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**SUMMARY  
2023 PROGRAM REVIEW  
HISPANIOLA INITIATIVE  
THE DOMINICAN REPUBLIC AND HAITI  
APRIL 30, 2024  
THE CARTER CENTER  
ATLANTA, GA**

**SEPTEMBER 2024**

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*And to many others, our sincere gratitude.*

**Frontispiece.** The Minister of Health of the Dominican Republic, Dr. Daniel Rivera (center), other Ministry of Public Health staff and representatives from The Carter Center, the Pan American Health Organization (PAHO) and the Global Institute for Disease Elimination (GLIDE) celebrate the opening of a molecular surveillance laboratory at the Centro de Prevención y Control de Enfermedades Transmitidas por Vectores y Zoonosis (CECOVEZ) in Santo Domingo, Dominican Republic, on World Malaria Day, April 25, 2023.



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## ACRONYMS

ASCP	<i>Agents de Santé Communautaire Polyvalent</i> (Polyvalent Community Health Workers)
CDC	U.S. Centers for Disease Control and Prevention
CE	Community Engagement
CECOVEZ	<i>Centro de Prevención y Control de Enfermedades Transmitidas por Vectores y Zoonosis</i> (Center for Prevention and Control of Vector-Borne Diseases and Zoonosis)
CFA	Circulating Filarial Antigen
CHC	Community Health Council
CHW	Community Health Workers
CNICS	CFAR Network of Integrated Clinical Systems
COLCOM	Collaborative Communities
COVID-19	2019 novel Coronavirus Disease
DAS	<i>Direcciones de Áreas de Salud</i> (Health Area Directorates)
DBS	Dried Blood Spots
DPS	<i>Direcciones Provinciales de Salud</i> (Provincial Health Directorate)
DTI-R	Diagnosis-Treatment-Investigation and Response
FFI	Freedom From Infection
FTS	Filariasis Test Strip
GLIDE	Global Institute for Disease Elimination
HELP	Human Engagement Learning Platform (at Emory)
HPG	<i>Hôpital La Providence des Gonaïves</i> (Providence Hospital of Gonaïves)
HSC	<i>Hôpital Sainte Croix</i> (Sainte Croix Hospital)
HS-RDT	Highly sensitive rapid diagnostic test
IDA	Ivermectin, Diethylcarbamazine, and Albendazole
IRS	Indoor Residual Spraying
ITFDE	International Task Force for Disease Eradication
IU	Implementation Unit
LF	Lymphatic Filariasis
MDA	Mass Drug Administration
MMDP	Morbidity Management and Disability Prevention
MSP	<i>Ministerio de Salud Pública</i> (Ministry of Public Health, Dominican Republic)
MSPP	<i>Ministère de la Santé Publique et de la Population</i> (Ministry of Public Health and Population, Haiti)
NPELF	National Program to Eliminate Lymphatic Filariasis (Haiti)
PAHO	Pan American Health Organization
PCR	Polymerase Chain Reaction
PELF	Program to Eliminate Lymphatic Filariasis (Dominican Republic)
PFree	Probability of Freedom
PNCM	National Malaria Control Program (Haiti)
PTS	Post-Treatment Surveillance

RDA	Reactive Drug Administration
RDT	Rapid Diagnostic Test
RPRG	Regional Program Review Group
SSe	Sensitivity of Surveillance System Estimate
TAS	Transmission Assessment Survey
TDA	Targeted Drug Administration
USF	University of South Florida
WHO	World Health Organization

## EXECUTIVE SUMMARY

The tenth annual Carter Center Hispaniola Initiative Program Review meeting convened on April 30, 2024, in the Cecil B. Day Chapel at The Carter Center in Atlanta, Georgia. This was the first in-person Hispaniola annual program review meeting since the COVID-19 pandemic. Provision was also made for virtual participation. The purpose of the meeting was to review progress and challenges in the elimination of malaria and lymphatic filariasis (LF) in Haiti and the Dominican Republic in 2023 and to make recommendations for activities in 2024.

Attending the meeting were representatives of the ministries of health of Haiti and the Dominican Republic, Carter Center staff, partners, and donors, including representatives from Emory University, the Pan American Health Organization (PAHO), University of South Florida (USF), U.S. Centers for Disease Control and Prevention (CDC), and the Global Institute for Disease Elimination (GLIDE).

The Carter Center's Hispaniola Initiative works with the ministries of health in Haiti and the Dominican Republic to eliminate malaria and LF from the countries' shared island, Hispaniola. It is the only island in the Caribbean that has not yet eliminated malaria. It also encompasses two of the four remaining LF-endemic countries in the Western Hemisphere. In 2006, the International Task Force for Disease Eradication (ITFDE) concluded that elimination of malaria and LF from Hispaniola was "technically feasible, medically desirable, and would be economically beneficial" to both countries.<sup>1</sup> The Carter Center launched an 18-month pilot project in 2008 to foster binational cooperation by establishing a cross-border initiative in the Ouanaminthe-Dajabón border region and facilitating the creation of binational plans and budgets for malaria and LF elimination by 2020. In the years that followed, The Carter Center supported regular binational meetings to promote coordination between the Haitian and Dominican ministries of health. In 2014, The Carter Center expanded its support for malaria and LF elimination in Hispaniola, including: i) continued support for binational cooperation, ii) technical assistance to re-orient the programs from control to elimination, and iii) updating the funding needs to achieve elimination goals and help the countries to secure the necessary financial support.

The meeting was chaired by Dr. Gregory Noland, Director of The Carter Center's River Blindness, Lymphatic Filariasis, Schistosomiasis, and Malaria programs. The meeting opened with welcoming remarks from The Carter Center's Chief Executive Officer, Paige Alexander. Dr. Tedros Adhanom Ghebreyesus, Director General of the World Health Organization (WHO) provided a recorded goodwill message. Dr. Noland provided an introductory presentation for the meeting and paid tribute to Carter Center co-founder and former First Lady Rosalynn Carter, who passed away on November 19<sup>th</sup>, 2023. Notable events in 2023 included the inauguration by the Dominican Minister of Health, Dr. Daniel

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<sup>1</sup> World Health Organization (2007). "Meeting of the International Task Force for Disease Eradication - 12 May 2006." *Weekly Epidemiological Record* **82**: 25-32.

Rivera, of a Carter Center-supported molecular surveillance laboratory at the Centro de Prevención y Control de Enfermedades Transmitidas por Vectores y Zoonosis (CECOVEZ) in Santo Domingo, Dominican Republic, on World Malaria Day, April 25 (**Frontispiece**). The Dominican Republic also received a Malaria Champion of the Americas award from PAHO in November 2023.

Both Haiti and the Dominican Republic achieved significant progress against LF in 2023. The Dominican Ministry of Public Health (MSP) conducted fieldwork for a nationwide LF remapping survey (with integrated malaria testing) and a third transmission assessment survey (TAS-3) in the East region in 2023. Both surveys were completed in early 2024 and results will be reported at next year's program review meeting. Despite the further decline of security in Haiti, the Ministry of Public Health and Population (MSPP) scaled up morbidity management and disability prevention (MMDP) services by establishing an LF clinic in Gonaives, Artibonite department—the second such referral clinic in Haiti. MSPP also implemented mass drug administration (MDA) for LF in six districts (*communes*) of Nord department, including the first implementation of triple-drug ivermectin-diethylcarbamazine-albendazole (IDA) MDA (in Limonade). One commune, Dondon in Nord department, successfully 'passed' TAS-2 and 24 communes across Nippes, Nord-Est and Sud-Est departments successfully 'passed' TAS-3.

In 2023, a total of 14,708 cases of malaria were reported in Hispaniola —14,436 (98.2%) in Haiti and 272 (1.8%) in the Dominican Republic. This represents a 2.0% increase in cases versus 2022 (14,426 cases) but an 83.0% decrease in cases since 2010 when 86,635 cases were reported island-wide following the major earthquake in January of that year. Eight malaria deaths were reported in 2023 (all in Haiti), compared to 5 deaths (all in Haiti) in 2022.



## **General Recommendations for 2024: Haiti and the Dominican Republic**

1. Contribute data to develop an island-wide malaria surveillance dashboard.
2. Develop a binational partnership for serological testing.
3. Continue to provide each other with tests and treatment, when needed, to maximize resources and improve cost efficiency.
4. Conduct quarterly binational meetings between the national programs to share successes, challenges, and progress to work towards the shared goal of malaria elimination on the island.
5. Conduct bi-monthly meetings with municipalities in the border region to have a broader understanding of malaria prevalence and patterns, and interrupt malaria transmission in and around the area.
6. Develop joint communication materials translated into Spanish, French, and Haitian Creole with both Ministries' logos to strengthen binational collaboration and express binational commitment to malaria elimination on Hispaniola.

