



## Summary of the Thirty-Second Meeting of the International Task Force for Disease Eradication (ITFDE) May 4-5, 2021

The 32<sup>nd</sup> Meeting of the International Task Force for Disease Eradication (ITFDE) was convened virtually on May 4-5, 2021, at The Carter Center in Atlanta, GA, USA to discuss “Hispaniola Update – Progress toward Eliminating Malaria and Lymphatic Filariasis in Haiti and the Dominican Republic, 2008 to 2020.” This Task Force declared in 2006 that eliminating malaria and lymphatic filariasis (LF) from the island of Hispaniola was “technically feasible, medically desirable, and would be economically advantageous.” This meeting reviewed the substantial progress made toward eliminating both diseases from Haiti and the Dominican Republic and considered the steps required to meet the goal. The Task Force members are Dr. Stephen Blount, The Carter Center (Chair); Dr. Peter Figueroa, The University of the West Indies, Jamaica; Dr. Donald Hopkins, The Carter Center; Dr. Kashef Ijaz, The Carter Center; Dr. Fernando Lavadenz, The World Bank; Dr. Mwelecele Malecela, World Health Organization (WHO); Professor David Molyneux, Liverpool School of Tropical Medicine; Dr. Ana Morice, Independent Consultant; Dr. Robin Nandy, UNICEF; Dr. David Ross, The Task Force for Global Health; Dr. William Schluter, U.S. Centers for Disease Control and Prevention (CDC); Dr. Faisal Sultan, Ministry of National Health Services Regulations and Coordination, Government of Pakistan; Dr. Laurence Slutsker, PATH; Dr. Jordan Tappero, Bill & Melinda Gates Foundation; and Dr. Dyann Wirth, Harvard School of Public Health.

Presenters included Mr. Simon Bland, Global Institute for Disease Elimination (GLIDE); Dr. Michelle Chang, CDC; Dr. Luccene Desir, The Carter Center Haiti; Dr. Marcos Espinal, Pan-American Health Organization (PAHO); Dr. Manuel Gonzalez, Center for the Prevention and Control of Diseases Transmitted by Vectors and Zoonoses (CECOVEZ), Ministry of Public Health and Social Assistance/Dominican Republic; Dr. Jonathan King, WHO; Dr. James V. Lavery, Emory University; Dr. Greg Noland, The Carter Center USA; and Dr. Keyla Urena, CECOVEZ, Ministry of Public Health and Social Assistance/Dominican Republic.

### Eliminating Malaria and Lymphatic Filariasis in Haiti and the Dominican Republic

Substantial progress has been made from 2006 to the present to eliminate lymphatic filariasis and malaria from the island of Hispaniola. Among the factors that made elimination of malaria and LF attractive when this Task Force first considered the subject in 2006,<sup>1</sup> all remain unchanged. For malaria, *P. falciparum* remains the dominant parasite, but in recent years, a dozen or so cases

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<sup>1</sup> World Health Organization, 2007. Meeting of the International Task Force for Disease Eradication – 12 May 2006. *Wkly Epidemiol Rec* 82:25—30.

annually of *P. vivax* are reported in travelers to the Dominican Republic from Guyana and Venezuela. Chloroquine (CQ) remains effective and is used in combination with a single dose of primaquine (PQ) as first line therapy for uncomplicated malaria in the Dominican Republic and Haiti.

For LF caused by the filaria parasite *Wuchereria bancrofti*, mass drug administration (MDA) with albendazole and diethylcarbamazine (DEC) remains highly effective for reducing *W. bancrofti* transmission; and a new tool, triple drug ivermectin-DEC-albendazole (IDA) treatment is more effective in reducing microfilaria counts over a longer period and shortens the number of rounds required to achieve the elimination goal.

The progress made in Hispaniola is indicated by the following four maps. The information was provided by the Ministries of Health and the date of the information used indicates when it was collected.

