

EYE of the EAGLE

THE
CARTER CENTER



Volume 20, Number 2

Summer 2019

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Trachoma Program Review Examines 2018 Achievements, Challenges

As national trachoma programs work toward elimination, renewed passion and partnerships are critical to the fight.

The 20th Annual Trachoma Program Review was held March 18-20, 2019, at The Carter Center in Atlanta. The annual review is an opportunity for Carter Center-assisted programs in Ethiopia, Mali, Niger, South Sudan, Sudan, and Uganda to reflect on achievements and challenges in the previous year and set goals for the upcoming year. The theme of this year's review was "Seeing Trachoma Disappear: The Magic of Passion, Partnerships, and Possibilities."

In 2018, The Carter Center continued its support of SAFE strategy interventions. A total of 39,156 trichiasis surgeries were conducted, approximately 14 million doses of antibiotics were distributed, and F&E interventions continued in communities and schools throughout the Center-assisted countries.



Paige Rohe

Ethiopian girl Emebet Gebre demonstrates hand washing to prevent trachoma. The Carter Center's recent trachoma program review in Atlanta examined the effectiveness of trachoma interventions in Ethiopia and the other countries where the Center works.

In the Amhara region of Ethiopia, 54 districts have graduated from mass drug administration (MDA). This means 5.4 million people no longer require annual antibiotic treatment for trachoma. In South

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Programs Assess Progress Against River Blindness

Program personnel, health ministry officials, and representatives of partner organizations gathered March 25–27, 2019, at The Carter Center in Atlanta to assess their progress at the 23rd annual River Blindness Elimination Program Review; 114 people attended.

Since 1996, The Carter Center has worked with ministries of health to provide preventive chemotherapy for river blindness (onchocerciasis), together with health education, training, and evaluation of impact. The program currently assists six countries: Brazil, Venezuela, Nigeria, Sudan, Uganda, and Ethiopia. Four

previously assisted countries—Colombia, Ecuador, Mexico, and Guatemala—have eliminated onchocerciasis transmission.

In 2018 The Carter Center assisted in the delivery of 50,483,272 treatments of Mectizan®, donated by Merck & Co., Inc., reaching 94 percent of the 2018 target. Most of these treatments were provided under a twice-per-year mass drug administration (MDA) strategy. The program's cumulative treatments since 1996 have now reached 383 million. A total of 6.8 million treatments were halted after assessments were conducted in accordance with World Health Organization guidelines in nine countries. In 2019 the program has set a target to assist in 62 million treatments, of which 80

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The Trust's Trachoma Initiative Shows Impact in Uganda

For the past five years, The Queen Elizabeth Diamond Jubilee Trust's Trachoma Initiative has worked with the ministries of health in Commonwealth countries in Africa to fight the blinding scourge of trachoma.

The Carter Center has been honored to be the coordinating partner for this project in Uganda, working in collaboration with a consortium of partners including Sightsavers, CBM, Johns Hopkins University, Water Mission, Water Aid, World Vision, and Concern. Local Lions Clubs also have shown support, with members acting as technical advisors and

advocates for the program.

Uganda launched its trachoma program in 2006 and originally set the year 2020 as its target date for elimination. At the start of the Trust project in 2014, trachoma was endemic in 36 of 112 districts throughout the country, where an estimated one-third of the population resides and were at risk of infection. Today there are two endemic districts remaining in the country.

To assist the Ugandan government in meeting its 2020 goal, the Trust's initiative built more than 15,000 latrines and provided sight-saving surgery to more than 25,000 people to

correct the in-turned lashes of patients with advanced trachoma.

It also invested significantly in sanitation and hygiene programs in 17 districts, creating new water points, establishing water, sanitation, and hygiene (WASH) club activities in schools, and training over 50,000 volunteers on WASH methods.

For nearly five years, the initiative's interventions proved successful in diminishing the number of cases of blinding trachoma in its focused districts, creating systems and procedures that demonstrate promise of elimination in the years to come.

