political and electoral weapon ahead of the 2022 presidential elections. Bolsonaro sustained an anti-vaccine and denialist strategy, while many governors and the opposition insisted on leading vaccination campaigns. In Mexico, AMLO's stance, sometimes close to denialism and against confinements, provoked political confrontations.<sup>12</sup>

**Heterogeneity of Vaccination Plans.** The fragmentation of Latin America led to a great variety in the agreements signed with laboratories and also when negotiating with one or another company. The pace of negotiations varied from one country to another. Something similar happened with the start of vaccination. If in the EU the process began in a coordinated manner in the 27 member countries, on December 27, 2020, in Latin America everything was slower and more heterogeneous. Some countries began inoculation in January 2021. Soon after, Mexico, Chile, Costa Rica and Argentina completed one month of vaccinations, while others (Uruguay, Paraguay and Guatemala) had not yet signed any agreement with laboratories or only began to do so in the second half of the month (Brazil and Panama).

The two major regional powers, Brazil and Mexico, followed different strategies and signed different agreements. Mexico began by vaccinating with Pfizer-BioNTech, but faced with delays in supply, they opted for Sputnik V, CanSinoBIO and AstraZeneca. Brazil maintained a particular strategy, different even from that of its Mercosur partners, especially Argentina.

Differences between partners also occurred in other areas. Central America, with one of the oldest regional integration processes (dating back to the 1950s), showed signs of heterogeneity and lack of coordination to promote vaccination. Some Central American countries were among the first to vaccinate (Costa Rica), while others, such as Guatemala, had not yet begun negotiating with pharmaceutical companies by January 2021.

In the negotiations with the Western laboratories, it was not only government initiative that counted, but also the confidence that each government inspired, in relation to its solvency, debt capacity and legal security. For example, the guarantees (trust) requested from Argentina and Chile were very different. Chile closed agreements to vaccinate its entire population (18 million inhabitants) by mid-2021 and started vaccination on December 24 of that year, with the Pfizer-BioNTech vaccine, and committed another two million doses of Sinovac. It also signed contracts with AstraZeneca-Oxford and Janssen. For its part, Argentina was unable to conclude any agreement with the Western laboratories and its final margin of action was reduced to acquiring the Russian vaccine.<sup>13</sup>

The only hemispheric health agency, PAHO, created in 1902, even before WHO, played an important role, but with great limitations. PAHO emerged from the Pan-Americanism of the second half of the 19th century. It is made up of 35 countries, including the U.S., Canada and Cuba, and is the world's leading international organization in the field of health. The role was important, but it was constrained by the fact that it lacked sufficient competencies to become an agency with the capacity to coordinate efforts. Its role was important, although it was hampered by the fact that it lacked sufficient competencies to become an agency with the

capacity to coordinate efforts.<sup>14</sup>

During the pandemic, PAHO was the only body with a regional organization capable of providing some transnational coordination. However, its capacity to centralize decisions was very limited due to its historical limitations: health decisions are made nationally, which leads to a high fragmentation of responses, as was the case with COVID-19 and dengue. In addition, PAHO lacks coordination mechanisms or coercive intervention instruments to establish common and general guidelines. Its final achievements were reduced to issuing a first epidemiological alert early, on January 15, 2020. In addition, its Department of Health Emergencies monitored "the epidemiological evolution of the situation closely" and recommended that national authorities systematically monitor the WHO Event Information site.<sup>15</sup>

During the pandemic, PAHO provided technical cooperation through a wide range of activities at the national, subregional and regional levels. At the regional level, it co-managed the purchase of vaccines through the Revolving Fund that PAHO has had since 1977, which operated as one of the procurement channels linked to the COVAX mechanism, which recognizes PAHO Member States as a unified bloc. It also provided economic and financial support to countries with fewer resources for the purchase of medical supplies. PAHO worked to systematize and analyze the threats posed by the pandemic, developing different indicators. In a context of financial difficulties, it managed to mobilize additional resources thanks to its appeal to donors, which enabled it to receive 131.5 million dollars from international financial institutions for the purchase of essential supplies and equipment.<sup>16</sup>

### The Dengue Crisis

In the current health crisis, linked to the spread of dengue, Latin America has made similar mistakes to those experienced during COVID-19, especially in terms of the adoption of coordinated measures by countries to face the challenge of the pandemic more efficiently.

