

**Summary Proceedings**

**Seventeenth Annual Trachoma Program Review**

**All Eyes on 2020**

THE  
CARTER CENTER



*Waging Peace. Fighting Disease. Building Hope.*

**Atlanta, Georgia**

**March 7-9, 2016**

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CARTER CENTER



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**“All Eyes on 2020”**  
**The Seventeenth Annual**  
**Trachoma Control Program Review**



**The Carter Center**  
**Atlanta, Georgia**

## **Acknowledgements**

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## Acronyms

<b>ARHB</b>	Amhara Regional Health Bureau
<b>BCC</b>	Behavior Change Communication
<b>BLTR</b>	Bilamellar tarsal rotation
<b>CLTSH</b>	Community-led Total Sanitation and Hygiene
<b>DFID</b>	Department for International Development
<b>FGD</b>	Focus Group Discussion
<b>FMOE</b>	Federal Ministry of Education
<b>FMOH</b>	Federal Ministry of Health
<b>GET 2020</b>	Alliance for the Global Elimination of Blinding Trachoma by 2020
<b>GTMP</b>	Global Trachoma Mapping Project
<b>HAD</b>	Health Development Army
<b>HEW</b>	Health Extension Worker
<b>HKI</b>	Helen Keller International
<b>HRQoL</b>	Health-related Quality of Life
<b>HSTP</b>	Health Sector Transformation Plan
<b>ICTC</b>	International Coalition for Trachoma Control
<b>ITI</b>	International Trachoma Initiative
<b>JHU-CCP</b>	Johns Hopkins University Center for Communications Programs
<b>MDA</b>	Mass Drug Administration
<b>MOH</b>	Ministry of Health
<b>NCCER</b>	National Centre for Curriculum and Education Research
<b>NGDO</b>	Non-governmental Development Organization
<b>NNN</b>	Neglected Tropical Diseases NGDO Network
<b>NPPB</b>	National Program for Prevention of Blindness
<b>NTCP</b>	National Trachoma Control Program
<b>NTD</b>	Neglected Tropical Disease
<b>OCO</b>	Ophthalmic Clinical Officer
<b>PCR</b>	Polymerase Chain Reaction
<b>PCT</b>	Preventative Chemotherapy
<b>PLTR</b>	Posterior lamellar tarsal rotation
<b>PNLC(C)</b>	Programme National de Lutte contre la Cecité (National Prevention of Blindness Program)
<b>PNSO</b>	Programme National de Soins Oculaire (National Eye Health Program)
<b>QoL</b>	Quality of Life
<b>SAFE</b>	Surgery, Antibiotics, Facial Cleanliness, and Environmental Improvement
<b>SWIFT</b>	Sanitation, Water and Instruction in Face-Washing for Trachoma
<b>TANA</b>	Trachoma Amelioration in Northern Amhara
<b>TAP</b>	Trachoma Action Plan
<b>TEO</b>	Tetracycline Eye Ointment
<b>TF</b>	Trachomatous Inflammation-Follicular
<b>TF<sub>1-9</sub></b>	Trachomatous Inflammation-Follicular (for children between one and nine years of age)
<b>TI</b>	Trachomatous Inflammation-Intense
<b>TIRET</b>	Tripartite International Research for the Elimination of Trachoma
<b>TIS</b>	Trachoma Impact Survey
<b>TS</b>	Trachomatous Scarring
<b>TT</b>	Trachomatous Trichiasis
<b>UCSF</b>	University of California San Francisco

<b>UIG</b>	Ultimate Intervention Goal
<b>UNICEF</b>	United Nations Children’s Fund (formerly United Nations Children’s Education Fund)
<b>USAID</b>	United States Agency for International Development
<b>VRQoL</b>	Vision-related Quality of Life
<b>WASH</b>	Water, Sanitation, and Hygiene
<b>WES</b>	Water & Environmental Sanitation
<b>WHO</b>	World Health Organization

## Executive Summary

The 17th Annual Trachoma Program Review was held at The Carter Center in Atlanta from March 7-9, 2016. The theme of this year's review was "All Eyes on 2020". Attending this year's review were representatives from the Ministries of Health and Carter Center field offices in the six countries where the Center currently provides assistance: Ethiopia, Mali, Niger, South Sudan, Sudan, and Uganda. Partners and donors in attendance included representatives from Abbott, The Fred Hollows Foundation, Helen Keller International, Conrad N. Hilton Foundation, International Trachoma Initiative, Light for the World-Ethiopia, Lions Clubs International Foundation and Lions Clubs of Ethiopia, Mali and Niger, London School of Hygiene and Tropical Medicine, Noor Dubai Foundation, Orbis-Ethiopia, Pfizer, Inc, Francis I. Proctor Foundation of the University of California at San Francisco, The Queen Elizabeth Diamond Jubilee Trust, Rollins School of Public Health at Emory University, RTI International, Sightsavers, the Task Force for Global Health, the Centers for Disease Control and Prevention, Wake Forest University, WaterAid, and the World Health Organization.

As with past program reviews, the 2016 program review provided an opportunity to assess the status of each national program and discuss progress towards meeting blinding trachoma elimination goals. With the global blinding trachoma elimination target of 2020, the review emphasized that all partners must keep their focus and their eyes on 2020.

The Carter Center-assisted National Programs made great strides towards reaching elimination in each of their countries. In 2015, The Carter Center assisted 83,434 surgeries, more than 60% of which were provided to women, who are twice as likely as men to suffer from the blinding disease. The Center assisted in the distribution of 16,696,716 doses of Pfizer-donated Zithromax® (azithromycin) through mass drug administration. Over 8,000 people were trained to provide health education in their communities and 319,855 latrines were constructed.

Special attention was given to operational research, especially in the Amhara region of Ethiopia. Dr. Scott Nash, epidemiologist for the Trachoma Control Program, presented preliminary data on Chlamydia trachomatis infection from ocular swabs in Amhara. The ocular swabs were collected during trachoma impact surveys from 2011-2015. The nearly 15,000 samples were processed using the Abbott-donated m2000 system. While only preliminary data were presented during the program review, this represents a big step forward for the Amhara trachoma program as it works towards the 2020 elimination goal.

A panel discussion on health education, moderated by Ms. Angelia Sanders, highlighted the increased focus in Ethiopia, Sudan, and Uganda on the Facial cleanliness and Environmental improvement components of the SAFE strategy. Staff from The Carter Center in Atlanta and Ethiopia presented findings from a Behavior Change and Communication in Education study in Amhara and how these findings are guiding revisions to the primary school curriculum.

There were multiple presentations from Carter Center partners including Ms. Dionna Fry, of the Francis I. Proctor Foundation, presenting conclusions from a study comparing annual and biannual treatment with azithromycin over 36 months; Dr. Anthony Solomon of the World Health Organization presenting the draft process to begin validation of the elimination of blinding trachoma; and Ms. Yael Velleman of WaterAid, on behalf of WHO, presenting on Water, Sanitation and Hygiene for trachoma elimination.

To close out the meeting, attendees agreed on general and country-specific recommendations that will guide the program over the next year as well as to their respective elimination goals. National coordinators will present on progress made towards these recommendations at next year's review. As The Carter Center's Trachoma Control Program quickly approaches the year 2020, annual program reviews will continue to be convened to keep all eyes focused on the goal of eliminating blinding trachoma and improving the lives of millions.

## SAFE in Ethiopia

*Presented by Mr. Biruck Kebede, NTD Team Leader, Federal Ministry of Health, Ethiopia*

### Background

The National Survey on Blindness, Low Vision, and Trachoma conducted in 2006 revealed that 2.8 million people in Ethiopia had low vision and 1.2 million people were blind. It was estimated that 87% of blindness was from avoidable diseases. The survey revealed that active trachoma was endemic in virtually all regions of the country, with more than 1.3 million people in the country living with trachomatous trichiasis (TT). The results of the survey showed that Ethiopia had approximately 30% of the burden of trachoma in sub-Saharan Africa.

There is growing momentum on the issue of Neglected Tropical Diseases (NTDs) in Ethiopia. In 2013, a national NTD master plan was launched, with regional states preparing their own NTD master plans. An NTD team was formed within the Federal Ministry of Health (FMOH) and NTD indicators became part of the national health management information system. National treatment registers and health extension worker (HEW) pocket guidelines are in the process of being developed, with plans for NTDs to be integrated into the existing health system. In order to better understand the NTD burden in Ethiopia, mapping of diseases that can be treated with preventative chemotherapy (PCT), such as lymphatic filariasis, schistosomiasis, and soil-transmitted helminthiasis, was conducted. The results from the Global Trachoma Mapping Project (GTMP) will further assist with the NTD effort related to trachoma elimination.

### Timeline of Events

- 2001: National guideline for Primary Eye Care developed<sup>1</sup>
- 2006: National guideline for mass antibiotics distribution developed; national taskforce for trachoma control established
- 2006-2007: Amhara region's baseline survey at zonal level
- 2008: Trachoma Campaign, formerly MalTra, launched in Amhara region<sup>2</sup>
- 2012: National Trachoma Action Plan (TAP) was prepared
- 2010-2014: GTMP and trachoma impact surveys (TIS) conducted in Amhara region
- 2013: Trachoma becomes part of national NTD program under disease prevention and control directorate
- 2015: Fast Track Initiative launched by FMOH; Health Sector Transformation Plan (HSTP) finalized
- 2015-2016: SAFE Scale up to 487 districts
- 2020: Target date for elimination

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<sup>1</sup> A five-year document, currently in 3<sup>rd</sup> cycle.

<sup>2</sup> MalTra (Malaria and Trachoma) week was a biannual weeklong outreach campaign that involved the mass distribution of azithromycin to prevent and treat trachoma. Additionally, recipients were provided with health education and testing and treatment for malaria with Coartem<sup>®</sup>.

**Table 1. Program Achievements in 2015**

Indicator	Goal	National	
		Target	Achieved
# of persons operated	693,037	227,821	117,087 (51%)
# of women operated			N/R <sup>3</sup>
# of surgeons trained		198	163 (82%)
# of surgeons retrained		234	169 (72%)
Doses of azithromycin distributed during MDA	73,120,581	44,000,000	38,405,928 (87%)
# of villages with health education		HSTP reviewed targets. Village graduation to reach 80% by 2020	
# of household latrines built		2,820,571	1,883,050 (67%)

### **Surgery (S)**

Impact surveys in 2015 have shown that seven districts within Ethiopia have a TT prevalence that is below the elimination threshold of 0.1%. 252 districts have a TT prevalence between .1 and 1%, 385 districts have a TT prevalence between 1 and 5% while only 28 districts have a TT prevalence greater than 5%. In 2015, 163 surgeons were trained and 169 surgeons were retrained to increase capacity for surgical output. Ethiopia completed a total of 117,087 surgeries, which is little more than half of their 2015 target of 227,821. At that rate the current backlog of 693,037 would be cleared in four to five years. With the successful and timely scale up of the Fast Track Initiative, piloted in four zones in 2015, this backlog could be cleared in one or two years.

In addition to the proposed scale up of the Fast Track Initiative, TT surgery validation will continue to be implemented regularly on a quarterly basis. Current TT validation is not standardized nationally which will be addressed in the future. In an effort to reduce TT refusals, additional training will be given to HEWs to identify TT cases so that refusal data more accurately reflect those that need surgery.

### **Antibiotic Therapy (A)**

Nationally, 38 districts reported a trachomatous inflammation-follicular (TF) prevalence of less than 5%, 88 districts were found to have a prevalence between 5 and 10% while the remaining 546 districts are above 10%. Of the 252 districts with a TF prevalence greater than 30%, 218 (87%) are currently implementing the SAFE strategy. About 82% of the districts with TF prevalence between 10 and 29.9% are currently implementing the SAFE strategy. The National Program distributed 38,405,928 doses of Pfizer-donated Zithromax® (azithromycin) during mass drug administration (MDA), about 87% of its 2015 target of 44 million doses. The program noted that there has been a dramatic increase in azithromycin doses distributed, however the program still faces challenges in terms of geographic coverage and availability of azithromycin for distribution.

### **Facial Cleanliness (F)**

Under the current guidelines for health education, each village in Ethiopia should have an HEW assigned to it as well as model households within the village that display good hygiene and sanitation behaviors. The National Program achieved 100% geographic coverage for health education at the village level with the HEW program and health development army. In October 2015, the FMOH finalized the HSTP. The plan aims to

<sup>3</sup> The number of women operated on in 2015 was not reported during the program review.

improve equity, coverage, and utilization of health services across the country over five years. One component of the plan will focus on *kebele*, or village, transformation, to strengthen the promotion of hygiene and sanitation through the HEW program at the *kebele* level. Under the HSTP, the FMOH has set a target of 80% of all villages will be model villages for health education, hygiene, and sanitation by 2020. Different from current guidelines, a model village will be one in which all households in the village are model households, based on criteria determined by the FMOH. This change in requirement is especially important in the prevention of communicable diseases and disease interruption at the village level, instead of individual households.

### **Environmental Improvement (E)**

In 2013, the Ministries of Health, Water and Energy, Education, and Finance and Economic Development partnered to create the ONE Water, Sanitation, & Hygiene (WASH) National Program. Phase I (July 2013-June 2015) focused on the mobilization of funds to support the program and building capacity at the national, zonal, and district levels to manage the program. Phase II, which launched in June 2015, will focus on the implementation of the program across the country. Funding for the multi-sectoral program comes from a variety of sources, including governments and nongovernmental organizations (NGOs). About 53% of the funding comes from government resources.

In 2015, the National Program supported the construction of 1,883,050 latrines as part of its ONE WASH Program efforts. The ONE WASH Programs' is also focused on the improvement of existing latrines and building handwashing facilities. In 2015, 101,601 improved latrines were constructed, 60,837 unimproved were upgraded to meet improved standards, and 112,032 handwashing facilities were constructed. In addition to the construction and improvement of latrines, 21,520 individuals were trained on community-led total sanitation and hygiene (CLTSH).

### **Programmatic Challenges:**

The most problematic challenge experienced by the Ethiopia National Program in 2015 was the shortage of surgical supplies available in markets.