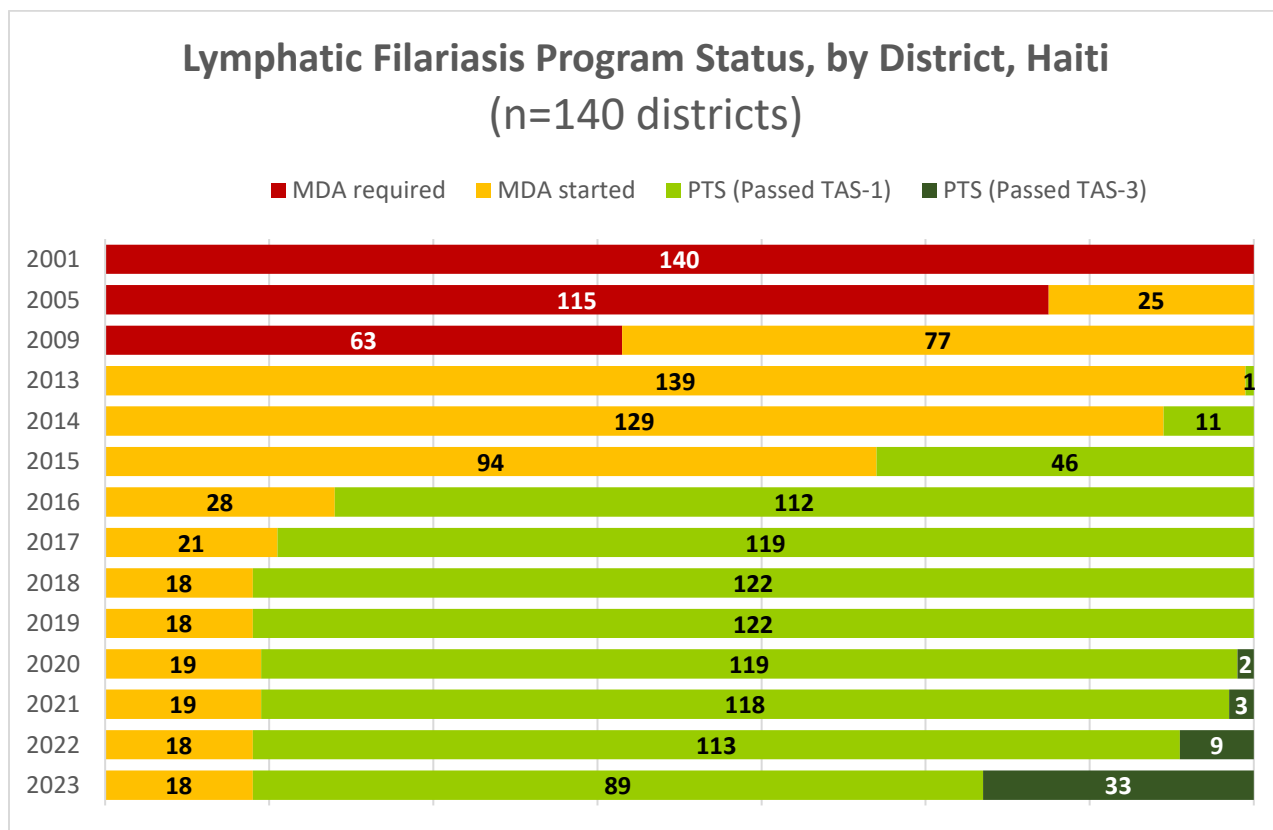
## FIGURES AND TABLES

**Table 1.** Summary of LF transmission assessment survey (TAS) results conducted in 2023, Haiti, by evaluation unit. Each row in the table is an evaluation unit.

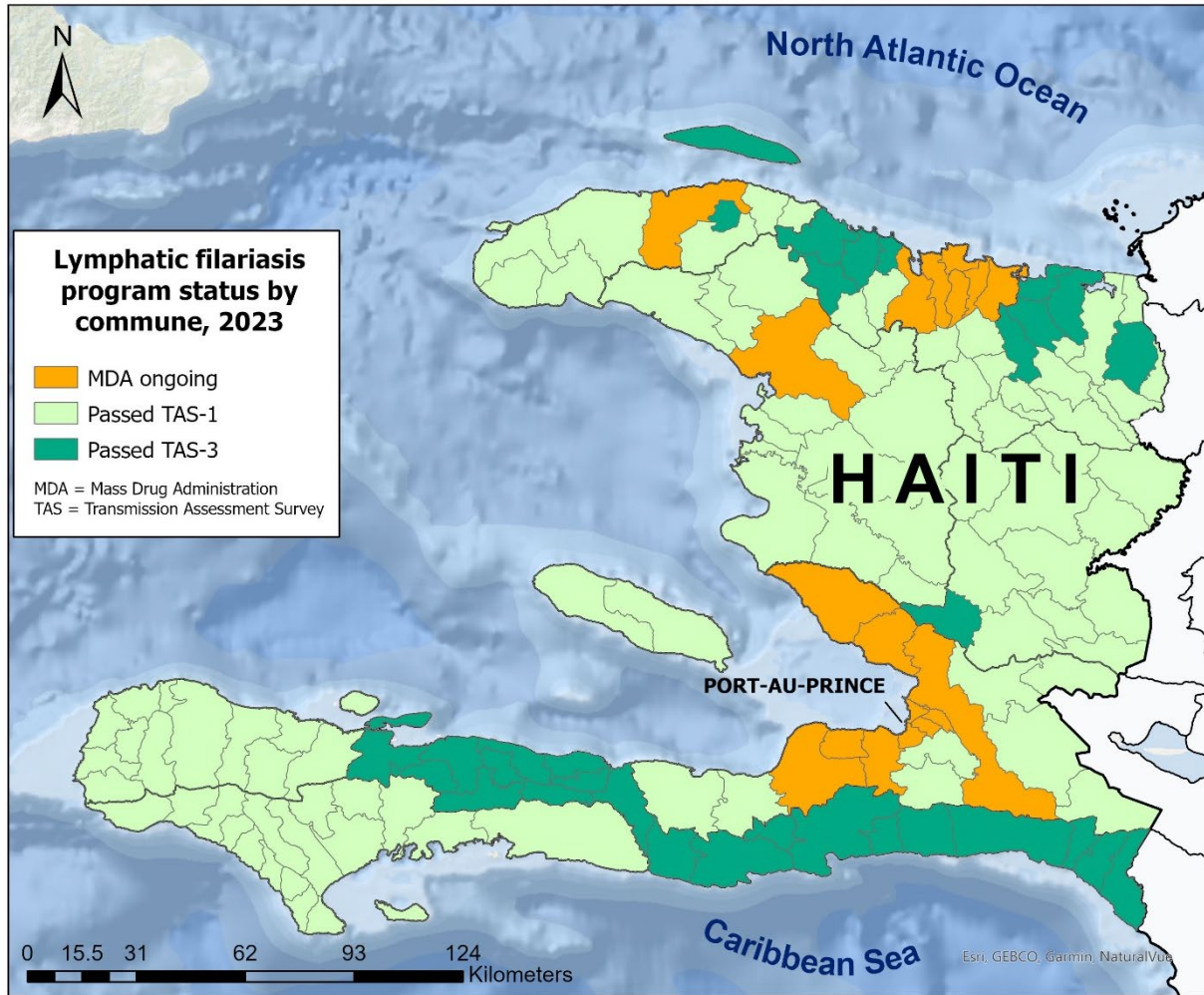
TAS	Dept.	No. of IUs	Implementation Units (IUs)	TAS Implementing Partner	Survey Date	Survey Type	Target Sample Size	TAS Critical Cut-off	No. LF FTS tested	No. LF FTS+	TAS Result
TAS-2	Nord	1	Dondon	RTI	Apr 2023	School	520	6	421*	0	Pass
TAS-3	Nord-Est	3	Sainte Suzane, Terrier Rouge, Trou du Nord	RTI	May 2023	School	1,356	16	1,234*	4	Pass
TAS-3	Nord-Est	8	Vallière, Mombin Crochu, Mont Organisé, Capotille, Fort-Liberté, Ferrier, Carice, Perches	RTI	Apr 2023	School	1,532	18	749*	0	Revisit the missing schools to complete sample collection
TAS-3	Nord	6	Grande-Riviere du Nord, Bahon, Pignon, Saint Raphael, Ranquitte, La Victoire	RTI	Apr 2023	School	1,524	18	1,072*	0	Revisit the missing schools to complete sample collection
TAS-3	Nord	1	Plaisance	RTI	Apr 2023	School	909	11	554*	2	Repeat TAS
TAS-3	Nord-Ouest	4	Mole Saint Nicolas, Jean Rabal, Bombardopolis, Baie de Henne	RTI	Apr 2023	School	1,392	16	908*	4	Revisit the missing schools to complete sample collection
TAS-3	Nippes	1	Miragoane	The Carter Center	Nov-Dec 2023	Community	1,368	16	1,416	3	Pass
TAS-3	Nippes	10	Anse-à-Veau, Arnaud, Baradères, Fonds des Nègres, Grand-Boucan, L'Asile, Paillant, Petit Trou de Nippes, Petite Rivière de Nippes, Plaisance du Sud	The Carter Center	Nov-Dec 2023	Community	1,548	18	1,607	1	Pass
TAS-3	Sud-Est	10	Anse-à-Pitre, Bainen, Belle Anse, Cayes-Jacmel, Côtes de Fer, Grand Gosier, Jacmel, La Vallée de Jacmel, Marigot, Thiotte	The Carter Center	Dec 2023	Community	1,556	18	1,587	0	Pass
	<b>TOTAL</b>	<b>44</b>					<b>11,705</b>		<b>9,548</b>	<b>14</b>	

