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Trachoma Program Review Focuses on Partnership, Compassion

KEY TAKEAWAY: Despite the COVID-19 pandemic, the Carter Center-assisted programs were highly productive, conducting 8,274 trachomatous trichiasis (TT) surgeries, distributing more than 700,000 doses of antibiotics, and building 14,252 latrines.

After a year of challenges and hardships worldwide caused by the COVID-19 pandemic, the Carter Center's 2021 Trachoma Control Program Review focused on the importance of partnership and resilience in the fight against the world's leading infectious cause of blindness.

Every year, the program invites partners and staff from around the world to discuss the achievements and challenges of the past year and the plans toward achieving the elimination of trachoma as a public health problem. This year's review, held as a virtual conference March 22–23, carried the theme “The Power of Partnership: Achieving Success with Compassion.” Attending the review were representatives from the ministries of health and Carter Center offices in the five countries where the Center currently operates: Ethiopia, Mali, Niger, South Sudan, and Sudan, as well as many program partners and donors.

Since 1999, the Carter Center's Trachoma Control Program has assisted nine countries in the implementation of the SAFE strategy — surgery, antibiotics, facial cleanliness, environmental improvement — in the fight against blinding trachoma. Over that time, the Center has supported trachomatous trichiasis (TT) surgeries for 859,376 people and assisted in distributing more than 210 million doses of antibiotics. The Center has also contributed to health education programs and activities in more than 85,000 schools.

These outcomes reflect a tremendous cumulative success as the Carter Center-assisted countries edge closer to achieving elimination thresholds.

Despite COVID-19, the Carter Center-assisted programs were highly productive. In 2020, a total of 8,274 TT surgeries were conducted, 68.5% of which were provided to women; more than 700,000 doses of antibiotics were distributed; 14,252 latrines were constructed; and health education toward increasing facial cleanliness and environmental improvement continued in communities and schools when possible.

Since 1999, the Center has supported trachomatous trichiasis (TT) surgeries for 859,376 people and assisted in distributing more than 210 million doses of antibiotics.

The two-day review focused on success in the face of a year of adversity. The Carter Center board chair, Jason Carter; chief executive officer, Paige Alexander; and vice president of health programs, Dr. Kashef Ijaz, opened the program review by welcoming the participants and leading all in a moment of silence. The moment of silence conveyed goodwill and acknowledged the collective human trauma of the past year due to the pandemic, systemic racial injustice in the United States, and issues of inequity across the globe. This was followed by another goodwill recognition from

Dr. Tedros Adhanom Ghebreyesus, director-general of the World Health Organization (WHO). Dr. Mwelecele Ntuli Malecela, neglected tropical disease director in the WHO Department of Control of Neglected Tropical Diseases (NTDs), presented an overview on “Ending the Neglect to Attain the Sustainable Development Goals: A Road Map for Neglected Tropical Diseases 2021–2030.” This strategic document and advocacy tool focuses on strengthening the programmatic response to NTDs through shared goals and disease-specific targets. Malecela also gave a brief update on the current COVID-19 situation.

In her opening remarks, Kelly Callahan, the Carter Center's Trachoma Control Program director, referenced a quote by President Carter, “We must adjust to changing times and still hold to unchanging principles.” Although 2020 was a time of substantial change, the Center's principles of hope, compassion, and interconnectedness have not changed, she said. Callahan also noted the loss of two “trachoma giants” in 2020, Dr. Julius Schachter and Dr. Tebebe Yemane Berhan. Their accomplishments toward eliminating trachoma as a global public health problem were tremendous, and both men were true pioneers within their fields.

Throughout the program review, country-specific presentations were interspersed with multiple illustrations of how The Carter Center and partners remain resolute in mitigating

Sudanese Doctor Calls Vision ‘the Most Important Thing’

Dr. Balgesa Mohamed Elkhair Babiker Elshafie has dedicated her life to helping her fellow Sudanese.

