Trachoma Review Looks to 2020 Elimination Goal

The 18th annual Trachoma Control Program review was held at The Carter Center in Atlanta March 22–24, 2017. 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 “Focusing on 2020: 4 Years Remaining,” which refers to the focus needed to reach the goal of global trachoma elimination by the year 2020.

Data reported at the meeting showed that in 2016, The Carter Center assisted in 119,365 trachomatous trichiasis (TT) surgeries, more than 60 percent of which were provided to women, who are twice as likely as men to suffer from the blinding disease. In addition, the Center assisted in the distribution of 17,523,949 doses of Pfizer-donated Zithromax® (azithromycin) through mass

Over 111,000 sight-saving eyelid surgeries were performed in the Amhara region of Ethiopia last year, the highest number ever achieved by the program.

River Blindness Treatments Break Record

The Carter Center River Blindness Elimination Program held its 21st annual program review March 27–29, 2017, at the Center’s Atlanta headquarters. In addition to Carter Center staff, ministry of health officials, partners, and donors, high-level attendees included former U.S. President Jimmy Carter; former First Lady Rosalynn Carter; Professor Isaac Adewole, minister of health for Nigeria; Dr. Isameldin Mohammed, undersecretary of health for Sudan; Dr. Joyce Kaducu Moriku, minister of state for health for Uganda; Hon. Dr. Tebebe Berhan, representing Lions Clubs International; and Dr. Magda Robalo, director of Communicable Diseases for the African Regional Office of the World Health Organization. Key findings and country reports follow.

In 2016, The Carter Center assisted in a total of 37,212,547 mass ivermectin treatments (Mectizan® donated by Merck)
Trachoma Review
continued from page 1

drug administration (MDA), and over 14,000 people were trained to provide
health education in their communities.

The achievements in the Amhara
region of Ethiopia were given special
attention at the meeting. For the
second consecutive year, the Amhara
Regional Trachoma Control Program
exceeded its annual surgery target.
Notably, in 2016, 111,687 surgeries
were completed, the most in the
history of the program. This was
largely a result of the Fast Track
Initiative, which was launched by the
Federal Ministry of Health in 2015 to
clear the backlog across Ethiopia. After
a successful pilot in the region in 2015,
the initiative was rolled out across all
zones in 2016. The initiative called
for the use of an established integrated
strategy, in which static surgery sites,
outreach campaigns, and dedicated

Since 1999, The Carter Center has assisted the
Ethiopian government in distributing over 140 million
doses of Pfizer-donated Zithromax® for trachoma control
in the Amhara region. To highlight this partnership
and to raise awareness of trachoma and other neglected
tropical diseases, The Carter Center and Pfizer
 collaborated on a display for the exterior windows of
Pfizer headquarters in New York and the bus stop outside
its headquarters. These images, shown at left, convey the
importance of Pfizer’s contribution in the fight against
neglected tropical diseases.

Former U.S. President Jimmy
Carter engaged representatives from
each country in a rapid-fire succes-
sion of questions about their 2016
achievements and 2017 targets and
challenged each country to meet its
targets for elimination and to call upon
The Carter Center for any assistance
needed. Attendees agreed on general
and country-specific recommendations
that will guide their programs over the
next year and into the future.

Trachoma interventions in
Ethiopia, photographed by
Carter Center staff, are part
of a Pfizer display.

Carter Center’s Work Captured in Pfizer NTD Campaign
Trachoma Week Launches in May in East Amhara, Ethiopia

High-profile visitors from The Carter Center in Atlanta helped kick off the 18th Trachoma Week on May 14, 2017, in Lalibela, East Amhara, Ethiopia.

Jason Carter, chair of the Carter Center’s board of trustees; Kathryn E. Cade, the board’s vice chair; Dr. Dean Sienko, the Center’s vice president for health programs; and other board members took part in the event. Additional guests included partners from Lions Clubs International Foundation, including past International President Clem Kusiak and Hon. Dr. Tebebe Berhan, members of the Lions Clubs of Ethiopia, representatives from the International Trachoma Initiative and the U.S. Embassy in Ethiopia, and dignitaries from the Amhara regional government.