Dengue fever most commonly affects tropical and subtropical regions. WHO describes it as a viral infection transmitted by the bite of the *Aedes aegypti* mosquito, although various structural causes favor its spread. These include deficits in physical infrastructure (housing and urban), in social conditions (poverty and inequality), in investment in citizen education to deploy prevention policies and in the design of a health prevention model on a regional scale through coordination and cooperation agencies.<sup>17</sup>

Most people who contract it are asymptomatic and improve within one to two weeks; however, more severe cases may require hospital care or even become fatal. Dengue poses a new regional challenge, as was COVID-19. Nature magazine points out that the situation will worsen in the coming years and by 2039 the infection could spread to almost all of Brazil and Mexico, the two largest countries in Latin America.<sup>18</sup>

In order for Latin American countries to more effectively combat the virus and the structural causes that favor its expansion, greater coordination, cooperation and intergovernmental collaboration at the regional level would be necessary. This would make it possible to develop a protocol for combating the pandemic at various levels, including the promotion of public-private partnerships. According to PAHO, the cumulative incidence up to May 2024 was 775 cases per 100,000 inhabitants, a figure

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much higher than in other years. In fact, there has been an increase of 243% compared to the same period in 2023, and 445% over the average of the last five years. The year 2023 saw the highest number of dengue cases in Latin America, with more than 4.5 million new infections. The situation worsened in 2024, with more than 9 million cases in June. However, this is not a phenomenon confined to Latin America and is becoming more and more common in the region. According to WHO, in the first four months of 2024 there were 2 million more cases worldwide than in 2023.

**The Geography of Dengue in Latin America.** Dengue outbreaks used to occur three to five years after the last epidemic, although recently its recurrence has intensified. The summer months are the most ideal for the spread of the disease, due to the heat and humidity during the rainy season, which favor mosquito breeding and the spread of the disease. However, the effects of climate change and high temperatures have favored transmission in any season.<sup>19</sup>

In the year 2024, dengue has become a regional challenge, which could soon become a structural problem. This time, the current outbreak began in the southern summer, in the Southern Cone, and then spread across the Andes. By the middle of the year 2024, everything pointed to the virus reactivating in Mexico during the northern hemisphere summer and increasing its incidence in Central America, where it was already high.

**Table 1:** Incidence of dengue fever in Latin America by subregions

Subregion	Increase compared to 2023	Most affected country
Central America and Mexico	92 % compared to the same period in 2023 and 155 % above the average of the last 5 years.	Mexico grew 354 % over 2023 and 357 % over the previous 5 years.
Caribbean	459 % over 2023 and 552 % over the average of the last 5 years.	Dominican Republic grew 442 % over 2023 and 320 % over the previous 5 years.
Andean Region	37 % compared to 2023 and 211 % of the promise of the last 5 years.	Peru grew 375 % over the previous 5 years
Southern Cone	The region that reported the most cases. 244 % compared to the same period in 2023 and 422 % compared to the average of the last 5 years.	Argentina, more than 1,387 % over the previous 5 years.