Although the program is sunseting as originally planned, the Ministry of Health and other partners will continue to carry out the remaining tasks for Uganda to eliminate trachoma as a public health problem by 2020. The Carter Center is grateful to have been part of the initiative's consortium of partners, all working toward a healthier world. **E**



A school club focused on WASH and trachoma performs a song during the celebration of the expansion of surgical services in northern Uganda. School clubs like this have been critical to the success of the program in Uganda, as students learn about trachoma and share messages of health and prevention with their families and communities.

Trachoma Program Review

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Sudan, surgical services restarted in July 2018 after several years' hiatus due to insecurity. The program implemented a new way of managing patients, allowing them to stay overnight to ensure the surgery is successful and they receive proper postoperative care. Mali is in the final stages of its trachoma elimination program and plans to submit its dossier to the World Health Organization in December 2019. The dossier is required for a country to be validated as having eliminated trachoma as a public health problem.

Keynote speaker Dr. Julius Schachter, professor emeritus at

the University of California at San Francisco and a leading researcher in the trachoma field, shared the history of trachoma research and how his work led to what is now commonly known as mass drug administration with azithromycin.

Meeting presenters paid significant attention to work in the area of water, sanitation, and hygiene (WASH). In Amhara, The Carter Center and Francis I. Proctor Foundation are working together on a study, known as SWIFT, to provide more evidence on the effectiveness of WASH interventions in the fight against trachoma. Angelia Sanders of The Carter Center and Yael Velleman of the Schistosomiasis Control Initiative presented the new World Health

Organization WASH and neglected tropical disease toolkit, which will serve as a guide for neglected tropical disease programs to integrate WASH activities into existing activities.

In her closing remarks, Kelly Callahan quoted William Butler Yeats: "The world is full of magic things, patiently waiting for our senses to grow sharper," and said that the global trachoma program is getting sharper. Callahan added that over the past 21 years, The Carter Center and its partners have seen incredible success and learned so much. The last mile will present greater challenges, and through increased passion and partnership, programs are sharpening their aims, their investigations, and their interventions as trachoma gradually disappears. **E**

Two South Sudan States Launch Multiyear Trachoma Plan

Government officials and private-sector experts met in January 2019 to create a five-year plan to provide trachoma services in Kapoeta and Torit states in South Sudan.

The meeting was opened by the deputy governor of Kapoeta state, the minister of health for Kapoeta and Torit states, and the director general of the National Ministry of Water Resources and Irrigation, with Makoy Samuel Yibi, South Sudan NTD (neglected tropical diseases) director, presiding. Also in attendance were governmental district representatives from Kapoeta and Torit, including those responsible for water, sanitation, and hygiene (WASH) activities and those working with the trachoma program. And two senior ophthalmologists and three cataract and trichiasis surgeons traveled from Juba to participate. The Carter Center, Sightsavers, and the International Trachoma Initiative represented the trachoma

community, while Christian Mission for Development, South Sudan Red Cross, United Nations International Organization for Migration, and Norwegian Church Aid represented the WASH nongovernmental sector.

This cross-sectoral group discussed how best to implement the trachoma program for long-term success and sustainability, including steps relevant to both the national context and to Kapoeta and Torit states. The Carter Center will continue to assist the South Sudan Ministry of Health in all trachoma activities in the two states.

In 2018, the South Sudan National Trachoma Program, with assistance from The Carter Center, provided treatment to over 250,000 people with the antibiotic Zithromax[®], donated by Pfizer Inc, and provided sight-saving trichiasis surgery to 530 people. Health education was conducted in more than 800 villages. **E**



A child in Kapoeta state, South Sudan, is measured to determine the correct dosage of Zithromax antibiotic to fight the eye disease trachoma.