\*Target sample size not met

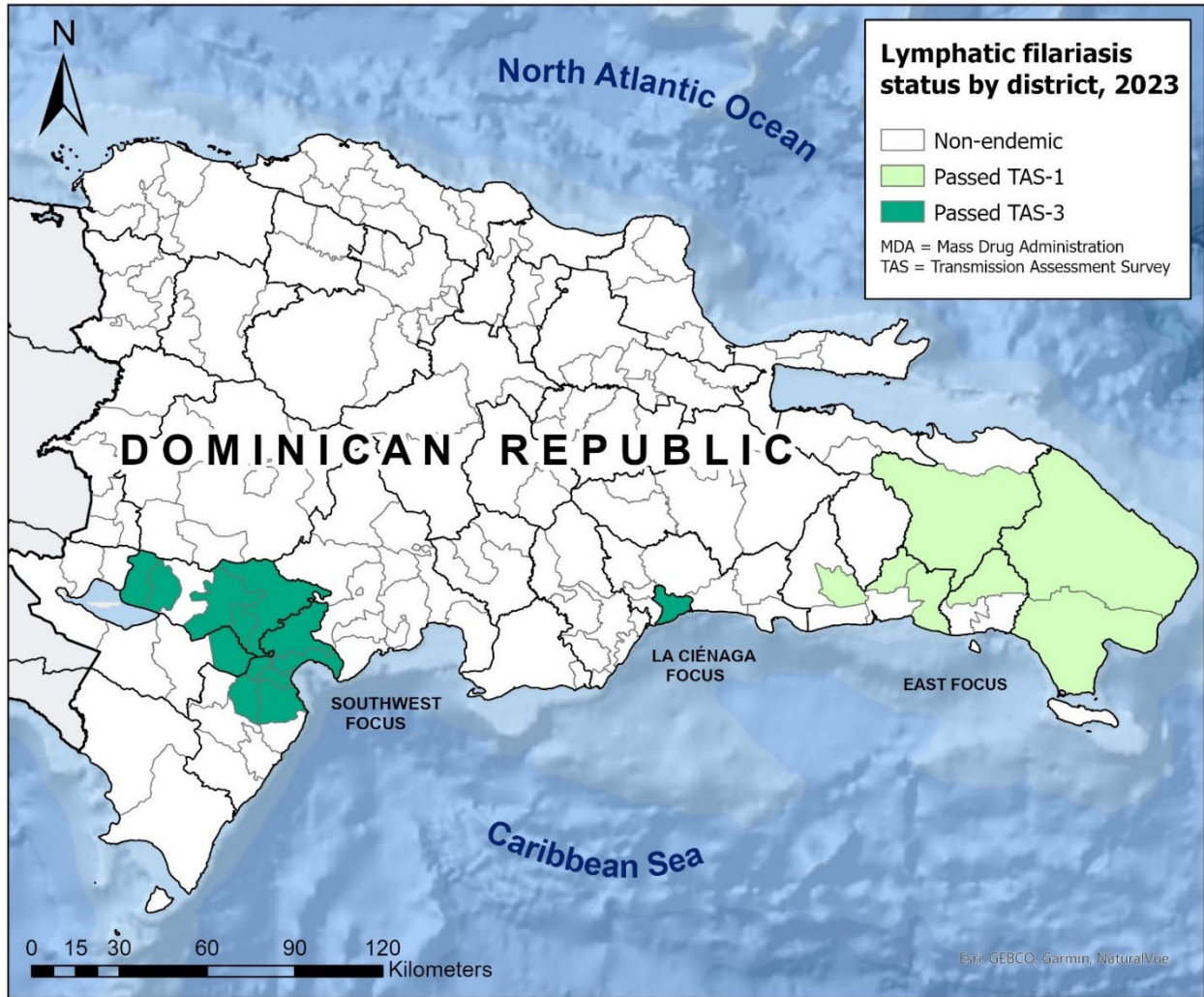
**Figure 1.** Lymphatic filariasis elimination program status over time, by district, Haiti



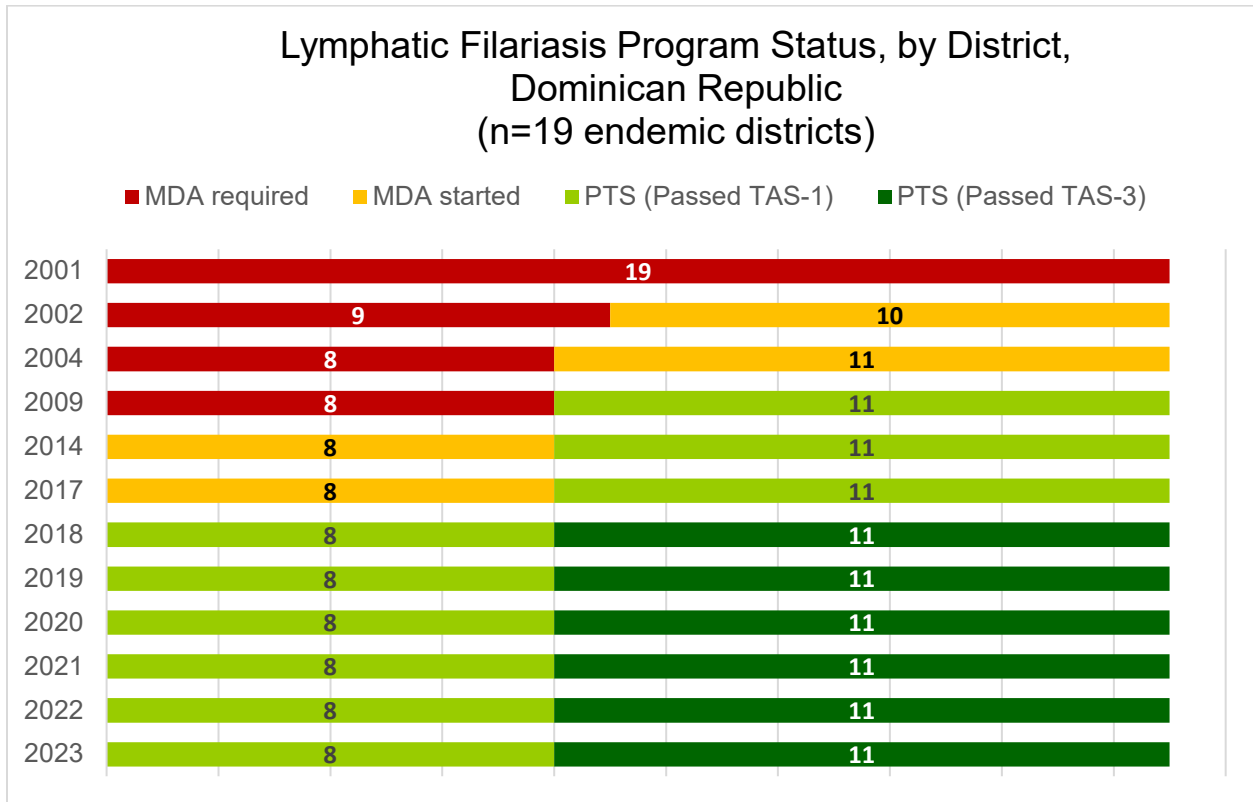
**Figure 2.** Lymphatic filariasis elimination program status, by district, Haiti, 2023



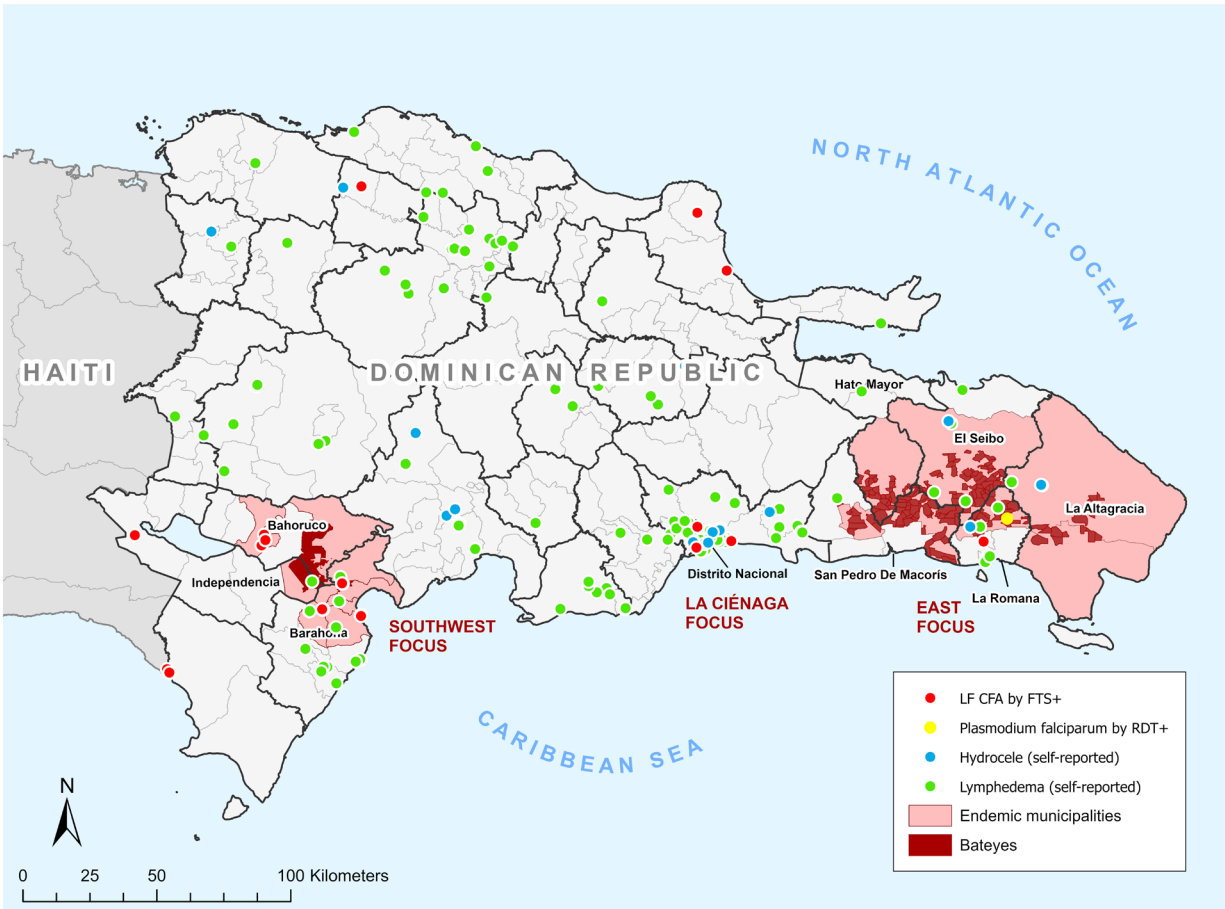
**Figure 3.** Lymphatic filariasis elimination status, by district, the Dominican Republic, December 2023



