

COVID-19 and Other Pandemics: Indirect Effects in Low- and Middle-Income Countries

Series | COVID-19 and other pandemics

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[This document forms part of a series of discussion notes addressing fundamental questions about global health. Its purpose is to transfer scientific knowledge into the public conversation and the decision-making process. These documents are based on the best information available and may be updated as new information comes to light.]

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*Photo: Madagascar, 2020.
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The SARS-CoV-2 outbreak in late 2019 in China, and the rapid spread of the virus across the rest of the world, is a quintessential example of the catastrophic disruption that a single pathogen can unleash on our globalised world. The COVID-19 pandemic has had **devastating consequences** for patients, health workers, health systems and economies. As this multifaceted crisis has reached low- and middle-income countries, the effects of the pandemic have once again exposed weaknesses in the health systems of those countries, as well as structural inequalities with regard to income, security and well-being for hundreds of millions of people. While it is clear that the pandemic is one of the factors **threatening** the health systems of low- and middle-income countries, it could also, paradoxically, present an **opportunity** to rebuild these systems.

This document provides an **introductory analysis of the impact of the COVID-19 pandemic** on various health objectives in low- and middle-income countries, with a focus on the relationship between health, socioeconomic and financial factors. This introduction will be followed by a **series of documents** providing an in-depth analysis of the impact of the pandemic in relation to areas such as malaria, HIV and tuberculosis ●

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1. Other Pandemics: How Have Determinants of Major Diseases of Poverty Evolved?

“Ensuring a healthy life requires looking beyond determinants of health to consider socioeconomic determinants.”

In 2015, the United Nations member states adopted the 2030 Agenda, a cross-cutting roadmap aimed at improving the well-being of people around the world. In the case of Sustainable Development Goal (SDG) 3, “Good Health and Well-Being”, one of the aims is to strengthen the circle linking health, economics and funding. In other words, it is essential to recognise that **health and access to health are determined by structural factors**: ensuring a healthy life requires looking beyond determinants of health to consider **socioeconomic determinants**. In practice, this means **sustainable funding** to address the social and economic factors that contribute to poor health and work towards **universal health coverage** (which encompasses the prevention, detection and treatment of disease, as well as the health personnel required for these purposes).

What did the trend lines for these indicators look like prior to the pandemic and how have they evolved since?

Rising Poverty

According to World Bank data, low- and middle-income countries saw a 2.3% increase in wealth—measured by gross domestic product (GDP) per capita—**between 1990 and 2015**, exceeding the average global growth rate of 1.7% over the same period (*see Table 1*). Although this statistic is an imperfect indicator of the population’s income—one which provides a biased view, due to the extraordinary economic expansion of countries such as China—we have other figures that suggest a **trend towards socioeconomic prosperity** in these countries during the aforementioned period.

Table 1. GDP growth and external debt stocks in low- and middle-income countries (2015-2020).

	GDP growth* (annual %)		External debt stocks (% of GNI**)
	Low- and middle-income countries	World	Low- and middle-income countries
2015	4,3	3,1	24,7
2016	4,6	2,8	25,6
2017	5,1	3,3	25,8
2018	4,8	3,2	25,9
2019	3,9	2,6	26,6
2020	-1,3	-3,2	29

Source: GDP growth (annual %) and External debt stocks (% of GNI) - Low & middle income, World Bank.

*GDP: gross domestic product

**GNI: gross national income

World Bank data on **extreme poverty** (people living on less than \$1.90/day) indicate that this figure stood at 36.2% of the world's population in 1990, before declining steadily to 10.1% in 2015 (see Table 2). However, in **recent years**¹ a **series of shocks**—the delayed impact of the Great Recession on the global South, COVID-19 and the associated economic crisis, concurrent armed conflicts, and climate change—have been blamed for reversing the

three-decade-long trend of declining poverty. Although the existing data do not yet allow for a detailed description of these consequences, it is estimated that as many as 150 million people have been pushed into extreme poverty between 2019 and 2021 alone, 82% of them in middle-income countries.²

Table 2. Total unemployment and poverty headcount ratio in low- and middle-income countries (2015-2020).

