A Call for Action: Unlocking the Full Potential of the Health Sector in Latin America and the Caribbean through Greater and Better Investment in Health

April 2020

The case for increasing investments in health and mobilizing domestic resources to achieve universal health coverage in the Latin American and Caribbean (LAC) region has never been stronger. Government support is critical to ensuring the health and prosperity of a country's population. A healthy population itself is a precondition for and an outcome of sustainable development and strengthening the health sector through targeted investments is a core strategy to ensure economic growth across all sectors. Increasing the resources allocated to health should not be seen as an expense, but as an essential investment in the country's most important resource: its human capital.

Greater public investment is needed to achieve political commitments such as universal health coverage. The Pan American Health Organization's (PAHO) member states agreed to increase public health expenditure to six percent of their gross domestic product (GDP) to achieve universal health coverage (PAHO, 2014). However, in 2017, government health expenditure in the region averaged just 4.2 percent of GDP (Figure 1). Three countries, Argentina, Uruguay and Cuba reached the agreed government spending target (WHO, 2019a). In contrast, Guatemala and Dominican Republic have very low shares of government expenditures relative to the size of their economies. In view of the adverse consequences of ill health on overall economic development and poverty reduction, middle-income countries have been urged to undertake fiscal and organizational reforms to ensure universal coverage for priority health interventions (Sachs, 2001). Population health has been directly linked to income growth in developing countries, where investments in health can lead to a more productive, educated, and therefore wealthier population (Bloom & Canning, 2008).

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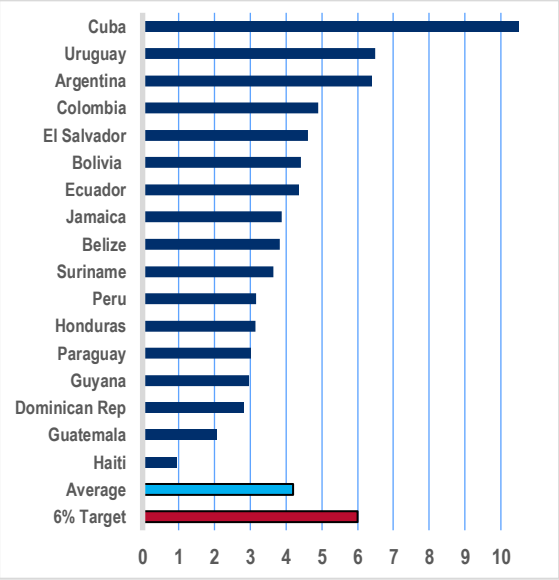
2. **Public spending on health reduces poverty by decreasing out-of-pocket payments and catastrophic health expenditure.**
3. **Investing in health is critical to reducing socioeconomic inequalities.**
4. **Public expenditure on health has a high return on investment.**
5. **Increased spending on low-cost (and cost-effective) interventions can avert future costs.**
6. **Greater public expenditure on health is needed to ensure the sustainability of previous gains in population health.**
7. **Investing in the health system leads to national and global health security.**

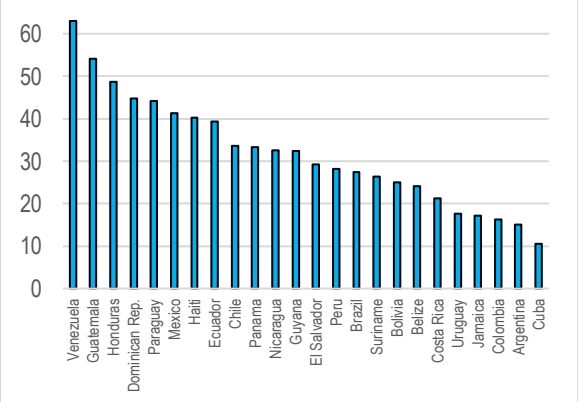
Figure 1. Government health expenditure as % of GDP in 2017, regional average, and 6% target



Source: WHO, 2019a

governments in the region provide an average of 40 percent of a country's health expenditure, out-of-pocket (OOP) payments for health services remain high as a share of total health expenditure (PAHO, 2017a). A study by Xu et al. (2010) found that when direct OOP payments fall below 20 percent of total health expenditures, the incidence of impoverishment drops significantly. Still, 29 countries in LAC are exceeding this 20 percent benchmark (PAHO, 2017a). Figure 2 shows countries in LAC and the OOP payments as a share of total health expenditure. On average, OOP payments represent 34 percent of total health expenditure in the region, ranging from 18 percent in Colombia to almost 50 percent in Guatemala. Reliance on OOPs represents a financial barrier to accessing critical health services and may result in delays in seeking care. Such delays can lead to greater costs to the health system later, once seeking treatment becomes unavoidable.

Figure 2. Out-of-Pocket payments as percentage of total health expenditure in LAC, 2017



Source: WHO, 2019a.

Higher public expenditure not only expands health access but promotes financial protection and prevents poverty. Without public financing, some people, particularly poor and vulnerable groups, will either be unable to access health services and remain chronically ill or will incur high costs in accessing services that may drive them into poverty. Catastrophic health expenditure occurs when OOPs exceeds 25 percent of total household expenditure (PAHO, 2017a). The cost of accessing health services pushes 15 million people into poverty every year in the LAC region (Wagstaff et al., 2018). By increasing expenditure on health, governments can further reduce the financial burden of health services on the country's poorest and most vulnerable populations.