Abbott Contributions Integral to Program Success in Ethiopia

Since 2013, global health care company Abbott has provided sophisticated molecular diagnostic lab equipment and supplies to Carter Center-assisted national programs. Specifically, Abbott has donated m2000sp and m2000rt diagnostic systems, currently located in the Amhara Region Public Health Research Institute and maintained by The Carter Center Ethiopia. This diagnostic equipment allows The Carter Center and the Amhara Regional Trachoma Program to conduct laboratory work using m2000 RealTime assays to detect the presence of *Chlamydia trachomatis* DNA from

swabs of Amhara residents. The m2000 system produces data on the actual prevalence of infection, leading to a more comprehensive understanding of the disease in the area and ultimately greater focus. Abbott has agreed to continue providing diagnostics for the next five years.

Support from Abbott enables The Carter Center to enhance program output, inform global trachoma policies and guidelines and, most importantly, improve the quality of life for the people of Amhara. After more than 10 years of full-scale, continuous trachoma control in the region, clinical signs of the disease

are still prevalent in certain areas. Nevertheless, research has shown that infection is decreasing and the m2000sp and m2000rt diagnostics are instrumental tools for demonstrating these decreases.

By showing that The Carter Center can beat trachoma in the most endemic region worldwide, the Abbott partnership serves as a powerful example for the global health community. The Carter Center is honored to recognize Abbott's support in Ethiopia. **E**



South Sudanese Father, Son Walk 150 Miles for Sight-Saving Surgery

At a mobile surgery camp in Lotien, a village in South Sudan's Eastern Equatoria region, a man requested surgery to help his son, age 11, who was suffering from trachomatous trichiasis (TT). After walking 245 kilometers (more than 150 miles) from their home, the boy and his father arrived just before the temporary camp was nearing its end.

Several months before, the father noticed his son was suffering and having trouble with his vision. The man sold several of his cattle to raise enough money to take his son for eye care services he had heard were available in Ethiopia in an area not supported by The Carter Center. The pair left their home in Kauto, South Sudan, and walked for 30 kilometers (18 miles) into Ethiopia, only to find that no TT surgical services were available.

The father and son remained in Ethiopia for a month to save enough money to return home. They then set off for Mogos South, South Sudan, where they had heard another TT surgical camp was operating. After walking 150 kilometers (93 miles) over four more days, the father and



At only 11 years old, this boy was suffering from trichiasis, the advanced stage of trachoma. This photo shows the condition of his eyelids prior to receiving surgery.

son arrived in Mogos South, only to find that the surgical team had moved on to Mogos North. They then walked the 20 kilometers (12 miles) to Mogos North, only to learn that the team had moved yet again, to Lotien, 45 kilometers (28 miles) away. The surgical camps remain in one area for just a few days before moving to a new community.

It was in Lotien that Carter Center program officers met the boy and his father. Upon arrival at the health facility, the boy was wearing a cap to protect his eyes from the sun. His eyes were swollen, and he clearly

was in pain. The two finally had arrived in the right place at the right time, and the boy received the trichiasis surgery he needed in both eyelids. The day after undergoing surgery, he was running around the compound and in much better spirits.

Trichiasis, the advanced stage

of trachoma, results from years of repeated infections. The scarring that forms on the inner eyelid as a result of these infections causes the eyelid to turn inward, allowing the eyelashes to scratch the surface of the eye. Left untreated, this painful stage of the disease can scar the eye, leading to permanent blindness.

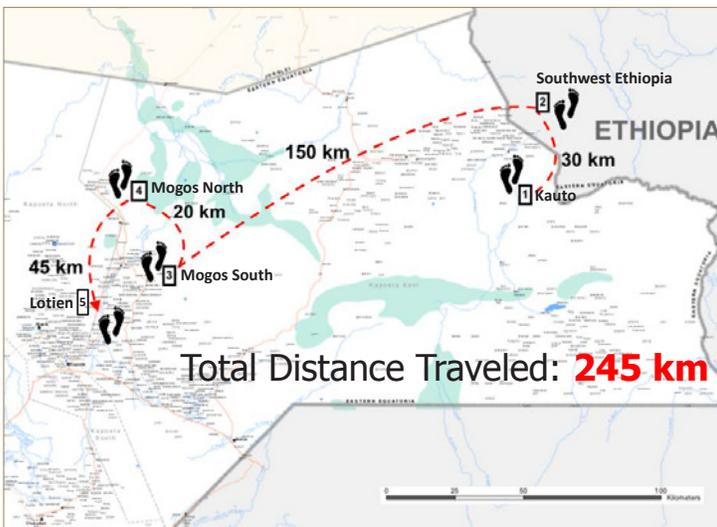
Because it is caused by repeated infections, trichiasis usually is associated with older adults. However, in South Sudan, where years of conflict have caused disruptions in the program's ability to treat people for trachoma, children as young as 5 years