	Total unemployment (% of total labour force)		Poverty headcount ratio at \$1.90/day (2011 PPP*) (in millions)	
	Low- and middle-income countries	World	Low- and middle-income countries	World
2015	5,3	5,6	12,1	10,1
2016	5,5	5,6	11,5	9,6
2017	5,5	5,5	11	9,2
2018	5,4	5,3	-	8,7**
2019	5,4	5,3	-	8,4***
2020	6,5	6,5	-	9,1/9,4***

Source: Unemployment, total (% of total labor force) (modeled ILO estimate) and Poverty headcount ratio at \$1.90 a day (2011 PPP) (% of population), World Bank.

*PPP: purchasing power parity

** Pre-COVID-19 projection

*** COVID-19 projection

Unemployment is another vitally important socioeconomic indicator. Although the trend, both globally and in low- and middle-income countries, has been irregular in recent decades, in **2020** unemployment reached an **unprecedented peak** that affected some regions especially severely. One example is Latin America and the Caribbean,² where the rise in unemployment was twice the global average. At the same time, it is estimated³ that the **income loss** of the poorest 40% of the planet is four times that of the richest 40%. According to World Bank data, this **worsening inequality** is due to the fact that certain vulnerable groups (women, people with low educational attainment and wor-

kers in informal jobs in urban areas) have been particularly affected. The existence of a **gender gap** is palpable; while men have had higher COVID-19 mortality rates, women have suffered greater losses in terms of employment, income and personal security. Studies in Latin America⁴ estimate that women were 44% more likely to lose their jobs early in the pandemic and the available data suggest that women are taking longer than men to return to paid employment.

Food Insecurity

As with poverty, **malnutrition** and **food insecurity** are also directly influenced by conflict, extreme and unpredictable

¹ Poverty and Shared Prosperity 2020: Reversals of Fortune. World Bank.

² Unemployment, total (% of total labor force) (modeled ILO estimate). World Bank.

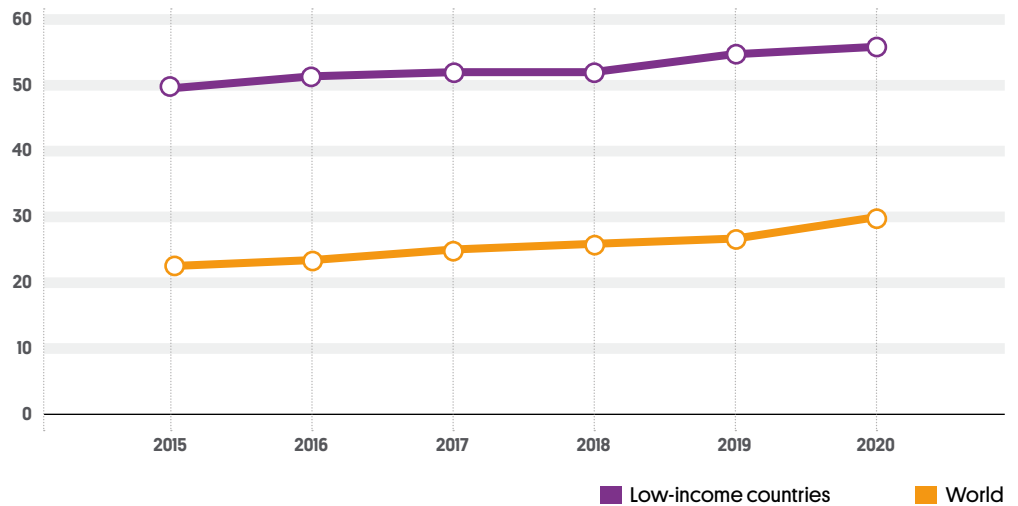
³ Carolina Sánchez-Páramo, Ruth Hill, Daniel Gerszon Mahler, Ambar Narayan y Nishant Yonzan. COVID-19 leaves a legacy of rising poverty and widening inequality. World Bank Blogs. 7 October 2021.