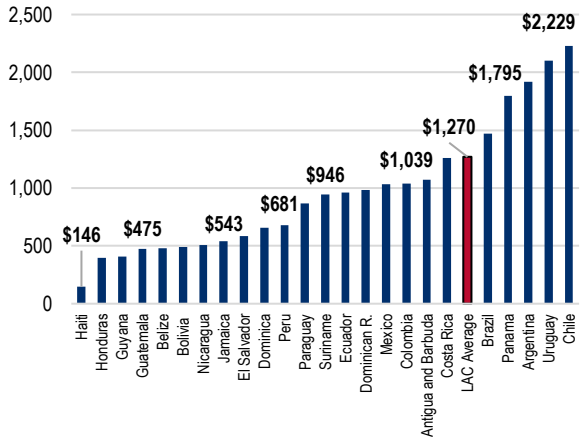
Investing in health is critical to reducing socioeconomic inequalities. Income inequality in the region is high. Ten of the 15 most unequal countries in the world are in Latin America and the Caribbean (UNDP, 2019). The poorest 40 percent of the region's population receives less than 15 percent of total income (PAHO, 2014). Inequality increases poverty and reduces the social benefits of economic development (Amarante et al., 2016). Unequal access to quality health services, in terms of resources, number of services, diagnosis and medicines, results in poor health outcomes and causes economic inefficiency. People who lack access to high-quality health services face lower prospects for employment and are less productive in schools and jobs. Ineffective tax systems and the weak redistributive power of the states have perpetuated inequities. Strengthening governance and developing policies to invest in the health sector will alleviate and prevent deeper inequalities. By reducing health inequalities in access and quality, LAC countries can make significant progress toward meeting not only its overall health but also poverty reduction and inequality related goals.

Public expenditure on health has a high return on investment. Among the contributions of five sectors—education, natural resources, climate, capital, and health—improved health leads to more wealth than the other sectors combined (Yamey et al., 2016). There is a large body of evidence that shows the positive association of health investments with development outcomes (Basta et al., 1979; Bleakley, 2003; Bleakley, 2010; Lucas, 2010). Each dollar of government spending on health has an estimated return of US$4.30 (Reeves et al., 2013). A 2016 meta-study found that the return on investment for public health spending was 14 to 1 (Masters et al., 2017). Delaying public health investments has serious economic consequences. Investing in health now will generate savings to the health system and foster prosperity as well as economic growth.

Increased spending on low-cost (and cost-effective) health interventions can avert future costs. In 2017 alone, HIV, TB, and malaria accounted for almost 70,000 deaths in LAC (PAHO, 2017b; PAHO 2018c; UNAIDS, 2018b; UNAIDS 2018c). These cases are preventable deaths and can be averted through greater investment in health. Although public health expenditure per capita in the LAC region has nearly doubled over the last decade, total health spending per-capita remains low in many

countries (Figure 3[1]). A recent international study estimates that upper-middle-income countries will need to spend an average of US$536 per person to achieve progress toward the health-related SDGs by 2030 (Stenberg et al., 2017). Low-cost and high-impact essential health services targeted toward populations at high risk are the fastest and most effective way to prevent infectious diseases, cut transmission, and reduce mortality. In countries with low health coverage, governments can rapidly improve health outcomes by making greater targeted investments in these health priorities.

Figure 3. Total health expenditure per capita in international dollars, 2017



***Source**: WHO, 2019a.*

Greater public expenditure on health is needed to ensure the sustainability of previous gains in population health. In less than a decade, AIDS-related mortality fell by 12 percent between 2010 and 2017 (UNAIDS, 2019). From 2000 to 2017, TB deaths decreased by an average of 2.5 percent per year in the LAC region (PAHO, 2018c). There is also impressive progress in malaria control in many countries, particularly Paraguay, Argentina, El Salvador, Belize, and Costa Rica. All this progress contributed to an increase of life expectancy in the region (World Bank, 2019). The remarkable gains against priority diseases could be quickly reversed without sustained health investments (Yamey et al., 2016).

Investing in the health system leads to national and global health security. Investing in health system strengthening allows countries to detect and control epidemics by developing early warning systems, national coordination mechanisms, and epidemiological and laboratory surveillance. Universal health coverage is foundational for an effective emergency response and must form part of the global health security agenda. The coronavirus disease 2019 (COVID-19) has put a spotlight on how gaps in the health system leave health workers vulnerable and uncoordinated responses lead to growing epidemics, unemployment, and economic downturn. The HIV, malaria, tuberculosis, and Zika epidemics, and more recently the COVID-19 pandemic, have shown their social and economic impacts in LAC. Epidemic preparedness is not only a health issue, but also an investment to protect the economy (WHO, 2018a). In tackling the COVID-19 pandemic there is a false dilemma of having to choose between saving lives and saving livelihoods; getting the virus under control is, if anything, a prerequisite to saving livelihoods. The International Monetary Fund (IMF) and World Health Organization (WHO) recommend that countries place health expenditures at the top of the priority list. The course of the global health crisis and the fate of the global economy are inseparably intertwined and fighting the pandemic is a necessity for the economy to rebound (Georgieva & Ghebreyesus, 2020).

Conclusions

Even though public health expenditure in the LAC region has been increasing over the last decade, the LAC region shows gaps in access to health services, high levels of out-of-pocket expenditures on health, and inequalities in access to quality services, medicines and diagnostics. Although LAC is a heterogeneous region, there is broad government commitment to universal health coverage and more countries are making efforts to increase the share of government budgets allocated to health. These efforts must be continued and increased to sustain the gains, close the financing gap required to reach universal health coverage, promote financial protection, reduce poverty, and achieve the Sustainable Development Goals (SDGs). Healthy nations spur greater economic growth and any further delays in health investments would come at great cost.