### **Targets for 2016 and Plans to Meet Targets:**

#### *Surgery (S)*

- Operate on 526,586 TT patients
- Train 971 new surgeons
- Retrain 389 surgeons

#### *Antibiotic Therapy (A)*

- Distribute 69,424,399 doses of azithromycin

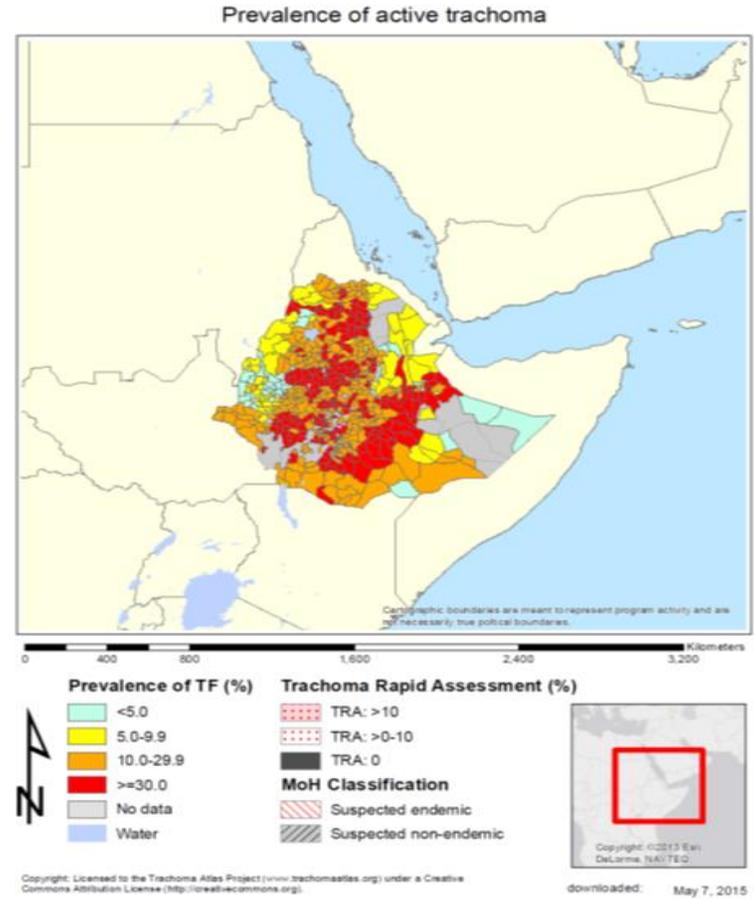
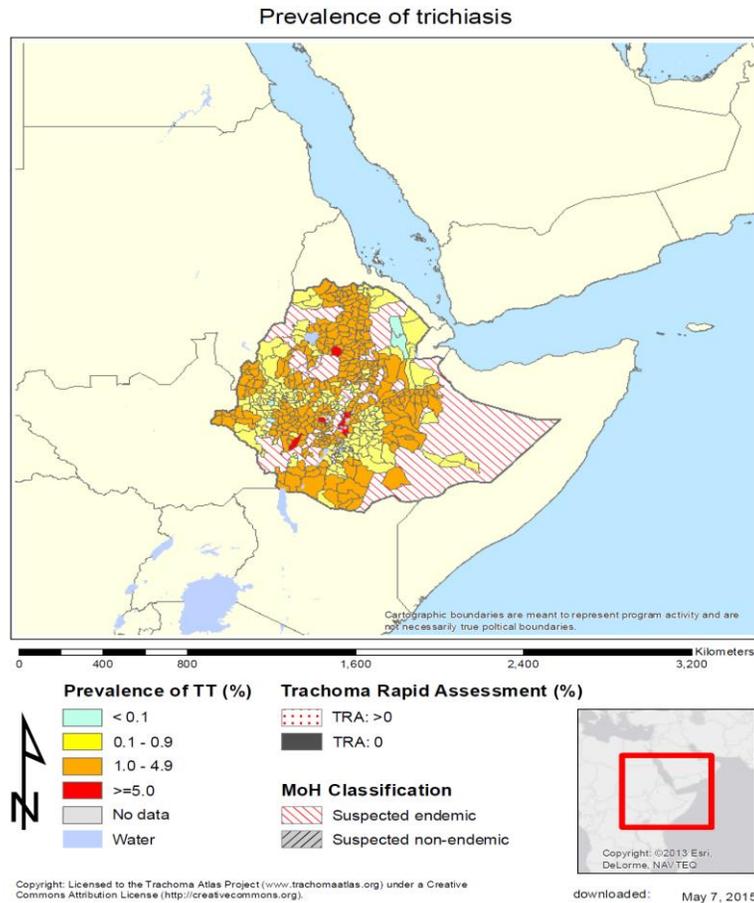
#### *Facial Cleanliness (F)*

- Graduate 30% of all villages as model villages

#### *Environmental Improvement (E)*

- Construct 3,418,283 improved latrines

## Ethiopia: TT and TF Prevalence, 2015



Source: GTMP

## **SAFE in Amhara, Ethiopia**

*Presented by Mr. Mulat Zerihun, Regional Trachoma Project Manager, The Carter Center - Ethiopia*

### **Background**

In the Amhara region of Ethiopia, a trachoma prevalence survey at the zonal-level was conducted in 2007 to quantify the zonal prevalence of trachoma and TT. This survey estimated that over 17 million people were at risk of trachoma and 643,904 people required surgery to correct TT in the Amhara region alone. Critically, the survey indicated that all zones in the Amhara region were eligible for the full SAFE strategy, which was scaled up to all districts in 2008. The regional trachoma program is part of the National Committee for the Prevention of Blindness and there is a trachoma focal person assigned in the Amhara Regional Health Bureau (ARHB).

Following five years of the SAFE strategy implementation, the World Health Organization (WHO) requires a trachoma impact survey be conducted to assess progress towards meeting the elimination targets. Impact surveys were conducted in all 167 districts of the Amhara region from 2011-2015 through collaboration with the ARHB and The Carter Center. These surveys showed dramatic reductions in all clinical signs of trachoma. Results indicated that nine of the 167 districts had meet the elimination criteria for TF, reducing the prevalence of TF among children ages one to nine to less than 5%. The results also indicated that the remaining districts continue to warrant the full SAFE strategy. Additional impact surveys will be conducted to assess the impact of the program and progress towards meeting the elimination thresholds.

### **Timeline of Events**

- 2001: Phase I agreement (4 districts); first 5-year TAP, updated every 5 years; S, F, & E implementation begins in 4 districts
- 2003: Full SAFE implementation begins
- 2004: SAFE expansion to 19 districts
- 2006: National baseline survey; SAFE expansion to entire region (167 districts)
- 2006-2007: Amhara zonal-level baseline survey
- 2008: Trachoma Campaign, formerly MalTra, launched
- 2015: 167 districts completed 1<sup>st</sup> impact survey after 5 years of SAFE; Fast Track TT Clearing Initiative piloted in East Gojjam zone
- 2020: Target date for elimination

**Table 1. Program Achievements in 2015**

Indicator	Goal	Amhara Region (Carter Center-Assisted)	
		Target	Achieved
# of persons operated	326,000	58,681	71,460 (122%)
# of women operated			45,448
# of surgeons trained		159	163 (103%)
# of surgeons retrained		0	20
Doses of azithromycin distributed during MDA	15,980,697	15,980,697	15,081,130 (94%)
Doses of TEO distributed during MDA	326,137	326,137	313,829 (96%)
# of villages with health education		3,459	1,485 <sup>4</sup> (43%)
# of household latrines built		350,000	305,511 (87%)

### Surgery (S)

Impact surveys in 2015 have shown that two districts within the Amhara region have a TT prevalence that is below the elimination threshold of 0.1%. Five districts have a TT prevalence between 0.1 and 1%, with the remaining 160 districts having a TT prevalence greater than 1%. For the first time in its history, the program exceeded its annual target for TT surgeries, surpassing by 22% and operating on a total of 71,460 patients. Over 60% of these surgeries were provided to women. Despite this great success, at this rate, the current backlog of 327,520 would be cleared in four to five years. During 2015, 163 surgeons, or integrated eye care workers (IECWs), were trained and 20 IECWs were retrained to increase capacity for surgical output.

In April 2015, the pilot for the Fast Track TT Initiative was launched in East Gojjam. This multifaceted program is aimed at improving systematic capacity for identifying TT cases and delivering needed surgery. During the nine-month pilot, a total of 29,399 TT surgeries were performed in East Gojjam, which is approximately 43% of the total surgeries completed in 2015. The pilot was a success and the initiative will be scaled up to all zones in Amhara in 2016.

In addition to increasing numbers of HEWs and TT facilities for surgery, preparation for this initiative provided orientation to all stakeholders at the zonal and district levels. Detailed district-level plans were developed which included training for HEWs on TT case identification as well as enhancement of procurement and supply chain processes. A total of 51 IECWs were trained and 15 were retrained to conduct TT surgery and focus on TT surgery full-time. Current strategies require IECWs to conduct surgeries during surgery campaigns, during which IECWs travel to districts for a set period of time, usually a week, and perform TT surgeries. While this strategy has proven effective, it does not allow IECWs to conduct surgeries on a regular basis. The Fast Track TT Initiative pilot demonstrated the increased productivity from the current strategy.

Also in 2015, the ARHB placed a greater emphasis on the validation of TT surgery data across all 10 zones of the Amhara region. To do this, twenty to thirty patients who had surgery within the reporting year were randomly selected, located, and asked to participate in a validation survey in each district. Surveyors then interviewed these patients about the surgery and observed the operated eye(s). After selecting 2,327 patients

<sup>4</sup> Not all villages have reported 2015 data.

across Amhara, 2,207 were interviewed among which 2,143 (97%) were found to have been operated. Across the 10 zones, the zone specific validation rates ranged from 85.2 to 100%.

### **Antibiotic Therapy (A)**

In 2015, among children ages one to nine, nine districts reported a TF prevalence that was less than 5% and do not warrant MDA going forward. In the districts that still warrant MDA, the program assisted in distributing 15,081,130 doses of azithromycin and 313,829 doses of tetracycline eye ointment (TEO). Although an overwhelming majority of the Amhara region's districts reported an MDA coverage that was at or above the 80% mark, the South Gondar zone's prevalence for TF remains alarmingly high and its districts present a prevalence of TF that suggests no positive change from the 2007 baseline done across the zone as a whole. For this reason, the South Gondar zone has the most MDA rounds remaining per district among all zones in the Amhara region. Also in 2015, the program completed 23 TIS and plans to complete 51 TIS in 2016.

### **Facial Cleanliness (F)**

The ARHB continues to support ongoing health education in schools and villages throughout the entire Amhara region. Over the course of 2015, The Carter Center's data collected in the Behavior Change Communication in Education (BCCE) study was used to revise school health education materials, particularly for primary school students in grades one to four. In addition to the revision of the school health education curriculum, the study, supported by The Carter Center in partnership with the ARHB, was used to revise messaging in promotional materials, which are distributed to community members during MDA and TT surgery campaigns.

### **Environmental Improvement (E)**

The program constructed 305,511 latrines in 2015, achieving 87% of the annual target of 350,000 latrines. The program monitors latrine construction and activities on a monthly basis in schools and communities in each district in the region. The revised primary school curriculum will have a greater emphasis on latrine use, both in schools and in communities. The curriculum will encourage students to teach their families and communities about the benefits of latrines and the importance of regular use.

### **Programmatic Challenges:**

The largest programmatic challenges that existed for the ARHB in 2015 were a shortage of surgical consumables in local markets and competing priorities within the national health program for Ethiopia.

### **Targets for 2016 and Plans to Meet Targets:**

#### *Surgery (S)*

- Operate on 102,476 TT patients, all with Carter Center assistance
- Train 136 surgeons; retrain 170 surgeons

These targets and their associated plans revolve largely around scaling up the Fast Track of TT surgery.

#### *Antibiotic Therapy (A)*

- Distribute 16,348,253 doses of azithromycin with Carter Center assistance
- Distribute 333,638 doses of TEO with Carter Center assistance

*Facial Cleanliness (F)*

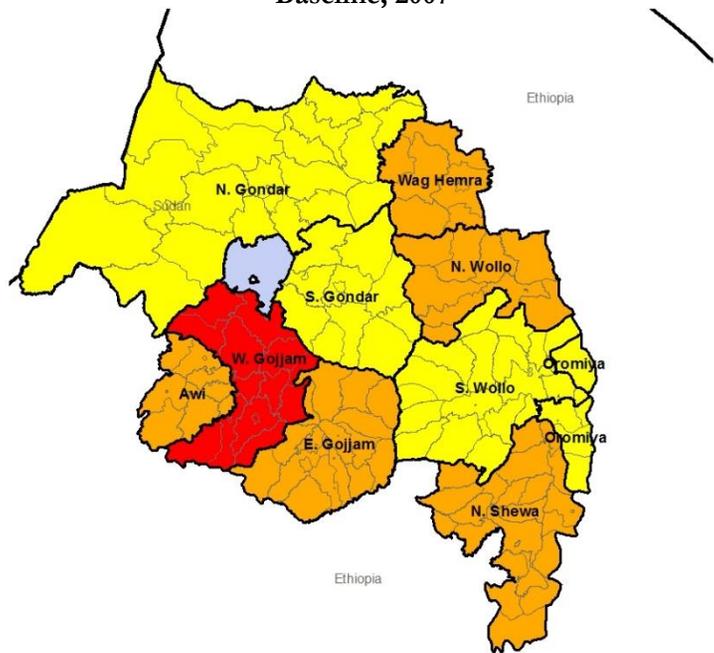
- Provide 3,324 villages with health education

*Environmental Improvement (E)*

The program has not yet set a target for latrine construction for 2016. The program will support the implementation of the ONE WASH National Program, which will emphasize construction of new latrines, updating of existing latrines, building hand washing facilities, and training in CLTSH.

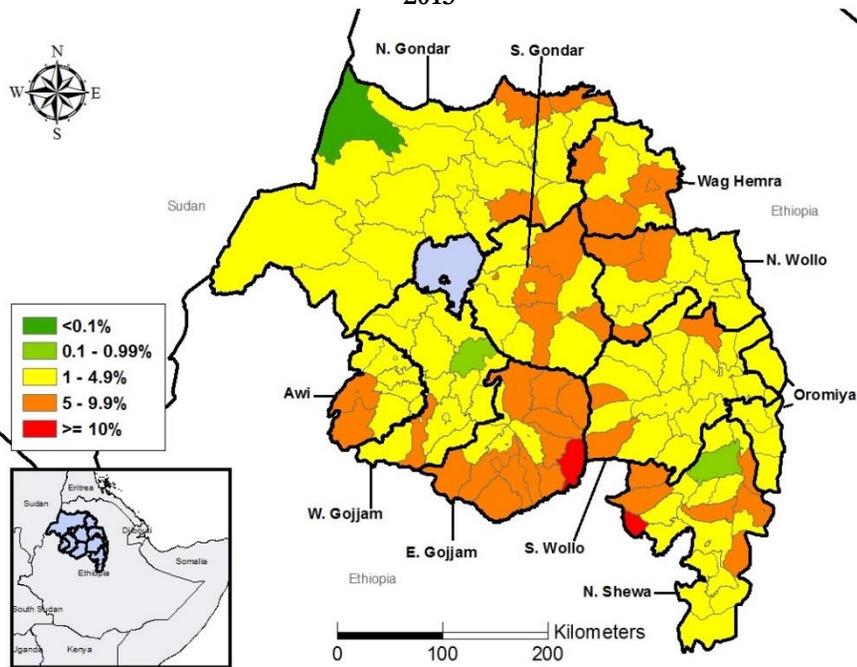
# Amhara, Ethiopia: TT Prevalence among Adults ≥ 15 years