⁴ Caren Grown y Carolina Sánchez-Páramo. COVID-19 casts different shadows over the lives of men and women. World Bank Blogs. 24 June 2021.

climate conditions, and economic downturns like the one caused by the pandemic. Thus, elements such as the aforementioned inequality of income loss,⁵ linked to an increase in food prices as a result of

climate-related factors, as well as an increase in demand and speculation, have led to a 4.5% increase in food insecurity since 2015 (see Figure 1).

Figure 1. Moderate or severe food insecurity in low-income countries (2015-2020).



Source: Prevalence of moderate or severe food insecurity in the population (%), Food and Agriculture Organisation (FAO) of the United Nations.

Similarly, a specific problem in low- and middle-income countries is **maternal undernutrition**, which, in turn, is associated with health problems in children, mainly stunting and other types of malnutrition due to nutritional deficiencies or imbalances. Taking **sub-Saharan Africa** as a case study, the prevalence of undernutrition in this region is twice the global average. In Nigeria, 70% of pregnant women experience food insecurity, which exacerbates clinical complications during pregnancy, during childbirth and in newborns.⁶ Consequently, maternal and infant illness is the leading cause of mortality in these countries and the pattern of mortality is directly linked to poverty.

In the wake of the pandemic, the prevalence of **malnutrition** is estimated to have increased by 118 million people worldwide.⁷ Moreover, the gender gap in the prevalence of moderate or severe food insecurity has grown even wider during the COVID-19 crisis.

Although hard data are currently lacking, the conflict in Ukraine is likely to intensify these trends, driving up prices and hindering the trade of staple grains.

Deterioration of Health Systems

Health systems in low- and middle-income countries are among those hardest hit by the COVID-19 pandemic, due to funding disruptions and the interruption of non-COVID health services.

The Global Fund to Fight AIDS, Malaria and Tuberculosis reports a 65%-75% decrease in **antenatal and under-five medical visits** between 2019 and 2020.⁸ Although the pandemic may be responsible for these service disruptions, shortages of health workers and variations in funding have exacerbated matters in historically fragile health systems. Although maternal and child mortality rates have declined since the 1990s, low- and middle-income countries account for 95% of maternal and child deaths, because the mortality decline in these nations has

⁵ The State of Food Security and Nutrition in the World: Safeguarding against economic slowdowns and downturns. UNICEF, 2019.

⁶ Ana Lucia Pires Augusto, Aléxia Vieira de Abreu Rodrigues, Talita Barbosa Domingos y Rosana Salles-Costa. Household food insecurity associated with gestacional and neonatal outcomes: a systematic review. *BMC Pregnancy and Childbirth*, 20, 229 (2020). <https://doi.org/10.1186/s12884-020-02917-9>

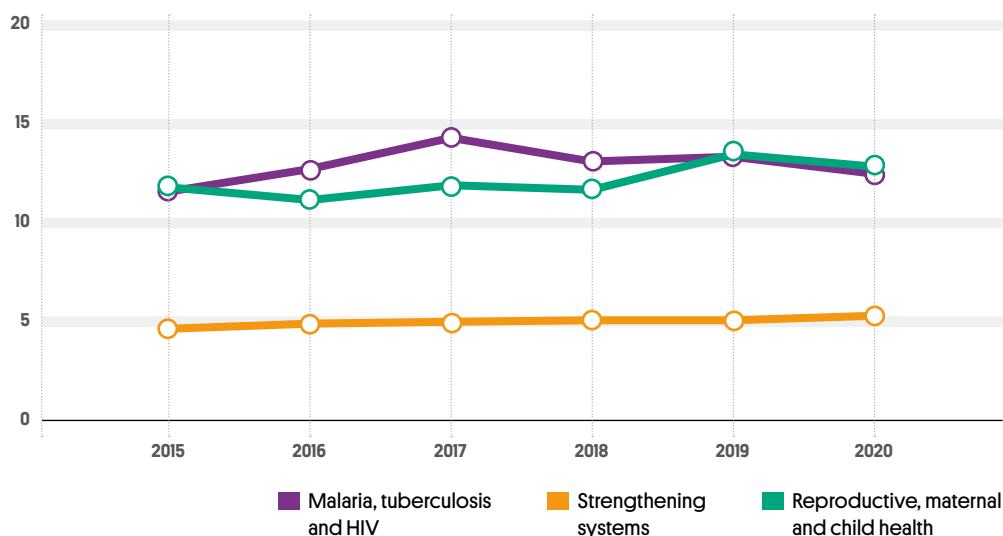
⁷ FAO, IFAD, WHO, WFP, UNICEF. *The State of Food Security and Nutrition in the World 2021*. FAO, 2021.