“I have heard for some time about the continuing achievements of the Trachoma Control Program in the Amhara region of Ethiopia,” said Carter. “However, to see the program firsthand exceeded my expectations. From every aspect of the program, including the sheer scale of the mass drug administration, it is clear that the communities of the Amhara region have claimed the program as their own, are personally invested in it, and are very proud of its continued demonstrable success.”

During the one-week campaign, 6,007,805 people in 1,332 villages in East Amhara received sight-saving antibiotics, reaching 94 percent of the targeted population. Over 27,500 people supported this effort, including 4,048 government health officials and 21,879 health volunteers working at the zonal, district, and community levels. Trachoma Week takes place twice per year, once in East Amhara and once in West Amhara, ensuring that all eligible residents living in trachoma-endemic districts in the Amhara region can take the sight-saving antibiotic.

“I was thrilled to see firsthand the ways we are making progress to eliminate trachoma as a public health problem in Amhara: the excitement in children’s eyes as they cleaned their hands and faces, the deep appreciation from surgical patients who had their sight restored, the collaborative community effort to launch a mass drug administration campaign, the teachers’ commitment to improve the hygienic standards of the next generation, and the warm welcome of the Ethiopian people,” Sienko said.

“The power of our tremendous partnerships with the Lions Clubs, Ethiopian federal and regional health officials, the International Trachoma Initiative, and the Task Force for Global Health was on display,” he continued. “Although we have our work cut out for us, I am optimistic we are winning the battle against trachoma.”

In addition to receiving azithromycin during Trachoma Week, community members also learn about the SAFE strategy to control trachoma through surgery, improved hygiene, and environmental improvement.

“I met middle-aged and elderly men and women whose lives were changed by sight-saving eye surgery,” said Cade. “Schoolchildren demonstrated sound hand- and face-washing techniques and practiced with visiting dignitaries. One villager proudly showed me a newly constructed latrine, and in that same village I watched a young mother give her infant his first dose of Zithromax as part of the annual mass drug administration.”
Even in the shade it was 105 degrees Fahrenheit. It can be challenging to focus in that kind of heat, but Dr. Saisabil Omer and Dr. Mayasa Mustafa were committed to providing sight-saving surgery to the men and women who came to the trachoma clinic in Al Fashaga, Gedarif state, Sudan.

The trachomatous trichiasis (TT) surgeries the two women provide, which realign the eyelid so that eyelashes no longer scratch the cornea with each blink, only take about 20 minutes per eye. But it takes days of planning to make these clinics happen.

First there is the eight-hour drive from capital Khartoum to Al Fashaga. Once the team arrives at the clinic site, they spend one or two days looking for patients in need of surgery. Announcements are made over the radio and by a megaphone attached to a truck driving around the village. Ministry of Health personnel also walk through villages talking to residents looking for TT cases. Thanks to this mobilization, the clinic receives patients for TT surgery and a steady stream of people eager to be examined for other eye conditions by the visiting eye doctors. Residents know this is likely their only chance to be seen by a professional, as the nearest eye clinic is in the state’s capital, three hours away by public transport.

This is the second TT surgery campaign that Omer and Mustafa have participated in. To be an ophthalmologist in Sudan, one must have six years of university and two years of general medicine practice, with one of those years completed as part of national service. Omer performed her national service in a military hospital; Mustafa was based with the national insurance fund in Northern state. Following these two years, candidates must complete four additional years of residency.

Though doctors learn about TT surgery in school, the surgical camps provide them hands-on experience. Both women said they enjoy participating in the camps because they get to help people in need.

“These people are poor and cannot afford to come to Khartoum,” Omer said. “It is important to come here and live with them and feel like them and to help them.”

The surgeons conducted 20 sight-saving surgeries in two days at Al Fashaga. They then moved from location to location every one to two days for two weeks assisting those in need. As they prepared to move to the next location, all supplies had to be packed back into the vehicles, including the surgical tables, chairs and a generator.