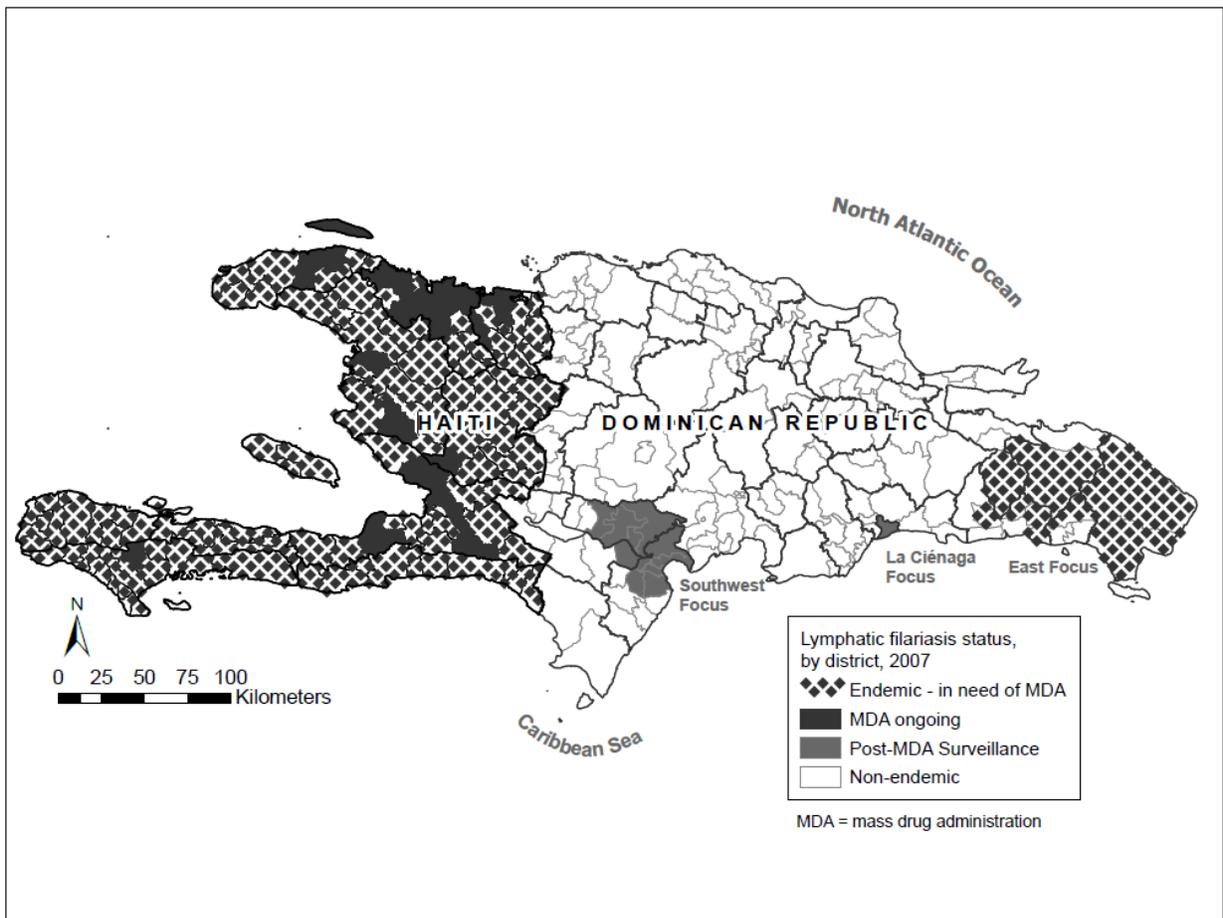


Figure 1. Lymphatic filariasis program status in Haiti and the Dominican Republic, by district, end of 2007.

Figure 1 illustrates the island-wide lymphatic filariasis (LF) program status at the end of 2007. In Haiti, the entire country was endemic for LF, and 24 of 140 communes had commenced LF

mass drug administration (MDA) campaigns. In the Dominican Republic, LF was endemic in three primary foci: Southwest Focus, La Cienaga Focus, and East Focus. By the end of 2007, MDA had stopped in the Southwest and La Cienaga foci with ongoing post-MDA surveillance. The East Focus still needed MDA.