⁸ The Impact of COVID-19 on HIV, TB and Malaria Services and Systems for Health. The Global Fund, 2020.

been proportionately lower than in the rest of the world.⁹ Moreover, as Figure 2 shows, irregular funding for these vertical

programmes in maternal and child health fell in 2020, with decreases of 6.8% and 2.61%, respectively.

Figure 2. Funding for development assistance in health (2015-2020), in billions (\$).



Source: *Flows of Development Assistance for Health*, Financing Global Health | VIZ HUB. Institute for Health Metrics and Evaluation (IHME).

A decrease in **HIV, tuberculosis and malaria testing** has also been observed. In the case of malaria, the steady increase in funding for vertical programmes has not been sufficient (*see Figure 2*), with cases rising by up to 14 million and deaths increasing by 69,000 between 2019 and 2020. As Table 3 shows, there has been a decrease in service coverage due to interruptions of non-COVID services. In the case of HIV and tuberculosis, funding fell by 5.5% and 3.4%, respectively, over the course of the pandemic (*see Figure 2*). These budget constraints, paired with the impact of COVID-19, have had a direct effect on the number of tests, which have decreased by 59% and 41%, respectively.¹⁰ While tuberculosis service coverage has seen a 12-percentage-point decrease, treatment for HIV

has increased (*see Table 3*). This difference can be partially explained by health coverage and the worsening of socioeconomic determinants, as nearly half of people with tuberculosis face catastrophic expenditure (out-of-pocket expenses exceeding a household's ability to pay).¹¹

⁹ Jennifer Bryce, Victoria Cesar and Jennifer Requejo. *Accountability for Maternal, Newborn & Child Survival*. UNICEF, WHO. 2012.

¹⁰ *The Impact of COVID-19 on HIV, TB and Malaria Services and Systems for Health*. The Global Fund, 2020.

¹¹ *Ibid.*

Table 3. Catastrophic expenditure, universal health coverage and service coverage (2015-2020).

	Catastrophic expenditure for surgical care (% of people at risk)		Universal health coverage – index of service coverage (SDG 3.8.1)				Coverage of treatment and prevention services		
	Low- and middle-income countries	World	Americas	Africa	Asia and Pacific	World	HIV (% of population with HIV on antiretroviral therapy)	TB (% of population on treatment)	Malaria (% of population with access to long-lasting insecticide-treated nets)
2015	31,1	26,3	76	45	63	64	48	54	53
2016	29,4	24,9	-	-	-	-	54	58	54
2017	28	23,8	77	47	66	65	59	58	58
2018	26,6	22,7	-	-	-	-	63	65	56
2019	25,6	21,8	77	69	49	67	69	69	53
2020	24,8	21,2	78,7	47,9	65,4	66	73	57	50

Sources: Risk of catastrophic expenditure for surgical care (% of people at risk), World Bank.

Index of service coverage Data by UN region, WHO, and SDG 1.3.1 Effective coverage, International Labour Organisation.

Results Report 2021, The Global Fund.