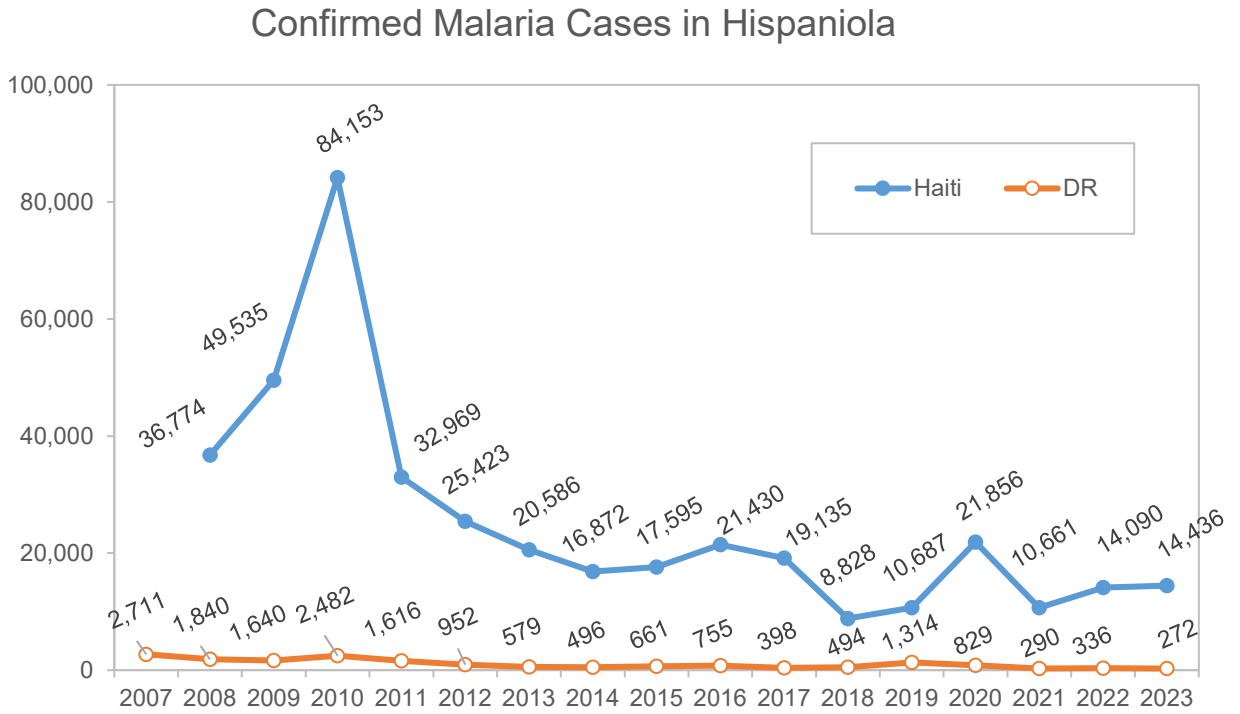
**Figure 4.** Lymphatic filariasis elimination program status over time, by district, the Dominican Republic



**Figure 5.** Preliminary LF Filariasis Test Strip (FTS), malaria rapid diagnostic test (RDT) results, and LF morbidity results (self-reported hydrocele or lymphedema), by household location, from the Dominican Republic integrated LF Remapping Survey

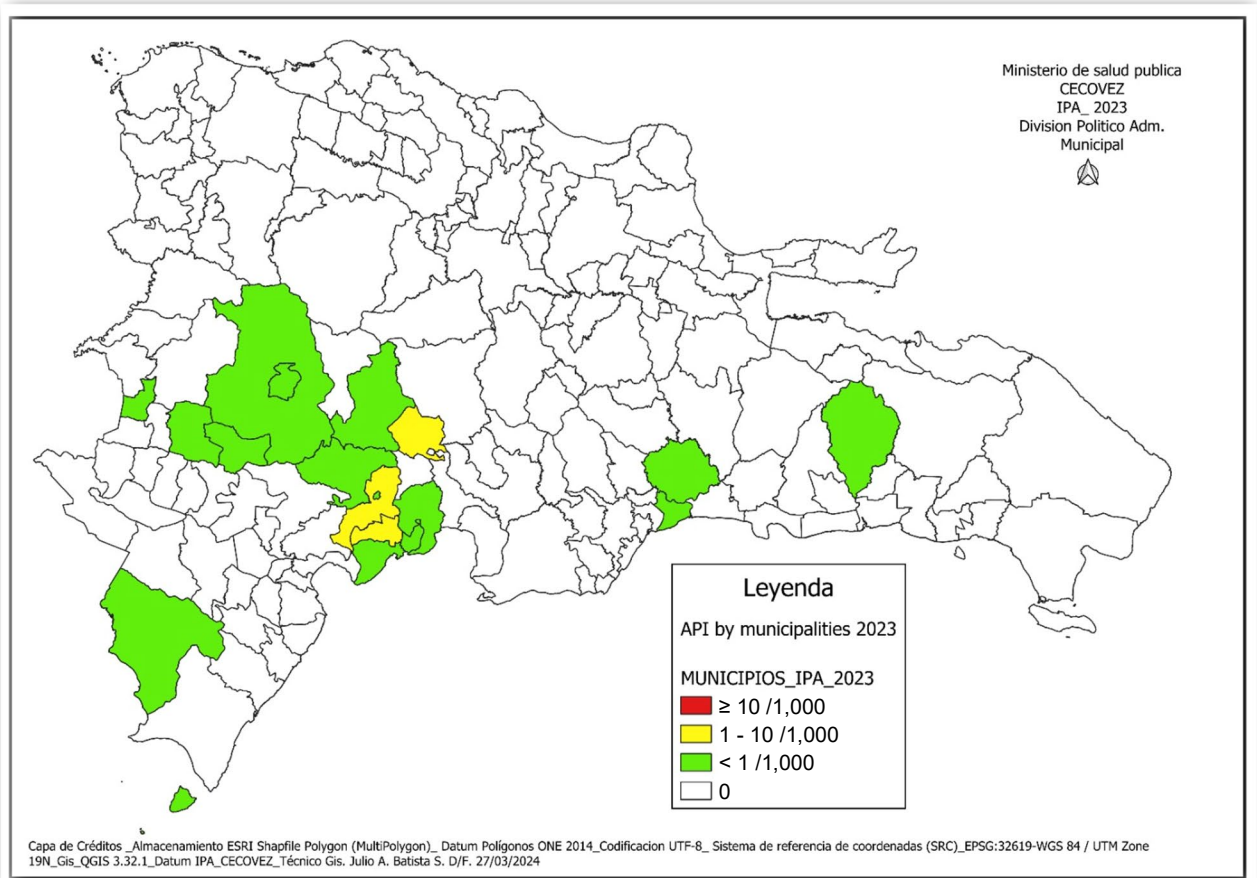


**Figure 6.** Number of Confirmed Malaria Cases in Haiti and the Dominican Republic, by year (2007–2023)

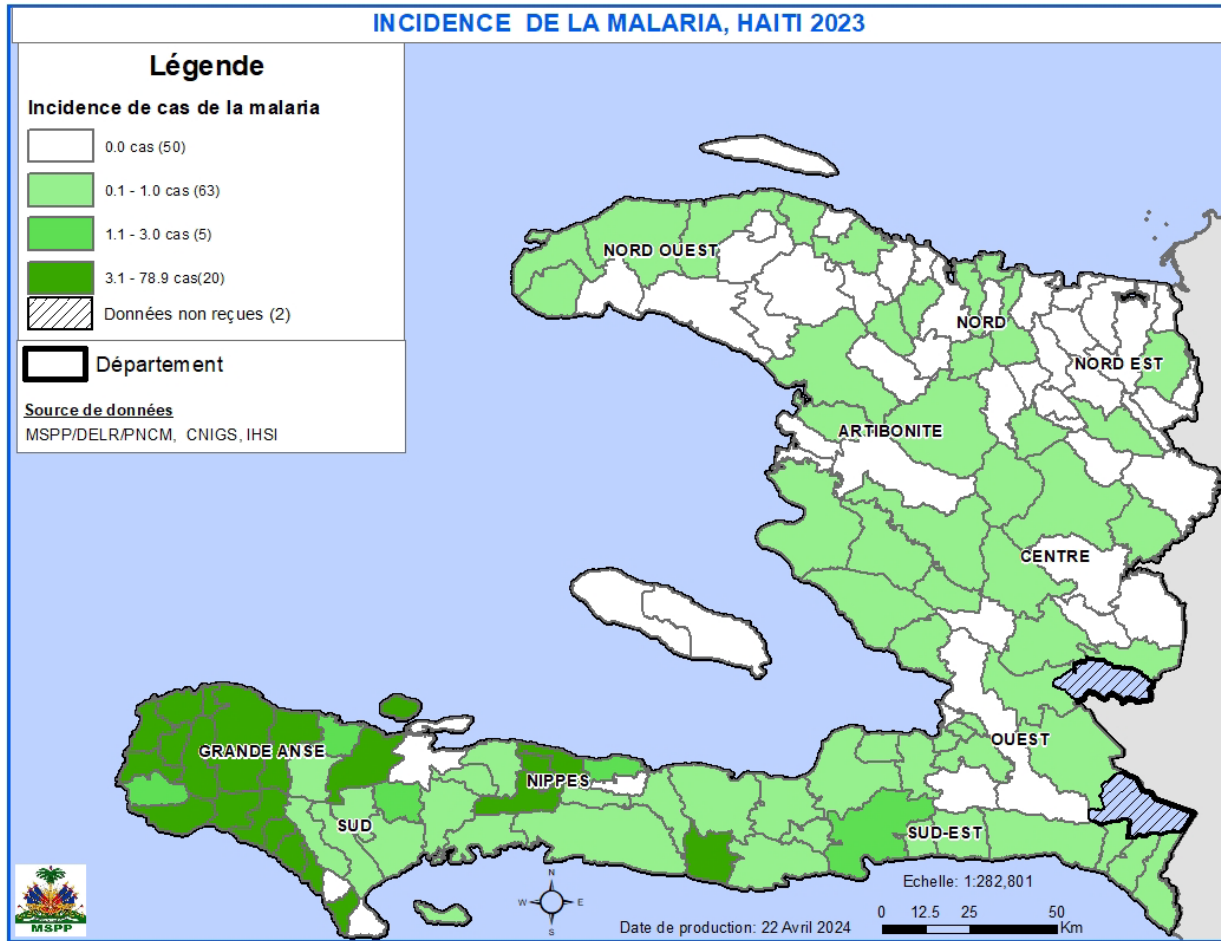




**Figure 7.** Annual malaria incidence (cases per 1000 persons), by district, the Dominican Republic, 2023



**Figure 8.** Annual malaria incidence (cases per 1000 persons), by district, Haiti, 2023



## LYMPHATIC FILARIASIS

### LF Elimination Progress in Haiti – Dr. Marc-Aurèle Telfort (MSPP)

The Haitian National Program to Eliminate Lymphatic Filariasis (NPELF) coordinates LF elimination activities for MSPP. In 2023, work in Haiti continued to be hindered by political instability, and security concerns due to an increase in gang violence, kidnappings, and roadblocks. Of the 18 remaining endemic districts (*communes*) in need of MDA, MSPP conducted six MDA campaigns in 2023, including the first full-scale program implementation in Limonade of triple-drug IDA in Haiti. Reported epidemiological coverage was 69% in Cap-Haitien, 68% in Milot, 65% in Quartier-Morin, 99% in Acul-du-Nord, 79% in Plaine-du-Nord, and 75.6% in the IDA in Limonade. In 2023, sentinel and spot-check surveys (pre-transmission assessment surveys [pre-TAS]) were conducted in Acul-du-Nord and Port-de-Paix districts after previously failing pre-TAS. Results indicated that both urban areas failed the pre-TAS and both rural areas passed. As a result, MSPP plans to conduct TAS in the rural areas and continue MDA in the urban areas.