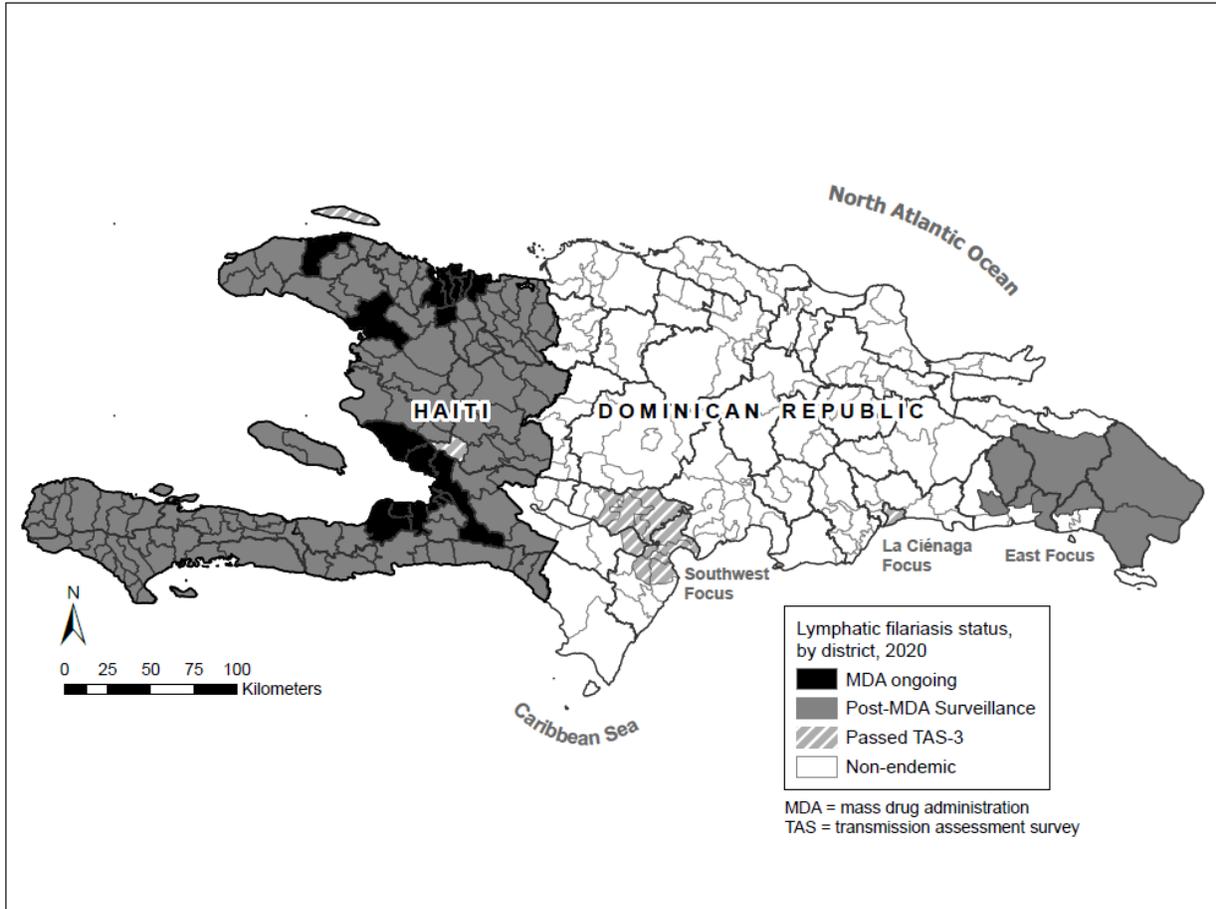


Figure 2. Lymphatic filariasis program status in Haiti and the Dominican Republic, by district, end of 2020.

Figure 2 illustrates the island-wide LF program status at the end of 2020. In Haiti, 19 of 140 communes have MDA ongoing, while 119 are continuing post-MDA surveillance transmission assessment surveys (TAS). Two communes, La Tortue and Saut d’Eau, have passed TAS-3. In the Dominican Republic, both the Southwest and La Cienaga foci have passed TAS-3, indicating LF transmission has been interrupted there, while post-MDA surveillance TAS are continuing in the East Focus.