Between 2019 and 2020, a decrease in **health coverage** was observed in all regions except Asia (*see Table 3*). Health coverage is highly correlated with **private household spending**. As noted by the Inter-American Development Bank,¹² the pandemic has slowed the decrease in private health spending and more government investment is required. However, although health coverage has worsened, the number of people at risk of catastrophic expenditure has fallen. Specifically, as shown in Table 3, since 2015 there has been a 6.2% decrease in people at risk of catastrophic expenditure in low- and middle-income countries—a higher percentage than the global average. This phenomenon can be partially attributed to the pandemic, which underscored the need for resilient systems; indeed, contributions to such programmes increased by 9% over the past year (*see Figure 2*).

Nevertheless, the World Health Organisation (WHO) has argued that health systems remain fragmented. In any case, although funding is a necessary condition, the pandemic has demonstrated that health systems require a multifaceted approach that includes human resources and logistics ●

¹² Ricardo Pérez Cuevas. *La colisión de la Cobertura Universal en Salud y el COVID-19. ¿Podemos repararla?* IDB, 11 December 2021.

2. Impact of the Pandemic on Governance, Funding and Research in Global Health

“As a result of the lack of universal health coverage, low- and middle-income countries have unequal access to vaccines and treatments.”

The impact of the multifaceted coronavirus crisis on socioeconomic and health indicators is a complex phenomenon comprising multiple interrelated factors. The pathway by which COVID-19 comes to negatively impact such seemingly disparate elements as social coverage and the number of tuberculosis tests is related to three broad areas, which, in turn, are instrumental in shaping global health: governance, funding and research.

Fragile Governance of Health Access

During the pandemic, global health governance attempted to create a roadmap for **effective solidarity among nations** in order to improve the response to COVID-19. This strategy had an ethical rationale, as well as a practical one: in order to overcome a global crisis of such characteristics, the pandemic has to be addressed in all countries, leaving no one behind. To achieve an effective response in any given country, the most important thing was to ensure that the population had **good health coverage** (ideally universal), which requires a prior step: a solid health system. Moreover, due to the nature of the pandemic, an effective response required equitable access to COVID-19 **vaccines**. However, despite initiatives such as COVAX and some other attempts at solidarity among nations, global governance has failed to deliver the necessary pandemic assistance to low- and middle-income countries, which meanwhile have struggled to keep their precarious health systems up and running.

The WHO has identified **universal health coverage** as the biggest health challenge, due to the burden of personal expenditure on patients and the low social protection provided by states. Universal health coverage is developed within the framework of SDG 3 and therefore requires multilevel

and multistakeholder governance in order to become a reality.¹³ According to the WHO,¹⁴ **5 billion people will not have access to health care in 2030**. Health care access is highly correlated with private household spending. Before the pandemic, out-of-pocket expenditure was \$180 per capita,¹⁵ a figure on par with government investment in health (\$232.50 per capita). Although more recent data are not available, this trend has once again become apparent in the response to COVID-19. It is therefore not surprising to see low and uneven social protection figures across different regions. Whereas 61% of the population has at least one social protection benefit in Latin America and the Caribbean, this figure is 13% in sub-Saharan Africa. This exemplifies the **lack of protection for patients** arising from **poor coordination and lack of funding** for universal health coverage.

As a result of this lack of universal health coverage, low- and middle-income countries have unequal access to **vaccines and treatments**. This is amplified by poor coordination among these countries, which creates problems when it comes to negotiating with key stakeholders. Many countries are currently relying on **COVAX**, but delays in vaccine distribution have revealed the weaknesses of this mechanism.¹⁶ Further complicating matters are the logistical challenges of distribution, in terms of both facilities and staffing, with sub-Saharan Africa being the most affected region. Several initiatives have attempted to find solutions to this lack of coordination, including the **WHO Hub for Pandemic and Epidemic Intelligence** and the ongoing discussions around a **treaty on pandemics**. While this institutional development exercise is welcome, its outcomes remain unclear.

¹³ The Sustainable Development Goals Report. United Nations. 2019.