Omer and Mustafa and the other resident ophthalmologists supporting the Federal Ministry of Health’s trachoma elimination program have a lot of work ahead of them. In December 2016, the ministry launched its Trachoma Action Plan to reach its goal of eliminating trachoma as a public health problem by 2020. According to the plan, 43,514 surgeries were believed to be needed in Sudan, 38 percent of them in previously inaccessible Darfur.
Epidemiologist’s Survey Work Results in Better Interventions

Tigist Astale, an epidemiologist for The Carter Center in Ethiopia, has faced down angry dogs, runaway cattle, and crocodile-filled rivers. She supervises extensive field work in far-flung locations all over the Amhara region of Ethiopia, a region with a considerable burden of trachoma. Because of her commitment to gathering quality data, the trachoma control program continues to implement effective interventions to help reduce blindness in Amhara.

Tigist’s work includes securing ethical clearance from relevant oversight bodies, organizing trainings for trachoma graders, and working out the logistics required to move survey teams across many districts.

Tigist grew up in Debre Tabor town in South Gondar zone of Amhara, and she completed secondary school in Addis Ababa. Later, she attended Jimma University in Ethiopia with a focus on health promotion. As a university student, she participated in community-based education, research, and teaching. She later received her master’s degree in global health from Maastricht University in the Netherlands. While there, she focused her attention on the epidemiology of acute respiratory infection in children.

In her current role with The Carter Center, Tigist supervises surveys that assess the impact of program interventions. This includes securing ethical clearance from relevant oversight bodies, organizing trainings for trachoma graders, and working out the logistics required to move survey teams across many districts spread throughout the Amhara region. These surveys often help the trachoma control program improve its interventions.

“I always wanted a research position,” Tigist said. “I enjoy looking for more evidence for the program so we can make better decisions.”

Monitoring trachoma-related outcomes over a region as rural as Amhara comes with challenges. “The main challenge is accessing rural homes when there are no roads that reach the villages,” Tigist said. “In some situations, survey teams walk 10 hours or more through woods and over mountains to access the villages.”

Then there are the dogs. “Dogs cause problems, particularly in rural highlands where every household owns a dog to guard their home,” says Tigist. During a recent survey, Tigist faced down three angry dogs while visiting a remote household.

Despite these issues, Tigist said she is proud of the work her survey teams do, and she remains committed to reducing the burden of trachoma in Ethiopia.

Tigist Astale assists field teams during trachoma impact surveys in Ethiopia’s Amhara region.
Hilton Foundation Extends Support for Mali, Niger Programs

The Conrad N. Hilton Foundation has pledged US$11.725 million in continued support to The Carter Center, Helen Keller International, and Sightsavers to work toward eliminating trachoma as a public health problem in Mali and Niger. The three-year grant will continue through February 2020. With the funding, The Carter Center and Helen Keller International will continue work in Mali and Niger, while Sightsavers will continue efforts in Mali.

For over 20 years, the Hilton Foundation has supported the efforts of organizations to prevent and control trachoma. In Mali and Niger, the Hilton Foundation makes it possible.

Prevalence of trachoma has dramatically decreased, such that Mali and Niger have set the target dates for elimination as 2018 and 2020, respectively.

“Mali and Niger’s strong commitment and hard work have brought them within reach of eliminating blinding trachoma,” former U.S. President Jimmy Carter said. “Their progress gives other countries encouragement and incentive to pursue a similar goal. We partners want to help them cross the finish line, and this new funding from the Conrad N. Hilton Foundation makes it possible.”

Ongoing support from the Hilton Foundation has made sight-saving surgeries possible in Niger and Mali.
River Blindness
continued from page 1

for river blindness in six countries, a 33 percent increase from 2015 and 87 percent of the 2016 treatment target. The program’s cumulative treatments since 1996 have now reached 278 million. A goal of 54 million treatments has been set for 2017, an increase of 49 percent over 2016.

Similarly, record treatment numbers were reported for 2016 Carter Center–assisted mass drug administration (MDA) activities in several other neglected tropical disease efforts, including lymphatic filariasis in Ethiopia and Nigeria (24,504,989 treatments, 93 percent of the target), and schistosomiasis and soil-transmitted helminthiasis in Nigeria (4,007,831 and 8,922,891 treatments, for 81 percent and 77 percent of the targets, respectively). Taken together with treatments for river blindness and trachoma, a total of 92,391,508 treatments for neglected tropical diseases were assisted by The Carter Center in 2016 (see Figure 1). Medicines for these treatments were made available by Merck, GSK, Merck KGaA (E-Merck), Johnson & Johnson, and Pfizer Inc.