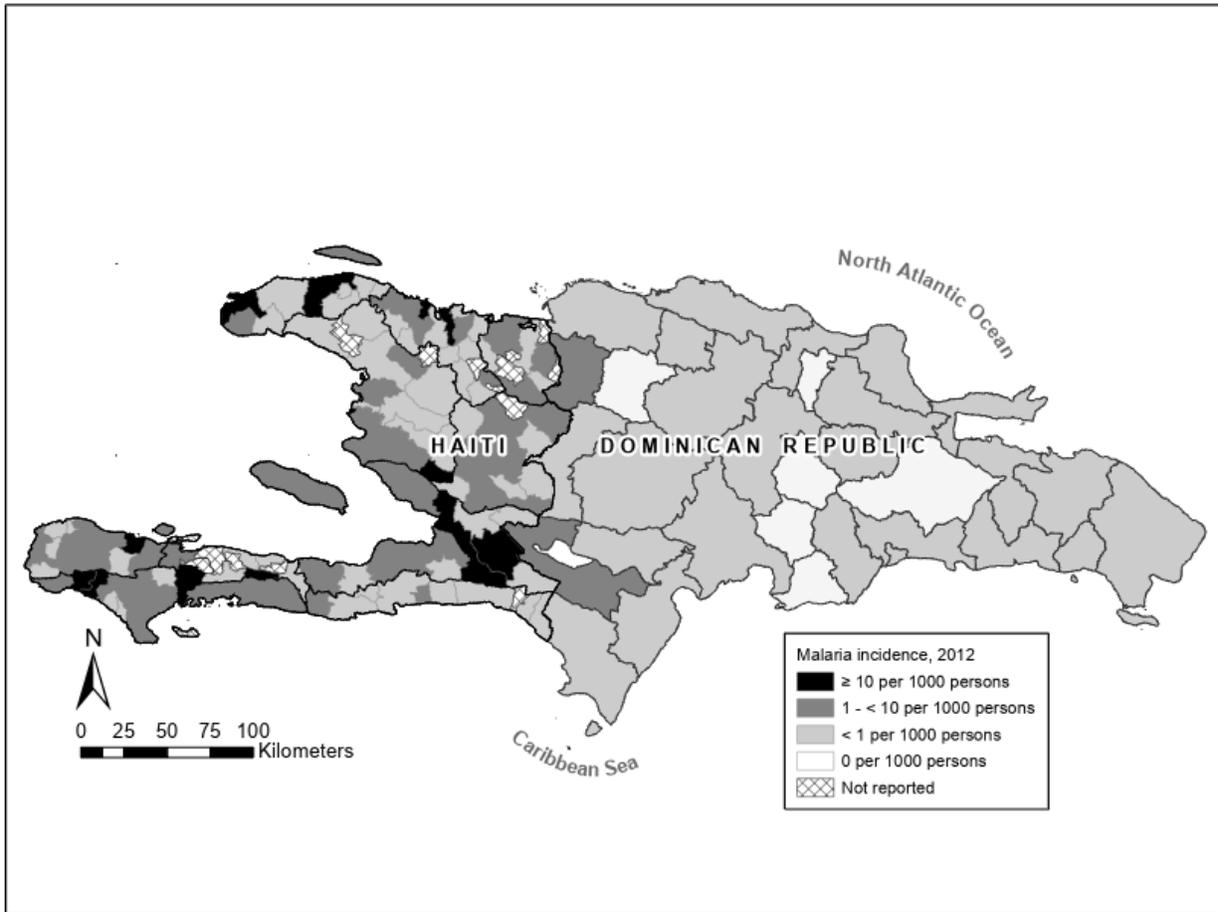


Figure 3. Malaria incidence per 1000 persons in Haiti and the Dominican Republic, 2012.

Figure 3 illustrates the island-wide incidence of malaria reported in 2012. In Haiti, 12 of 140 communes in 7 of 10 administrative departments had reported annual incidence  $\geq 10$  cases per 1000 persons, 58 communes had reported annual incidence  $1 - < 10$  cases per 1000 persons, and 52 communes reported  $< 1$  case per 1000 persons. Sixteen communes did not report surveillance data in 2012. In the Dominican Republic, 2 of 31 provinces reported annual incidence of  $1 - < 10$  cases per 1000 persons, while 23 provinces plus the Distrito Nacional reported  $< 1$  case per 1000 persons. No cases were reported in 6 provinces in 2012.