**Source:** Prepared by the authors with PAHO data.

Until July 2024, the highest incidence had occurred in the Southern Cone, especially in Brazil, which was facing the worst dengue epidemic in its history. The Brazilian Ministry of Health confirmed at the end of May that five million cases had been exceeded. The previous maximum peak was recorded in 2015, with 1,580,000 cases. The figure was a record since 2000, when the historical series began. Since the beginning of 2024, more than 2,800 deaths have accumulated. The other Southern Cone countries were also experiencing the worst dengue pandemic of all time, and last March, Brazil, Argentina and Paraguay accounted for 85% of the cases in the entire region. In June 2024, Argentina accumulated more than 520,000 cases, with 355 deaths. In year-on-year comparison, the outbreak was 3.25 times higher than in

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2023. Uruguay, a less affected country, also set a record in June: 1,090 infections nationwide. Paraguay, meanwhile, had more than 45,000 cases and 120 deaths.<sup>20</sup>

Since the second quarter of 2024, dengue has been reactivated in the Andean zone, especially in Bolivia, with a preponderance in the Amazonian departments, starting with Cochabamba. In Peru, the government of President Dina Boluarte approved in April an emergency decree with extraordinary economic measures to reinforce the plan that was to counter the outbreak. Then 117 deaths had been recorded compared to 33 in the same period in 2023. Suspected cases also tripled to 235,314 in May, 251% more than the previous year. In Ecuador, from January to May 2024, there were more than 27,000 infections, almost the same number as in the whole of 2023 (27,838 cases). Colombia went from 131,784 cases in 2023 to 147,135 between January and May 2024. In Chile, where climatic conditions are different, dengue cases started later, being all imported.

The disease has spread in the same period outside the Southern Cone, especially in Central America. Despite the fact that the peak season for dengue fever is the end of the year, Guatemalan authorities declared a national health emergency in April due to the epidemic, which had caused 12 deaths and more than 17,000 cases so far this year. Dengue cases in Guatemala were 4.9 times higher than those recorded in 2023. Honduras declared a national health emergency in June after an increase in hospitalizations and deaths due to dengue while Panama accumulated more than 5,000 cases.

In the second half of 2024, the virus was expected to spread to Mexico, Central America and the Caribbean, coinciding with the summer. These countries were facing the onset of the season of greatest circulation of the virus, driven by the heat and rains, which favor its propagation. Its effects were seen from the beginning of the year. In 2024, there were 5,439 cases in Mexico, five times more than in the same period of the previous year, when it did not exceed 1,000. Dengue cases increased in Mexico by 458 % annually, to more than 55,000. As of May 31, the Dominican Republic counted 7,574 cases. In 2023, the Ministry of Health confirmed 27,972 more cases than in 2022. And at the end of June, the Cuban Ministry of Public Health announced that it is keeping the health system on alert due to the increase in dengue cases in 9 of the 15 provinces.

**Table 2:** Declaration of a state of emergency

Country	Declaration of a state of emergency
Argentina	November 2023
Paraguay	November 2023
Brasil	January 2024
Perú	February 2024
Guatemala	March 2024
Bolivia	April 2024 (Cochabamba)
Colombia	May 2024
Honduras	June 2024

**Source:** Prepared by the authors

**The Efforts to Stop Dengue.** Governments have few short-term solutions available in the fight against dengue. Its spread responds not only to structural factors, but also to environmental factors that favor its expansion and escape its direct competition, such as rising temperatures and extreme weather events, in addition to El Niño and its sequel of rising temperatures and drought. Climate change is one of its obvious causes. The higher the temperature, the faster mosquitoes develop and the more rainfall there is, the more breeding sites proliferate. In recent years there has been a clear increase in temperature and a change in rainfall cycles.

However, in other aspects, public policies are decisive: investment in research (vaccines, cloning of mosquitoes, among others) and training of human capital (doctors, nurses, health personnel). There should also be a commitment to improving regional coordination, although the lack of regional integration structures and institutions is a major obstacle that slows down the introduction of improvements and best practices in the fight against the pandemic, as well as any attempt to increase collaboration, coordination and cooperation among countries.<sup>21</sup>

**Research.** One key to combating the pandemic is research. Precisely, a coordinated regional research effort would save costs, speed up results and reaction times.<sup>22</sup> In fact, pooling academic and research efforts with regional public policies would increase success in the fight against the epidemic. Scientific progress is already being made at the local level, but more coordinated and complementary initiatives are needed to achieve regional effects.