Dr. Balgesa, as her colleagues call her, is the Republic of Sudan Ministry of Health’s national coordinator for the Trachoma Control Program. An ophthalmologist, she has held this position for over seven years, though she has worked for the ministry for more than 20 years in a range of roles. She has overseen over 10 million antibiotic treatments distributed through mass drug administration campaigns; more than 10,000 people receiving sight-saving surgery; many program evaluation surveys across the country; program expansion into the Darfur region following a decade of insecurity; and enormous advocacy efforts to increase access to water and sanitation in trachoma-endemic communities. She also has trained ophthalmic medical professionals around the world on how to clinically grade for trachoma during community-based disease surveillance surveys.

Balgesa was born in Omdurman, Sudan’s largest city, across the Nile River from Khartoum. Her love of science and wanting to help people pushed her to get a Bachelor of Science from the University of Khartoum and then a Bachelor of Medicine and Surgery from the University of Cluj-Napoca in Romania. After completing her medical degree, she returned to Sudan and worked for the Sudan National Service, a two-year public service posting. It was during this time she found her love of ophthalmology. She received advanced training and certification in ophthalmology from the Sudan Medical Specializations Board. Balgesa said the reason she does her work is “to free people from blindness and to save sight, which I believe is the most important thing that someone has.”

Though the Sudan program has been affected by insecurity, change of government, inflation, and difficulty



Balgesa Mohamed Elkhair Babiker Elshafie is the Republic of Sudan Ministry of Health’s national program coordinator for trachoma.



Balgesa examines the eyes of a child.

reaching some communities due to poor infrastructure, Balgesa remains optimistic about the future of the trachoma program. She is encouraged by the program’s success and believes that with continued support, trachoma can be controlled, prevented, and eventually eliminated from Sudan. This vision for the future captures her desire “to help as many people as I can, especially those who are not able to access eye care facilities.”

Ethiopia Health Workers Adjust Strategy for COVID-19

In early 2020, the world turned upside down when COVID-19 began its spread around the globe. In response, the World Health Organization on April 1, 2020, advised all neglected tropical disease programs to suspend mass outreach campaigns to reduce the spread of the virus. These activities included mass drug administration (MDA), which is how millions of doses of Zithromax®, donated by Pfizer Inc and tetracycline eye ointment are provided to communities at risk of trachoma.

In July 2020, programs were permitted to restart mass campaigns but had to consider ways to reduce the risk of COVID-19 transmission.

Since 2001, The Carter Center has been assisting the Amhara Regional Health Bureau in the fight against trachoma. Since then, an estimated 187 million doses of antibiotic have been distributed. Currently, an estimated 17 million people in Amhara receive annual MDA to treat and prevent the spread of trachoma. This requires the dedication of thousands of individuals each year, including kebele (village) leaders, woreda (district) supervisors, health extension workers, and community volunteers, known as the Health Development Army.

Under the standard approach, health extension workers and Health Development Army members distribute the yearly dose of Zithromax in central locations, calling residents to gather at local health centers. However, due to COVID-19 social distancing protocols, that approach had to be suspended. Instead, the health workers traveled house to house with their treatment supplies. They also carried personal protective equipment and hand sanitizer required to prevent COVID-19 transmission. The visits took place outdoors and workers first asked a series of screening questions.

Health extension workers enlisted the support of kebele leaders, town criers, and religious congregations to notify communities of upcoming MDA. The MDA, which previously took one week to complete, required additional days to reach all households, with some requiring as many as 12 days. Each team treated an average of 49 households per day. In some areas, 50 or more households could be visited each day, while in places with challenging terrain, only 35 households could be visited per day.

A total of 6,229,707 individuals were treated in this initial house-to-house campaign conducted by nearly 17,000 health workers and Health Development Army members.

Carter Center's Sanders Elected Chair of Trachoma Coalition

Dr. Angelia Sanders, associate director of the Carter Center's Trachoma Control Program, was elected in March 2021 as chair of the International Coalition for Trachoma Control (ICTC), a coalition of over 50 nongovernmental, donor, private sector, and academic organizations working to support the World Health Organization Alliance for the Global Elimination of Trachoma by 2020 (GET2020 Alliance).