The Center’s work would not be possible without a grass-roots network of community-directed drug distributors who provide the treatments and health education. A combined 319,166 community workers were trained in 2016, all of whom were managed by district-level ministry of health personnel with assistance from The Carter Center.

Ethiopia
In 2016, Ethiopia conducted twice-per-year treatments for river blindness in all Carter Center–assisted areas, aggressively pursuing the national policy of onchocerciasis elimination by 2020. Ethiopia delivered a total of 14,467,640 Mectizan treatments, compared to 15,134,578 in 2015. The decline was due to changes in integrated training procedures required by the Federal Ministry of Health in some of the zones assisted by The Carter Center. A total of 226,529 community drug distributors were trained, approximately 32,000 more than in 2015. The Ethiopia Onchocerciasis Elimination Expert Advisory Committee met in Atlanta on March 30, 2017, immediately following the program review. (See article on p. 9.)

Nigeria
The Carter Center assisted with 54 million treatments for river blindness, lymphatic filariasis, schistosomiasis, and soil-transmitted helminthiasis in Nigeria in 2016.

The Center oversaw 18,691,783 Mectizan treatments for river blindness in nine Nigerian states in 2016. In contrast to Ethiopia, most treatments in Nigeria were given once per year, except in a few districts in Edo state. An expansion of twice-per-year treatments for most Carter Center–assisted areas is planned for 2017. The Nigeria Onchocerciasis Elimination Committee met twice in 2016 with the support of The Carter Center and completed work on a new Onchocerciasis Elimination Plan that was signed by Minister of Health Isaac Adewole. The committee will meet at least twice in 2017.

The Carter Center assisted in 22,421,697 treatments for lymphatic filariasis in the seven southern Nigerian states in 2016. The program focused on treatment strategies in Loa loa areas where Mectizan was not recommended due to the risk of serious adverse reaction. In such areas, the WHO-recommended

Figure 1. Treatments for Neglected Tropical Diseases Supported by The Carter Center, 2014–2016

continues on page 8
twice-per-year monotherapy of albendazole (donated by GSK) was provided to 4.5 million persons (9 million treatments). However, an important 2016 study led by The Carter Center used the new Loa Scope to demonstrate that hyperparasitemia from *Loa loa* (the major risk factor) was not a concern in these states. Based on that study, the Federal Ministry of Health and the Mectizan Expert Committee approved that the standard MDA regimen for lymphatic filariasis of once-per-year ivermectin plus albendazole could be given in 2017. In central Nigeria, where The Carter Center assists Plateau and Nasarawa states, treatments for lymphatic filariasis stopped in 2013. In 2016, The Carter Center conducted post-treatment surveillance research studies in potential hot spots for ongoing transmission in 2016 with support from the Task Force for Global Health and demonstrated that there had been no resurgence of transmission.

The Carter Center assisted in 4,007,831 praziquantel treatments for schistosomiasis in nine states in Nigeria in 2016. Praziquantel is made available to The Carter Center through the World Health Organization (WHO) by Merck KGaA (E-Merck) of Germany. The treatment target in 2017 is 2,599,967 (a 35 percent decrease due to the WHO MDA rotation schedule). Treatments in 2016 for soil-transmitted helminthiasis were 8,922,891 with a 2017 target of 11 million (a 23 percent increase). The medicines used for treatment are made available by GSK (albendazole) or Johnson & Johnson (mebendazole).

**Uganda**

With support from USAID’s ENVISION Project, led by RTI International, the Uganda program administered 3.6 million Mectizan treatments in 2016, where all treatments are given under the twice-per-year strategy. In 2017, Uganda has a target of 4 million treatments. At its 2016 meeting, the Ugandan Onchocerciasis Elimination Expert Advisory Committee reviewed post-treatment surveillance data for four foci (Imaramagambo, Itwara, Mpamba-Nkusi, and Mt. Elgon) and concluded that they had eliminated transmission. This means the approximately 800,000 residents of those areas are no longer at risk for onchocerciasis. Only two of the original 17 Ugandan onchocerciasis transmission foci (Lhubiriha and Madi-MidNorth) continue to have active transmission.