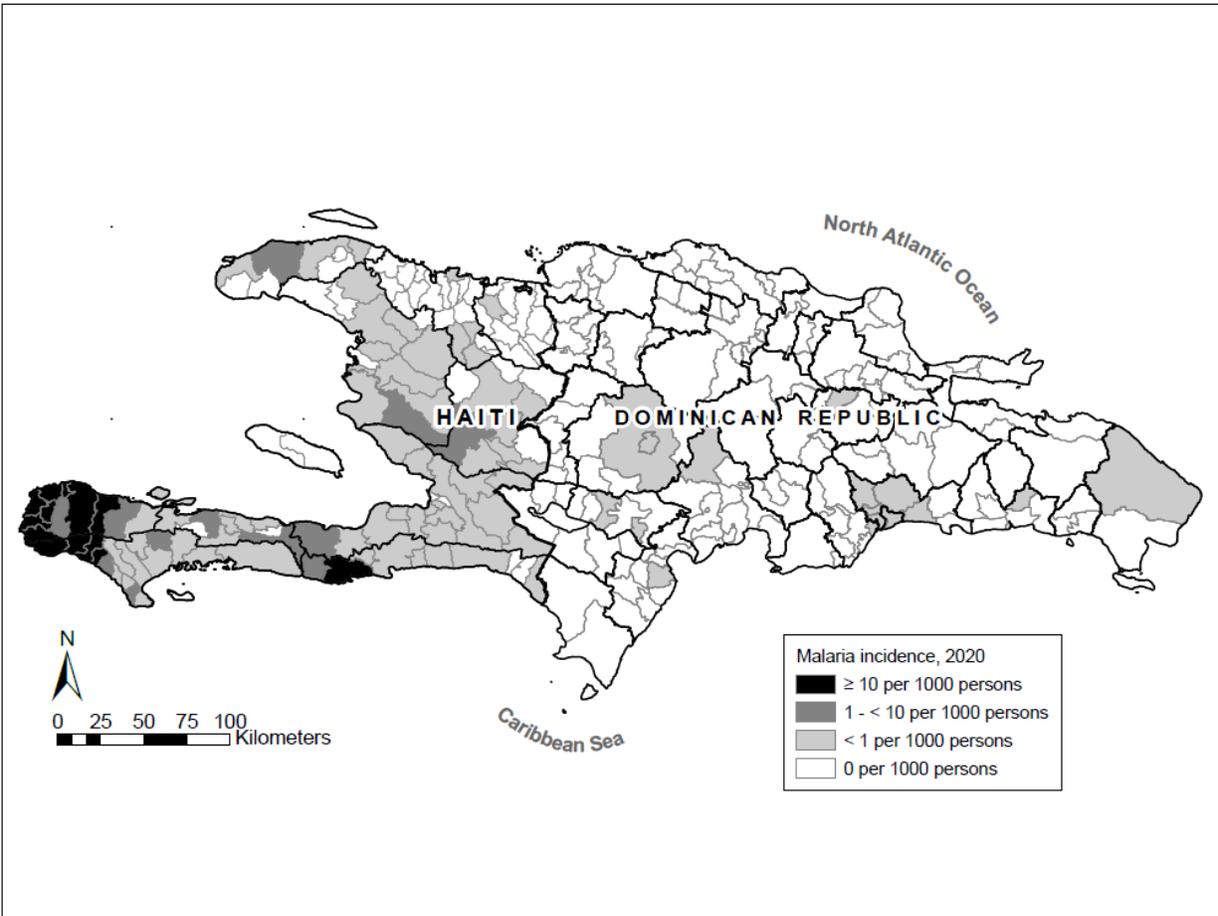


Figure 4. Malaria incidence per 1000 persons in Haiti and the Dominican Republic, 2020.

Figure 4 illustrates the island-wide incidence of malaria reported in 2020. In Haiti, 13 of 140 communes have malaria incidence of  $\geq 10$  cases per 1000 persons reported, largely concentrated in the tip of the Tiburon peninsula in the departments of Grand'Anse and Sud. Sixteen communes had reported incidence  $1 - < 10$  cases per 1000 persons and 61 communes reported  $< 1$  case per 1000 persons. No cases were reported in 50 communes including large adjacent areas of the Nord and Nord-Est departments. In the Dominican Republic, malaria incidence remains endemic in 14 municipalities from 9 provinces plus the Distrito Nacional, each with  $< 1$  case per 1000 persons reported. No cases were reported in 22 provinces in 2020.

A year after the 2010 earthquake, President and Mrs. Carter visited Haiti to assist with post-earthquake recovery efforts and help launch the first MDA for LF in metropolitan Port-au-Prince. In the years that followed, The Carter Center sponsored regular binational meetings between the two countries and in 2014 increased its institutional support for malaria and LF elimination in both nations. In 2015, the six-year Malaria Zero Project was launched with support from the Bill & Melinda Gates Foundation to accelerate malaria elimination. The Malaria Zero Consortium included the national Malaria Control Programs in Haiti and in the Dominican Republic, US Centers for Disease Control and Prevention and the CDC Foundation, Pan-American Health Organization, Clinton Health Access Initiative, The Carter Center, Tulane University, and the

London School of Hygiene and Tropical Medicine. Although the Malaria Zero Project ended in March 2021, it achieved major milestones in working with the Ministries of Health to improve surveillance, conduct interventions, estimate the cost of elimination, and synergize its work with the Global Fund to Fight AIDS, Tuberculosis and Malaria.

Progress towards malaria and LF elimination has been challenging. In addition to the earthquake and climate related catastrophes, since July 2018, Haiti has been in the grips of social and political unrest which has crippled the economy and travel. The COVID-19 pandemic of 2020 further disrupted economic activities, routine medical services, and many public health programs, including elimination efforts. The island also remains prone to catastrophic weather events such as Hurricane Matthew in October 2016.