When the surgical team later traveled to Kauto for surgery camps, they found the boy in his village. He was happy and healthy and able to assist his family in herding animals.

have been seen with trichiasis.

The Carter Center is working alongside the Ministry of Health in South Sudan to ensure that surgical services are made available to all who are suffering from this painful and debilitating condition. While insecurity has restricted Carter Center operations to the Eastern Equatoria region of the country, progress is being made. In 2018, The Carter Center assisted with 530 trichiasis surgeries, including this boy's. **E**



Ethiopia Finds a Potential New River Blindness Focus in East

Preliminary results from new river blindness mapping in the eastern part of Ethiopia show a likely new endemic area.

The endemic area for river blindness (onchocerciasis) in Ethiopia historically was in the western part of the country. The east was assumed to be too dry for transmission of river blindness, although disease mapping surveys were never carried out.

However, the Ethiopia Onchocerciasis Elimination Expert Advisory Committee noted records of *Simulium* fly breeding along the Shebelle River in Somali region and recommended eastward mapping of onchocerciasis to the Federal Ministry of Health.

Ethiopia's mapping protocols focus on first-line villages located near rapidly flowing streams that are considered to be a high risk for onchocerciasis transmission. Dried blood spots from a sample of adult residents of these communities were tested by enzyme-linked immunosorbent assay (ELISA) for antibodies to

the OV16 recombinant antigen. A 5 percent positivity rate is considered positive and indicates the need for mass drug administration with ivermectin.

Twenty villages showed OV16 rates greater than 5 percent (range 5–15 percent) in two large zones of West Hararge and East Hararge in the Oromia region (see Figure 2). Additional epidemiological

assessments are being conducted in the area, but preliminary estimates are that the total population at risk in these zones is 4.48 million, meaning that

the MDA program will need to deliver about 7 million new treatments a year. Mapping river blindness in eastern Ethiopia is not yet completed. **E**

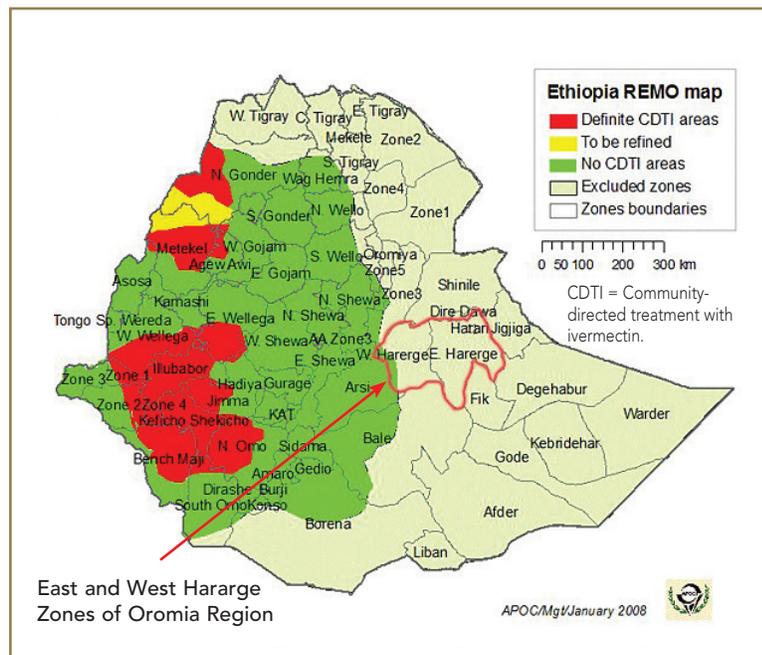


Figure 2: East Hararge and West Hararge zones, where a new onchocerciasis focus was identified in an area previously deemed unsuitable for its transmission (“excluded zones”).