There are some national examples that could be replicated on a regional or subregional scale, but this requires greater coordination, cooperation and collaboration. A group of Brazilian researchers has implemented a method to combat the mosquito that transmits dengue fever: it uses the insect itself as a Trojan horse to spread a larvicide. It is a technique developed by the public Fiocruz Institute, which consists of filling a container with water containing a cloth impregnated with larvicide. Although it does not eliminate mosquitoes, it kills the larvae in the breeding sites. In Peru, they have created an artificial animal in the shape of a toad, which with its movements scares away the insect that does not spawn.

Regional collaboration would be key to boosting the industrial production of modified mosquitoes to combat dengue fever. The World Mosquito Program (WMP) is promoting a project to create *aedes aegypti* mosquitoes with *wolbachia*, a naturally occurring bacterium that about 50% of insects have, but not this mosquito. The bacterium prevents the spread of dengue, since the mosquito may have the virus, but does not transmit it. WMP has been extracting *wolbachia* from fruit flies and injecting it into the eggs of the *aedes aegypti* for more than 15 years. This program has yielded results in Australia, which has already been declared free of dengue, and Indonesia, where the incidence has dropped by 77%.<sup>23</sup> For the time being, this initiative only works in Colombia (with a biofactory in Medellín), Mexico, Honduras, Brazil and El Salvador.

As with COVID-19, the region not only lags in research, but also acts in an uncoordinated manner with regard to vaccines. In the case of dengue, in October 2023, the WHO recommended the use of TAK-003, manufactured by the Japanese pharmaceutical company Takeda. The vaccine is based on a weakened version of the dengue virus. In May 2024, the WHO had prequalified the drug, a process that evaluates the quality, safety and efficacy of drugs. It was the second vaccine to be prequalified by WHO, which recommends administering it to children aged 5 to 15

years in high dengue burden and high transmission intensity settings.

Nevertheless, the region continues to act in a very uncoordinated manner. The vaccine has only been approved in Brazil, Argentina and Colombia and is under regulatory review in other countries, including Mexico. Brazil alone developed a pilot vaccination plan for three million people with Takeda's Qdenga. Meanwhile, Paraguay is still awaiting further experimental results. In Bolivia, the Ministry of Health does not recommend its application and in Argentina, the Ministry of Health issued a communiqué rejecting its mandatory use despite the fact that in April 2023 it recognized its safety, but there is not sufficient consensus to include it in the national vaccination schedule.

**Investment in Human and Physical Capital.** Poverty, together with poor living and sanitation conditions, as well as the deficient physical infrastructure that affect many Latin American cities are causes of the spread of the virus.<sup>24</sup> Rapid population growth and unplanned and accelerated urbanization also play a crucial role in the increase of dengue cases. The feedback of precarious living conditions, with insufficient sanitation and drinking water, exacerbate the problem and create a favorable environment for the proliferation of mosquitoes.

In the 20th century, Latin America urbanized rapidly.<sup>25</sup> Between 1970 and 2000, the urban population increased by 240%. Today, more than 80% of its inhabitants live in cities and, by 2040, the figure will increase to 85%. Accelerated urban growth, without comprehensive planning, has resulted in cities facing serious habitability and sustainability problems. There is also a set of facts that help spread dengue fever, such as the proliferation of substandard housing, precarious settlements, illegal occupation of marginal lands, and the higher economic and social costs of access to basic infrastructure and quality urban goods and services.

These characteristics of Latin American urbanization favor the spread of pandemics. Medium and large cities become epicenters of massive demographic flows. Prolonged journeys in crowded public transportation (buses, trains and subways) facilitate contagion. Something similar occurs with housing, where the coexistence of families with three or more generations in the same small dwelling, even in the same room, further complicates matters.