Baseline, 2007

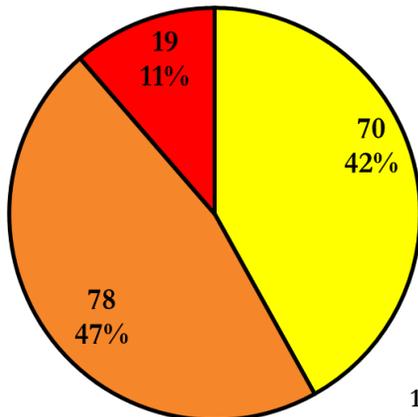


November 6, 2015/AWN

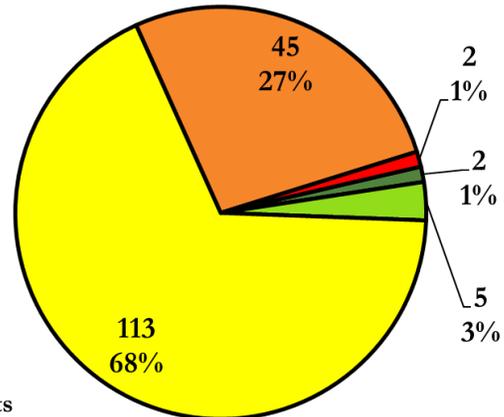
2015



Baseline



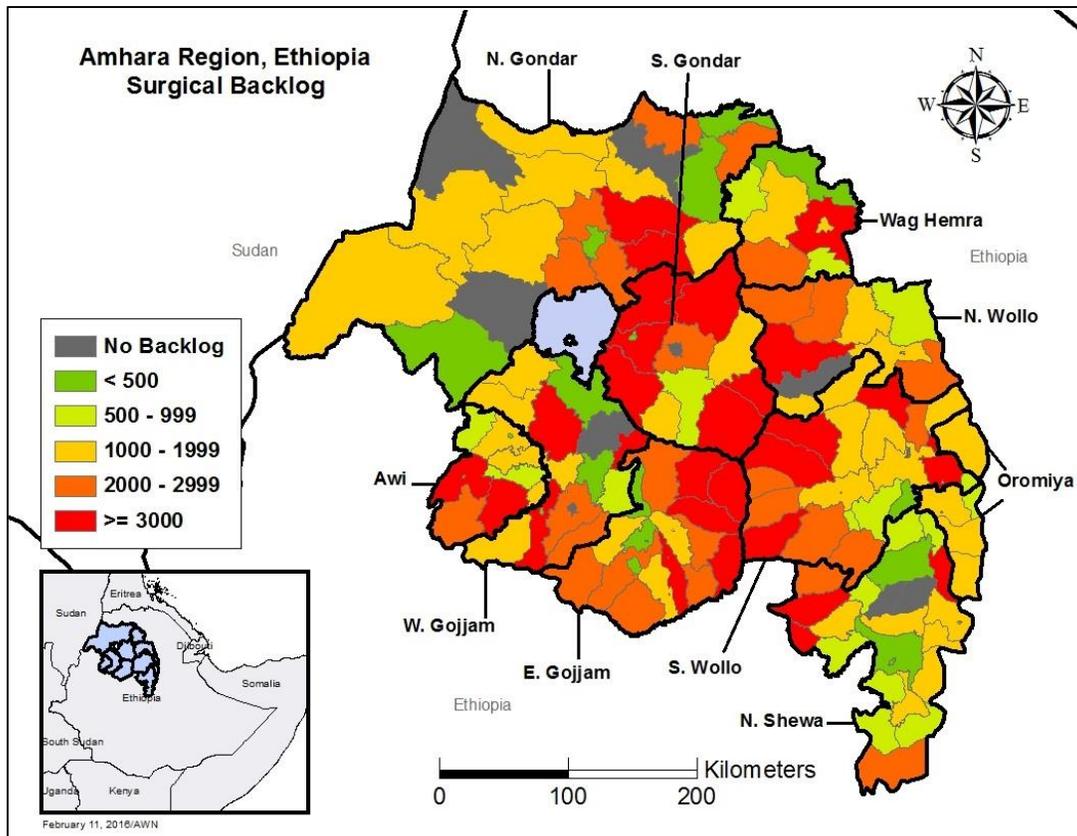
2015



**Pie slice:**  
1. # of districts  
2. % of pie

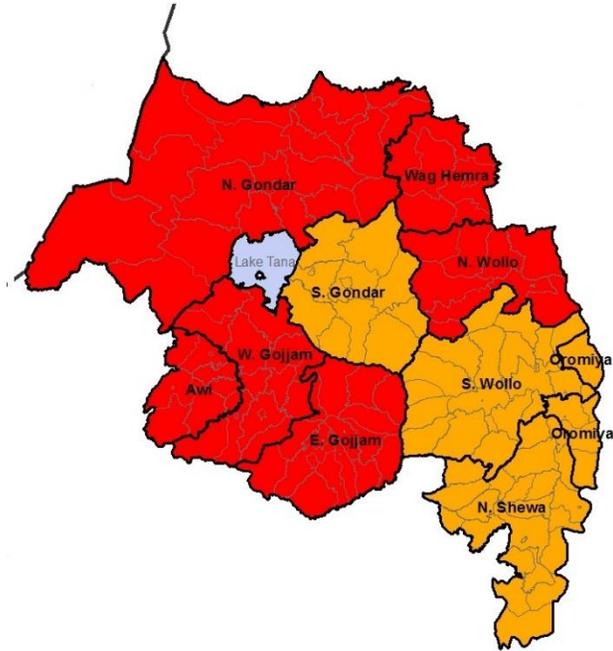
■ < 0.1%   ■ 0.1 - 0.99%   ■ 1 - 4.9%   ■ 5 - 9.9%   ■ ≥ 10%

# Amhara, Ethiopia: Surgical Backlog, 2015

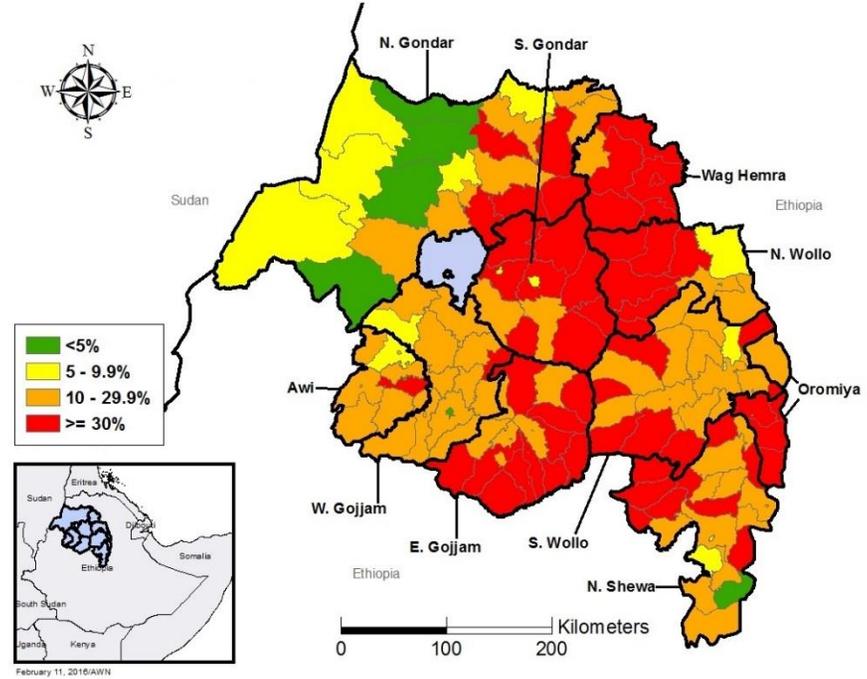


# Amhara, Ethiopia: TF Prevalence among Children 1-9 years

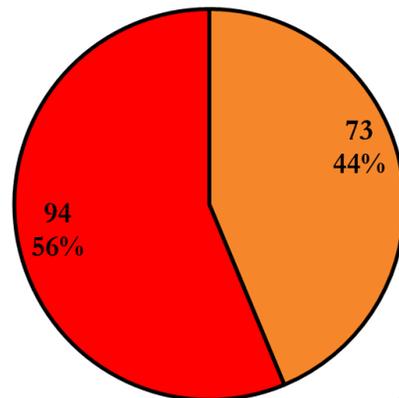
Baseline, 2007



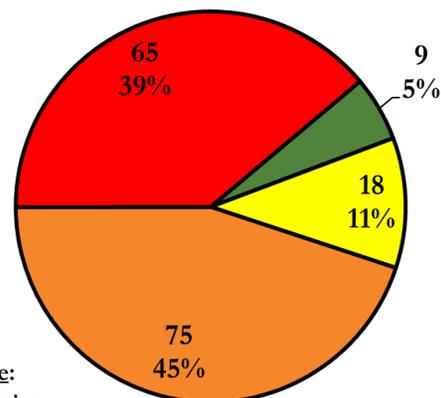
2015



Baseline



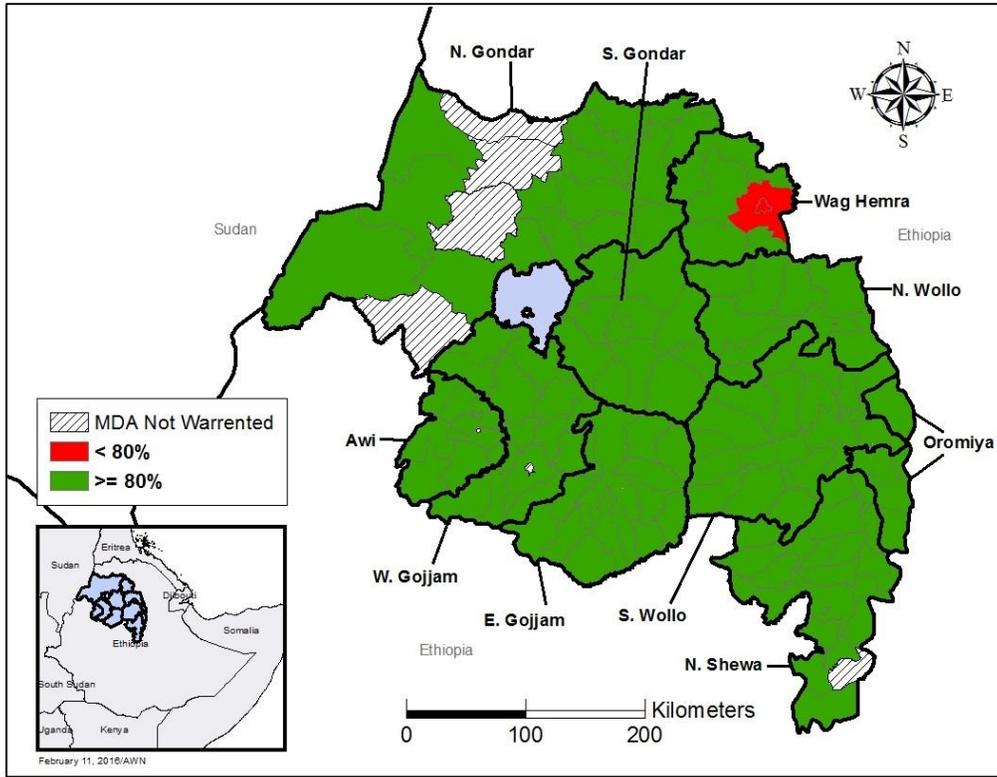
2015



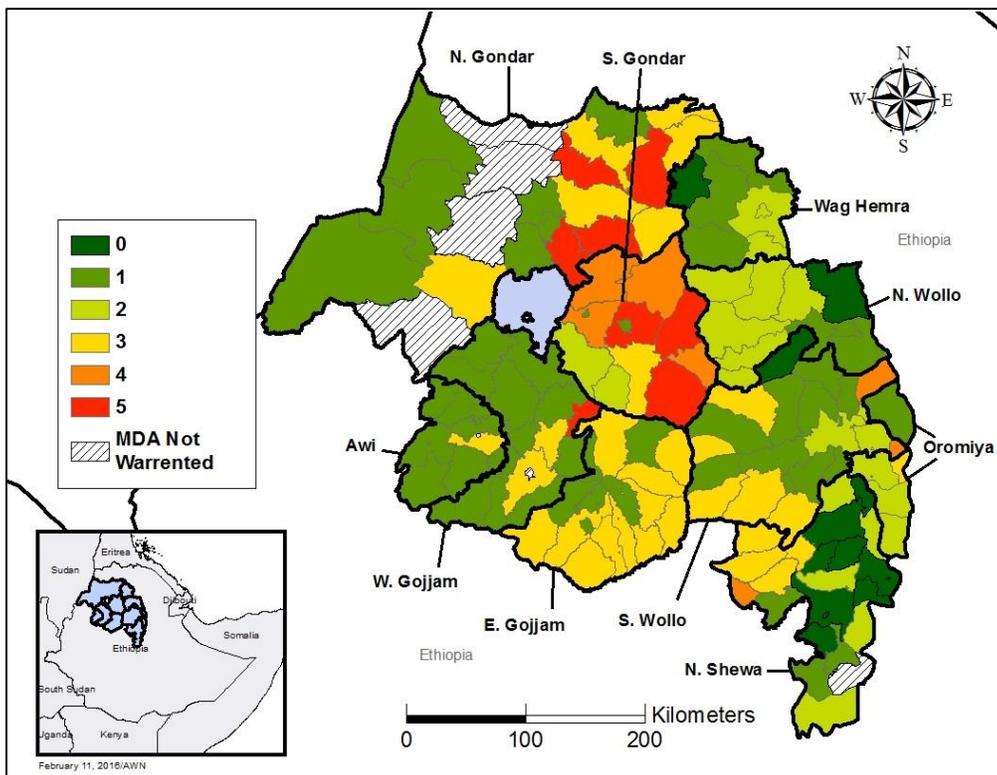
Pie slice:  
1. # of districts  
2. % of pie

■  $< 5\%$  ■ 5 - 9.9% ■ 10 - 29.9% ■  $\geq 30\%$

### Amhara, Ethiopia: MDA Coverage, 2015



### Amhara, Ethiopia: MDA Rounds Remaining, 2015



## **SAFE in Mali**

*Presented by Professor Lamine Traoré, Coordinator PNSO, Ministry of Health, Mali*

### **Background**

In 1994, the Malian National Blindness Prevention Program (PNLC) was created; however, since December 2014 has been known as the National Eye Health Program (PNSO). Following prevalence surveys conducted in 1996-1997, trachoma was identified as a major public health issue in Mali. Despite the Ministry of Health's (MOH) three priorities being malaria, HIV, and tuberculosis, a national trachoma control program was established in 1999. Though Mali does not have a formal TAP, at the end of each year, the PNSO develops a plan of action during its annual program review meeting. The Carter Center, along with other partners, currently supports the implementation of all SAFE components. For the A component another NGO partner supports azithromycin distribution, so The Carter Center is limited to the purchase of TEO.

### **Timeline of Events**

1994: PNLC launched

1996-1997: National baseline prevalence survey

1999: National Trachoma Control Program launched

1999: Surgeries initiated

2001: Distribution of Pfizer-donated Zithromax® begins

2003: Facial cleanliness and Environmental improvement activities initiated

2005-2014: TIS conducted

2014: PNLC becomes PNSO

2018: Target date for elimination of blinding trachoma in Mali

Table 1. Program Achievements in 2015

Indicator	Goal	National		Carter Center-Assisted	
		Target	Achieved	Target	Achieved
# of persons operated	20,324	6,000	3,117 (52%)	2,625	838 (32%)
# of women operated			2,237 (72%)		631 (75%)
# of surgeons trained		0	16	0	0
# of surgeons retrained		0	17	0	0
Doses of azithromycin distributed during MDA	385,934	385,934	0 (0%)	N/A <sup>5</sup>	N/A
Doses of tetracycline distributed during MDA	4,000	4,000	0	4,000	0
# of villages with health education		521	227 (44%)	521	227 (44%)
# of household latrines built		12,000	7,539 (63%)	9,000	4,399 (49%)

### Surgery (S)

As of the end of 2015, all except seven districts in Mali have achieved the less than 1% target threshold for TT prevalence. Two of these districts have even achieved a reportable prevalence of 0%. All seven districts above 1% are below 5% and are within reach of their ultimate intervention goal.

The National Program trained 16 new surgeons and performed 3,117 surgeries, which was just over half of the target set for 2015. At this rate, the current backlog would take 4.6 years to clear. It is important to note that although the surgery targets were not achieved, 578,839 people were screened for TT. Only 3,683 of these persons were identified as needing surgery, 15% of whom refused to have the surgery. The people who have refused are noted and followed up later. Most of these cases are temporary or circumstantial refusals, however there are some people who have refused more than once.

TT validation activities in Mali were carried out as part of 20 impact surveys done in 2015. During this process, 12 out of 17 persons were found to have had surgery, six of whom had shown signs of recurrence of TT.

### Antibiotic Therapy (A)

Similar to TT, the prevalence in TF in Mali has reached its targeted threshold of less than 5% in all but eight districts. In contrast to TT however, the prevalence of TF in districts that have not reached this threshold is below 10% in only three of those remaining eight districts with the other five falling somewhere between 10 and 30%. This is still a drastic improvement from the prevalence found at baseline, where all but eight districts showed a TF prevalence greater than 30%. There were zero doses of antibiotics distributed by the National Program.