[1] International Dollars: in order to make meaningful cross-country comparisons, it is necessary to translate figures into a common currency. The exchange rates used to translate monetary values in local currencies into 'international dollars' (int-$) are the 'purchasing power parity conversion rates' (PPP conversion factors).

Investing Further in HIV

April 2020

Out of a total population of 650 million, the LAC region has an estimated 2.1 million people living with HIV. Annual spending on HIV programs is US$2.8 billion (UNAIDS, 2019), representing less than 1 percent of LAC's annual health expenditures. There are substantial differences between the Latin American and the Caribbean countries in terms of donor support and potential funding gaps (Figures 4 and 5). Latin American countries show a lower dependence on external financing than their Caribbean peers; however, countries in the LAC region need to mobilize additional domestic resources to achieve ownership of their health programs and reduce health financing gaps. The LAC region has an opportunity to build upon recent progress and further increase domestic investment in HIV to achieve epidemic control and related health goals.

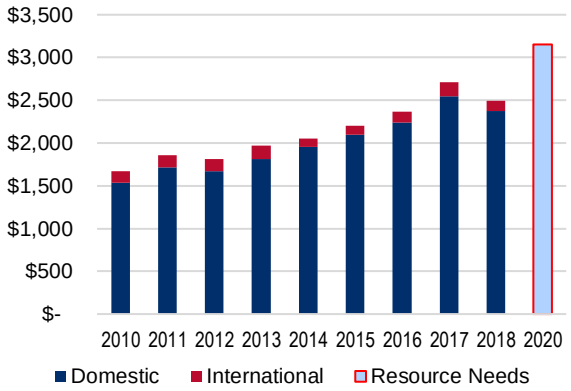
Investing in HIV programs reduces its economic impact. The income of HIV-affected households is about 35 to 50 percent lower than that of non-affected households. In some countries, HIV is associated with a 6 percent increase in the likelihood of unemployment (Yamey et al., 2016). HIV, whether affecting students or caregivers, can also negatively impact educational outcomes including school attendance, behavior, and completion rates (Guo et al., 2012; Pufall et al., 2014), in turn affecting future economic productivity. Public spending on HIV for the provision of preventive and treatment services results in better access to services, protects households from catastrophic expenditures and poverty, and reduces the social and economic impact of HIV.

Investing in HIV has a high return on investment. The projected economic returns of the Fast-Track strategy to end the AIDS epidemic by 2030, a declaration adopted by the United Nations General Assembly, indicate that in the LAC region, HIV programming could yield US$2.6 in benefits for every dollar invested when considering productivity gains during 2017–2030 (Lamontagne, 2019). Spending on treatment yields a particularly high return on investment. For every dollar spent on antiretroviral therapy (ART), LAC countries obtain almost US$4 of returns in economic benefits (Forsythe, 2019). The Copenhagen Consensus (2015) reported that

Why should the LAC region invest further in HIV?

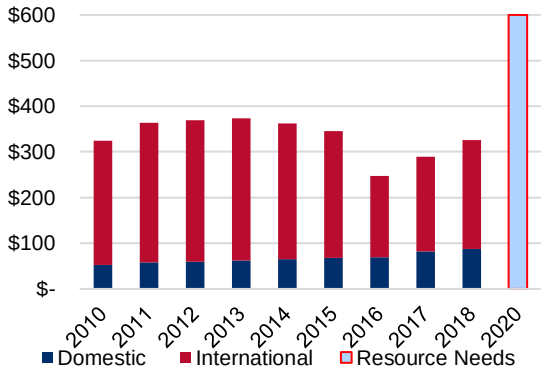
1. **Investing in HIV programs reduces its economic impact.**
2. **Investing in HIV has a high return on investment.**
3. **Further investment is needed to close the HIV prevention gap and avert new infections.**
4. **To sustain progress and meet targets, robust investments are required to close the HIV testing and treatment gaps.**

Figure 4. Trends in total HIV expenditures (2010-2018) and resource needs estimates for the year 2020 in the Latin American region



Source: UNAIDS Financing Estimates, 2019 (calculated in 2016 constant million US$).

Figure 5. Trends in total HIV expenditures (2010-2018) and resource needs estimates for the year 2020 in the Caribbean region



Source: UNAIDS Financing Estimates, 2019 (calculated in 2016 constant million US$).

each dollar spent on HIV treatment generates up to US$10 in returns through better health and higher productivity.

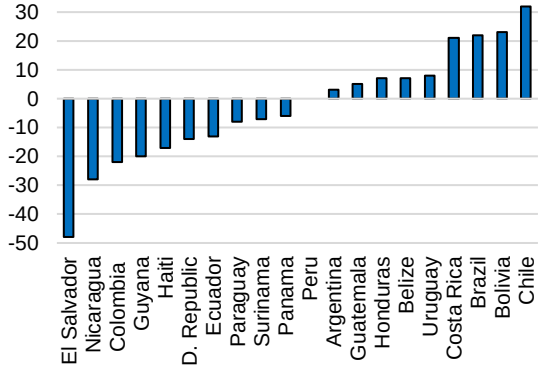
Each dollar spent on HIV treatment generates up to US$10 through better health and higher productivity if other social benefits are considered.

Source: Copenhagen Consensus Center

The variation in the return on investment reflects differences in interventions (prevention versus treatment), economic contexts (low- and middle-income) and types of benefits considered (economic, social, or both). Regardless of these differences, the return on investment is always positive and shows that for every dollar invested, the benefits would represent between 2.6 to 10 dollars in return. HIV programs represent an investment with favorable returns irrespective of the program or national context analyzed.