Some of the key challenges facing the malaria and LF elimination programs in Hispaniola are longstanding. For LF in Haiti, they will require redoubled, improved efforts with interventions like MDA and scaled-up triple drug therapy. Intensified community engagement using insights gained from working with social scientists will be needed to end the malaria outbreak in Santo Domingo and to finish eliminating malaria and LF in Haiti. As both countries strive to strengthen their health systems and improve access to services, their Ministries of Health must also improve surveillance for malaria and all vector borne diseases and improve supply chain management.

The vision of a public health system that enforces a policy mandating free care for malaria and LF morbidity management and disability prevention (MMDP) is realistic, attainable, and consistent with the priorities of WHO, as is one that supports a functioning supply chain that minimizes stock-outs of diagnostic tests and anti-malarial drugs.

## Lymphatic Filariasis

**Haiti.** Baseline mapping completed in 2001 determined that all 140 districts in Haiti needed treatment for LF. In 2008, only 24 districts in Haiti had launched MDA. By 2020, 121 (86%) of districts in Haiti were under Post Treatment Surveillance (PTS), with only 19 districts still conducting MDA. Two districts in Haiti now have completed the full series of 3 Transmission Assessment Surveys (TAS) recommended by WHO to assess the quality of PTS (Figure 2).

Triple drug therapy, to be used in LF MDA campaigns, is a powerful new intervention, although the three drugs, Ivermectin, DEC, and albendazole (IDA) are anti-helminthic drugs that have been used for at least 5 decades. Each drug has microfilaricidal effects, but none of the drugs kill adult worms. Prior to 2017, WHO recommended only two-drug combinations (ivermectin or DEC with albendazole) for use in MDA to eliminate LF. The combination of all three drugs, which is known as Triple-drug Therapy or IDA seems to have a synergistic effect. In 2017 WHO recommended IDA in a new guideline which reviewed alternative regimens for MDA, with the greatest potential benefit of reducing the time required to interrupt transmission. This recommendation was made considering evidence available about efficacy and safety.

With 86% of districts under PTS, Haiti has the opportunity to maintain this momentum and focus efforts on the remaining few districts in need of MDA. In so doing, the country and its partners can demonstrate innovative ways to improve LF MDA coverage and scale-up triple drug IDA.

**Dominican Republic.** In the Dominican Republic, LF mapping was completed in the early 2000s and 19 districts that clustered into three distinct foci were found to be endemic and needed MDA. In 2008, two of the three foci had already completed MDA and were under PTS: Southwest focus and the small La Cienaga focus in urban Santo Domingo. By 2018, all three foci had stopped MDA and were under PTS, with the Southwest and La Cienaga foci having completed the recommended three TAS Surveys (Figure 2). The Dominican Republic may be one of the next countries in this hemisphere to eliminate LF as a public health problem and to also demonstrate the evidence base for claiming verification of elimination of transmission.

## Malaria

**Haiti.** Malaria cases have been reduced substantially in Haiti since 2012. In terms of spatial distribution of cases, there has been an overall reduction in intensity across the country, except in Grand'Anse and Sud departments on the southwest peninsula, where surveillance capacity has increased over the years. There also has been an increase in the number of districts reporting zero cases over a 12-month period. More than 77% of all cases now are reported from Grand'Anse and Sud (Figure 4). Even though cases are much higher in Haiti than in the Dominican Republic, Haiti has improved service delivery, training and surveillance.

Haiti's Malaria Program made significant gains in decreasing cases from 40,535 in 2009 to a low of 8,828 in 2018. However, political unrest in the country since 2018 has interrupted the progress of the Malaria Program; malaria cases have now more than doubled. The Malaria Program achievements in this recent decade were made with comprehensive program strengthening that included: improving access to accurate diagnostics with rapid diagnostic tests; adapting the national policy to use PQ with CQ for its gametocytocidal effect; transitioning to case-based surveillance and improved malaria incidence stratification; expanding malaria case detection and treatment through additional community health workers; targeting distribution of long-lasting insecticide treated bednets; and in 2018, implementing a pilot campaign of MDA and indoor residual spraying (IRS) in selected high transmission communities.

Malaria elimination in Haiti is technically feasible, as demonstrated by the past decreases in cases that brought the country to pre-elimination levels in the 1960s and 1970s. The national Malaria Program has the tools and strategies that could interrupt malaria transmission in the next decade. The primary, recurrent challenge to Haiti eliminating malaria continues to be sociopolitical issues.