### Facial Cleanliness (F)

The National Program trained 635 women's groups with the help of The Carter Center and broadcasted 1,160 messages about hygiene on local radio stations in local languages. Currently 62% of the population has access to potable water but the target for coordinating national programs is to achieve 82%.

<sup>5</sup> The Carter Center does not assist MDA in Mali.

## **Environmental Improvement (E)**

434 masons were trained in Mali during 2015 along with the rehabilitation of water points and the construction of over 11,000 improved latrines with and without the support of The Carter Center. Although there are other partners in Mali who work to improve latrine quantity and quality, the data reported here do not include the accomplishments of those partners.

### **Programmatic Challenges:**

Insecurity in the northern regions continues to present insurmountable obstacles in those districts where impact surveys are needed to gather a more accurate idea of the program's status.

As the number of TT cases gets closer to the elimination target, patients who need surgery become more and more dispersed geographically making it difficult to find patients with efficient use of resources including time and money.

### **Status of 2015 Program Review Meeting Recommendations**

**Recommendation 1:** In view of the current epidemiological status of trachoma in Mali, the country should consider revising the elimination target of 2015.

**Status:** The new target date for the elimination of trachoma in Mali is the end of 2018.

**Recommendation 2:** Mali and Niger should continue cross border collaboration.

**Status:** PNSO Niger participated in the national program review in Mali in December 2015. Currently there are no cross border activities ongoing.

### **Targets for 2016 and Plans to Meet Targets**

#### *Surgery (S)*

- Operate on 6,000 TT patients, 2,400 with Carter Center assistance
- Retrain 11 TT surgeons

With the help of other partner organizations including the Lions Club, a center for trachoma surgery training will be opened in the central region of the country.

#### *Antibiotic Therapy (A)*

- Distribute 66,153 doses of azithromycin
- Distribute 1,000 doses of TEO with Carter Center assistance

#### *Facial Cleanliness (F)*

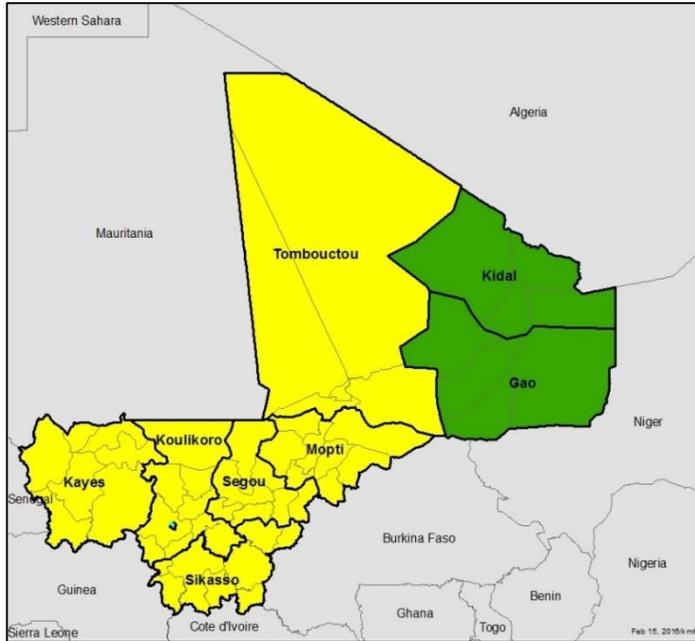
- Support health education in 300 villages with Carter Center assistance
- Improve coordination with WASH sector partners who had expressed an interest in the fight against trachoma to aggregate all data on the topic within Mali

#### *Environmental Improvement (E)*

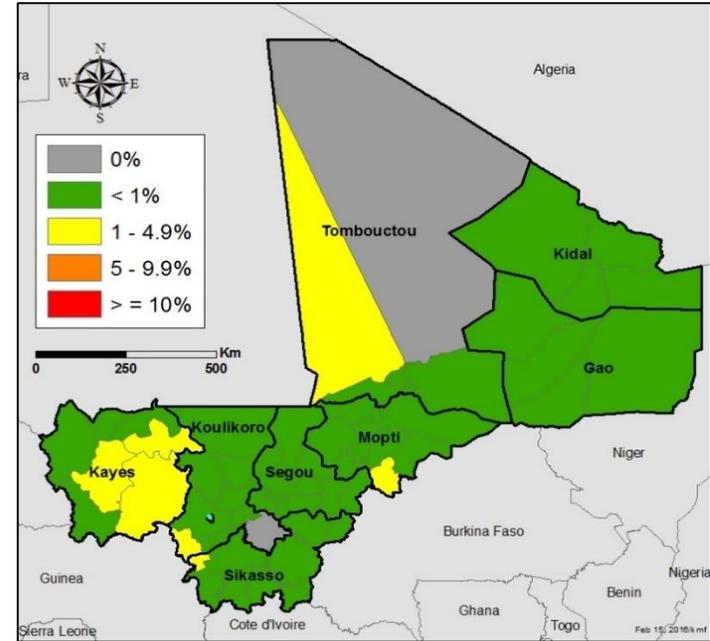
- Construct 7,000 latrines with Carter Center assistance

Mali: TT Prevalence among Adults ≥ 15 years

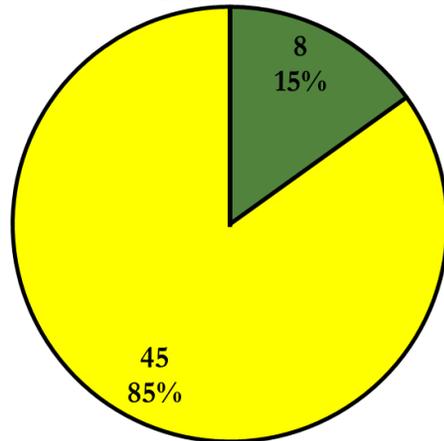
Baseline, 1996



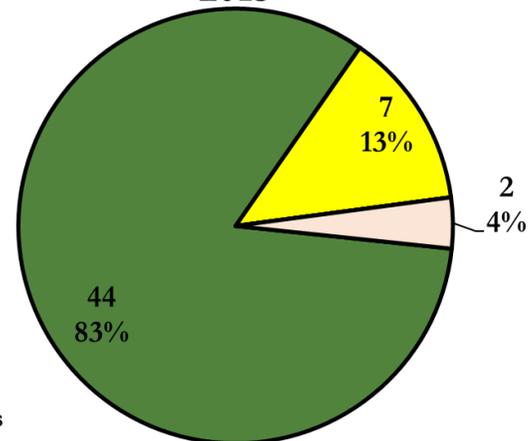
2015



Baseline



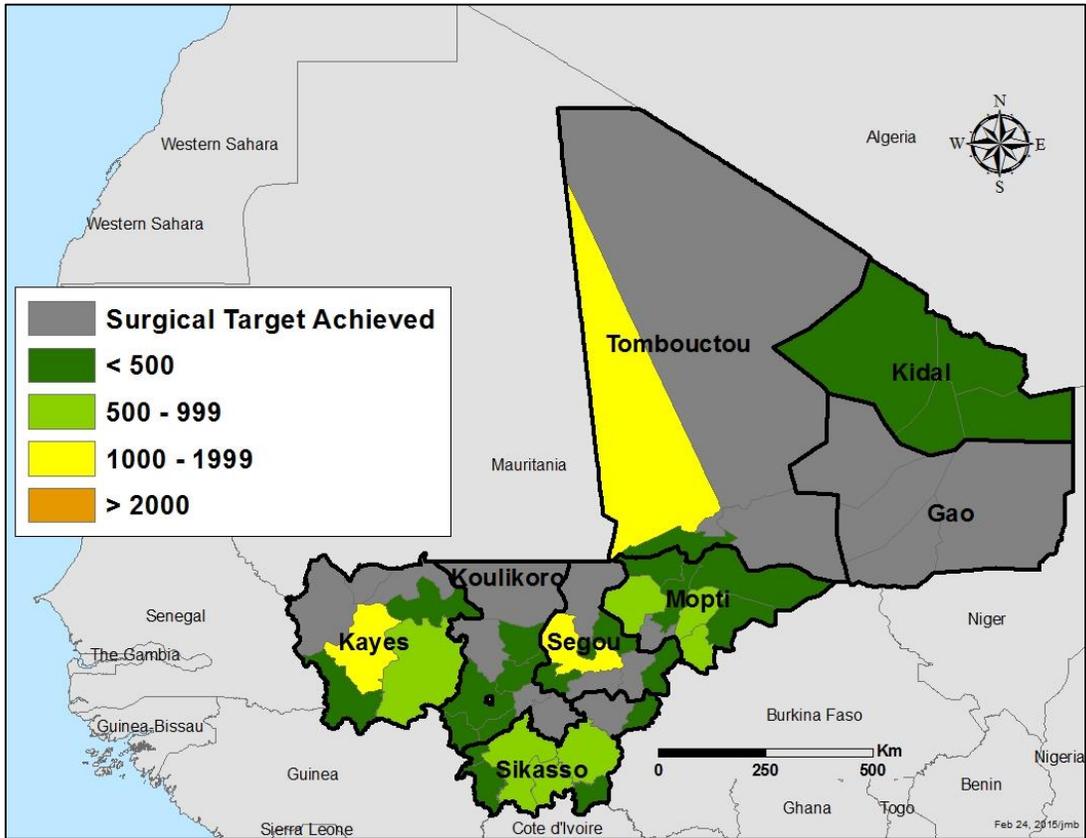
2015



Pie slice:  
# of districts  
% of pie

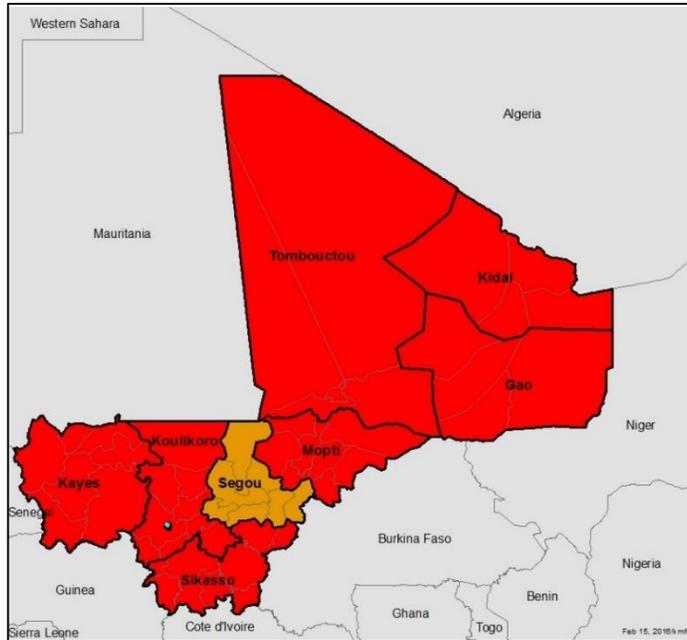
■ < 1% ■ 1 - 4.9% ■ 5 - 9.9% ■ ≥ 10% ■ Not Endemic

# Mali: Surgical Backlog, 2015

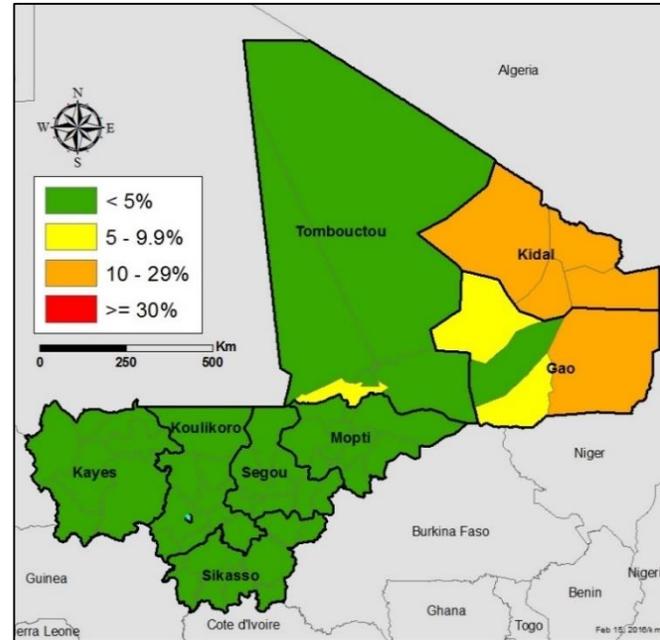


Mali: TF Prevalence among Children 1-9 years

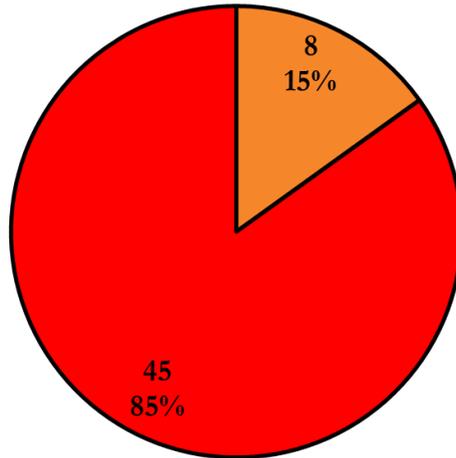
Baseline, 1996



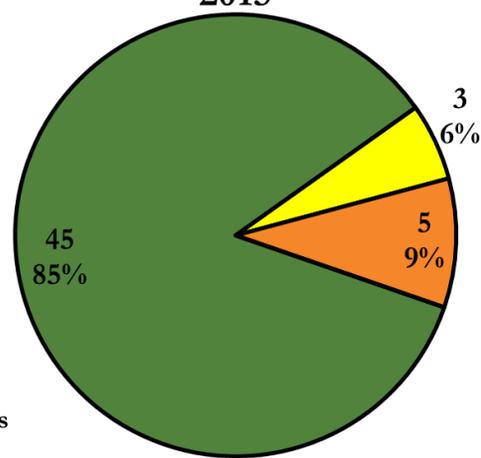
2015



Baseline



2015



Pie slice:  
# of districts  
% of pie

■ < 5% ■ 5 - 9.9% ■ 10 - 29.9% ■ >= 30%

## **SAFE in Niger**

*Presented by Dr. Kadri Boubacar, Deputy Coordinator PNSO, Ministry of Health, Niger*

### **Background**

The PNLC was established in 1987 following national surveys showing a prevalence of blindness of 2.2%, with one-quarter due to trachoma. Regional baseline surveys conducted from 1997 to 1999 found that 44% of children ages one to nine had active TF and/or trachomatous inflammation-intense (TI) and 1.7% of women over 15 years of age had trichiasis. In 1999, the PNLC formed the National Trachoma Task Force and, beginning in 2001, prevalence surveys were conducted at the district level. Currently, trachoma is part of the Department of NTDs and is not considered a high priority disease. Though trachoma is integrated into the NTD department, trachoma partners organize trachoma specific coordination and annual review meetings at the regional level. The program implements all components of the SAFE strategy where warranted.

In 2013, the Minister of Health made a statement of appreciation for the work of the MOH trachoma coordinators and the two main partners, The Carter Center and Helen Keller International (HKI). These statements were made during a TT surgical outreach week in March 2013. Also in 2013, the program name changed from PNLC to PNSO.