Further investment is needed to close the prevention gap and avert new infections. Preventive services are often underfunded despite being the first point of entry for HIV testing and treatment. The HIV epidemic in the LAC region affects mainly key populations, especially men who have sex with men. Despite this fact, Brazil is the only country in the region where pre-exposure prophylaxis (PrEP) medication, which can prevent transmission, is available through the public sector to sex workers, men having sex with men, and transgender people. In Chile, Costa Rica, Guatemala, Mexico, and Uruguay, PrEP can be obtained through private health-care providers (UNAIDSa, 2018). International evaluations have demonstrated that HIV prevention programs that benefit groups at high risk and that are implemented at scale are cost-effective, providing good value for money (Vassall, 2014). Investing in prevention is key to avert new infections and to achieve epidemic control. While some countries have achieved significant reductions in the number of new infections in the last decade, others have experienced sharp increases (Figure 6). Each new infection adds to the long-term health and economic costs the countries will bear. The cost of inaction will be more infections, more lives lost, and a greater economic burden on the health sector.

Figure 6. Percentage change in new HIV infections, by country, Latin America, 2010-2018



Source: UNAIDS, 2019a.

To sustain progress and meet targets, robust investments are required to close the HIV testing and treatment gaps. Treatment of HIV is a powerful investment as it improves productivity, saves lives, and prevents further transmission as ART medications work by stopping the virus from replicating in the body (Cohen, 2016). As the viral load decreases, so does the risk of HIV transmission (Cohen, 2016). In LAC, there are large coverage gaps; of the estimated 1.8 million people living with HIV in Latin America in 2017, 77 percent were aware of their status, 61 percent were accessing ART, and 52 percent achieved viral suppression (UNAIDS, 2018b). In the Caribbean, of the 300,000 people estimated to be living with HIV, 73 percent were aware of their status, 57 percent were accessing ART, and 40 percent were virally suppressed (UNAIDS, 2018c). Closing the remaining gaps in the treatment cascade requires investing in community-led services that more effectively reach key populations (UNAIDS, 2018a). To achieve universal access to ART, increased investments for early diagnosis and treatment enrolment, retention, and adherence must be applied and scaled up rapidly (UNAIDS, 2018a).

Conclusions

Despite of significant gains in epidemic control, robust investments are required to close treatment and prevention gaps. Treatment is a powerful investment which prevents transmission, restores health, improves productivity, and saves lives. Further investment in HIV is highly cost-effective and additional domestic investments to support targeted prevention investments will avert the spread of HIV.

Investing Further in Tuberculosis

April 2020

Ending the tuberculosis (TB) epidemic in the LAC region requires coordinated action to accelerate the reduction of deaths and new cases. Despite decreasing incidence in the region, there are concerns about the emergence of antibiotic resistance and multidrug resistant TB (MDR-TB). While treatment success for drug-sensitive TB in the LAC region is currently 75.4 percent (below the 90 percent success target), the success rate is even lower for drug resistant TB at 56.3 percent (PAHO, 2018c). Peru and Brazil have the highest burdens of drug-resistant cases and urgently need further investment in this regard. The power of TB treatment to save lives is well known, however there are weaknesses in the health sector that inhibit achievement of TB targets. The LAC region needs investments to control the burden of TB and MDR-TB that is impeding further economic development. Well-financed health systems can make meaningful progress toward universal coverage and expand services for TB care and, more urgently, for preventing and controlling MDR-TB.

Investing in TB has a high return on investment. The Lancet Commission on Tuberculosis found that based on deaths averted, the benefit-to-cost ratio for TB interventions was 10 to one (Reid et al., 2019). The Economist ranked the various development initiatives in terms of their benefit per dollar invested and placed reducing TB in first place, deeming the choice to invest in TB as a “no-brainer” (The Economist, 2016 & 2019). The Copenhagen Consensus (2015) also reported that each dollar spent on TB generates up to US$30 through better health and higher productivity and can reach up to US$43 if other social benefits are considered. Tuberculosis programs are a smart investment with favorable returns on investment under different country contexts.

TB hampers economic productivity and the loss in GDP from TB-related mortality is high for the LAC region. TB costs millions of dollars from loss of life and worker absenteeism. It is estimated that between 2000 and 2015, TB-related mortality reduced the GDP of LAC countries by an estimated total of US$27.6 billion (KPMG, 2017). The economic losses due to TB-related mortality stem from the loss of output as a result of reduction in the labor force. In addition, worldwide drug-resistant TB threatens to kill 75 million people by 2050, with a cost of US$16.7 trillion (Zweynert, 2015).

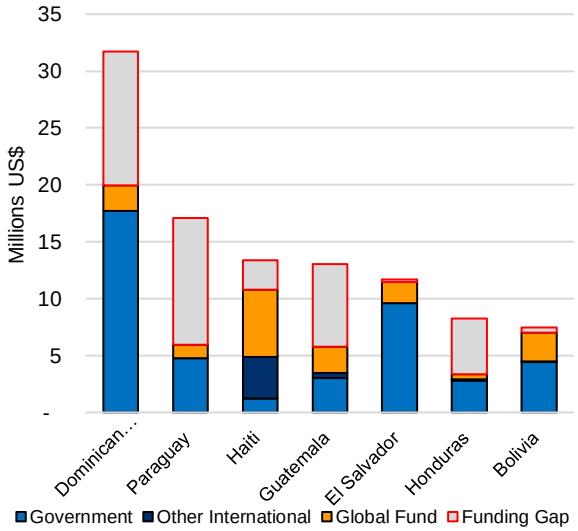
Why should the LAC region invest further in TB?