Among the 122 districts nationwide that have met criteria to stop MDA, post-treatment surveillance (PTS) surveys were conducted in 44, organized into nine evaluation units (EUs) for TAS in 2023 (**Table 1**). The six evaluation units that used school-based sampling failed to achieve a sufficient sample size. The Regional Program Review Group (RPRG) considered Dondon (Nord department) to have passed TAS-2 with 0 children testing positive for CFA. Eight TAS-3 (5 school-based and 3 community-based) were conducted in 43 communes across Nippes, Nord, Nord-Est, Nord-Ouest, and Sud-Est departments. The three Carter Center-assisted community-based surveys in 21 districts of Nippes and Sud-Est departments achieved sufficient sample size and passed TAS-3 meaning that epidemiological criteria for LF elimination as a public health problem have been achieved in these areas. In five EUs where the target sample size was not met, the RPRG considered the result from one EU (Sainte Suzanne, Terrier Rouge, Trou du Nord) as passed. In the other EUs, sampling of additional schools was recommended in 3 EUs in the Nord, Nord-Est, Nord-Ouest departments, whereas fully repeating TAS-3 was recommended in one EU (Plaisance) in the Nord department. Ten TAS (5 TAS-2 and 5 TAS-3) planned in 2023 were not conducted due to security concerns. By the end of 2023, 18 districts remain in need of MDA, while 122 districts had passed TAS-1, of which 33 had also passed TAS-3 (**Figures 1 and 2**). Carter Center-supported surveys were monitored by Carter Center staff by daily cleaning of survey submission data and monitoring localities of field staff. Monitoring also included daily communication with field staff during TAS activities.

Scale-up of MMDP in 2023 included integrating LF care and services into Hôpital La Providence des Gonaïves (HPG) in Gonaïves, Artibonite department, in February 2023. This marks the second facility in Haiti along with Hôpital Sainte Croix (HSC) in Léogâne, Ouest department to support LF morbidity management. HSC reported 527 LF clinical care visits and the participation of 3,932 LF patients in psychosocial activities during 2023, while HPG reported 36 LF care visits. Additionally, the Carter Center assisted MSPP by training 27 health professionals in the Artibonite department in LF MMDP.

*LF Elimination Progress in the Dominican Republic - Dr. Jose Luis Cruz Raposo, on behalf of Dr. Manuel Gonzales (MSP)*

In 1998, the Dominican MSP created the Program to Eliminate Lymphatic Filariasis (*Programa de Eliminación de la Filariasis Linfática* [PELF]) with the goal of eliminating LF as a public health problem by 2020. Baseline mapping conducted from 1999–2003 and finished in 2007 (after a pause due to global test kit shortages and performance issues) revealed that transmission was limited to 19 (12%) of 155 municipalities, classified as LF-endemic and in need of MDA, clustered into three geographic foci (**Figure 3**): Southwest (comprising 10 districts), East (8 districts)—two vast agricultural regions—and La Ciénaga (1 district), a small urban focus in the national district of Santo Domingo (distinct from La Ciénaga of Santo Domingo West, a recent malaria transmission focus). After a series of MDA campaigns, by 2018, LF antigen prevalence was less than 2% in all foci and MDA had stopped (**Figure 4**). Post-treatment surveillance (PTS) surveys conducted in the Southwest (2009, 2012, 2018, and 2020), in La Ciénaga (2011, 2014, 2018, and 2021), and in the East (2018 and 2021) indicate that transmission is below hypothesized sustainable levels and that MDA remains unnecessary. PELF’s revised goal is to eliminate LF as a public health problem by 2025.

A TAS-3 in the East focus began in 2023 but was not completed due to the expiration of filariasis test strip (FTS) diagnostic tests and health workers’ days off for the holiday season. Samples collected by the end of 2023 (625 children ages 6-7 years and 540 adult household members ages 15 years or older) represented about two-thirds of the targeted sample size (909 in each age group). None (0%) of the samples collected in 2023 were positive for LF or malaria. Sample collection was completed in early 2024 and results will be presented at next year’s program review meeting. If LF antigenemia in children 6-7 years remains less than 2%, MSP will have met WHO epidemiological criteria for having eliminated LF as a public health problem. Integrating LF MMDP care into primary health care is still needed in areas with known LF patients. Fieldwork also continued for the nationwide integrated re-mapping survey that started in 2022 to estimate the prevalence and spatial distribution of LF, LF-associated morbidity and malaria (refer to following section).

*Nationwide Remapping Survey in the Dominican Republic - Dr. Karen Hamre (The Carter Center)*

Due to the time that has elapsed since the baseline mapping surveys for LF and population mobility within the country, the Carter Center and MSP launched a nationwide integrated re-mapping survey in 2022 to estimate the prevalence and spatial distribution of LF, LF-associated morbidity, and malaria. Data collection was completed in February 2024 in time for presentation at the April program review meeting. Within each of the 40 MSP Provincial Health Directorate/Health Area Directorates (DPS/DAS), up to 30 barrios (neighborhoods) were randomly sampled, plus six barrios outside the three LF historic transmission foci in which LF circulating filarial antigen (CFA)-positive individuals were detected during 2016 in an integrated LF-malaria survey.<sup>2</sup> Within each barrio, 16 households were selected, and within each household, one present household member aged 6 years or older was randomly selected to participate. Blood samples were also requested from additional household members who reported current fever or LF morbidity. Blood samples were collected in microtainer tubes and later tested at a central laboratory for LF CFA by FTS and malaria *P. falciparum*/Pan antigens by rapid diagnostic tests (RDT); dried blood spots (DBS) also were prepared for future serological and molecular diagnostic analysis.

Nationwide, 16,753 persons from unique households consented/assented to participate, plus 73 additional household members. Results indicate 19 (0.1%) of 16,115 participants with valid results across 40 DPS/DAS tested positive for LF CFA by FTS, 166 (1.0%) of 16,127 self-reported lymphedema, 20 (0.3%) of 6,275 adult males self-reported hydrocele, and 1 (0.01%) of 16,521 with valid results tested positive for *P. falciparum* malaria by RDT (**Figure 5**). Among the 19 individuals (ages 21–68 years) who tested positive for LF CFA, none (0) of the 18 tested in follow-up were positive for microfilariae by microscopic examination of night blood samples. Eleven (11) of these individuals were born in the *barrio* of their current residence; only one was born in neighboring Haiti, and one self-reported lymphedema. At the time of night blood sample collection, each individual was treated with diethylcarbamazine and albendazole. These results indicate there is no evidence of active LF infection in the study areas. The individual who tested positive for malaria was lost to follow-up and a confirmatory blood slide was not prepared. This individual was not febrile and did not have a travel history (within 30 days). PCR testing of collected DBS to be conducted at the CECOVEZ molecular surveillance lab will determine whether this was a true or false positive. Performing rapid tests at the time of collection at households, instead of at a central laboratory, may minimize losses to follow-up in the future to ensure treatment. None of the 73 additional household members with current fever (68) and/or LF morbidity (6) tested positive for LF CFA by FTS or malaria by

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<sup>2</sup> Keys, H. M., et al. (2019). "Prevalence of malaria and lymphatic filariasis in bateyes of the Dominican Republic." *Infect Dis Poverty* 8(1): 39.

RDT. These results will strengthen the country's LF elimination dossier and will inform WHO frameworks to verify elimination of LF transmission—a more rigorous criteria than elimination as a public health problem.

### **Recommendations for 2024: Haiti - LF**

1. Convene regular (at least annual) partner meetings to coordinate activities.
2. Resume LF MDA with enhanced community sensitization in 9 (those outside of metro Port-au-Prince) of the 18 remaining endemic districts, as security situation permits.
3. Conduct LF TAS, including scheduled surveys and those delayed due to insecurity, as security situation permits.
4. Continue to scale up LF MMDP activities by organizing workshops to train clinical staff and establish a designated referral center for LF care in the North and Northwest departments.
5. Publish results from the 2021 Carter Center-assisted integrated malaria-LF MDA coverage and prevalence surveys in Léogâne and Gressier.

### **Recommendations for 2024: Dominican Republic - LF**

1. Complete the TAS-3 in the East focus.
2. Publish results of TAS-3 and other PTS surveys.
3. Strengthen MMDP by integrating MMDP into primary care services and organizing workshops to train clinical staff at the primary care level.
4. Finalize and submit for WHO/PAHO validation the dossier claiming LF elimination as a public health problem.
5. Complete the integrated LF remapping survey.
6. Publish results of integrated LF remapping survey.
7. If final results of the remapping survey indicate foci of potential LF transmission, develop a follow-up surveillance strategy.
8. Develop a post-validation surveillance strategy to help inform criteria to attain WHO verification of LF elimination of transmission.
9. Resume and consider expanding Hope Clubs with an enhanced focus on sustainability.