¹⁴ Aumentar los fondos en cooperación y ayuda humanitaria, la otra vacuna contra la COVID-19. Médicos del Mundo.

¹⁵ Out-of-pocket expenditure per capita, PPP (current international \$) - Low and middle income. World Bank.

¹⁶ Alicia Bárcena, Mario Cimoli, Raúl García-Buchaca y Sally Shaw. Lineamientos y propuestas para un plan de autosuficiencia sanitaria para América Latina y el Caribe. United Nations, 2021.

“The lack of financial resources (which also implies a lack of human and logistical resources), coupled with an increase in needs, necessarily leads to a major negative impact on health indicators.”

“Despite the enormous success of health research during the pandemic, it is essential to reflect on the dynamics of power and access that existed prior to COVID-19, which have been further exposed by this crisis.”

Underfunding of Services and Treatments

Alterations in **vertical programme funding** during the pandemic have exemplified the connection between funding and the medical challenges facing individuals and health systems. As mentioned above, while funding for vertical programmes in **maternal and child health** increased from 2015 to 2019, by 2020 it had decreased.¹⁷ A similar scenario has been observed in the case of **tuberculosis** and **HIV/AIDS**. Although funding for vertical programmes increased between 2015 and 2019, during the pandemic it fell by 5.5% for tuberculosis and 3.4% for HIV/AIDS.¹⁸ Moreover, all of this has transpired against the backdrop of **underfunded public health systems** that force families to incur **out-of-pocket** expenses. It is therefore unsurprising that nearly half (47%) of people with tuberculosis face **catastrophic expenditure**.¹⁹ A study in Vietnam, for example, found that 63% of families affected by tuberculosis experience this phenomenon. The lack of funding, amplified by the disruption of non-COVID services, is therefore an important factor in health care and prevention.

Funding for vertical malaria programmes and the strengthening of health systems has been on the rise since 2015. Unlike the programmes mentioned above, vertical **malaria** programmes saw a 7.5% rise in funding in 2020.²⁰ Even so, cases and deaths increased between 2019 and 2020 due to disruptions in health access and in the distribution of preventive tools related to COVID-19 emergency measures.²¹ Funding for the strengthening of health systems increased,²² thanks to which many governments shored up the resources allocated to their health systems. In Brazil, for example, the budget was reoriented to allocate additional health-sector funds to subnational governments.²³

As we have seen, this **lack of financial resources** (which also implies a lack of human and logistical resources), coupled with an increase in needs, necessa-

rily leads to a major negative impact on health indicators. The increase in structural funding for health systems has not been sufficient to cover pandemic-related needs, let alone to make up for deficiencies generated by the weakening of vertical programmes.

Inequitable Access to Research Results

During the pandemic, investment in health research, development and innovation has soared. This, together with unprecedented coordination and collaboration between public and private stakeholders in different nations, has led to **historic achievements in the creation of health products and techniques**. The most famous example is the COVID-19 vaccines, which were developed in record time with very high levels of scientific evidence. Despite the impact of “infodemics”, which are responsible for much of the public’s distrust of research, for the vast majority of the population, the vaccine represents a monumental vindication of science.

Despite the enormous success of health research during the pandemic, it is essential to reflect on the dynamics of power and access that existed prior to COVID-19, which have been further exposed by this crisis. The most obvious problem is **inequity in access to the products of innovation and research**, such as the SARS-CoV-2 vaccine. While high-income countries have very high rates of vaccination—and most unvaccinated people in these countries are unvaccinated by choice—vaccination rates in many low- and middle-income countries have not reached the target of at least 20% established by the COVAX mechanism. This lack of access is due to **various factors**: difficulties in the negotiation and purchase of vaccines, hoarding by rich countries, complications with in-country vaccine distribution, and the limited scope of global health governance mechanisms. Moreover, this science is partly funded by public money, but it remains the exclusive property of the pharma-

¹⁷ [Flows of Development Assistance for Health](#). Financing Global Health | Viz Hub.