**Sudan**

In 2015, Abu Hamad was the first focus in Sudan to eliminate river blindness transmission, as defined by WHO elimination guidelines. Continuing this successful trajectory, Sudan reported interruption of transmission of onchocerciasis in Galabat district of Gedarif state in 2016. The Galabat onchocerciasis-endemic area borders the Metema endemic zone of North Gondar (Amhara), Ethiopia. Sudan and Ethiopia are working together to eliminate this cross-border focus.

**The Americas**

In 2016, Guatemala became the fourth country in the Americas to receive official verification from the WHO of having eliminated river blindness; it follows Colombia (2013), Ecuador (2014), and Mexico (2015). The Onchocerciasis Elimination Program for the Americas (OEPA) now focuses on strengthening its partnership with Brazil and Venezuela to finish the fight in their final cross-border active transmission zone in the Amazon rainforest. The 50,000 indigenous residents of the area, the Yanomami, live in small, migratory communities that are difficult to locate and sometimes dangerous to reach. An ambitious strategy of providing Mectizan four times per year is being used in the most afflicted villages. In addition, Venezuela’s Ministry of Health is recovering unused and overgrown landing strips in the jungle to allow fixed-wing aircraft to land closer to the most inaccessible villages in need of treatment.
The Ethiopia Onchocerciasis Elimination Expert Advisory Committee (EOEEAC), an official advisory group to the Federal Ministry of Health of Ethiopia, was launched in 2014 by the state minister of health and tasked with providing the ministry with a road map to nationwide interruption of onchocerciasis transmission by 2020. In its first three meetings, the committee developed national guidelines and recommended that Ethiopia broadly institute twice-per-year mass drug administration (MDA) of Mectizan® in all newly discovered or slowly progressing areas with active transmission. This resulted in a dramatic transition from once- to twice-per-year treatment (Figure 2).

Chaired by Dr. Mark Eberhard, the third meeting of the EOEEAC took place on March 31, 2017, at The Carter Center in Atlanta and was attended by 10 of 18 members. Biruck Kebede from the Ministry of Health and Zerihun Tadesse from The Carter Center served as co-secretaries.

Observers included Hon. Dr. Tebebe Berhan, representing Lions Clubs International; Dr. Yao Sodahlon, director of the Mectizan Donation Program; and Dr. Darin Evans of USAID.

The EOEEAC congratulated the Ministry of Health on the publication of its standard field operating procedures for mapping, entomological, and epidemiological assessments. The committee discussed in detail evidence that transmission had been interrupted in the Galabat/Metema focus, a cross-border transmission zone that straddles Sudan and Ethiopia. A representative

Figure 2. Number of Carter Center–Assisted Ivermectin Treatments in Ethiopia Since 2001

Members of the Ethiopia Onchocerciasis Elimination Expert Advisory Committee met at The Carter Center in March.
of Sudan’s Federal Ministry of Health, Isam Zroug, presented the Sudanese data that indicated transmission interruption in Galabat. Ethiopia’s assessments, however, showed a small number of PCR-positive flies were detected in one Metema surveillance site in 2014. The EOEEAC recommended collection of more flies for analysis there and continued MDA. The committee was pleased that the Sudan program was willing to continue Mectizan treatments in Galabat until Ethiopia can demonstrate transmission had been interrupted on its side of the border.

EOEEAC also discussed opportunities for the Ministry of Health to pilot vector control as a complementary strategy to Mectizan MDA. The committee strongly recommended that the Ethiopian program immediately transition diagnostic tools from skin snip microscopy to the OV16 ELISA test due to its higher sensitivity and greater acceptability to the local population. The fourth meeting of the EOEEAC is scheduled for October in Addis Ababa.

Continued from page 9

Carter Center Named Semifinalist for MacArthur 100&Change Grant

The Carter Center has been selected as one of eight semifinalists to compete for a $100 million grant from the John D. and Catherine T. MacArthur Foundation. The 100&Change grant will be awarded to one organization that aims to solve a critical social problem. The Carter Center proposed to eliminate river blindness from Nigeria.