The region has a large housing deficit. One out of every three families, 59 million people, live in precarious housing, generally small, built with inadequate materials or lacking basic services. Nearly two of the three million families that are formed each year are forced to move into informal housing due to the insufficient supply of adequate and affordable housing. The deficit has increased systematically since 1990.<sup>26</sup>

Inequality stalks Latin American cities. This is manifested in income distribution, but also in housing and access to goods and services (education, health, credit systems, etc.). According to ECLAC, the percentage of extreme poverty in 2023 was 5.2% of the population and poverty was 29%. The Gini coefficient is around 0.45, although several cities far exceed these figures. The difficult social situation complicates the access to housing and increases the number of informal settlements, which is fed by between 20 % and 50 % of the population of Latin America's large cities. Massive migration from rural to urban areas and intra-urban mobility of higher income sectors (from the center to peripheral neighborhoods with gated communities) have reordered the urban space, marked by high levels of socioeconomic and

geographic segregation.

Although dengue is not a disease only of the poor, poverty is the best breeding ground and serves as a springboard for it. In Argentina, for example, the provinces most affected by dengue have the highest poverty rates. The three provinces with the highest incidence (cases per 100,000 inhabitants) are Catamarca (45% poverty and 1,545 cases per 100,000 inhabitants), Chaco (55% poverty in the Gran Resistencia area and 1,499 cases per 100,000 inhabitants) and Formosa (47% poverty and 1,454 cases per 100,000 inhabitants).

The incidence of dengue is much higher where living conditions are poorer: communities with inadequate infrastructure, without safe drinking water or effective solid waste treatment, with open-air dumps, which favor the multiplication of the mosquito. Reducing poverty and improving habitability and access to drinking water would be an effective barrier to contain the spread of the virus. The *Aedes aegypti* leaves its larvae in water, so places where water stagnates after rainfall, in buckets that many poor communities use to store water, or in tires, plastic and other waste strewn on public roads, are the most suitable places for larvae to grow. Social behavior and socioeconomic factors influence the spread of diseases caused by this type of vector. The Department of Tropical Medicine of the Central University of Venezuela studied that people living in shantytowns are 13 times more likely to be infected by dengue than someone living in an apartment or house.

Public policies should provide health services with resources, educate citizens about good habits and improve infrastructures. The link between dengue and social vulnerability is related to the quality of housing, overcrowding, the way water is stored and waste is treated. Added to this are the difficulties in accessing health centers and buying repellents or other ways of keeping mosquitoes away.

This strategy includes strengthening surveillance, early diagnosis and timely treatment. Investing in poverty reduction and in the improvement of physical and human living conditions will result in greater social and health benefits. This involves intensifying efforts to eliminate potential mosquito breeding sites, improving protection against bites, preparing health services for early diagnosis, and educating the population on the need to go immediately to primary health care centers at the first signs of dengue.

Investment to improve infrastructure helps to prevent the virus from spreading. In Argentina, for example, 92% of the population is urban and one in three households have problems in their homes due to lack of connection to basic services, such as drinking water, electricity or sewage. In addition, there is critical overcrowding, with more than three people per room. These problems increase the chances of contracting dengue fever. The last census shows that, although 93% of private homes have piped drinking water, 15% have no access to it and 43% do not have sewage. At the same time, there are large differences between provinces. While in Misiones, 77 % do not have sewers, in the City of Buenos Aires this figure drops to 1.5 %. In Argentina, there was a disordered expansion of cities, which led to the construction and expansion of shantytowns and temporary settlements, on the one hand, and more gated communities (country clubs), on the other. In Argentina's 33 urban conglomerates there are more than 6,000 poor neighborhoods where 90% have no running water, 97% have no sewage system, 99% have no gas and 55% have no formal electricity.

It is essential to invest in human capital (education) to continue training and raising awareness among the poorest population about the need to develop practices such as descacharreo in winter. The descacharreo consists of removing from homes and their surroundings all types of objects that represent a potential mosquito breeding place (any receptacle that can store stagnant water, such as pot holders), so that there are no available places to deposit larvae and that in September/October the eggs do not hatch. Therefore, prevention campaigns, public awareness and school education are key to contain outbreaks.