1. **Investing in TB has a high return on investment.**
2. **TB hampers economic productivity and the loss in GDP from TB-related mortality is high in the LAC region.**
3. **TB creates catastrophic costs which can push households into poverty.**
4. **Governments need to mobilize adequate domestic resources to close the financing gap and end tuberculosis.**
5. **Successful first line treatment will prevent the emergence of drug resistant tuberculosis.**
6. **TB programs require investments in innovative technology for diagnosis.**

Each dollar spent on TB generates up to US$30 through better health and higher productivity and can reach up to US$43 if other social benefits are considered.

Source: Copenhagen Consensus Center

Figure 7. Sources of TB financing in selected LAC countries, 2019



Source: Country funding landscape tables submitted to the Global Fund, 2019

TB creates catastrophic costs which can push households into poverty. Tuberculosis can have devastating economic effects on households; first as loss of income and then, seeking treatment can lead to catastrophic payments. For low- and middle-income countries, household income is estimated to decline by an average of 39 percent when a member of the family has TB (Tanimura, 2014). A family can spend up to 20 percent of their household income treating a relative with TB; in cases of drug-resistant TB, costs are much higher (Lomøy, 2017). Catastrophic health expenditure for TB can be devastating to households that already suffer from poverty. People can be protected from catastrophic health expenditure by reducing a health system's reliance on out-of-pocket payments. One of the goals of universal healthcare is to ensure that families and individuals do not face financial barriers or suffer financial hardship in accessing priority health services such as TB treatment. Many people at low socioeconomic levels live in crowded and poorly ventilated houses, suffer from food insecurity, and have limited access to health services. TB disproportionately affects vulnerable populations and deters their opportunity for productive participation in the workforce. Further investment to ensure universal access to services at TB treatment-friendly facilities can accelerate the elimination of TB.

Governments need to mobilize adequate domestic resources to close the financing gap and end tuberculosis. According to the latest regional estimates by the WHO, the total funding needed to control TB in 26 LAC countries was US$496 million in 2016; 37 percent was expected to come from domestic resources and 42 percent from international donors, leaving a funding gap of 21 percent, or US$104 million (WHO, 2016). Figure 7 shows resources available, needed, and funding gaps in seven LAC countries in 2019 based on information submitted by countries to the Global Fund. Except for low-income countries, most countries in the region should have the capacity to meet a large share of their TB funding requirements through domestic sources. Still, government health expenditure as a share of GDP is low in many middle-income countries (WHO, 2019b). It is essential to ensure national political commitments translate into financial resources for the control of TB. Reversing underfunded health systems and ending the TB epidemic by 2030 requires a robust and sustained investment by governments in the LAC region.

Successful first line treatment will prevent the emergence of highly expensive drug resistant tuberculosis. There is an urgent need to address TB to avoid the emergence of drug resistance through high-quality treatment. Specifically, investing in human resources to prevent loss to follow-up and ensure adherence through directly observed treatment, short course. Drug resistance emerges when drugs are of poor quality, patients stop treatment prematurely, anti-TB medicines are used inappropriately, and prescriptions are incorrect (WHO, 2019b). In 2016, the average expenditure per MDR-TB was US$9,500 (WHO, 2017b). A review of 50 countries found that the average treatment cost per patient was US$273 for drug-susceptible TB, increasing to US$6,313 for MDR-TB cases in lower-middle-income countries (Laurence, 2015). Based on this data, the average cost to treat a case of drug-resistant TB is 23 times higher than to treat drug-susceptible TB. Investing in effective first-line treatment programs is the most cost-effective option to prevent the development of drug resistance and will save lives and money.

TB programs require investments in innovative technology for diagnosis. Resource needs for diagnostic equipment such as GeneXpert are increasing (WHO, 2018b). Early diagnosis leads to early treatment initiation and better outcomes. Molecular diagnosis cuts down the time it takes to diagnose anyone with respiratory symptoms due to TB. It is estimated that improving tuberculosis diagnosis results in a return of US$ 7,7 per each dollar invested (Zavala y Navarro, 2018). Implementation of this technology would result in a threefold increase in the diagnosis of patients with drug-resistant TB and a twofold increase in diagnosis of HIV-associated TB cases (Sagili, 2018).

Conclusions

Latin America and the Caribbean must invest further to prevent economic losses related to TB, which can have serious financial impacts on households, health systems, and entire countries. Under-investment in TB allows for the emergence of drug resistance, increasing the long-term cost of TB treatment. Overall, spending on TB saves lives, has a high return on investment, and fosters economic development. The whole of the LAC region will benefit from investing in a TB-free future.

Investing Further in Malaria

April 2020

The number of malaria cases in the LAC region declined by 62 percent (1,181,095 to 451,242 cases) between 2000 and 2015 (PAHO, 2017b). However, a surge in the number of cases has been observed since 2015 and 760,000 malaria cases were reported in 2018 (WHO, 2019c). Malaria elimination in the LAC region is a bold but attainable goal that requires robust investments to strengthen surveillance and control activities. It is estimated that out of the 650 million people living in the LAC region, about 102 million people live in malaria transmission risk areas and at least 28 million live in high-risk localities reporting more than 10 cases per 1,000 inhabitants (PAHO, 2017b). Sustaining achievements in malaria control and making progress toward global malaria elimination goals requires political commitment, domestic resource mobilization, and efficiency improvements above present levels.