Donors and partners must work together with local institutions to maintain continuity of program implementation during times of political instability and ensure that the evidence-based policies, once developed, continue despite changes in the government administration. This type of sustained engagement and support by the broader malaria community could be enough to tip the scale to reach malaria elimination in Haiti.

**Dominican Republic.** In the Dominican Republic, 822 malaria cases were reported in 2020, representing a 55% reduction since 2008. The most important change in malaria transmission there is the epidemiological shift from mainly rural transmission to urban/peri-urban transmission. Cases have steadily declined in all areas outside Santo Domingo, where an outbreak that started in 2014 continues.

For malaria, elimination is within reach in the Dominican Republic, and the announcement in May 2021 that the country has been added to the list of the E-2025 countries (which are expected by WHO to reach elimination by 2025) bodes well for increased technical support and coordination to finish the job.

The story of malaria elimination in the Dominican Republic is one of great progress while the country prepares to “walk the final mile.” Autochthonous cases are due to *Plasmodium falciparum*, which still maintains susceptibility to CQ. The only vector incriminated in transmission is *Anopheles albimanus*. The binational commitment to eliminate malaria was reinforced when, in 2013, a declaration issued during the XX Meeting of the Council of Ministers of Central America and the Dominican Republic (COMISCA), called for the elimination of autochthonous transmission of malaria in Central America and the island of Hispaniola.

In the Dominican Republic, achievements have been substantial and some of the dynamics of malaria transmission have changed. Incidence at the national level has declined, as well as the number of municipalities reporting cases, from 73 in 2009 to 19 in 2019. Imported cases also decreased dramatically, especially those imported from Haiti, from 169 in 2009 and 567 in 2011 to no cases in 2020. Reduction of incidence, and even interruption of transmission, have been observed in many historically endemic rural areas, which in the past were linked to binational trade at the border, agricultural activities, and the construction industry. With the growing perception, especially since the end of 2014, that in border areas the disease was no longer a public health problem, surveillance has weakened, calling into question whether the public perception is correct. Since 2015, transmission has been more focalized in urban and peri-urban areas, most of which are in densely populated localities in Santo Domingo. Effects of the recent decentralization of the national public health system are still being absorbed, leading to some inconsistencies in surveillance, investigation, and response. This weakening is an important challenge to achieving the elimination of malaria.

A substantial increase in funding, commitment and actions are needed to break this pattern and advance the malaria endgame. In the Dominican Republic, malaria transmission has historically remained low. However, recent years have seen a resurgence in urban areas of the capital Santo Domingo. In April 2021, the Dominican Republic was announced by WHO as one of 25 countries on track to eliminate malaria by 2025. Although challenges remain, elimination is regarded as a realistic prospect.

## Discussion

Priority public health programs such as reproductive health, immunization, HIV, tuberculosis, malaria, and neglected tropical diseases (NTDs) have suffered major setbacks since 2020 as a

result of the COVID-19 pandemic. In a survey conducted by WHO globally,<sup>2</sup> 49% (n=29) of countries from the Americas Region reported disruptions across different services, including immunization (55%), communicable diseases (49%), NTDs (47%), and reproductive, maternal, newborn, child and adolescent health and nutrition services (41%). HIV, TB and malaria programs experienced disruptions to TB diagnosis and treatment, HIV testing, HIV prevention services, and malaria diagnosis and treatment.

The evidence clearly indicates that IDA is effective, safe, and feasible to implement for combatting LF. However, a Guidelines Development Group convened by WHO warned that IDA is not a replacement for poor program delivery or poor community compliance. It is well known that impact in an ideal research setting may not be the same in the outside world. However, the evidence from India to Tuvalu is compelling, from 11,000 people nationwide in Tuvalu to the pilot in 4 districts in India with a total population of 10.7 million. Each country reached effective coverage with a single MDA campaign using IDA. To date, more than 45 million people have been treated with IDA.

Communities wanted to know the rationale for taking more pills, who needs treatment, what is it for, how to take the pills, when, and where to get the medicines. Instructions about where to get help with adverse events and messages on the advantages of new treatment were reported as influential for participation. Introducing ivermectin in areas using DA already will have collateral benefits. Albendazole and ivermectin are powerful in combination to cure soil transmitted helminth infections. Ivermectin also is effective against scabies and ectoparasites. Mass treatment with ivermectin is shown to provide immediate relief of symptoms and reduction of infection in the community.