### **Timeline of Events**

1987: PNLC started  
1997-1999: Baseline surveys conducted at regional level  
2000: The Carter Center begins support of the program  
2001: District level baseline surveys started  
2001: SAFE strategy implementation begins  
2006: Trachoma impact surveys conducted  
2007: NTD Program launched  
2010 and 2012: TIS completed  
2013: PNLC becomes PNSO  
2018: Updated target date for the elimination of blinding trachoma

**Table 1. Program Achievements in 2015**

Indicator	Goal	National		Carter Center-Assisted	
		Target	Achieved	Target	Achieved
# of persons operated	31,564	15,000	12,280 (82%)	10,000	9,962 (99%)
# of women operated			6,891		5,500
# of surgeons trained		60	38 (63%)	40	24 (60%)
# of surgeons retrained		0	0	0	0
Doses of azithromycin distributed during MDA	2,577,452	2,577,452	In process	N/A <sup>6</sup>	N/A
Doses of tetracycline distributed during MDA	51,550	51,550	In process	51,550	In process
# of villages with health education		6,018	6,018 (100%)	6,018	6,018 (100%)
# of household latrines built		10,000	9,945 (99%)	10,000	9,945 (99%)

### **Surgery (S)**

The program reached 82% of its surgical target in 2015, operating on 12,280 TT patients; 9,962 of those were assisted by The Carter Center. High surgical output is supported by national and local “trachoma week” campaigns. As a result, there are 18 districts throughout Tillaberi, Tahoua, Agadez, Dosso, Zinder, and Maradi achieving less than 1% TT prevalence among adults 15 years old and above. A post-endemic plan was developed to continue to monitor TT prevalence after reaching the 2018 target. At the current pace, it will take approximately 3.3 years to clear the surgical backlog. Also in 2015, with the support of HKI, the program trained 38 new TT surgeons, 24 with Carter Center assistance.

### **Antibiotic Therapy (A)**

Baseline surveys conducted from 2000-2007 indicated a TF prevalence among children ages one to nine above 10% in 29 districts. That number has been reduced to just 10 districts reporting a TF prevalence over 10%, while 24 districts have a TF prevalence below 5%. Therefore, MDA is not warranted in many districts and the National Program is subject to a post-MDA plan to continue monitoring trachoma in these districts and avoid recurrence. Where warranted, MDA was delayed in 2015 and began in early 2016. Results of doses distributed and MDA coverage were not available at the time of the Program Review. The MOH is actively engaged in MDA with the Minister of Health lending his support in publically launching MDA campaigns. Niger supports integrated NTD MDA campaigns.

### **Facial Cleanliness (F)**

F&E initiatives increased with 6,018 villages receiving health education in 2015, all with Carter Center assistance. Health messages continue to be broadcast through community, private, and regional radio stations. Often public speakers are engaged to present health messages which are well received as communities enjoy viewing public figures and well-known personalities. Lessons on trachoma prevention were also incorporated into primary school education. Teachers and other health educators were trained in health messaging related to trachoma control. Although the program is only able to measure F&E impact in villages with active monitors, all villages benefit in receiving trachoma control messages through radio broadcasts throughout the

<sup>6</sup> The Carter Center does not currently assist MDA in Niger.

country. In addition to the F&E tools developed for trachoma messaging, certifications and prizes are used to help recognize and motivate schools and mobilize communities.

### **Environmental Improvement (E)**

The program reached 99% of its target with 9,945 latrines constructed in 2015, all with Carter Center assistance. It is difficult to determine the total number of latrines constructed in Niger as activities from various partners are not always conducted in coordination with the National Program.

### **Programmatic Challenges:**

Insecurity in the Diffa region continues to challenge the program with disruptions to scheduled activities and access to higher prevalence districts. Access to these districts is further hindered in the rainy season. Case finding for TF surgeries and accurately determining the surgical backlog are challenged by a highly mobile population in some districts, border crossings between neighboring nations, and an influx of refugees from Nigeria to Diffa. Training and retention of surgeons is challenging as attrition is high and competing priorities, such as a cholera outbreak in 2015, disrupted new surgeon trainings. Resulting from procurement delays in MDA supplies, the program faced challenges in postponing integrated MDA campaigns. Data sharing and reporting has also proved difficult as partner activities often go unreported to the National Program.

### **Status of 2015 Program Review Meeting Recommendations**

**Recommendation 1:** Mali and Niger should continue cross border collaboration.

Ongoing. PNSO Niger participated in the National Program review in Mali in December 2015.

**Recommendation 2:** The program should do one round of MDA in areas with TF prevalence 5-9.9%, especially in Agadez, by October/November.

In progress.

### **Targets for 2016 and Plans to Meet Targets**

#### *Surgery (S)*

- Operate on 13,100 patients, 11,100 with Carter Center assistance
- Train 40 surgeons, 30 with Carter Center assistance

With the assistance of Lion's Club International and other partners, the program plans to increase the number of surgeries in 2016 citing the additional need for social mobilization.

#### *Antibiotic Therapy (A)*

- Distribute 3,928,475 doses of azithromycin
- Distribute 80,173 doses of TEO, all with Carter Center assistance

Niger will consider a trachoma-specific MDA if plans for an integrated program cannot be put into place in time.

#### *Facial Cleanliness (F)*

- Conduct health education in 7,000 villages, all with Carter Center assistance

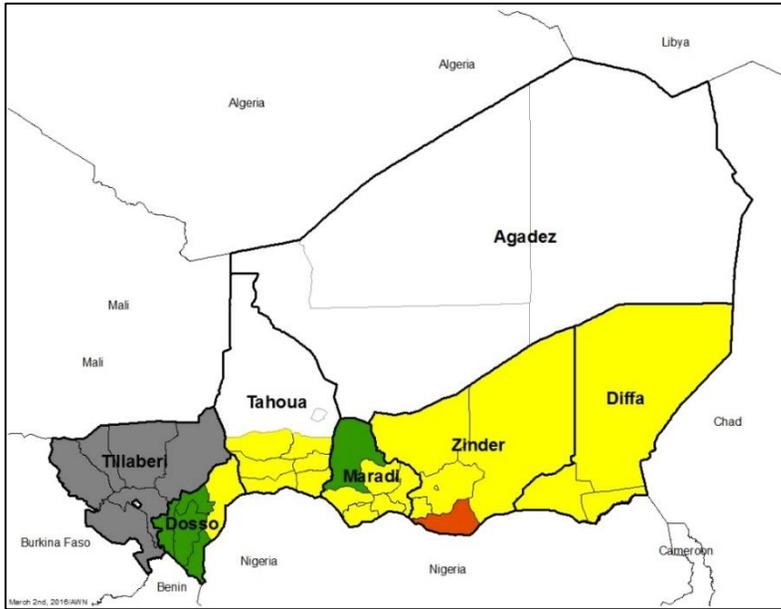
The program will increase collaborations with the WASH sector, the school health bureau, and NGOs to strengthen supervision of health educators and teachers and increase stakeholder participation.

*Environmental Improvement (E)*

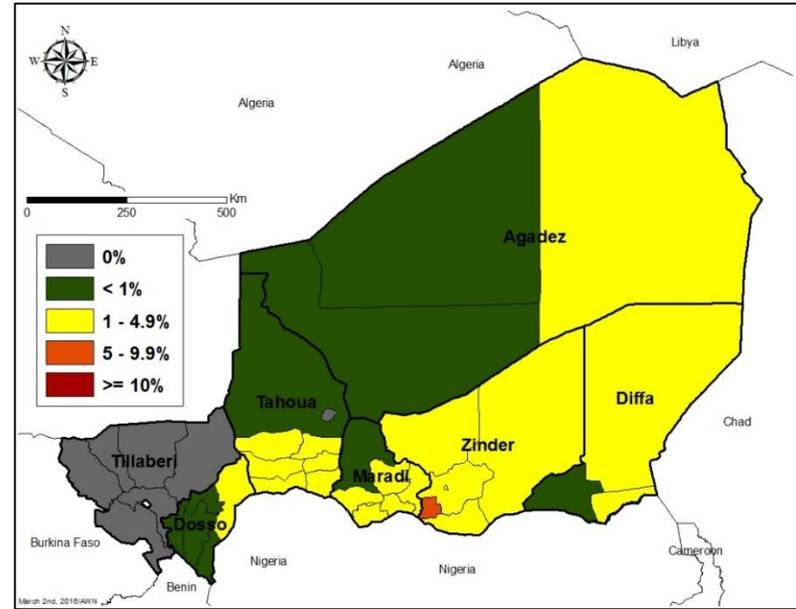
- Construct 10,000 latrines, all with Carter Center assistance

## Niger: TT Prevalence among Adults ≥ 15 years

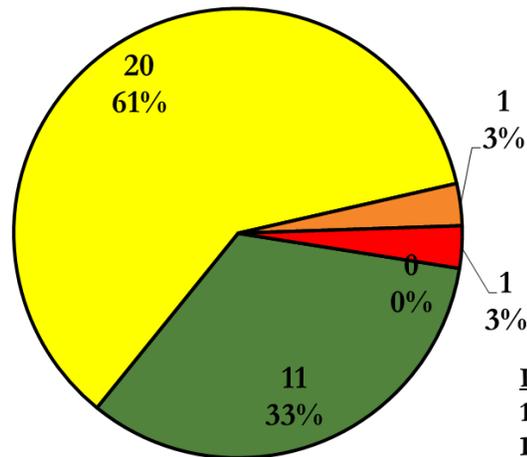
Baseline, 2000-2007



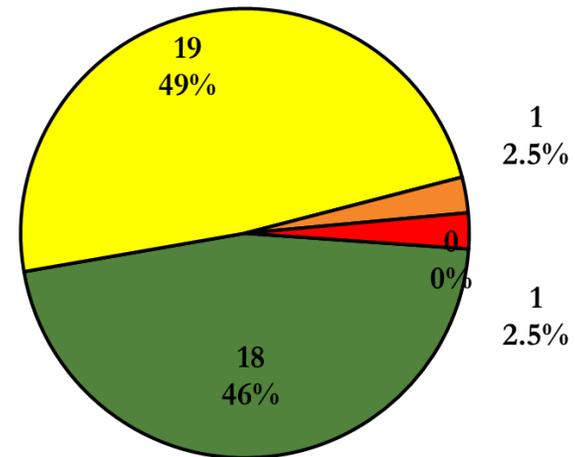
2015



Baseline (n = 33)



2015 (n = 39)

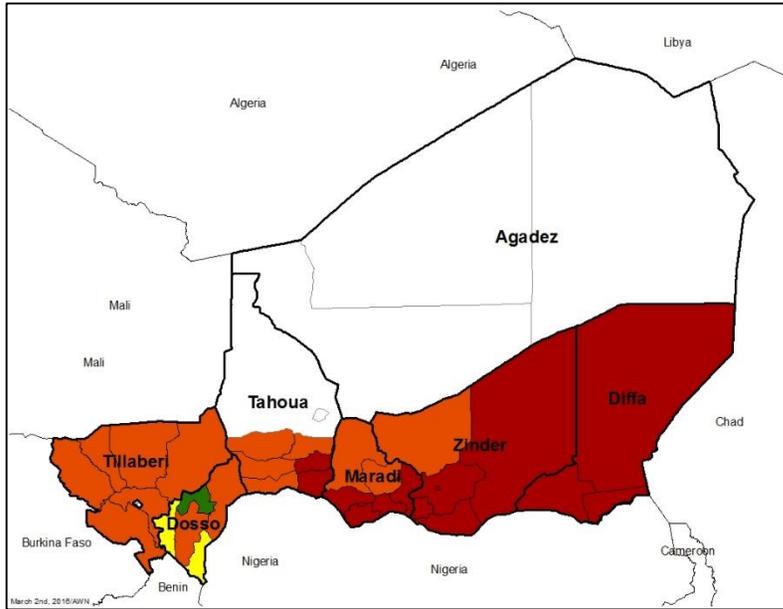


Pie slice:  
1. #  
Districts  
2. % of pie

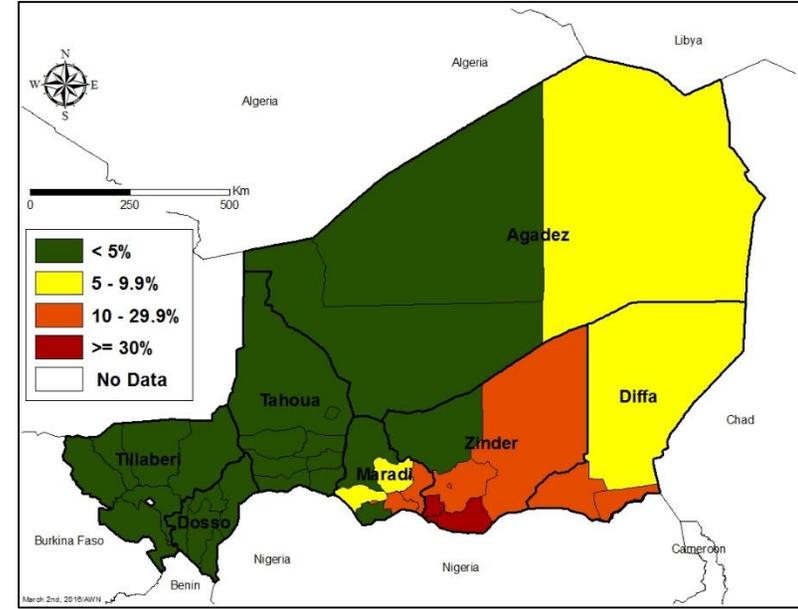
■ < 1% ■ 1 - 4.9% ■ 5 - 9.9% ■ ≥ 10%

### Niger: TF Prevalence among Children 1-9 years

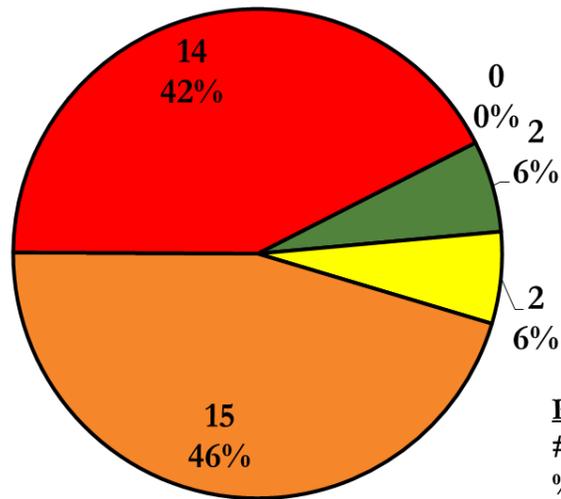
Baseline, 2000-2007



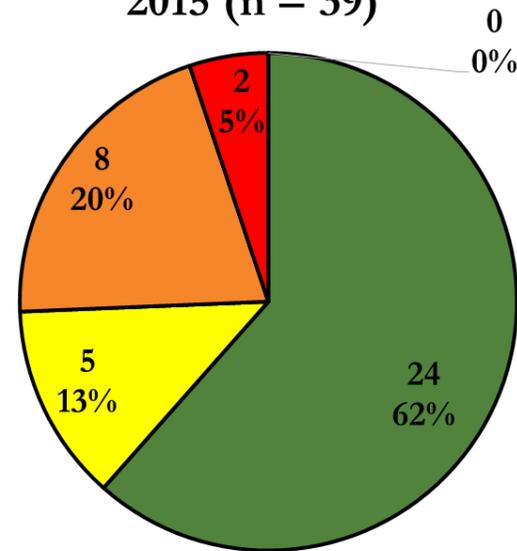
2015



Baseline (n = 33)