Malaria control is affordable and investing in malaria pays off. Sustained malaria control is a low-cost intervention which brings countries closer to elimination. The cost to protect one person with an insecticide-treated bed net for one year is US$2.10. Similarly, diagnosis and treatment each cost less than one dollar, with one rapid diagnostic test at US$0.53 and treating one case of malaria with a full course of effective treatment at US$0.90. (Macepa, 2016). Sustained control could avert costs to the public health system and to households of treating resurgent malaria, while bringing countries one step closer to malaria elimination.

Investing in Malaria is cost-effective and has a favorable return on investment. Tools to prevent and decrease malaria transmission are cost-effective with a cost of US$5–8 per case averted (Laxminarayan & Raykar, 2014). Other studies show that every dollar spent on malaria control brings a return of US$2–5 (Titus, 2012) while the Copenhagen Consensus (2015) reported that the benefit for every dollar spent can reach up to US$36 if social benefits are considered. The prevention and treatment of malaria are among the most cost-effective public health interventions available today.

Investing in malaria saves both lives and money. Malaria control has a positive impact on the economy. It is estimated that for each 10 percent reduction in malaria incidence, there is an additional 0.3 percent growth in the GDP

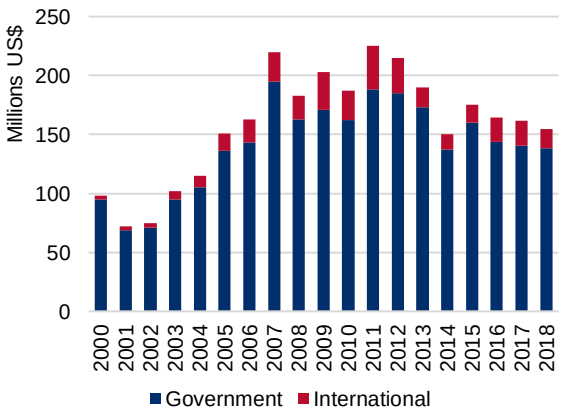
Why should the LAC region invest further in malaria?

1. **Malaria control is affordable and investing in malaria pays off.**
2. **Investing in Malaria is cost-effective and has a favorable return on investment.**
3. **Investing in malaria saves both lives and money.**
4. **Greater investments are needed to sustain fragile gains and to prevent further transmission.**
5. **Malaria resurgence has been linked to the weakening of malaria control programs due to funding disruptions.**
6. **Malaria poses a threat to local prosperity and health security.**

Malaria control is a highly cost-effective intervention, with a cost of just US$5–8 per case avoided. The benefit for every dollar spent can reach up to US$36 if the social benefits are considered.

Source: Copenhagen Consensus Center

Figure 8. Financing for malaria in the LAC region, 2000-2018



Source: PAHO,2016 and WHO, 2019c

(Gallup & Sachs, 2001). Malaria-free countries have five times greater economic growth than countries with malaria or reduced malaria (Gallup & Sachs, 2001). A retrospective analysis of anti-malaria campaign in the Americas in the 50's, found that cohorts born after malaria elimination earned 25% more than the previous generation (Bleakley, 2010).

Greater investments are needed to sustain fragile gains and to prevent further transmission. Sustained investments in malaria are critical to maintain progress in LAC. Aggressive campaigns to scale up malaria control have led to large reductions in the malaria burden in many countries. Paraguay and Argentina were awarded malaria-free certification by WHO in 2018 and 2019, respectively. Similarly, El Salvador reported zero local cases for the first time in 2017, Belize reported fewer than 10 cases, and Costa Rica reported 25 cases. These gains are impressive but fragile; if malaria-control activities are reduced while the potential for transmission remains, the disease will rapidly resurge, and the gains will be wiped out.

Malaria resurgence has been linked to the weakening of malaria control programs due to funding disruptions. Figure 8 depicts trends in malaria funding in the LAC region. Overall funding increased between 2000 and 2007, reaching US$ 220 million in 2007. Funding levels were roughly maintained at that level through 2012. However, since 2013, funding has fallen to US$ 157 million in 2018, threatening to weaken malaria control programs.

A study by Cohen et al. (2012), which examined causes of malaria resurgence events in 60 countries, found that in 91 percent of the cases where the disease reemerged, the resurgence was at least partly attributed to funding reductions. Funding sources in the LAC region show 82 percent coming from governments, 11 percent from donors, and 9 percent from households (Haakenstad, 2019). Ensuring sufficient and sustained public funding for malaria control and continued implementation of key interventions, even after the disease is absent or at low levels, is of the highest priority (Titus, 2012).

Malaria poses a threat to local prosperity and health security. The economic impact of recurrent malaria episodes can be substantial. Malaria control means less school and worker absenteeism, and increased productivity in agriculture and local businesses. In addition to its direct effects on productivity, the presence of malaria can deter tourists and foreign investors. When diseases such as malaria are brought under control, areas of land and natural resources that were previously off-limits become accessible (Yamey et al., 2016). Achieving and maintaining malaria control is a critical strategy for strengthening economies in the LAC region.

Conclusions

Funding gaps can seriously affect the progress achieved and will certainly limit or reverse any progress towards malaria elimination. The LAC region must invest and cooperate to achieve malaria elimination. Ultimately, there is much to gain from eliminating malaria—more lives will be improved and saved, and the LAC economies will see a substantial boost.

References

Amarante V, Galván M and Mancero X. (2016) Inequality in Latin America: a global measurement. CEPAL REVIEW 118, 25-44.

Basta, S. S., Karyadi, D., & Scrimshaw, N. S. (1979). Iron deficiency anemia and the productivity of adult males in Indonesia. The American Journal of Clinical Nutrition, 32(4), 916-925.

Bleakley, H. (2003). Disease and development: Evidence from the American South. Journal of the European Economic Association, 1(2-3), 376-386.