WHO currently recommends conducting two rounds of MDA using IDA before assessing impact on LF. If programs are unable to obtain high coverage and address systematic non-compliance, then additional rounds of IDA will be required to reduce infection prevalence below elimination thresholds.

## Conclusions and Recommendations

1. The ITFDE reaffirms, as it concluded in 2006, that elimination of malaria and LF from the island of Hispaniola “is technically feasible, medically desirable, and would be economically beneficial”.<sup>1</sup> It commends Haiti and the Dominican Republic for the substantial progress achieved toward elimination of both diseases over the past 15 years, including closer binational cooperation, despite many challenges. The ITFDE continues to strongly embrace the vision of a Caribbean Basin free of malaria and LF, which will become a reality only after the two countries eliminate both diseases.
2. Overcoming the remaining obstacles to progress will require more than “business as usual.” The countries should be commended for embracing new approaches and seeking synergies

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<sup>2</sup> World Health Organization. Second round of the national pulse survey on continuity of essential health services during the COVID-19 pandemic. Interim report. Geneva: WHO 2021. Document [WHO/2019-nCoV/EHS\\_continuity/survey/2021.1](#)

between their two elimination programs and with other vector-borne disease prevention activities.

3. The ITFDE strongly recommends that Haiti and the Dominican Republic make every effort for their elimination programs to support COVID-19 pandemic response activities and continue to adhere to WHO guidance on interventions. Increased collaboration and coordination, not only at the border, is critical. The pandemic may also present unique opportunities to explore how new technologies can assist national elimination programs to collect and disseminate information and strengthen surveillance systems.
4. Haiti is commended for substantially increasing LF MDA coverage nationwide and for taking steps recently to increase coverage in the towns of Leogane and Gressier, where 18 annual rounds of MDA campaigns have been held, but adequate coverage has not yet been achieved.
5. Haiti is also commended for its embrace of innovations in hydrocele surgery and lymphedema management following LF infection and other efforts involving MMDP, particularly chronic disease self-management and the implications for mental health. The ITFDE recommends that both countries strengthen the MMDP component of their programs.
6. A potentially powerful innovation, the triple-drug IDA treatment combination, which, when used instead of the current two-drug regimens in a fully-scaled MDA campaign, may help reach LF elimination faster.
7. The ITFDE applauds efforts of both countries to strengthen community engagement activities, drawing on lessons learned from working with social scientists. In Haiti, these lessons should be applied to increase participation in LF MDA campaigns and reverse the recent declines in MDA coverage in metropolitan Port-au-Prince. In the Dominican Republic, these lessons should be applied to achieve the most immediate objective of the national program: to end the malaria outbreak involving urban/peri-urban transmission in Santo Domingo. It would be useful if this work is shared with others in the NTD community.
8. As the Dominican Republic approaches the “final mile” to eliminate malaria, the ITFDE recommends that the national program in the Dominican Republic consider, on a temporary basis, a more “vertical” or focused approach to malaria elimination in residual areas, particularly related to surveillance and response activities in the affected urban areas, to ensure optimal efficiency and maximal impact. To avoid delays in reaching the elimination goal, including on the immediate path toward elimination of malaria in the Dominican Republic, it will be necessary to employ a public health model that strengthens the health system by improving local capacity to conduct surveillance, investigate suspected cases, and diagnose and treat confirmed cases. It will be necessary to carefully assess how environmental modifications and larval source management could contribute to control in affected areas and to better understand human activities and behavioral factors, including population mobility, health care seeking, and attitudes toward malaria elimination.
9. To better understand the causes of the recent increase in malaria cases, Haiti should examine program management issues and reduce shortages of anti-malarial medicines and diagnostic kits. It also will be useful to study further the increase in cases in Grand’Anse and Sud departments through careful analysis of risk factors as well as using molecular genetic tools to help ascertain whether this increase represents a clonal expansion of circulating parasites or importation events.

10. The ITFDE recommends that the two countries continue to intensify their binational cooperation to achieve island-wide elimination of both diseases. The two governments should publicize support of the goal of elimination, the documented benefits of success, and financial and political support for the elimination programs. One lesson from the polio eradication program, that only a locally initiated and directed program will be a success, should be considered and applied.
11. The ITFDE stresses that adequate and sustained external funding is needed to help Haiti and the Dominican Republic achieve island-wide elimination of both diseases. An up-to-date and robust estimate of the cost of elimination is needed again.
12. The ITFDE strongly recommends that Haiti employ a full-time, PhD-trained entomologist in the Ministry of Health whose work will focus on these elimination programs within the broader context of vector-borne disease control.