“These eight ambitious proposals exemplify the passion, range, and creativity of the hundreds of applications,” said MacArthur President Julia Stasch. “We hope that the competition inspires individuals and organizations to be bold and think big, because solutions are possible.”

Nigeria is the most burdened country in the world for river blindness. With MacArthur Foundation support, The Carter Center, in partnership with the Ministry of Health, local governments and communities of Nigeria, and other nongovernmental organizations, would interrupt transmission of onchocerciasis in Nigeria by 2022, creating a model for the rest of Africa to follow. The proposal is based on activities specified in 2016 by the Ministry of Health’s Nigeria Onchocerciasis Elimination Committee. The elements of the committee’s road map include reassessment of onchocerciasis status in states as needed; mass treatment with Mectizan® (donated by Merck) in endemic states, twice yearly where indicated; health education and treatment coverage assessments; and disease-indicator monitoring to determine the point at which mass drug administration can stop and post-transmission surveillance can begin.

Ambassador (ret.) Mary Ann Peters, Carter Center CEO; Dr. Frank Richards, director of the Center’s River Blindness Elimination Program; and Dr. Emmanuel Miri, Nigeria country representative, met with MacArthur Foundation staff and consultants in Chicago in March to provide further details on the proposal. The finalist will be announced by the MacArthur Foundation at the end of the year.

This collage is featured on a special section of the Carter Center’s website about the MacArthur grant: www.cartercenter.org/100andchange. The photos show Nigerians whose lives would be improved with the elimination of river blindness.
Three Women Honored at NTD Summit

The inaugural Women in Focus Awards ceremony, held in April at the Uniting to Combat NTDs Summit in Geneva, Switzerland, convened hundreds from the neglected tropical disease (NTD) community around the world to celebrate the achievements of women fighting NTDs. Three of the honored women are working closely with the Carter Center’s programs.

The Inspiration Award went to Aciro Grace Oyat from the Lamwo district of Uganda. Oyat became a volunteer community drug distributor in 2007 during a time of conflict, displacement, and insurgency. She was the only woman distributor at the time. Her son developed river blindness, but she treated him with Mectizan® thereby creating support for mass drug administration in her own community.

Agnes Ochai from Igboeze North area of Enugu state, Nigeria, received the Community Champion Award for her impassioned efforts to reach women at risk of exclusion and stigma. Ochai developed skin disease from river blindness and was stigmatized and shunned. She turned her experience into a strong motivation to serve as a community drug distributor.

Finally, Dr. Edridah Muheki Tukahebwa from the Uganda Ministry of Health received the Leadership Award. Muheki has worked for more than 20 years in the field of NTDs. She led Uganda’s effort to be one of the first countries to introduce integrated NTD programs and guides Uganda’s river blindness elimination efforts—one of the most successful programs in Africa.

Center Recognized by Carlos Slim Foundation

The Carlos Slim Foundation presented The Carter Center with a Special Recognition Award at the foundation’s 10th annual Health Awards Ceremony, which took place on May 22 at the Soumaya Museum in Mexico City. The award honored the collaboration between the Carlos Slim Foundation and the Center’s Onchocerciasis Elimination Program for the Americas (OEPA). USAID also supports the work of OEPA. The award was accepted by Ambassador (ret.) Mary Ann Peters, CEO of The Carter Center.

Other 2017 Special Recognition awards were presented to the Broad Institute, Baylor College of Medicine, and the Inter-American Development Bank.

Guinea Worm Disease Update

<table>
<thead>
<tr>
<th>January–July 2016</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chad</td>
<td>6</td>
</tr>
<tr>
<td>South Sudan</td>
<td>4</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>2</td>
</tr>
<tr>
<td>Mali</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>January–July 2017*</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chad</td>
<td>10</td>
</tr>
<tr>
<td>South Sudan</td>
<td>0</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>0</td>
</tr>
<tr>
<td>Mali</td>
<td>0</td>
</tr>
</tbody>
</table>

*Provisional