Bleakley, H. (2010). Malaria eradication in the Americas: A retrospective analysis of childhood exposure. American Economic Journal: Applied Economics, 2(2), 1-45.

Bloom, D., & Canning, D. (2008). Population health and economic growth. Washington, DC: World Bank.

Cohen, J. M., Smith, D. L., Cotter, C., Ward, A., Yamey, G., Sabot, O. J., & Moonen, B. (2012). Malaria resurgence: a systematic review and assessment of its causes. Malaria journal, 11(1), 122.

Cohen, M. S., Chen, Y. Q., McCauley, M., Gamble, T., Hosseinipour, M. C., Kumarasamy, N., ... & Godbole, S. V. (2016). Antiretroviral therapy for the prevention of HIV-1 transmission. New England Journal of Medicine, 375(9), 830-839.

Copenhagen Consensus Center. (2015). Available at: https://www.copenhagenconsensus.com/post-2015-consensus/health-infectious-diseases

Forsythe, S. S., McGreevey, W., Whiteside, A., Shah, M., Cohen, J., Hecht, R., ... & Kinghorn, A. (2019). Twenty years of antiretroviral therapy for people living with HIV: global costs, health achievements, economic benefits. Health Affairs, 38(7), 1163-1172.

Gallup, J.K., Sachs, J.D. (2001). The economic burden of malaria. *The American journal of tropical medicine and hygiene*, 64(1_suppl), 85-96. DOI:10.4269/ajtmh.2001.64.85

Global Fund to Fight AIDS, Tuberculosis and Malaria. (2019). Funding Landscape tables.

Georgieva, C., & Ghebreyesus, T.A. (2020). Some say there is a trade-off: save lives or save jobs – this is a false dilemma. International Monetary Fund. https://www.imf.org/en/News/Articles/2020/04/03/vs-some-say-there-is-a-trade-off-save-lives-or-save-jobs-this-is-a-false-dilemma?utm_medium=email&utm_source=govdelivery

Guo, Y., Li, X., & Sherr, L. (2012). The impact of HIV/AIDS on children's educational outcome: A critical review of global literature. AIDS care, 24(8), pp.993-1012.

Haakenstad, A., Harle, A. C., Tsakalos, G., Micah, A. E., Tao, T., Anjomshoa, M., ... & Mohammed, S. (2019). Tracking spending on malaria by source in 106 countries, 2000–16: an economic modelling study. The Lancet Infectious Diseases, 19(7), 703-716.

KPMG. (2017). Global economic impact of tuberculosis. A Report for Results UK. Available at: https://big.assets.huffingtonpost.com/GlobalEconomicImpactTB.pdf.

Lamontagne, E., Over, M., & Stover, J. (2019). The economic returns of ending the AIDS epidemic as a public health threat. Health Policy, 123(1): 104–108.

Laurence, Y. V., Griffiths, U. K., & Vassall, A. (2015). Costs to health services and the patient of treating tuberculosis: a systematic literature review. Pharmacoeconomics, 33(9), 939-955.

Laxminarayan, R., & Raykar, N. (2014). Benefits and Costs of the Malaria Targets for the Post 2015 Consensus Project. Copenhagen Consensus. https://www.copenhagenconsensus.com/sites/default/files/health_perspective_malaria_-_raykar.pdf

Lomøy, J., & Dybul, M. (2017). Drug-resistant TB: A growing global threat. Global Fund. Available at: https://www.theglobalfund.org/en/blog/2017-03-29-drug-resistant-tb-a-growing-global-health-threat/.

Lucas, A.M. (2010). Malaria eradication and educational attainment: Evidence from Paraguay and Sri Lanka. American Economic Journal: Applied Economics, 2(2): 46–71.

Macepa. (2016). Making Malaria History. PATH. http://www.makingmalariahistory.org/wp-content/uploads/2016/03/MACEPA_Invest_Infographic_P5.pdf

Masters, R., Anwar, E., Collins, B., Cookson, R., & Capewell, S. (2017). Return on investment of public health interventions: a systematic review. J Epidemiol Community Health, 71(8), 827-834.

Pan American Health Organization (PAHO). (2014). Strategy for universal access to health and universal health coverage. https://www.paho.org/hq/dmdocuments/2014/CD53-5-e.pdf

Pan American Health Organization (2016). Report on the Situation of Malaria in the Americas, 2000-2015. https://www.paho.org/hq/dmdocuments/2017/2017-cha-report-situation-malaria-amer-00-15.pdf

Pan American Health Organization (PAHO). (2017a). Health financing in the Americas, 2017. Washington, DC: PAHO. Available at: https://www.paho.org/salud-en-las-americas-2017/?tag=out-of-pocket-expenditures

Pan American Health Organization (PAHO). (2017b). Report on the Situation of Malaria in the Americas, 2000-2015. https://www.paho.org/hq/dmdocuments/2017/2017-cha-report-situation-malaria-amer-00-15.pdf

Pan American Health Organization (PAHO). (2018c). Tuberculosis in the Americas, 2018. Washington, DC: PAHO. http://iris.paho.org/xmlui/bitstream/handle/123456789/49510/PAHOCDE18036_eng?sequence=1&isAllowed=y.

Pufall, E. L., Nyamukapa, C., Eaton, J. W., Campbell, C., Skovdal, M., Munyati, S., ... & Gregson, S. (2014). The impact of HIV on children's education in eastern Zimbabwe. AIDS care, 26(9), 1136-1143.