Programs Progress

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percent will be administered under a twice-per-year strategy.

The meeting also reviewed Carter Center-assisted MDA activities for three other neglected tropical diseases. The lymphatic filariasis elimination programs in Ethiopia and Nigeria reported 20,164,898 treatments, 93 percent of the target; 431,495 treatments were stopped in 2018 after successful transmission assessment surveys in Ethiopia. Nigeria's schistosomiasis and soil-transmitted helminthiasis control programs reported 1,417,485 and 8,894,524 treatments, for 35 percent and 80 percent

of the targets, respectively. Overall, 81 million treatments for NTDs, together with health education, were assisted by The Carter Center and associated programs in 2018, and, for the first time, projects will assist in over 93 million in 2019. Carter Center-assisted treatments for each disease since 1996 are shown in Figure 1. Cumulative treatments for all four diseases reached 580,709,274 in 2018.

These accomplishments would not have been possible without the Center's ministry of health partners and a grassroots network of community-directed drug distributors who volunteered their time to treat their communities. A combined 330,161 volunteer drug

distributors participated in 2018, all of whom were managed by district-level ministry of health personnel and trained with the assistance of The Carter Center.

Ethiopia

Ethiopia's strategy for onchocerciasis transmission elimination is twice-per-year MDA. In 2018, Ethiopia delivered 17,767,222 Mectizan treatments, slightly fewer than in 2017. A total of 230,266 community drug distributors were trained in 2018. Mapping efforts in the eastern part of Ethiopia identified what appears to be a new focus of onchocerciasis. Confirmatory studies

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Programs Progress

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will be undertaken in 2019. The new areas would increase treatments in Ethiopia this year to 29 million. The Carter Center’s work in Ethiopia is based on partnerships with the Federal Ministry of Health, the Lions Clubs of Ethiopia and the Lions-Carter Center SightFirst Initiative, and the Reaching the Last Mile Fund, hosted by the END Fund.

Sudan

In 2018, Sudan and Ethiopia jointly decided to halt MDA in the cross-border transmission zone between Sudan’s Gedarif state and North Gondar zone of the Amhara region of Ethiopia. As a result, about 1.2 million treatments were stopped. A three- to five-year post-treatment surveillance period began in accordance with WHO

guidelines. There are, however, other potential cross-border transmission areas on Sudan’s eastern border with Ethiopia. The Sudan program will collaborate with Ethiopia to map the border area if the security situation allows. If new endemic areas are found, the two programs pledged a coordinated effort to eliminate onchocerciasis there.

Nigeria

The Carter Center assisted in 28,658,600 Mectizan treatments for river blindness in 2018, a 14 percent decrease from 2017, due in part to the halting of 2.2 million treatments in Plateau and Nasarawa states after their successful interruption of transmission and in part to insufficient Mectizan supply to seven other Center-assisted states. In those same seven southern states, the Center helped administer 18,873,034 lymphatic filariasis treatments with Mectizan and albendazole

(donated by GSK) in 2018. The target in 2019 is 22 million treatments. The programs in Nigeria were supported in large part by USAID’s ENVISION Project, led by RTI International, and will have renewed support from those partners in 2019 through USAID’s Act to End NTDs–East program.

The Carter Center assisted with 1,417,485 praziquantel treatments for schistosomiasis in four of the nine states in Nigeria where the Center works in 2018, a 35 percent decrease due to rotating treatments based on WHO guidelines but also due to serious delays in praziquantel supply. Merck KGaA of Germany donates praziquantel to The Carter Center through the WHO; the program is also supported by the Izumi Foundation. Nigeria’s target in 2019 is 5 million treatments.