Angelia Sanders

Along with Sanders, the ICTC membership elected PJ Hooper, deputy director, International Trachoma Initiative, as vice chair; and Scott McPherson, senior program manager, RTI International, as immediate past chair.

In the coming months, the executive group will lead ICTC through two new areas of work: first, an updated global cost analysis of the delivery of the SAFE strategy, which will, second, inform a new strategic plan that aligns with the new global NTD Road Map from the World Health Organization (WHO). The SAFE strategy refers to the four-pronged approach to controlling trachoma through surgery, antibiotics,

facial cleanliness, and environmental improvement.

WHO launched in March a new strategy on WASH (water, sanitation, and hygiene) and neglected tropical diseases (NTDs) in support of achieving the road map targets. It sets out the role of WASH for the prevention, care, and management of NTDs and the actions needed to ensure that WASH efforts result in improved and sustained health and well-being. The strategy builds on collaborations over the past decade and calls for strengthened partnerships to improve access to WASH among populations at the highest risk of diseases of poverty.

While the original 2020 goal of global elimination of trachoma as a public health problem was not realized, the new road map assesses current challenges and barriers and sets out an updated course of action. The road map recognizes what can be achieved when cross-sectoral partnerships are formed toward defined goals. The trachoma community has evidenced this with a 91% reduction in the number of people at risk of trachoma since 2002 and 11 countries validated for eliminating trachoma as a public health problem across all endemic regions.

Due to the COVID-19 pandemic, the Carter Center's 25th River Blindness Elimination Program Review was held virtually March 10–12, 2021, for Center-assisted programs to assess 2020 achievements, challenges, and operational research and make recommendations for 2021 activities. The review was attended by ministry of health officials, key partners, and donors.

Since 1996, the Center has worked with ministries of health to provide preventive treatment for river blindness (onchocerciasis), together with health education, training, and impact evaluation. The program currently assists six countries: Brazil, Ethiopia, Nigeria, Sudan, Uganda, and Venezuela. It previously assisted Colombia, Ecuador, Mexico, and Guatemala, which all have received verification of elimination from the World Health Organization (WHO).

Program activities in the Carter Center-assisted countries were significantly impacted in 2020 by the pause in community-based activities recommended by WHO to prevent transmission of COVID-19. Nevertheless, The Carter Center assisted with the distribution of 25,292,599 Mectizan® (donated by Merck & Co., Inc.) treatments through river blindness mass drug administration (MDA) programs, reaching 41% of the 2020 target. The program's cumulative treatments since 1996 have now reached 447 million. The 2021 target is 67 million treatments under the expectation that programs will safely resume full-scale MDA.

The meetings also reviewed Center-assisted MDA



control programs reported 2,222,211 treatments for schistosomiasis (48%) and 4,062,982 treatments for helminths (34%). Praziquantel for schistosomiasis is donated by Merck

under a twice-per-year strategy. For 2021, the target is 2.9 million treatments, which will take place in the large Madi-Mid North focus bordering South Sudan, and the Lhubiriha focus bordering the Democratic Republic of the Congo. Progress is being made in coordinated cross-border assessment activities with all three countries. The Uganda program receives support from USAID's Act to End

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As part of its campaign to eliminate transmission of river blindness, Ethiopia embarked on a multiyear effort to “map” the disease throughout the country starting in 2015. Of its more than 900 districts, only 17 await classification.

Earlier mapping studies relied on rates of superficial skin nodules as an indicator of infection in communities. Nodules form when adult *Onchocerca volvulus* worms pair together under the skin. While an easy and inexpensive indicator, nodules are not commonly found when the level of transmission is low. Persistent low-level transmission can increase over time or spread to neighboring areas. When elimination is the goal, all transmission must be stopped. Serological testing of small blood samples to measure antibodies to *O. volvulus* worms is far more sensitive and specific than nodule assessments.