## MALARIA

### Malaria Elimination in the Dominican Republic – Dr. Keyla Ureña (MSP)

The Dominican MSP reported a total of 272 cases of malaria with zero deaths in 2023. This represents a 19.0% decrease from the 336 cases reported in 2022 (**Figure 6**) and the lowest number of annual cases reported since 1975 (159 cases). The majority (148; 54.4%) of all cases reported in 2023 were detected by passive surveillance and 1,232 (45.6%) by active surveillance conducted by community health workers. There were 254 autochthonous cases detected (all *P. falciparum*) and 18 imported cases (16 *P. falciparum* and 2 *P. vivax*). The number of imported cases increased from 17 (5.1% of the national total) in 2022 to 18 (6.6% of the national total) in 2023. Areas of origin include Haiti (8), Africa (6), and South America (4). Geographically, 89% of cases occurred in two foci: San Juan (45%) and Azua (44%). Cases were reported in 16 (10.3%) of 155 municipalities (districts), down from 25 (16.1%) municipalities reporting cases in 2022. Incidence was <1 case per 1000 persons in all but the district of Tábara Arriba in Azua, which had an incidence of 1.6/1000 persons in 2023 (**Figure 7**). In response, MSP conducted indoor residual spraying (IRS) in the Azua foci and distributed bed nets in the Azua, San Juan, Los Tres Brazos, La Ciénaga, San Cristóbal, and La Altagracia foci in 2023. In addition, the DPS trained health personnel on the DTI-R (diagnosis, treatment, investigation, and response) strategy, and the community surveillance network (*colaboradores comunitarios* [COLCOM]) was expanded. The results of these efforts are reflected in the nationwide reported numbers of persons tested for malaria, which increased 34.4% from 77,728 in 2022 to 104,446 in 2023.



*Ethnographic Study for Malaria in the Dominican Republic – Dr. Hunter Keys  
(Independent Consultant)*

This presentation shares findings from a series of qualitative studies carried out over several years in Santo Domingo, which reported the majority of malaria cases in the country from 2015–2020. Over that time period, MSP implemented a community health worker (CHW) strategy, in which COLCOMs conducted case detection, treatment, and referral for malaria. A longitudinal, qualitative study was carried out from 2018–2023 to study the social dynamics of the CHW project. Based on observational data, informal conversations, and in-depth interviews with former malaria patients, CHWs, clinicians, and other neighborhood contacts, the study found that the CHW project was more than an intervention for malaria – it became a means to enact locally meaningful values like companionship, reciprocity, and "showing face." In effect, when certain conditions and relations were optimal, the CHW project worked in everyone's favor: CHWs diagnosed and treated malaria more quickly, ultimately leading to reduced transmission, while residents and CHWs could enact values that were important to them, improving social connectedness and well-being in spaces of marginalization. A virtuous circle formed linking timely diagnosis and treatment, increased trust and engagement, and increased CHW morale.

*Brokered Design: Community-Driven Learning – Karla Estudillo Fuentes (Emory University)*

Effective community engagement (CE) is crucial for achieving the ambitious goal of malaria elimination, especially within marginalized or neglected communities. *Brokered Design* was initially developed by the Human Engagement Learning Platform (HELP) at Emory University in collaboration with The Carter Center, to address declining participation in MDA for LF elimination in Haiti. This approach, aimed at redesigning programs with stakeholders to enhance participation, has been adapted to malaria elimination efforts in the Dominican Republic. After planning in 2023, the first co-design round of *Brokered Design* occurred in January 2024 in the San Juan and Azua regions, employing a rapid assessment through community conversations to inform a communications strategy for a reactive drug administration (RDA) campaign. Prompted by a malaria outbreak in these regions in the Dominican Republic, these community conversations engaged diverse participants (n=36), ranging from CHWs to non-Spanish-speaking agricultural workers. Key insights from these conversations included the importance of recognizing and safeguarding close relationships within the community, incorporating community partners into engagement strategies respecting all community members, favoring in-person communication channels, providing comfortable settings for conversations with community members, ensuring inclusivity and fairness of communications, and explaining and justifying the health interventions. The insights are being used to guide the MSP in its malaria risk communications strategy.

Consequently, the results of the rapid assessment have supported the initiatives undertaken to hire ethnically diverse health workers, involve community groups in strategy implementation, and shape key intervention messages with the national communications team. The rapid assessment served as an initial step in a broader application of *Brokered Design* to support organizational learning for MSP and its partners to align health intervention designs and implementations with the interests of community stakeholders. Subsequently, HELP has engaged with the national health communications team, MSP, and partners to test messages in communities as a response to the learning from the rapid assessment. We describe subsequent applications of the *Brokered Design* method in the MSP's developing communications strategy and highlight other potential applications of the method in global health programs.

*Freedom From Infection in the Dominican Republic – Dr. Gillian Stresman (USF)*

Proving that a disease has been eliminated is not practical using conventional statistical tools. However, it is possible to measure the probability that infections would be detected if they exist, given the current surveillance system in place. Building on our previous work, we further refined the Freedom From Infection (FFI) models, developed to provide quantitative information to support programmatic decision-making for malaria elimination. The refined models incorporate information on infections detected within the routine malaria surveillance system confirmed to be imported and include information on underlying transmission, defined by facilities classified by the MSP as part of an eliminated, residual-active, or active foci. This presentation started with an overview of the FFI project, and the data collection conducted to estimate the sensitivity of the surveillance system (S<sub>Se</sub>) and the corresponding probability of freedom (P<sub>Free</sub>). Data available for analysis consisted of both information provided by the MSP from the malaria surveillance system, data abstracted on-site in 48 healthcare facilities, and health system interviews. Next, we shared results on the validation of the routine data, where information reported to the surveillance system was compared with the full set of data collected on-site in a subset of 6 facilities. Overall, based on the data available at the facility, the variables compared were reasonably concordant except for the number of fever cases reported per month. The available data, when combined with information from the health system interviews, was sufficient to apply to the models. Next, we presented how including information on imported infections improves the results of both S<sub>Se</sub> and P<sub>Free</sub>: imported infections do not reflect transmission but are a sign that the surveillance system is functioning well. Finally, we presented the impact of including information on the type of foci where the facility was located as a proxy for the underlying transmission. One key finding here is that testing rates were found to be ~3 times lower in facilities within eliminated and residual active foci. Overall, the expanded FFI framework was successfully applied to the context in the Dominican Republic, and if validated, the FFI model outputs could provide information to support programmatic decision-making to support malaria elimination.

### Malaria Elimination Progress in Haiti – Dr. Marc-Aurèle Telfort (MSPP)

The Haitian National Malaria Control Program (*Program National de la Contrôle de la Malaria* [PNCM]) coordinates malaria elimination activities for MSPP. The goal of the Revised National Strategic Plan for the Elimination of Malaria in Haiti (2020 – 2025) is the elimination of malaria by 2025, measured by zero cases of autochthonous malaria transmission and zero malaria deaths by 2025. In 2023, there were provisionally 14,436 cases of malaria (**Figure 6**) and 8 malaria deaths reported in Haiti. This represents a 2.5% increase in cases, compared to 14,090 cases reported in 2022 and a 60.0% increase in reported malaria deaths versus 2022 (5 deaths). The slight increase in cases occurred despite a 21.0% decrease in the number tested, from 228,872 in 2022 to 180,881 in 2023. Nonetheless, 2023 represents a nearly 6-fold decrease in malaria cases since 2010, when 84,153 cases were reported following the major earthquake in January of that year. Over 97% of 2023 malaria cases were reported from four departments: Grand'Anse (50.2%), Sud (35.5%), Nippes (6.3%), and Sud-Est (5.3%) (**Figure 8**). Overall, the country continues to move towards elimination: in 2023, more districts reported zero cases in the past three years with strong surveillance (31 as compared to 29 in 2022), and fewer districts had more than 50 cases in the past three years (33 as compared to 42 in 2022). In 2023, 4 new community health councils (CHCs) were established totaling 94 operational CHCs in communes with high malaria transmission, particularly in Grand'Anse (59) and in Sud (35). MSPP provided training to 23 CHCs in Sud department and 42 journalists in 5 departments (Grande Anse, Sud, Nippes, Sud-Est and Ouest) on malaria elimination efforts. MSPP trained 1000 Polyvalent Community Health Workers (ASCPs) to conduct RDT-testing for suspected cases, treat positive, uncomplicated malaria cases, and refer complicated cases to local health facilities. Additionally, 667,606 long-lasting insecticidal nets were distributed with support from the Global Fund to Fight AIDS, Tuberculosis and Malaria during mass campaigns in 7 departments in 33 communes. Carter Center-supported CHCs in Grand'Anse and Sud conducted sensitization campaigns before and after the distribution.

## **Recommendations for 2024: Dominican Republic - Malaria**

1. Urge the Dominican MSP to finalize and release an updated national strategic plan for malaria.
2. Establish routine malaria partners meetings to share progress and work plans to maximize efforts and resources to align with implementing the national strategic plan.
3. Collaborate with partners to train MSP laboratorians to conduct molecular laboratory assays, including polymerase chain reaction (PCR) diagnosis of malaria and multiplex serological assays.
4. In collaboration with USF, apply the Freedom From Infection (FFI) framework to evaluate the sensitivity of the existing malaria surveillance systems in the Dominican Republic.
5. Maintain malaria testing capacity nationwide, including in residual-active and eliminated foci.
6. Integrate community health worker (CHW) surveillance data into national surveillance system.
7. Orient surveillance systems and facility-based records to prepare for certification of malaria elimination.
8. Consider contributing data to develop an island-wide malaria surveillance dashboard.
9. Consider aggressive approaches (e.g., expanded community-based testing and treatment, indoor residual spraying [IRS], and possible targeted drug administration [TDA] towards agricultural workers and migrant populations) to halt the geographically shifting series of malaria outbreaks in the Dominican Republic.
10. Consider transitioning to non-pyrethroid insecticides (e.g., Actellic300CS, which has been used in Hispaniola, to which no historic resistance in *Anopheles albimanus* has been detected) in IRS campaigns.
11. Strengthen understanding of migrant populations in malaria outbreak areas (San Juan and Azua) to improve malaria awareness and increase acceptance of testing and uptake of malaria medications.
12. Publish results of ethnographic research conducted in malaria outbreak-affected areas of Santo Domingo. Refine community engagement (CE) strategies for interrupting malaria transmission based on results.
13. Enhance support for binational collaboration to interrupt malaria transmission in and around the cross-border areas.
14. Consider the feasibility of applying novel approaches (e.g., use of highly sensitive rapid diagnostic tests [HS-RDT] for reactive case detection) to identify and treat more asymptomatic infections.
15. Consider establishing molecular and genomic surveillance to evaluate for antimalarial resistance, parasite connectivity, and parasite diversity to inform treatment policy decisions, malaria patient care, and disease control on the island and to strengthen binational collaboration with Haiti.
16. Consider developing joint communication materials translated into Spanish, French, and Haitian Creole with both Ministries' logos to reinforce the involvement and collaboration of Haitian migrants in the malaria elimination on Hispaniola.