Treatments for soil-transmitted helminthiasis were 8,896,420 in 2018, and the 2019 target is 10 million

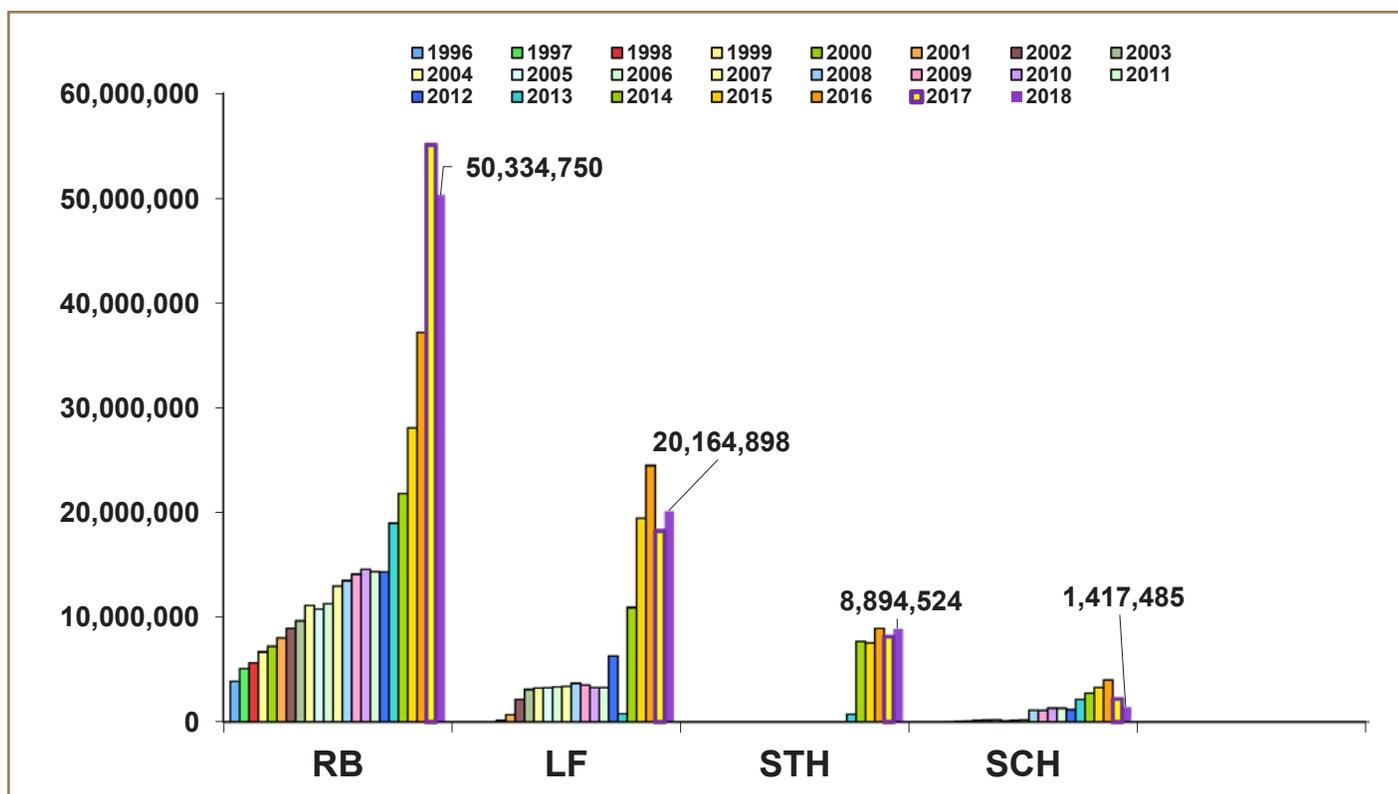


Figure 1. Treatments Assisted by The Carter Center for River Blindness (RB) with Mectizan, Lymphatic Filariasis (LF) with Mectizan and Albendazole, Soil-Transmitted Helminths (STH) with Albendazole and Mebendazole, and Schistosomiasis (SCH) with Praziquantel, 1996–2018

treatments. The medicines used for treatment are albendazole, donated by GSK, or mebendazole, donated by Johnson & Johnson.