Contemporary mapping studies, led by the Ethiopian Public Health Institute and supported by The Carter Center, follow a multiphase approach as recommended by the Ethiopia

Onchocerciasis Elimination Advisory Committee. In the first phase, maps and satellite imagery are used to exclude districts deemed ecologically unsuitable for *Simulium* black flies that breed in rapidly flowing rivers. Next, entomologists identify “first line” or high-risk villages. More than 3,000 such sites have been visited to date. Once a village is identified, blood

Committee Recommends Status Changes for 12 Nigerian States

The 12th meeting of the National Onchocerciasis Elimination Committee of Nigeria was held May 18–19, 2021, in a virtual format due to the COVID-19 pandemic. Organized by the Federal Ministry of Health with support from The Carter Center, the meeting included representation from the Mectizan Donation Program, RTI International, United States Agency for International Development, The Bill and Melinda Gates Foundation, Sir Emeka Ofor Foundation, and numerous other implementing partners. The committee made three key recommendations relating to states assisted by The Carter Center, which began onchocerciasis elimination activities in 1992. All recommendations were accepted by the Federal Ministry of Health.

The committee recommended that Plateau and Nasarawa states be classified as “onchocerciasis transmission eliminated.” This recommendation was based on post-treatment surveillance activities conducted since the halt of Mectizan® (donated by Merck & Co., Inc.) mass drug

administration (MDA) in 2018. These are the first states in Nigeria to achieve this status.

Three states, including Delta state, also assisted by The Carter Center, presented data from human serological surveys and black fly entomological assessments indicating that they have achieved “onchocerciasis transmission interrupted” status. Due to this success, around 6 million people no longer require MDA.

Six states, including four assisted by The Carter Center — Abia, Anambra, Enugu, Imo — presented data indicating that they have achieved “onchocerciasis transmission suspected interrupted” status. These states will commence entomology and serology assessments to inform a future stop-MDA decision.

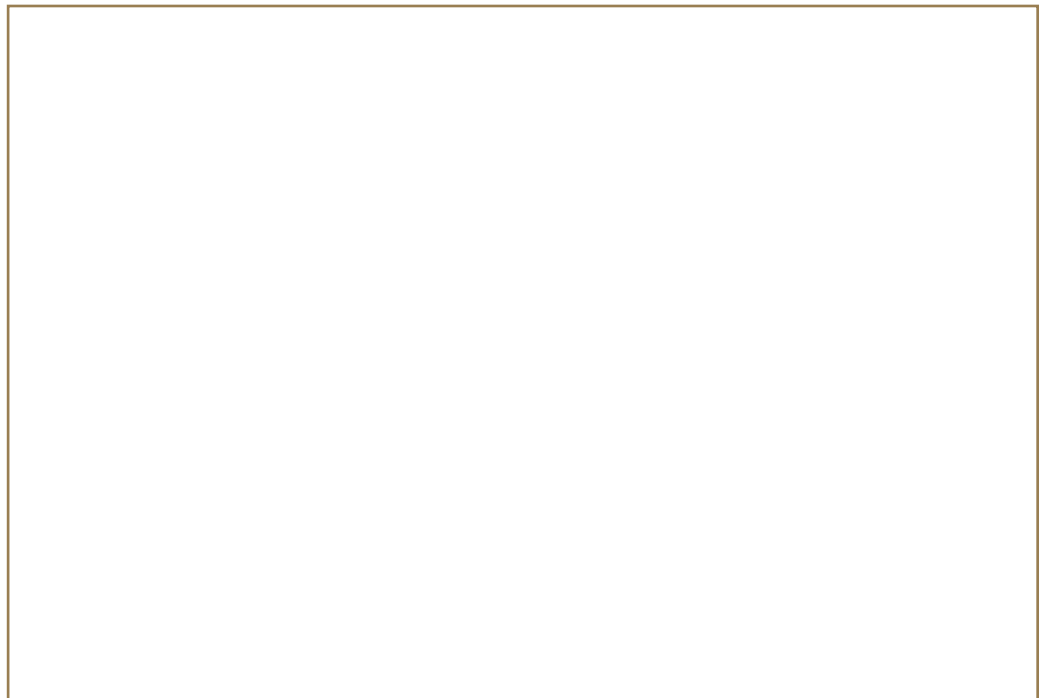
In total, the meeting resulted in status changes for 12 of the 36 states in Nigeria (see Figure 2). Despite the virtual meeting format, these results invigorated the participants and generated high accolades from all partners present, including Nigeria’s new national coordinator for neglected tropical diseases, Dr. Nse Michael Akpan.