Brazil is an example of public policies focused on awareness and education. The government distributes dengue vaccines through the public health system, but due to the low number of doses available, their application was initially limited to children and adolescents. However, the age limit was later raised to 59 years, due to the low response of citizens to be vaccinated.

**Commitment to Regional Coordination.** The LIV Ordinary Meeting of Mercosur Ministers of Health, held in June 2024, showed the regional deficits in dealing with health crises. There, the need to develop a comprehensive management strategy to combat the dengue, zika and chikungunya viruses, which has not been in place until now, became apparent. Each country has a particular health situation and must adapt the best strategies in this regard. The key is to foresee environmental control mechanisms and improve laboratory capabilities to diagnose dengue, zika and chikungunya viruses. Paraguay's Minister of Health, María Teresa Barán, pointed out that the country does not work as a regional bloc when it comes to transferring knowledge and experiences between countries and increasing the production of medicines, supplies and health technologies.

The health ministers stressed that, in the case of dengue, as with COVID-19, each State wages war on its own, with little or no coordination, collaboration and cooperation schemes, whether regional, subregional or bilateral. The lack of regional coordination facilitates the spread of the virus, as occurred with COVID-19. Latin America, with only 8.2% of the world's population, had nearly 80 million cases and 1.7 million deaths (28% of the world total). These catastrophic figures have highlighted the need for a coordinated and effective regional response. According to The Lancet, the COVID mortality rate in Latin America during 2020 and 2021 was 1.99, almost double the global rate of 1.04.<sup>27</sup>

**Table 3:** Excess mortality from COVID-19 per 1,000 inhabitants

Region/Global Average	Mortality per thousand inhabitants
North Africa and Middle East	1,33
South Asia	1,28
Sub-Saharan Africa	1,13
Global Media	1,04
Western Europe	0,85
Southeast Asia	0,70
Oceania	0,69

**Source:** Prepared by the authors with The Lancet data.

The health challenges faced by Latin America, first by COVID-19 and now by dengue, have revealed the lack of coordinated responses and solutions at the regional level to face these types of challenges. In the case of COVID-19, Latin American countries responded in an uncoordinated manner to the challenges of the pandemic. Now, again, with dengue, the lack of coordination has been evident. The vaccine has been endorsed by the EU, Indonesia, Brazil, Argentina and Colombia. Currently, there is a regulatory review process in other countries, such as Mexico. The Brazilian government decided to pilot a mass vaccination plan with TAK-003. In this context of lack of coordination, proposals such as the one formulated by a group of former Ministers of Health and academics in the magazine *The Lancet* is in line with the idea of advancing in practical policies of greater coordination, cooperation and regional collaboration in the face of common challenges, in this case health challenges. The idea is to create a Latin American Regional Center for Disease Prevention and Control (LATAM CDC).<sup>28</sup>

Initiatives of this type should have some useful characteristics that would make it possible to avoid the problems that have hindered other attempts at regional integration, such as the excesses of ideology and nationalism, and the deficit of leadership.<sup>29</sup> Since the end of the last century, the excess of ideology has hindered concrete advances in regional integration. While the Chavista left promoted Celac, ALBA or Unasur, the right tried to paralyze these projects with alternatives such as the Pacific Alliance or Prosur. In the end, none of these schemes has been consolidated. Some have disappeared, while most of them barely survive in a state of semi-paralysis.

If they can be developed, the regional integration bodies responsible for coordinating the fight against epidemics should be governed by scientific criteria, creating technical centers of excellence, free from political interference, capable of promoting cooperation and horizontal coordination between countries, training public health professionals and standardizing practices for prevention, preparedness and response to pandemics.