Uganda

The Uganda program halted 311,845 river blindness treatments in Budongo and Bwindi foci in 2018. Only two foci—Lhubiriha and Madi-MidNorth—of its original 17 have ongoing transmission. Uganda administered 3.7 million Mectizan treatments in 2018, all under the twice-per-year strategy. For 2019, the target is 3.6 million treatments, most of which will take place in the large Madi-MidNorth focus bordering South Sudan. Uganda also shares important cross-border foci with the Democratic Republic of Congo. The

three countries are working to coordinate cross-border assessment activities. The Uganda program received support from USAID’s ENVISION Project, led by RTI International, and will have renewed support from USAID’s Act to End NTDs–East program from 2019 through 2023.

Onchocerciasis Elimination Program for the Americas (OEPA)

OEPA is a coalition led by The Carter Center that includes the ministries of health of the affected countries in the Americas, the Pan American Health Organization, and other partners. Through OEPA’s work, treatments have been halted in 94 percent of the population once endemic for the disease, and four countries have received verification of elimination

from WHO. The last active transmission zone is in the Amazon Rainforest bordering Brazil and Venezuela, affecting the indigenous Yanomami people. This area is challenging due to the remoteness of its population, the lack of cross-border coordination between Brazil and Venezuela, and the deteriorating political situation in Venezuela. In 2018, OEPA assisted Brazil and Venezuela in about 55,000 Mectizan treatments. Given the humanitarian and health crises of Venezuela, OEPA-supported Venezuelan teams have helped to provide vaccinations, malaria treatments, and other health services. The OEPA program received financial support in 2018 from USAID and the Carlos Slim Foundation. [E](#)

New Toolkit Brings WASH, NTD Programming Goals Together

When it comes to public health, new tools can help solve old problems.

Water, sanitation, and hygiene (WASH) interventions are one of the five strategies for neglected tropical disease (NTD) control and elimination set out in the World Health Organization’s 2012 roadmap. In 2015, WHO issued a global strategy and action plan on WASH and NTDs encouraging new ways to partner and invest across programs in support of the roadmap’s goals. In response, the NTDs NGO Network WASH Working Group and WHO collaborated to develop a comprehensive toolkit on WASH and NTDs that would provide practical guidance for action in endemic countries.

The toolkit is primarily targeted at program managers at the country level to do the following:

- Build multisectoral partnerships with key stakeholders: ministries, national and local WASH agencies, the private sector, local health groups, behavior change and communication experts, and others
- Shape smart program structures focused on accountability and shared goals
- Build an adaptive and flexible approach to programming
- Ensure sustainability by building local capacity at every level
- Support and complement clinical and public health interventions for NTD control

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Guinea Worm Disease Update



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This issue is made possible in part thanks to the Michael G. DeGroote Health Program Publications Fund.

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The toolkit contains a brief narrative setting out the links between WASH and the framework for NTD control and elimination, created by the Uniting to Combat NTDs partnership, followed by a five-step guide to collaborative planning and implementation: (1) setting the program vision; (2) building partnership; (3) analyzing the situation; (4) planning and program design; and (5) implementation and monitoring.

The narrative is accompanied by 22 tools and resources.

Work began in September 2016, and the toolkit was published in January 2019. It draws on tools and practices used in the delivery of coordinated and integrated programs for control and

elimination of NTDs and incorporates lessons from trachoma programs, including experience from programs implemented by The Carter Center and those funded by the UK Department for International Development (DFID) and The Queen Elizabeth Diamond Jubilee Trust.

The Carter Center helped create this important document and looks forward to its use to produce comprehensive programming at the country level that addresses both NTDs and WASH and improves the health and well-being in the communities it serves. **E**

The new WHO toolkit integrates WASH standards into strategies to combat neglected tropical diseases. The toolkit can be accessed online at https://www.who.int/water_sanitation_health/publications/wash-health-toolkit/en.