17. Re-initiate routine binational meetings between the national programs to share successes, challenges, and progress to work towards the shared goal of malaria elimination on Hispaniola.

### **Recommendations for 2024: Haiti - Malaria**

1. Urge the Haitian MSPP to finalize and publish the Revised National Strategic Plan for Malaria Elimination 2020-2025.
2. Establish routine malaria partners meetings to share progress and work plans to maximize efforts and resources to align with implementing the national strategic plan.
3. Consider contributing data to develop an island-wide malaria surveillance dashboard.
4. Publish on the Haitian MSPP website the community health council (CHC) Implementation Manual and Monitoring and Evaluation Handbook developed to assist malaria elimination efforts in Haiti.
5. Collaborate with other programs at the Haitian MSPP to utilize CHCs for other health activities.
6. Consider the feasibility of applying novel approaches (e.g., use of highly sensitive rapid diagnostic tests [HS-RDT] for reactive case detection) to identify and treat more asymptomatic infections.
7. Consider re-establishing molecular and genomic surveillance to evaluate for antimalarial resistance, parasite connectivity, and parasite diversity to inform treatment policy decisions, malaria patient care, and disease control on the island and to strengthen binational collaboration with the Dominican Republic.
8. Consider developing joint communication materials translated into Spanish, French, and Haitian Creole with both Ministries' logos to strengthen binational collaboration and express binational commitment to malaria elimination on Hispaniola.
9. Re-initiate routine binational meetings between the national programs to share successes, challenges, and progress to work towards the shared goal of malaria elimination on Hispaniola.

## **BINATIONAL**

### *Cross Border Collaboration – Dr. Luccène Désir (The Carter Center)*

This presentation focused on the successes and challenges of the cross-border collaboration between Haiti and the Dominican Republic. The main goal of the Hispaniola Initiative is to assist both countries in eliminating malaria and lymphatic filariasis and to promote collaboration between the two nations. The collaborative work between Haiti and the Dominican Republic has been recognized and has demonstrated both countries' commitment to reducing malaria transmission at the border. This presentation highlighted examples of collaboration between the countries when they shared tests and treatment for malaria and lymphatic filariasis. In November 2023, the LF program in the DR received treatment (diethylcarbamazine and albendazole) from Haiti while the DR began TAS activities in the East region. The last MDA was conducted in the DR in 2017 and since then no treatment request has been submitted to WHO. Additionally, in November 2023, the Carter Center facilitated a formal introduction between the director of CECOVEZ and the Haiti national LF and malaria coordinator. Despite the many challenges, they both understood that there are opportunities to maintain this collaboration, and even more so now that the countries are closer to achieving the goal of elimination. Currently, there is a gap in communication and collaborative work between the programs. However, working together to increase communication and collaboration can be beneficial to enhance surveillance systems on both sides of the island. The presentation suggested the Ministries of Health maintain and improve cross-border collaboration by: 1) resuming binational meetings between the national programs quarterly (2) sharing data on malaria surveillance (3) enhancing communication and (4) developing joint surveillance strategies (xeno-monitoring) between municipalities at the border region.

## **ANNEX 1. Milestones: Hispaniola Initiative**

**2023:** The Carter Center and the Dominican MSP commenced TAS-3 in the East Foci and inaugurated a molecular lab at CECOVEZ. Despite ongoing security challenges, The Carter Center and the Haitian MSPP conducted three LF TAS-3 in Haiti, established four more malaria CHCs in Sud department, Haiti, and capacitated Hôpital La Providence in Gonaïves, Artibonite department, as the nation's second LF MMDP service facility. The Dominican Republic received a Malaria Champion of the Americas award from PAHO.

**2022:** The Carter Center and the Dominican MSP commenced the integrated DR LF Remapping Survey. Despite ongoing security challenges, the Carter Center and MSPP conducted LF TAS in three districts in Haiti. The Carter Center established 19 more malaria CHCs in Sud department, Haiti.

**2021:** The Dominican Republic reported the lowest number of malaria cases in the country (290) since 1975 (when there were 159). PTS surveys for LF were completed in the East and La Ciénaga foci of the Dominican Republic that indicated LF transmission remained interrupted in both foci. The country launched the first-ever support group for LF patients. The Carter Center and MSPP conducted surveys to measure post-LF MDA coverage and LF and malaria prevalence in Leogane and Gressier districts, Haiti. Haitian president Jovenel Moïse was assassinated on July 7<sup>th</sup> exacerbating instability in the country. Progress reports on efforts to eliminate malaria and lymphatic filariasis from Hispaniola were presented to ITFDE.

**2020:** The COVID-19 pandemic disrupted public programs globally. The Carter Center supported two rounds of MDA for LF in Léogâne and Gressier, Haiti—one in February–March (delayed from 2019) and one in December. The Carter Center established an additional 12 CHCs in Haiti and supported CE for a second Malaria Zero MDA campaign. PTS surveys for LF were completed in the Southwest focus of the Dominican Republic; results indicated LF transmission remained interrupted.

**2019:** The Carter Center established 36 more CHCs in Grand'Anse, Haiti.

**2018:** The East focus passed TAS-1, meaning all formerly LF-endemic areas of the Dominican Republic qualify to stop MDA. In partnership with Malaria Zero, The Carter Center established 23 CHCs in Haiti and supported CE for a pilot IRS-MDA campaign in select areas of Grand'Anse, Haiti.

**2017:** The Dominican Republic and Haiti won a Malaria Champions of the Americas Award recognizing their outstanding work in interrupting malaria transmission and developing local systems to access malaria diagnosis and treatment.



**2016:** The Carter Center conducted a survey for malaria and LF in agricultural areas across the Dominican Republic to investigate the burden of these diseases in isolated communities historically suspected of being reservoirs for disease transmission.

**2015:** The Carter Center, the ministries of health in Haiti and the Dominican Republic, and other partners formed a consortium, known as the Malaria Zero alliance, with funding from the Bill & Melinda Gates Foundation, to accelerate malaria elimination on Hispaniola. The Carter Center led CE to promote and deliver community-based interventions for malaria elimination as part of Malaria Zero activities, The Carter Center staff helped develop curriculum and served as instructors for malaria elimination training for MSPP staff, and drafted plans for Malaria Zero implementation.

**2014:** The Hispaniola Initiative expanded institutional support for malaria and LF elimination in Hispaniola. In Haiti, The Carter Center participated in meetings to update Haiti's National Strategic Plan for malaria. In the Dominican Republic, The Carter Center provided financial support for LF MDA launching in the East and technical assistance for an LF TAS in the La Ciénaga area of Santo Domingo. The Carter Center also commissioned an economic study to provide an updated cost of eliminating malaria and LF in Hispaniola. Progress reports on efforts to eliminate malaria and LF in Hispaniola were presented to ITFDE.

**2013:** The Carter Center sponsored additional meetings to continue binational coordination of malaria and LF elimination activities.

**2012:** The Carter Center sponsored four binational meetings to update malaria and LF elimination plans. In November, ITFDE reviewed progress on malaria and LF elimination in Hispaniola.

**2011:** President Carter participated in the first launching of MDA for LF in metropolitan Port-au-Prince, Haiti.

**2010:** In January, Haiti experienced a massive earthquake, causing significant loss of life and physical destruction.

**2009:** Haiti and the Dominican Republic produced a binational plan to eliminate malaria in Hispaniola by 2020. Haiti also produced a national plan to eliminate LF by 2020. In October, President Carter met with heads of state of both countries to mobilize support for these plans.

**2008:** The Carter Center helped the ministries of health establish a cross-border pilot project to target malaria in Ouanaminthe, Haiti (pop. 92,000), and Dajabón, Dominican Republic (pop. 27,000). The project included purchase and distribution of insecticide-

treated bed nets; provision of laboratory supplies, motorbikes, and other equipment; training for health staff; and protocol standardization for malaria diagnosis and treatment.

**2006:** ITFDE concluded that implementation of an integrated comprehensive program to eliminate both malaria and LF on the island of Hispaniola is technically feasible and medically desirable and would be economically beneficial to both the Dominican Republic and Haiti.

## ANNEX 2. Carter Center-Authored Hispaniola Publications

2023 publications shown in bold.

**Keys H, Bardosh K, Ureña K, Desir L, Tejada M, Noland GS. Results from a Knowledge, Attitudes, and Practices Survey in Two Malaria Transmission Foci of Santo Domingo, Dominican Republic. *Am J Trop Med Hyg.* 2023 Feb 27;108(4):755-767.**

**Bardosh K, Desir L, Jean L, Yoss S, Poovey B, Nute A, Beau de Rochars VM, Telfort MA, Benoit F, Chery G, Charlotin MC, Noland GS. Evaluating a community engagement model for malaria elimination in Haiti: lessons from the community health council project (2019-2021). *Malar J.* 2023 Feb 9;22(1):47.**

**Bardosh K, Jean L, Desir L, Yoss S, Poovey B, Beau de Rochars M, Noland GS. Was lockdown worth it? community perspectives and experiences of the Covid-19 pandemic in remote southwestern Haiti. *Soc Sci Med.* 2023 Aug;331:116076. doi: 10.1016/j.socscimed.2023.11607.**

Keys, H. Following Misdirection and Multiple Malarias in Santo Domingo, Dominican Republic. *Science & Technology Studies.* 2022 May 15; 35(2): 52-71.