¹⁸ *Ibid.*

¹⁹ [The Impact of COVID-19 on HIV, TB and Malaria Services and Systems for Health](#). The Global Fund, 2020.

²⁰ [Flows of Development Assistance for Health](#). Financing Global Health | Viz Hub.

²¹ [World malaria report 2021](#). WHO. 6 December 2021.

²² [Flows of Development Assistance for Health](#). Financing Global Health | Viz Hub.

²³ Alicia Bárcena, Mario Cimoli, Raúl García-Buchaca and Sally Shaw. [Construir un futuro mejor: Acciones para fortalecer la Agenda 2030 para el Desarrollo Sostenible](#). United Nations, 2021.

ceutical companies and is therefore not freely accessible. Consequently, low- and middle-income countries are not able to manufacture these products. Nor is it easy for them to carry out their own research, due to a lack of funds and specific capacities. This leaves lower-income countries **dependent** on high-income countries and their cooperation and funding mechanisms, which, as we have seen, are not entirely efficient, especially during a health crisis.

There have been **attempts to change this situation**, as the case of **Latin America** shows. The Pan American Health Organisation (PAHO) has announced the creation of a platform to boost regional production of COVID-19 vaccines in the short term. In the longer term, a health self-sufficiency plan, including policies to intensify research, development and innovation, has been approved in Latin America and the Caribbean.²⁴

These efforts will serve to open the global debate at the technical and operational level and to guide technical and financial cooperation policies ●

²⁴ Alicia Bárcena, Mario Cimoli, Raúl García-Buchaca and Sally Shaw. Lineamientos y propuestas para un plan de autosuficiencia sanitaria para América Latina y el Caribe. United Nations, 2021.

3. Conclusions

“As the pandemic eases in high-income countries (thanks in part to vaccine stockpiling), we have an opportunity to help rebuild the health and social protection systems of the world’s most affected countries.”

The COVID-19 pandemic has had a huge effect on the health and economic objectives of all nations, although its impact has been and continues to be particularly severe in low- and middle-income countries. There are a number of **structural and contextual factors** that explain this phenomenon. It is urgent to address these factors from a global health perspective in order to prevent this worsening of indicators from hardening into a definitive loss of the encouraging gains made over the past few decades. As the pandemic eases in high-income countries (thanks in part to vaccine stockpiling), we have an **opportunity** to help rebuild the health and social protection systems of the world’s most affected countries.

The main objective will be to **maintain and progressively strengthen the three key factors** outlined above: **funding, governance and research**. In other words, technical and financial cooperation should be used to strengthen health systems and address structural inequalities in low- and middle-income countries. Strong and resilient health systems will be better equipped to cope with endemic health problems, while also being more effective in future emergencies. As these interlinkages are strengthened, low- and middle-income countries will become less dependent on foreign aid and vertical programmes. Within this framework, other necessary policies include the following:

- **Maintain funding for vertical programmes for various health emergencies**, such as HIV, tuberculosis and malaria. The flow of targeted aid to primary health care must be maintained until local health systems are structurally able to deal with these high-impact diseases.
- **Develop health emergency preparedness and response strategies at the supranational level**, with a global health perspective and a focus on universal health coverage. To alleviate unequal access in current and future health crises, these strategies should be driven by multilevel and multistakeholder partnerships.

- Discuss technical and operational aspects of the **implementation of universal health coverage**, with a view to applying best practices. Initiatives for training health workers and carrying out research and innovation should be promoted at the national and regional levels.
- Through technical and financial cooperation, **promote innovation and research projects** in low- and middle-income countries, with the aim of building capacities that will make these countries independent and efficient both in the maintenance of their health systems and in future health emergencies.
- **Adopt a global health perspective in the conception of health and existing health care systems** that recognises the importance of health in all countries, emphasises the importance of universal health coverage and the social determinants of health, and understands that no one is safe from pandemics and catastrophes unless we are all safe ●


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