The National Onchocerciasis Elimination Committee of Nigeria is supported in part by USAID’s Act to End NTDs East program, led by RTI International.

About 1.1 million people in Ethiopia now live in areas free of lymphatic filariasis transmission.

The Carter Center began supporting the Ministry of Health's lymphatic filariasis elimination program in Ethiopia with a small pilot in the Gambella region in the west in 2009. The strategy was based on the addition of albendazole (donated by GSK) treatment to mass drug administration (MDA) of Mectizan®, donated by Merck & Co., Inc., which was already being provided for river blindness elimination.

The Center's assistance has grown since to reach five regions across Ethiopia, from northwestern Amhara to the southernmost regions served by The Carter Center



In Memoriam: Center Pays Tribute to Three Health Warriors

Dr. Nabil Aziz Awad Alla

Dr. Nabil Aziz Awad Alla, the Carter Center's longtime country representative in Sudan, died May 20, 2021. Dr. Nabil in 2017 was an inaugural recipient of the Reaching the Last Mile Award, given in recognition of his decades of selfless work for public health in Sudan. He once made a field visit to a town while it was under armed siege; during a Guinea worm disease surveillance trip, he nearly died of cerebral malaria.

Under Nabil's leadership, Sudan stopped transmission of Guinea worm in 2002 and has not had a case since.

Transmission of river blindness was interrupted in Sudan's vast Abu Hamad focus in 2012, an achievement once



Nabil Aziz Awad Alla was the longtime country representative for The Carter Center in Sudan.

thought impossible. "Dr. Nabil is fearless. I never heard him say, 'I don't want to go there, it's a little too dicey,'" said Mark Pelletier, associate director of the U.S. Centers for Disease Control and Prevention's Overseas Operations unit. Pelletier formerly was a Guinea Worm Eradication Program technical advisor in Sudan. "His courage gave me courage." The Carter Center and the greater public health community will miss Dr. Nabil's courage, tenacity, and commitment.

Dr. Victor Py-Daniel

Dr. Victor Py-Daniel, a renowned researcher in the fields of epidemiology, ethnoepidemiology, entomology, zoology, and vector-borne and parasitic tropical diseases, knew from an early age he would become a biologist. After earning his first degree in biological sciences from the University of Brasilia in 1976, he had a two-year internship in a prestigious parasitology laboratory, which set the stage for what would come. Py-Daniel had a lifelong devotion to the population and diseases of the Amazon. From his position as researcher with the National Institute for Amazon Research, he conducted important studies on tropical disease vectors and their effect on indigenous populations. He was one of the pioneers of the Onchocerciasis Elimination Program of Brazil, contributing many scientific publications and serving on Brazil's National Onchocerciasis Committee. A longtime friend of the Carter Center's



Victor Py-Daniel (bottom right) attended the 29th Inter-American Conference on Onchocerciasis in Brasilia, Brazil,

Onchocerciasis Elimination Program for the Americas, he will be sadly missed.

The Honorable World Laureate Lion Dr. Tebebe Yemane Berhan

In February 2021, the Honorable World Laureate Lion Dr. Tebebe Yemane Berhan passed away. Tebebe was a champion of trachoma and river blindness intervention, an ambassador for Guinea worm eradication, and a true public health leader in his home country of Ethiopia and across Africa. His tireless commitment to fighting these diseases leaves an everlasting impact and legacy in the global health community. Tebebe gave all he had to improve lives and to end unnecessary suffering. His soul will rest in peace, knowing he made a difference.

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CARTER CENTE



The Carter Center
One Copenhill
453 John Lewis Freedom Parkway NE
Atlanta, GA 30307