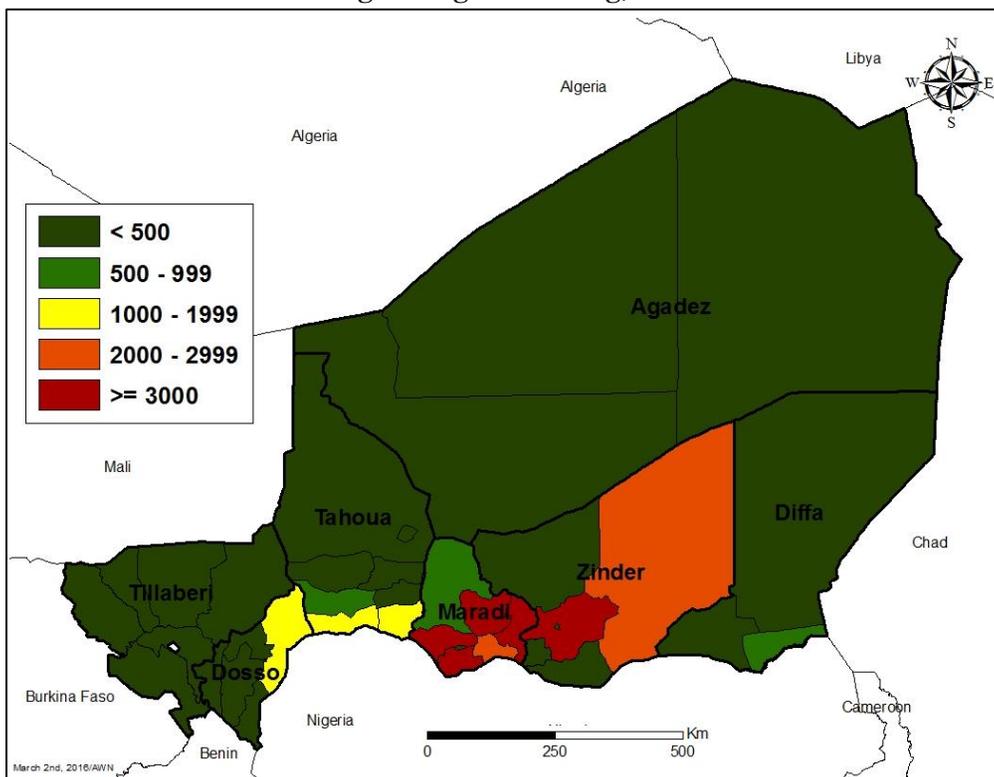
2015 (n = 39)



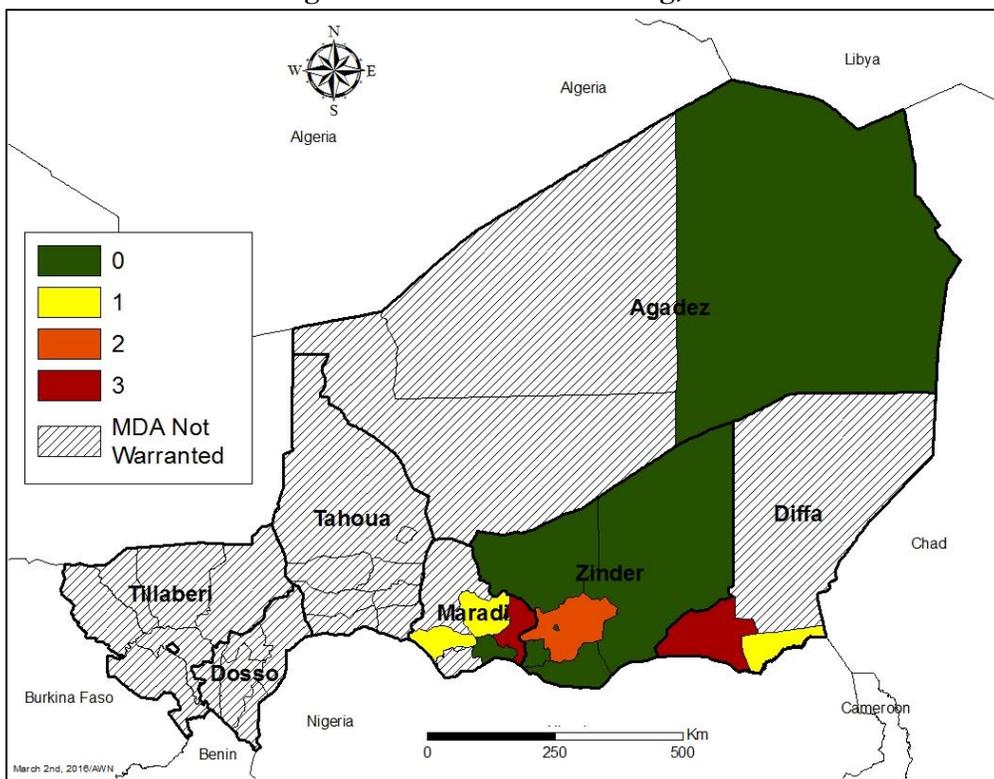
**Pie slice:**  
# Districts  
% of pie

■ < 5%   ■ 5 - 9.9%   ■ 10 - 29.9%   ■ ≥ 30%

### Niger: Surgical Backlog, 2015



### Niger: MDA Rounds Remaining, 2015



## **SAFE in South Sudan**

*Presented by Makoy Samuel Yibi, Director for Guinea Worm Eradication and Preventive Chemotherapy NTDs*

### **Background**

Prevalence surveys conducted between 2001 and 2006 showed TF prevalence as high as 77.2% among children one to nine years old and TT prevalence as high as 15.1 percent among adults 15 years and older in some districts in the Greater Upper Nile region. Despite the high prevalence, trachoma currently is not a top priority for the government. The trachoma program was previously under the Department of Eye Care Services; however, in late 2013 it was relocated to the Department of NTDs. SAFE activities have not been conducted in all the districts due to a lack of resources. In the districts receiving SAFE interventions, most activities focus on the S&A components. The TAP was completed in 2012.

The program had originally planned to conduct baseline surveys in five states in South Sudan as part of the GTMP and impact surveys in eight districts in Carter Center-assisted areas; however, fighting throughout most of 2014 prevented these surveys from occurring. Due to the insecurity, The Carter Center suspended all activities in December 2013. Since the conflict began, more than 800,000 people have fled their homes, many of which were located in districts supported by the Trachoma Control Program. The Carter Center recommenced program activities in September 2014.

In October 2014, the NTD task force was reactivated with a full review of a situational analysis and master plan launch. In 2015, the first trachoma impact surveys were conducted in five of the 29 districts known to be endemic. Due to insecurity, only five districts were accessible and The Carter Center was the only remaining partner in country.

### **Timeline of Events**

1999-2010: Baseline mapping

2001: Trachoma control activities began

2005: Comprehensive Peace Agreement signed

2007: MOH Government of Southern Sudan Trachoma Control Program established

2008: Trachoma Taskforce established

2011: South Sudan gains independence

2012: TAP finalized

2013-2014: Fighting in parts of the country causes displacement of population

2014 Jan-Sept: Suspension of program activities

2015: First TIS conducted in Budi, Lopa/Lafon, Kapoeta East, Kapoeta North and Kapoeta South

2020: Target date for elimination of blinding trachoma in South Sudan

Table 1. Program Achievements in 2015

Indicator	Goal	National		Carter Center-Assisted	
		Target	Achieved	Target	Achieved
# of persons operated	88,840 (29 of 29 districts)	2,000	682 (34%)	1,000	432 (43%)
# of women operated			494 (72%)		362 (84%)
# of surgeons trained		10	0	2	0
# of surgeons retrained		4	0	N/A	N/A
Doses of azithromycin distributed during MDA	1,699,994	1,000,000	105,688 (10.5%)	236,000	105,688 (45%)
Doses of tetracycline distributed during MDA	33,999	10,000	4,400 (44%)	7,080	4,400 (62%)
# of villages with health education		200	24 (12%)	30	24 (80%)
# of household latrines built		No target set	5	0	0

### Surgery (S)

TT prevalence among adults 15 years old and above remains high in mapped districts with 16 of the 29 districts reporting TT prevalence of at least 10%. The program completed 682 surgeries in 2015, of which 354 (51.9%) were performed on women. The Carter Center assisted with 432 (43.2%) of these surgeries. The surgical backlog increased to 81,083 in 2015 with the addition of baseline survey results in Eastern Equatoria state. The program estimates that it will take 119 years to clear the backlog given the current pace of surgeries conducted in the country. In order to achieve the elimination target, TT surgeries will require an accelerated initiative to fast track surgeries in South Sudan.

### Antibiotic Therapy (A)

Of the 29 mapped districts, 23 districts (79%) report a TF prevalence among children one to nine years of age above 30%; one district has a TF prevalence between 10% and 29.9%; one district has a TF prevalence between 5% and 9.9%; four districts were found to be non-endemic with TF prevalence less than 5%. The program distributed 110,088 doses of antibiotics (TEO and azithromycin), all with assistance of The Carter Center. MDA coverage in Kapoeta South achieved over 100% coverage, which may be explained by cross-district travel between Kapoeta South and Kapoeta North districts converging at the city center. Exhaustion of antibiotic supplies resulted in less than 80% coverage and subsequent postponement of MDA in Budi. MDA was not conducted in Jonglei due to a lack of implementing partners and security concerns.

### Facial Cleanliness (F)

Facial cleanliness indicators for South Sudan are low, with between 43.3% and 65% clean face prevalence across counties in Eastern Equatoria state (Namurnyang and Imatong). The focus of 2015 was on health education using materials provided through school-based health education and MOH-sponsored interventions on sanitation and hygiene in communities.

### Environmental Improvement (E)

Health education for environmental improvement, sanitation, and hygiene is carried out at all levels of the MOH. Five latrines were constructed in 2015 by the National Program though there is no formal documentation of the number of latrines constructed in trachoma-endemic areas by other partners.

### **Programmatic Challenges:**

Numerous challenges persist in South Sudan resulting from insecurity and disruptions in program delivery. Of the 29 trachoma-endemic and hyper-endemic counties, only five are currently accessible due to ongoing conflict in the Jonglei and Upper Nile states. Although the trachoma burden in South Sudan is not fully mapped, the highest known prevalence of trachoma exists in these conflict zones. As a result of security concerns, all partners but The Carter Center had suspended activities in South Sudan. Unfortunately, Carter Center-assisted trachoma program activities were also temporarily disrupted in late 2015. More in-country partners are needed to achieve the elimination target and resume activities with expediency and efficiency.

TT surgical refusals are high as many people face competing priorities, internal displacement, and misconception and fear regarding the procedure. Additionally, there is a limited number of certified, full-time TT surgeons and a lack of surgical kits to perform the surgeries. Identifying a partner to conduct surgeon trainings is difficult and plans to train surgeons in Kenya posed additional constraints. Distribution of azithromycin is low due to an inability to access districts where MDA is warranted and infrastructure is lacking. Furthermore, there was no partner available to conduct MDA in Jonglei. There are further challenges in setting acceptable targets for SAFE indicators as these activities are targeted for areas that are largely inaccessible to partners.

### **Status of 2015 Program Review Meeting Recommendations:**

**Recommendation 1:** The program should advocate the GTMP be completed in accessible identified areas as soon as possible (East and Central Equatoria, Lakes, Warab, and Northern Bhar al Ghazal).

Not completed due to lack of funding. The MOH and partners continue to advocate for the implementation of GTMP.

**Recommendation 2:** The program should track quality of surgeries by documenting post-op complications. The program should improve quality of TT surgeries by offering comprehensive post-op care.

Completed. The program achieved this recommendation by improving documentation and ensuring post-operative complications are addressed in a timely fashion.

**Recommendation 3:** The program and its partners should provide TT kits to primary health care units with trained ophthalmic clinical officers.

Not completed.

**Recommendation 4:** The program should establish one reporting system, which would be used by all implementing partners and would include key indicators of the SAFE strategy.

Trachoma indicators have been included in a national NTD data collection tool. Trachoma implementing partners have agreed to submit trachoma data to program on quarterly basis.

### **Targets for 2016 and Plans to Meet Targets:**

#### *Surgery (S)*

- Operate on 2,500 trichiasis patients, 1,000 with Carter Center assistance.

The program priority for 2016 is to expedite clearing of the surgical backlog. Given the current conflict, targets set in December 2015 may not be attainable. More partners and funding are needed to clear the surgical backlog particularly in inaccessible areas.

### *Antibiotic Therapy (A)*

- Distribute 245,440 doses of azithromycin, all with Carter Center assistance
- Distribute 7,363 doses of TEO, all with Carter Center assistance

Inability to access insecure areas may temper plans to conduct impact assessments and baseline surveys in endemic and hyper-endemic districts and warrant MDA rounds. Assessments are planned for six districts in 2016 pending return of the population and security improvements.

### *Facial Cleanliness (F)*

- Conduct health education in 75 villages, all with Carter Center assistance

The program plans to more fully engage with WASH partners in F&E activities in known endemic areas, and will continue to focus on school-based and community-based F&E health education programs. The program will leverage existing collaboration between the Guinea Worm Eradication Program and WASH partners through the integrated WASH project. This will further be implemented at the district level using the three vehicles and 20 motorbikes procured by United Nations Children's Fund (UNICEF).

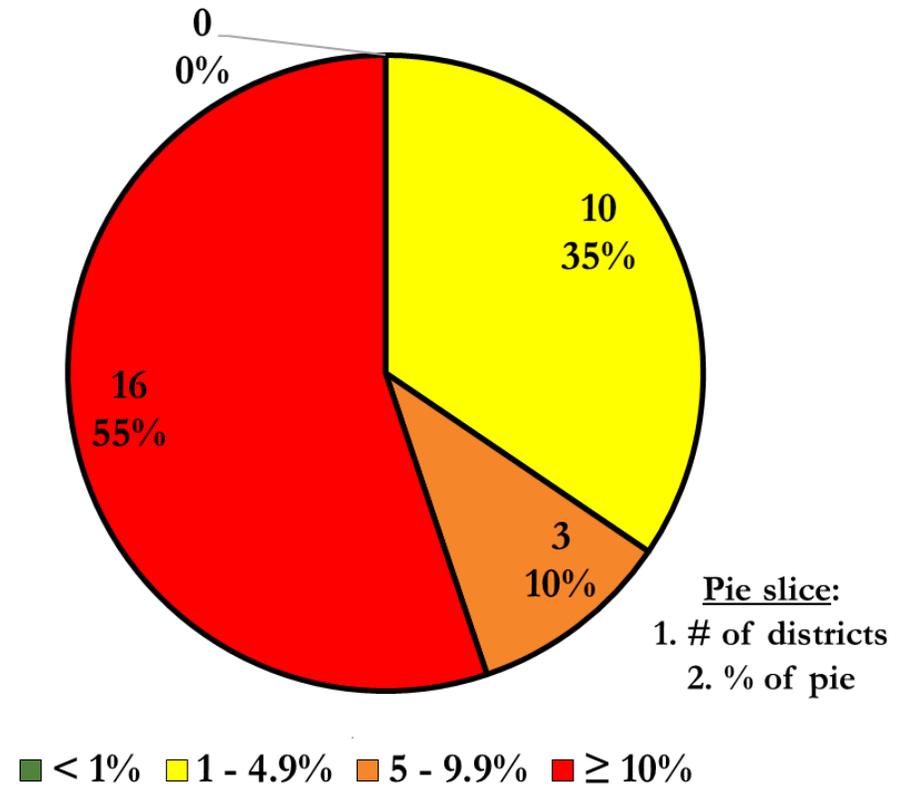
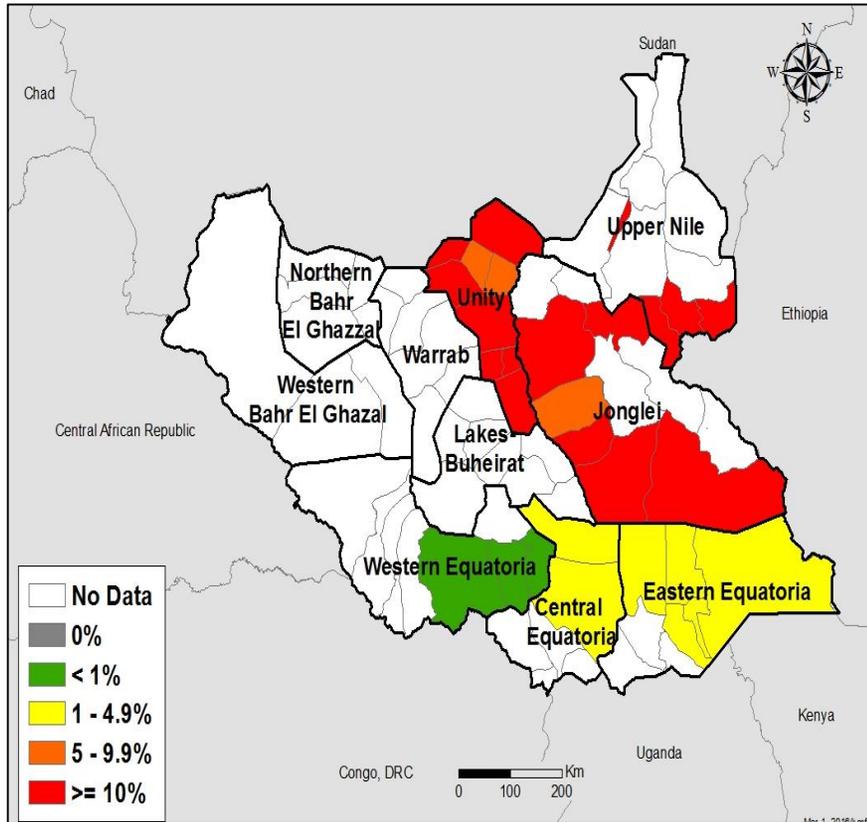
### *Environmental Improvement (E)*