Kostandova N, Desir L, Direny A, Knipes A, Lemoine JF, Fayette CR, Kirby A, Gass K. Simulating the effect of evaluation unit size on eligibility to stop mass drug administration for lymphatic filariasis in Haiti. *PLoS Negl Trop Dis.* 2022 Jan 28;16(1): e0010150. <https://doi.org/10.1371/journal.pntd.0010150>

Gonzales M, Noland GS, Mariano EF, Blount S. Lymphatic filariasis elimination in the Dominican Republic: History, progress, and remaining steps. *PLoS Negl Trop Dis.* 2021 Aug 10;15(8):e0009590

Beau De Rochars Madsen VE, Keys H, Samuels SK, Jo A, Noland GS, Gonzales M, Blount S, Mainous AG. Prevalence of Diabetes, Prediabetes, and Associated Risk Factors Among Agricultural Village Residents in the Dominican Republic. *Am J Trop Med Hyg.* 2021 Jun 2;104(6):2241-2250.

Anonymous. Summary of the 32nd meeting of the International Task Force for Disease Eradication, 4–5 May 2021. *Wkly Epidemiol Rec.* 2021; 96: 329-52.

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Valdez D, Keys H, Ureña K, Cabral D, Camilo F, Ogando EC, Mercedes L, Noland GS, Blount SB, Lavery JV, Desir L, Puello J. Malaria outbreak response in urban Santo Domingo, Dominican Republic: lessons learned for community engagement. *Rev Panam Salud Publica.* 2020;44:e92 <https://doi.org/10.26633/RPSP.2020.92>

Wodnik BK, Louis DH, Joseph M, Wilkers LT, Landskroener SD, Desir L, Lemoine JF, Lavery JV. The roles of stakeholder experience and organizational learning in declining mass drug administration coverage for lymphatic filariasis in Port-au-Prince, Haiti: A case study. *PLoS Negl Trop Dis*. 2020 May 29;14(5):e0008318. doi: 10.1371/journal.pntd.0008318. eCollection.

Oviedo A, Knipes A, Worrell C, Fox LM, Desir L, Fayette C, Javel A, Monestime F, Mace K, Chang MA, Udhayakumar V, Lemoine JF, Won K, Lammie PJ, Rogier E. Combination of Serological, Antigen Detection, and DNA Data for *Plasmodium falciparum* Provides Robust Geospatial Estimates for Malaria Transmission in Haiti. *Sci Rep*. 2020 May 21;10(1):8443. doi: 10.1038/s41598-020-65419-w.

Keys HM, Noland GS, De Rochars MB, Taylor TH, Blount S, Gonzales M. Perceived discrimination in bateyes of the Dominican Republic: results from the Everyday Discrimination Scale and implications for public health programs. *BMC Public Health*. 2019 Nov 12;19(1):1513. doi: 10.1186/s12889-019-7773-2.

Keys HM, Noland GS, De Rochars MB, Blount S, Gonzales M. Prevalence of malaria and lymphatic filariasis in bateyes of the Dominican Republic. *Infect Dis Poverty*. 2019 May 27;8(1):39. doi: 10.1186/s40249-019-0547-3.

Druetz T, Andrinopoulos K, Boulos LM, Boulos M, Noland GS, Desir L, Lemoine JF, Eisele TP. "Wherever doctors cannot reach, the sunshine can": overcoming potential barriers to malaria elimination interventions in Haiti. *Malar J*. 2018 Oct 29;17(1):393. doi: 10.1186/s12936-018-2553-5.

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Anonymous. "Meeting of the International Task Force for Disease Eradication – November 2012." *Wkly Epidemiol Rec*. 2013 **88**(7): 75-80.

Anonymous. "Meeting of the International Task Force for Disease Eradication - May 2006." *Wkly Epidemiol Rec*. 2007 **82**: 25-32.

### **ANNEX 3. List of Program Review Participants**

(v)- virtual participant

#### **The Carter Center**

Achiek Abiel (v)  
Alex Addison  
Paige Alexander  
Paige Baum  
Valery Beiriger Valdez  
Nina Benard  
Antonette Benford  
Lauri Bernard  
Jenna Coalson  
Yohannes Dawd  
Luccene Desir  
Obiora Eneanya (v)  
Asmerom Gettu  
Cassandra Grant  
Tynesha Green  
Emily Griswold  
Karen Hamre  
Madelle Hatch  
Kashef Ijaz  
Molly Ison  
Lorence Jean (v)  
Monica Johnson  
Curtis Kohlhaas  
Victoria Krauss  
Nicole Kruse  
Emalee Martin  
Amiah Matthews  
Marquita McMichael  
Juan Mena  
Scott Nash  
Mindze Mbala Nkanga (v)  
Gregory Noland  
Lindsay Rakers  
Frank Richards  
Emily Staub  
Shandal Sullivan  
Anyess Travers  
Sirgut Tuffa  
Adam Weiss  
Craig Withers

#### **Ministry of Public Health – Dominican Republic**

Jose Luis Cruz Raposo  
Keyla Ureña

#### **Ministry of Public Health and Population – Haiti**

Marc-Aurèle Telfort (v)  
Jean Franz Lemoine (v)

#### **Emory University**

Karla Estudillo Fuentes  
James Lavery  
Lance Waller (v)  
Lee Wilkers (v)

#### **Global Institute for Disease Elimination**

Aissatou Diawara (v)  
Simon Bland

#### **Hôpital Sainte Croix**

Marie Martha Desir (v)

#### **Independent**

Laurence Slutsker

#### **International Public Health Advisors**

Jessica Rockwood (v)

#### **Onchocerciasis Elimination Program for the Americas**

Mauricio Sauerbrey

#### **Pan American Health Organization**

Ronaldo Carvalho Scholte (v)

#### **PATH**

Abdel Direny (v)

#### **P.D. Merrill Charitable Trust**

John Achatz (v)

**RTI International**

Uder Antoine (v)  
Katie Crowley (v)  
Carl Fayette (v)

**U.S. Agency for International  
Development**

Penny Smith (v)  
Caitlin Worrell

**U.S. Centers for Disease Control and  
Prevention**

Tara Brant (v)  
Michelle Chang  
Catherine Zilber (v)  
Andreas Nshala  
Kim Won (v)

**University of Florida**

Valery Madsen Beau de Rochars

**University of Glasgow**

Luca Nelli (v)

**University of South Florida**

Gillian Stresman

## ANNEX 4. 2023 Hispaniola Initiative Program Review Agenda

<b>10th Annual Hispaniola Initiative Program Review Meeting</b> <b>Tuesday, April 30, 2024</b>			
Start	End	Title	Speaker
8:00 AM	8:30 AM	Shuttle pick up at hotel	
8:30 AM	9:00 AM	Continental Breakfast	
<b>Opening Session</b>			<b>Dr. Gregory Noland (chair)</b>
9:00 AM	9:10 AM	Welcome and Introductions	Dr. Gregory Noland
9:10 AM	9:15 AM	Video Tribute: Mrs. Rosalynn Carter	
9:15 AM	9:20 AM	Welcome Remarks	Ms. Paige Alexander
9:20 AM	9:25 AM	Video: A Global Health Legacy	
9:25 AM	9:30 AM	Opening Remarks	Dr. Kashef Ijaz
9:30 AM	9:35 AM	Goodwill Message	Dr. Tedros Ghebreyesus
9:35 AM	9:50 AM	Hispaniola Initiative Overview	Dr. Gregory Noland
<b>Morning Session – Lymphatic Filariasis</b>			<b>Dr. Gregory Noland (chair)</b>
9:50 AM	10:20 AM	LF Elimination Progress in Haiti	Dr. Marc-Aurèle Telfort
10:20 AM	10:35 AM	<i>Discussion</i>	
<b>10:35 AM</b>	<b>11:05 AM</b>	<b>Photo and Coffee Break</b>	
11:05 AM	11:35 AM	LF Elimination Progress in the Dominican Republic	Dr. Jose Luis Cruz Raposo
11:35 AM	11:50 AM	<i>Discussion</i>	
11:50 AM	11:55 AM	Video: Dominican Republic LF TAS-3 in the East Focus	
11:55 AM	12:15 PM	Nationwide Remapping Survey in the Dominican Republic	Dr. Karen Hamre
12:15 PM	12:25 PM	<i>Discussion</i>	
<b>12:25 PM</b>	<b>1:25 PM</b>	<b>Lunch</b>	
<b>Afternoon Session – Malaria</b>			<b>Dr. Gregory Noland (chair)</b>
1:25 PM	1:55 PM	Malaria Elimination Progress in the Dominican Republic	Ms. Keyla Ureña
1:55 PM	2:10 PM	<i>Discussion</i>	
2:10 PM	2:25 PM	Ethnographic Study for Malaria in the Dominican Republic	Dr. Hunter Keys
2:25 PM	2:30 PM	<i>Discussion</i>	
2:30 PM	2:35 PM	Video: Molecular Surveillance Laboratory Inauguration	
2:35 PM	2:50 PM	Brokered Design: Community-driven Learning	Karla Estudillo Fuentes
2:50 PM	3:00 PM	<i>Discussion</i>	
3:00 PM	3:15 PM	Freedom From Infection	Dr. Gillian Stresman
3:15 PM	3:25 PM	<i>Discussion</i>	
<b>3:20 PM</b>	<b>3:45 PM</b>	<b>Coffee Break</b>	
3:45 PM	4:15 PM	Malaria Elimination Progress in Haiti	Dr. Marc-Aurèle Telfort
4:15 PM	4:30 PM	<i>Discussion</i>	
4:30 PM	4:45 PM	Cross Border Collaboration	Dr. Luccène Désir
4:45 PM	4:55 PM	<i>Discussion</i>	
4:55 PM	5:00 PM	Summary and Closure	Dr. Gregory Noland
5:00 PM	5:00 PM	Session Adjourned	
5:15 PM	7:15 PM	<b>Reception</b>	