Reid, M. J., Arinaminpathy, N., Bloom, A., Bloom, B. R., Boehme, C., Chaisson, R., ... & Dybul, M. (2019). Building a tuberculosis-free world: The Lancet Commission on tuberculosis. The Lancet, 393(10178), 1331-1384.

Reeves, A., Basu, S., McKee, M., Meissner, C., & Stuckler, D. (2013). Does investment in the health sector promote or inhibit economic growth?.Globalization and health, 9(1), 43.

Sachs, D.J. (2001). Macroeconomics and health: Investing in health for economic development. Report of the Commission on Macroeconomics and Health. World Health Organization.

Sagili, K. D., Muniyandi, M., Nilgiriwala, K. S., Shringarpure, K. S., Satyanarayana, S., Kirubakaran, R., ... & Tharyan, P. (2018). Cost-effectiveness of GeneXpert and LED-FM for diagnosis of pulmonary tuberculosis: A systematic review. PloS one, 13(10).

Stenberg, K., O. Hanssen, T. Tan-Torres Edejer, M. Bertram, C. Brindley, et al. 2017. “Financing Transformative Health Systems towards Achievement of the Health Sustainable Development Goals: A Model for Projected Resource Needs in 67 Low-Income and Middle-Income Countries.” Lancet Global Health 5(9): PE875–E887. Available at: https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(17)30263-2/fulltext.

Tanimura, T., Jaramillo, E., Weil, D., Raviglione, M., & Lönnroth, K. (2014). Financial burden for tuberculosis patients in low-and middle-income countries: a systematic review. European Respiratory Journal, 43(6), 1763-1775.

The Economist. (2016). The economics of optimism. https://www.economist.com/news/finance-and-economics/21640361-debate-heats-up-about-what-goals-world-should-set-itself-2030

The Economist Intelligence Unit. (2019). A Call to action: It’s time to end drug-resistant tuberculosis. Policy briefing note. http://www.eiu.com/graphics/marketing/pdf/its-time-to-end-drug-resistant-tuberculosis-summary-report.pdf.

Titus, A. (2012, April 24). Malaria resurgence is linked to weakening of malaria control programs. The Center for Disease Dynamics, Economics & Policy (CDDEP). https://cddep.org/blog/posts/malaria_resurgence_linked_weakening_malaria_control_programs/.

UNAIDS. (2018a). Miles to go: closing gaps breaking barriers righting injustices. UNAIDS, Geneva.
UNAIDS. (2018b). Miles to go: the response to HIV in Latin America. UNAIDS, Geneva.

UNAIDS. (2018c). Miles to go: the response to HIV in the Caribbean. UNAIDS, Geneva.

UNAIDS. (2019). Financing Estimates. https://aidsinfo.unaids.org/

UNDP. (2019). About Latin America and the Caribbean. https://www.latinamerica.undp.org/content/rblac/en/home/regioninfo.html

Vassall, A., Pickles, M., Chandrashekar, S., Boily, M. C., Shetty, G., Guinness, L., ... & Group, C. I. (2014). Cost-effectiveness of HIV prevention for high-risk groups at scale: an economic evaluation of the Avahan programme

in south India. *The Lancet Global Health*, *2*(9), e531-e540.

Wagstaff, A., Flores, G., Hsu, J., Smitz, M. F., Chepynoga, K., Buisman, L. R., ... & Eozenou, P. (2018). Progress on catastrophic health spending in 133 countries: a retrospective observational study. The Lancet Global Health, 6(2), e169-e179.

World Bank. (2019). Life expectancy at birth, total (years) — Latin America & Caribbean. Available at: https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=ZJ.

World Health Organization (WHO). (2016). Global tuberculosis report 2016. Geneva: WHO. Available from: http://apps.who.int/iris/bitstream/10665/250441/1/9789241565394-eng.pdf.

World Health Organization (WHO). (2018a). Delivering global health security through sustainable financing. Geneva: World Health Organization. Licence: CC BY-NC-SA 3.0 IGO.

World Health Organization (WHO). (2018b). Automated real-time nucleic acid amplification technology for rapid and simultaneous detection of tuberculosis and rifampicin resistance: Xpert MTB/RIF assay for the diagnosis of pulmonary and extrapulmonary TB in adults and children. Policy Update. Geneva. https://apps.who.int/iris/bitstream/handle/10665/112472/9789241506335_eng.pdf;jsessionid=A5FAB921D116FA777A5429C671CD2B98?sequence=1

World Health Organization (WHO). (2019a). Global Health Expenditure Database. https://apps.who.int/nha/database/Select/Indicators/en

World Health Organization (WHO). (2019b). Tuberculosis. Available at: https://www.who.int/news-room/fact-sheets/detail/tuberculosis.

World Health Organization (WHO). (2019c). Regional and global trends in burden of malaria cases and deaths. https://www.who.int/news-room/feature-stories/detail/world-malaria-report-2019

Xu, Saksena, Jowett, Indikadahena, Kutzin and B. Evans. (2010). Exploring the thresholds of health expenditure for protection against financial risk. World Health Organization Background Paper, No 19.

Yamey, G., Beyeler, N. Wadge, H., & Jamison, D. (2016.) Investing in health: The economic case. World Innovation Summit for Health, Doha, Qatar.

Zweynert, A. (2015). “Drug-Resistant Tuberculosis Threatens o Kill 75 Million People by 2050, Cost $16.7 Trillion.” Clinical Infectious Diseass 60(10): i-ii.

Zavala Rosas DF, Navarro Lévano MC. Costo efectividad en el diagnóstico de la tuberculosis. Programa “Fortalecimiento de la Red de Laboratorios de Tuberculosis en la Región de las Américas” -- Lima: ORAS - CONHU; 2018.