- Construct 80 latrines, all with Carter Center assistance

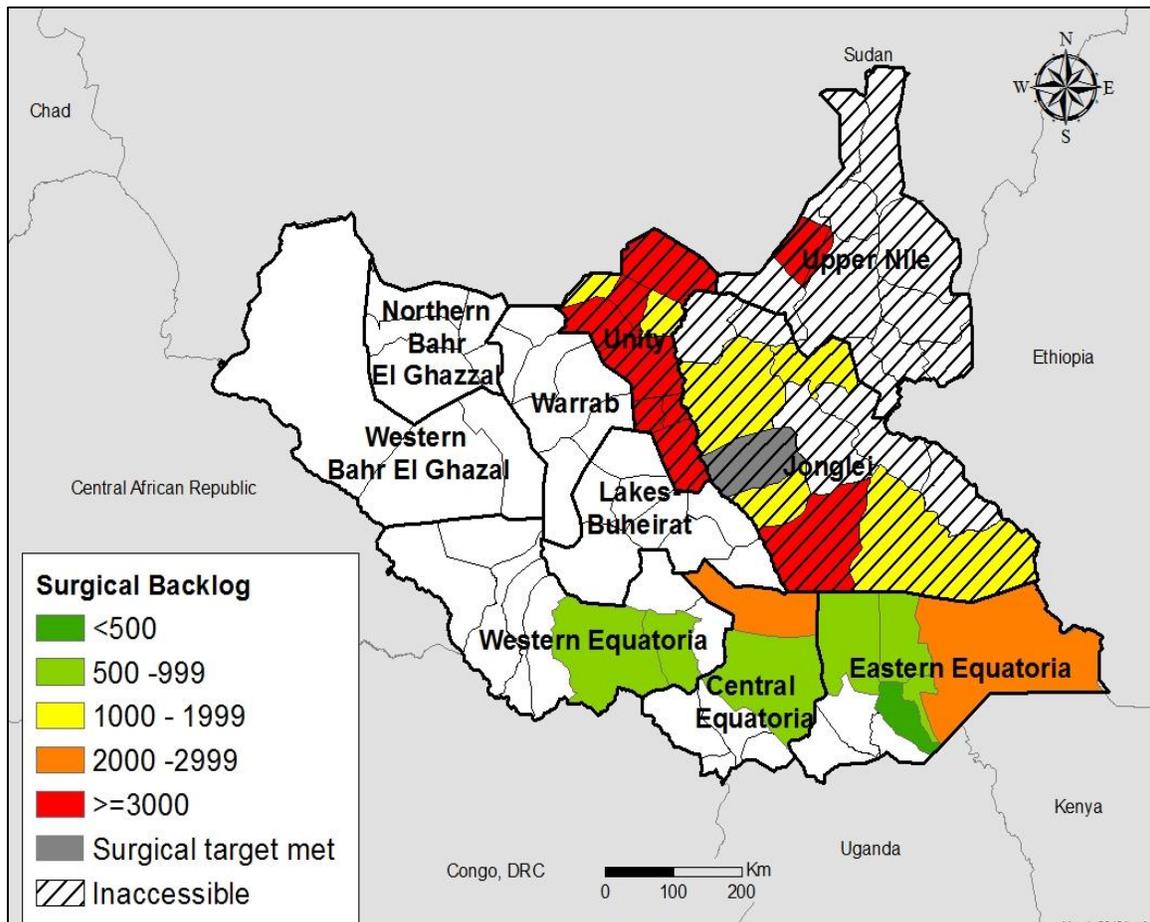
The program will more fully engage with WASH partners to promote targeted latrine construction and utilization. This includes engaging WASH and Education partners and ministries in quarterly taskforce meetings, engaging partners in training field officers on latrine construction using locally sourced materials, and including a trachoma representative in the national WASH cluster meeting. Additional funding is needed for latrine construction training and materials.

### South Sudan: TT Prevalence among Adults ≥ 15 years

2015

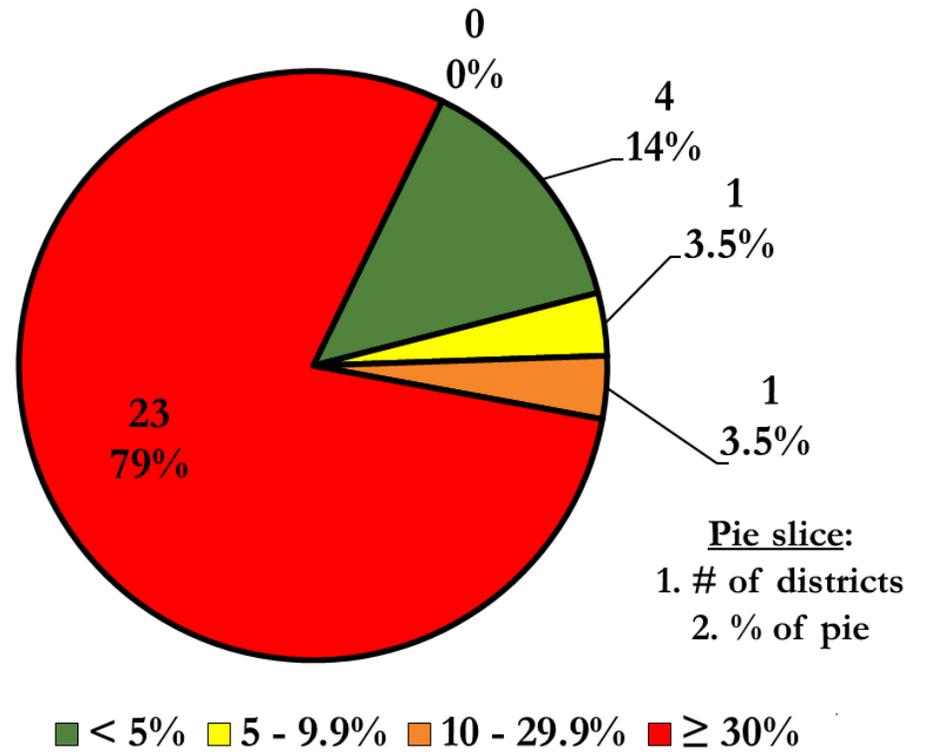
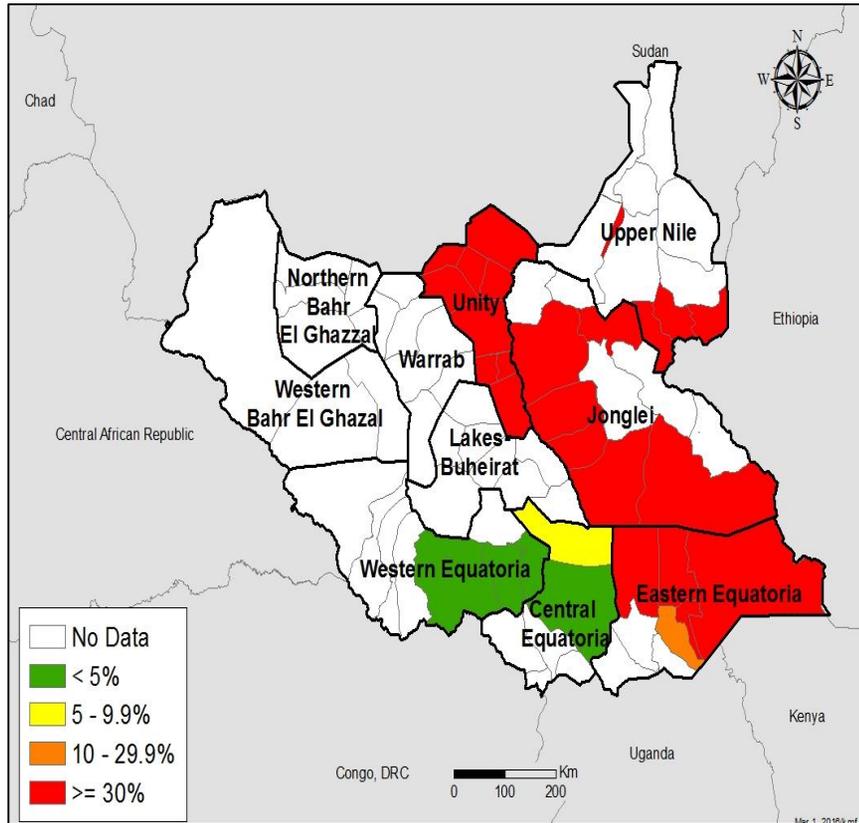


### South Sudan: Surgical Backlog, 2015

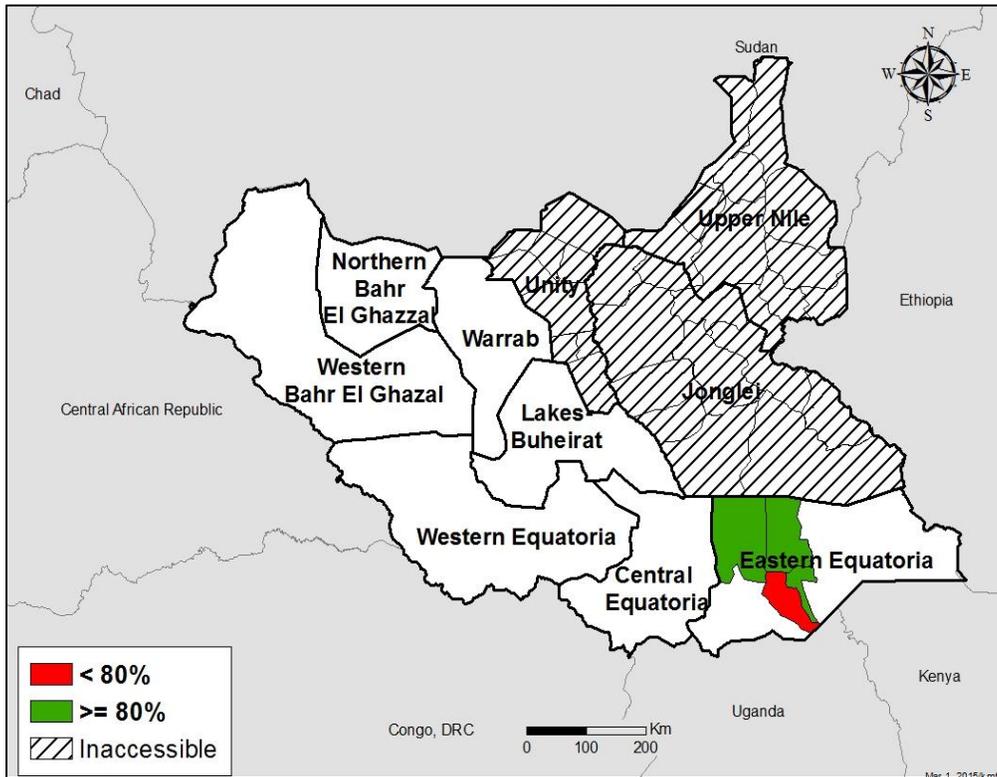


South Sudan: TF Prevalence among Children 1-9 years

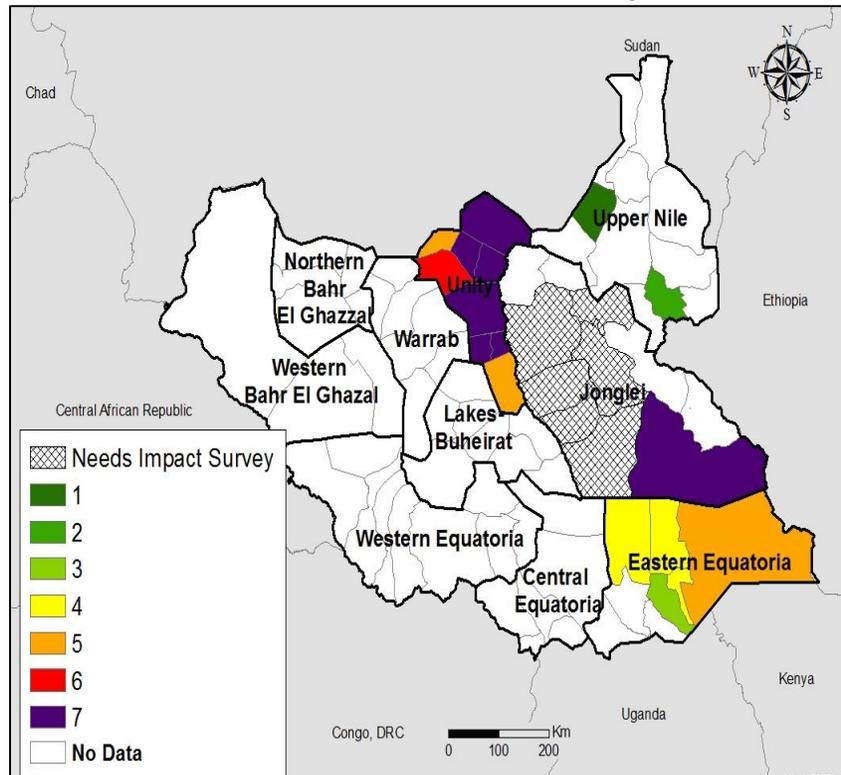
2015



South Sudan: MDA Coverage by District, 2015



South Sudan: MDA Rounds Remaining, 2015



## SAFE in Sudan

*Presented by Dr. Balgesa Elkebeir Elshafie, National Coordinator, Trachoma Control Program, Federal Ministry of Health, Sudan*

### Background

The FMOH has been working towards trachoma control since 1962, when trachoma was incorporated into the National Program for the Prevention of Blindness (NPPB). The Academy of Medical Sciences and Technology took over the leadership of the program in the 1990s as contractors on behalf of the FMOH. In 2005, the FMOH relocated the Trachoma Control Program to the NPPB. The elimination of blinding trachoma is one of the FMOH's priorities and government funds are allocated to support the program. In 2012, the government allocated 1.5 million USD for five years to help support The Carter Center's partnership for trachoma control. There is a strong coordination mechanism between the government, represented by the FMOH and Federal Ministry of Finance, and implementing partners such as The Carter Center and Sightsavers.

National prevalence mapping began in 2006 and finished in 2010. Mapping was completed in Darfur in 2015 through the coordination of the FMOH, GTMP, Sightsavers, and The Carter Center. S, A, and F interventions are assisted by The Carter Center, Sightsavers, and the FMOH. The E intervention is implemented by various federal and state ministries, and supported by UNICEF and other organizations. Though The Carter Center does not directly fund E activities, it supports advocacy for this component.