Integration implies relinquishing various national competencies in favor of a supranational body, abandoning those nationalistic impulses that limit or slow it down. To avoid this, a body with supranational competencies should be created, with autonomy to collect and exchange data, to monitor national and regional disease trends in real time, and to develop public health goods and new digital technologies in response to the challenges posed. Above all, it should enjoy sufficient authority to declare states of public health emergencies, which allow for the prompt and effective mobilization of regional resources in a coordinated manner.

Such an initiative requires strong institutional support and regional leadership. The proposed body, the LATAM CDC, should have an inclusive governance structure, similar to that of other existing institutions, and should involve governments, academic institutions, international organizations, the private sector and civil society. Countries with more developed health systems, such as Brazil, Argentina and Mexico, should play a leading role in promoting this project, although at the moment there does not seem to be either the political will or the internalization of the advantages of promoting such an initiative.

### Conclusions

Initiatives to promote greater regional coordination in health matters, most of which are limited or impossible to implement, point to a serious structural problem: there is no regional strategy in Latin America for collaboration, cooperation and coordination in the fight against common health problems, in this particular case dengue fever.

PAHO plays an important but insufficient role, despite its hemispheric scope and because it is not a regional integration body. Its activities include disease prevention, surveillance, health education and the strengthening of health systems. In order to strengthen the above-mentioned values (collaboration, cooperation and coordination), it would be necessary to promote public health policies at the regional, subregional or even bilateral level. This has serious limitations, since PAHO's governance structure, which includes the U.S. and Canada as well as Cuba, is intergovernmental and does not promote horizontal cooperation between countries. PAHO was the only hemispheric agency with sufficient organizational capacity to facilitate some transnational coordination during COVID-19. It would be good if these tasks could be fulfilled again with dengue. The existing limitations, starting with the decentralization of health decisions in Latin America, generated in 2020 a high fragmentation of responses and reduced the effectiveness of coordination mechanisms. PAHO lacked and still lacks coercive intervention instruments to coordinate the different national actors, which limited compliance.

COVID-19 and dengue have demonstrated the need for regional bodies with sufficient organizational capacity to foster transnational coordination, with intervention instruments that can lead common initiatives. Dengue appears as a growing challenge (its mosquito-borne transmission potential has increased by 54 % between 1951-1950 and 2013-2022) and of regional scope. Research published in Nature Communications indicates that by 2039, 97 % of localities in Brazil will be affected by dengue and 81 % in Mexico. The fight against dengue, and any other epidemic, requires the design of regional strategies.

These strategies are essential to achieve a triple virtuous effect: (1) Promote cooperation and collaboration in a way that is not ideologically biased and is not influenced by electoral ups and downs. Based on efficiency to optimize resources, reduce response times, improve public health capabilities, share knowledge and take advantage of individual experience to improve collective capabilities. The idea is to design organizations similar to those existing in the EU and Africa that can provide joint responses to common challenges, facilitate coordination, share resources, strengthen capacities for manufacturing drugs and other health inputs, and negotiate supplies (vaccines, repellents, etc.) collectively. They should also be able to respond rapidly and jointly to outbreaks that may occur in any country in the region. The possibility of unitary action would make it possible to take advantage of existing capacities in each of the Latin American states, minimizing duplication. One example is the PAHO Revolving Fund, which operates as a channel for the purchase of vaccines through which member states are recognized as a unified bloc. (2) Such collaboration can strengthen national health systems, boosting health development through the need to invest in human and technological capital and infrastructure. (3) Finally, by encouraging spaces for dialogue and partnership, horizontal cooperation would contribute to the establishment of a resilient health infrastructure and advance public-private collaboration at the regional level.

The key is to compensate for the deficits of existing regional institutions, opting for a more scientific approach focused on regional cooperation and collaboration, as suggested by some studies such as that of Ruano and Saltalamacchia.<sup>30</sup> An approach oriented to technical issues, accompanied by the creation of professional bodies with sufficient institutional autonomy to promote greater cooperation. This would make it possible to avoid the existing political and ideological disagreements resulting from the current fragmentation of Latin America.

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