### Timeline of Events

- 1999: The Carter Center began supporting the trachoma control program
- 2000: Zithromax® donation by Pfizer Inc began
- 2005: National Trachoma Program moved to the FMOH
- 2005-2010: Baseline prevalence surveys conducted (except for Darfur states)
- 2006: TT surgery training manual locally adapted in Arabic
- 2010: Impact surveys conducted in Northern and Blue Nile states
- 2011: National Program started mobile TT campaigns
- 2013: Impact surveys conducted in Red Sea and Gedarif states; Sightsavers begins support of Trachoma Control Program
- 2014: School health curricula and teacher guidelines on trachoma elimination were completed
- 2015: Mapping in Darfur and Khartoum is completed in accessible areas; trachoma curricula teacher's training; TAP workshop held
- 2020: Target date for elimination

**Table 1. Program Achievements in 2015**

Indicator	Goal	National		Carter Center-Assisted	
		Target	Achieved	Target	Achieved
# of persons operated	30,408	5,000	1,134 (23%)	2,000	766 (38%)
# of women operated			571 (50%)		211 (28%)
# of surgeons trained		30	27 (90%)	N/A	N/A
# of surgeons retrained		No target set	3	N/A	N/A
Doses of azithromycin distributed during MDA	2,153,286	1,439,315	1,576,432 (109%)	1,439,315	1,576,432 (109%)
Doses of tetracycline distributed during MDA	43,065	28,786	0	28,786	0
# of villages with health education		732	896 (122%)	732	896 (122%)
# of household latrines built		No target set	5,910	N/A	N/A

### **Surgery (S)**

Sudan conducted 1,134 surgeries in 2015, of which 766 were assisted by The Carter Center. Approximately half of those operated were women. The National Program successfully trained 27 new surgeons and retrained three surgeons. Given the current prevalence of TT in the country, the surgical backlog is estimated at 42,008, which will require 8,402 surgeries per year to clear the backlog by 2020. The majority of the TT cases in Sudan are located in insecure areas of Al Jazeera, Gadaref, and Blue Nile. Furthermore, only ophthalmologists and ophthalmologic residents are permitted to conduct TT surgeries, many of whom are women. The National Program is petitioning the Sudan Specialization Board to require undergraduates to perform 100 TT surgeries to graduate as opposed to the current requirement of 10 surgeries.

### **Antibiotic Therapy (A)**

Mapping was completed in all accessible areas of the country, including parts of Darfur in 2015. TF prevalence among children ages one to nine years is under 5% in 112 districts; 13 districts have a TF prevalence between 5 and 9.9%, and 8 districts have a TF prevalence between 10 and 29.9%. Distribution of antibiotics reached the highest number of persons treated with MDA in one year since the program began. The program achieved 109% of the target with 1,576,432 doses distributed in 2015, all with Carter Center assistance. The target was exceeded as a result of one district receiving MDA twice in 2015 following a delay in distribution in 2014. MDA coverage surveys were conducted in three districts in Gadaref, one district in Sennar, and one district in Red Sea, all of which reported over 80% MDA coverage. TEO was not available for distribution during MDA.

### **Facial Cleanliness (F)**

In 2015, the National Program trained 3,140 volunteers across 896 villages during MDA activities on F&E messaging. To promote F&E messages across the country, the program broadcast over 380 radio messages and 378 minutes of health programming on live television. At the community level, district health educators were trained on community participation for trachoma control activities, and community leaders were selected as trachoma focal persons. Weekly sessions are conducted at women's groups, clubs, schools, and mosques to facilitate group discussion and education. Furthermore, posters, flipcharts, leaflets, t-shirts, caps, and bags were distributed to promote F&E messages during all trachoma control activities. A school-based F&E curriculum was created and one teacher per school was trained to deliver trachoma education.

## **Environmental Improvement (E)**

The program executed environmental cleaning campaigns at 10 villages and schools. Although the National Program does not directly conduct interventions for water and latrine construction, there were 5,910 reported latrines constructed in Sudan. These latrines are often constructed by private companies, public institutions, other NGOs, the Dam Construction Unit, private oil companies, Ministries of Engineering, and individual communities. There are currently no collaborations in place between WASH and the National Program, nor collaboration between district-level programs and WASH.

### **Programmatic Challenges:**

Sudan faces many challenges in order to reach the target date of elimination by 2020. A significant challenge is the insecurity in areas with high levels of endemic trachoma such as Blue Nile, South Kordofan, and parts of Darfur. These areas often require several travel days over difficult terrain in order to reach communities and provide necessary services. Challenges with TT surgeries persist in addressing the growing backlog of cases, difficulty in case finding, lack of TEO and TT kits, and availability of certified surgeons for month-long TT campaigns. In particular, many ophthalmologists in Sudan are women and are unable to be away from their families for the time required to conduct TT campaigns. Data and reporting pose further challenges in Sudan as many other ministries and NGOs are engaged in SAFE-related activities, such as latrine construction, and may conduct TT surgeries without reporting to the National Program. The National Program is therefore unable to monitor the quality of surgeries provided, follow up with cases to document recurrence, and accurately estimate the surgical backlog.

### **Status of 2015 Program Review Meeting Recommendations:**

**Recommendation 1:** The program should move to district level surveys to accelerate elimination.

Completed. Two impact surveys were done at the district level in 2015.

**Recommendation 2:** The program should establish a set period for evaluation of TT surgeries.

Completed. The period for evaluation is set at six months.

### **Targets for 2016 and Plans to Meet Targets:**

#### *Surgery (S)*

- Operate on 5,956 TT patients; 2,100 with Carter Center assistance
- Train 30 surgeons

The TAP is set to launch in mid-2016 and will include a detailed plan to address the surgical backlog by the end of 2019. In 2016, Sudan plans to triple the number of TT surgeries across multiple campaigns of shorter duration (~2 weeks) to accelerate the pace. This will hopefully avail more ophthalmologists, especially women, who are willing to participate in campaigns with a shorter commitment. In order to increase the surgical output, the program will continue to engage with the Sudan Medical Specialization Board to require that future classes of residents complete 100 TT surgeries, an increase from the previously required 10. The program will further investigate ways to collaborate with other NGOs who may be doing TT surgeries in country to ensure appropriate reporting and alignment with best practices for conducting the surgeries.

#### *Antibiotic Therapy (A)*

- Distribute 3,601,942 doses of azithromycin; 1,149,315 with Carter Center assistance
- Distribute 72,038 doses of tetracycline; 28,786 with Carter Center assistance

The program will continue to mobilize communities and increase awareness of MDA through mobile and mass media health education campaigns and visible politician support. The program plans to double the number of persons reached with MDA with 3,601,942 doses of azithromycin, and 72,038 doses of TEO. Beginning in March 2016, MDA will expand to areas of Darfur for the first time with ongoing collaboration and support of Sightsavers.

*Facial Cleanliness (F)*

- Conduct health education in 350 villages, all with Carter Center assistance

Existing partnerships with the Federal Ministry of Education will continue to strengthen health education and awareness among communities through incorporating trachoma curricula in basic and secondary schools in targeted localities. Furthermore, messaging through mass and local media channels and community mobilization will continue to raise awareness of hygiene and facial cleanliness.

*Environmental Improvement (E)*

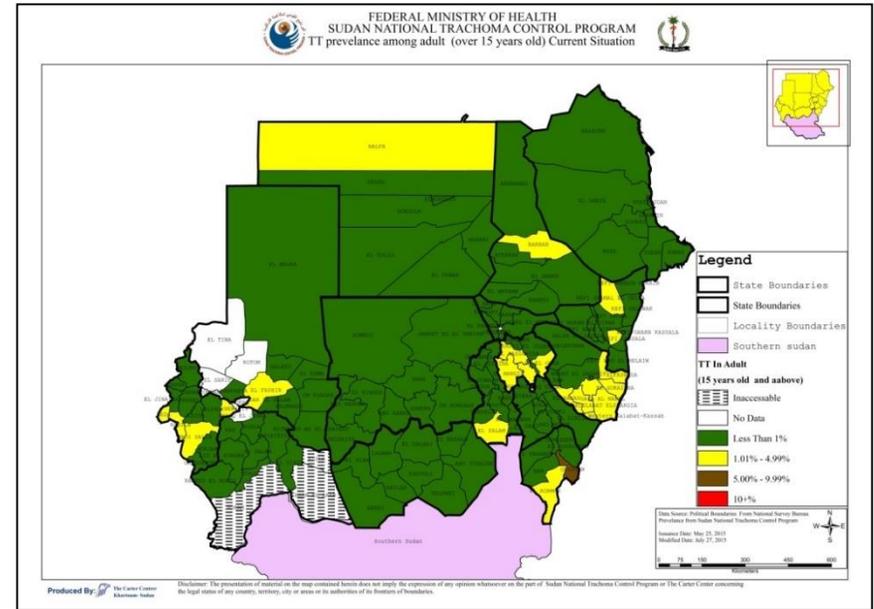
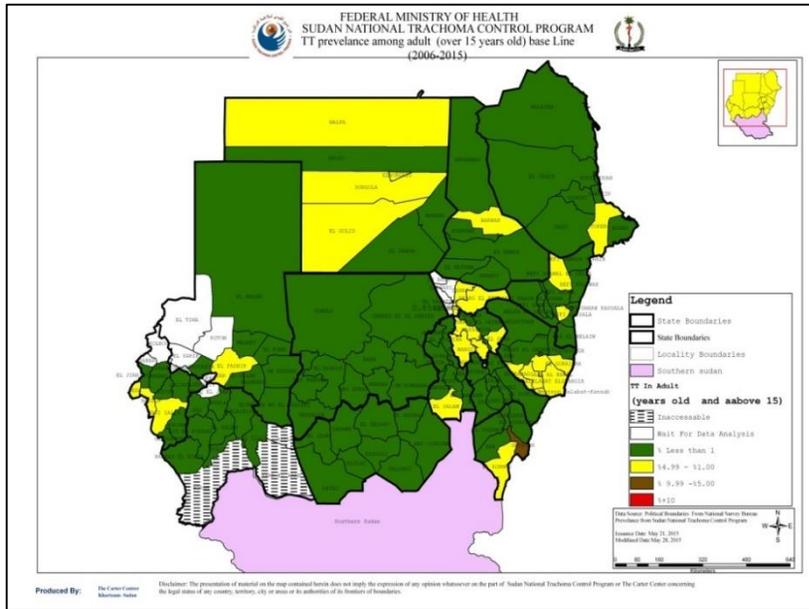
- The program has no set numbers for latrine construction

The program will advocate with UNICEF and Water & Environmental Sanitation (WES) for water and latrine provision while collaborating with WASH, WES and other to prioritize endemic communities in planned WASH/WES activities. The program will encourage partnerships for technical expertise and resources to assist in improving access to safe water and proper excreta disposal. Partners and the program will collaborate on the production of Information, Education, and Communication materials and trachoma curricula. Furthermore, the program will follow up on the incorporation of trachoma curricula in basic and secondary schools and evaluation teacher and student understanding of the curricula.

## Sudan: Prevalence of TT among Adults ≥ 15 years

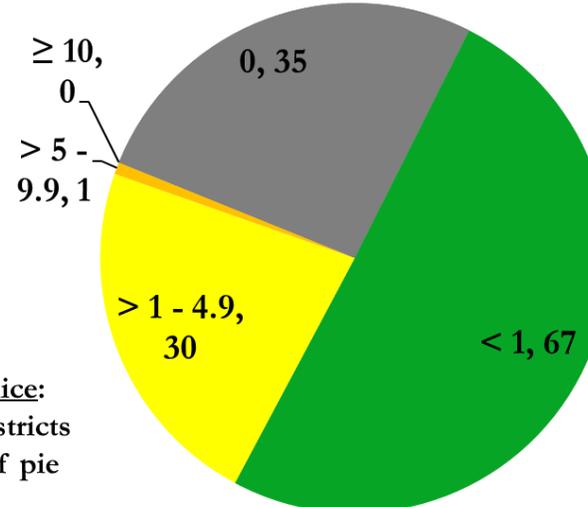
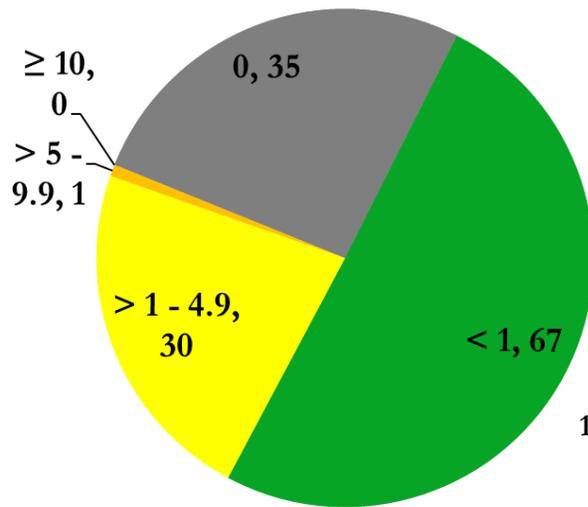
Baseline, 2006-2010

2015



**Baseline (n = 133)**

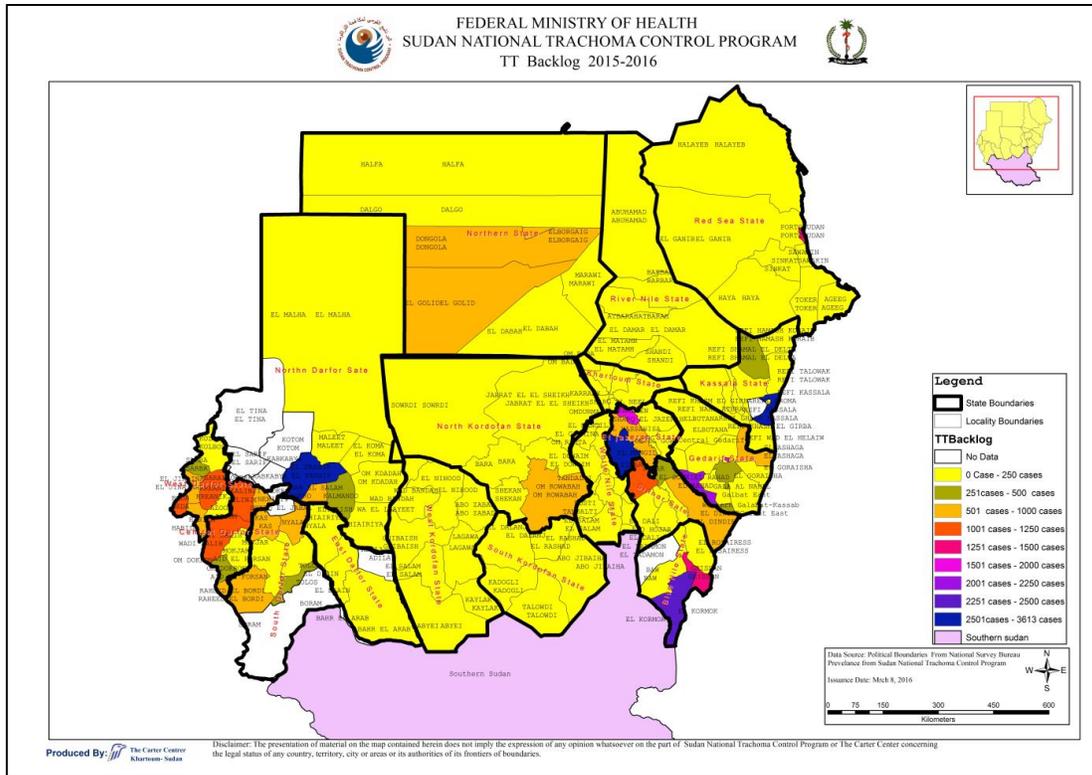
**Current (n = 133)**



**Pie slice:**  
1. # Districts  
2. % of pie

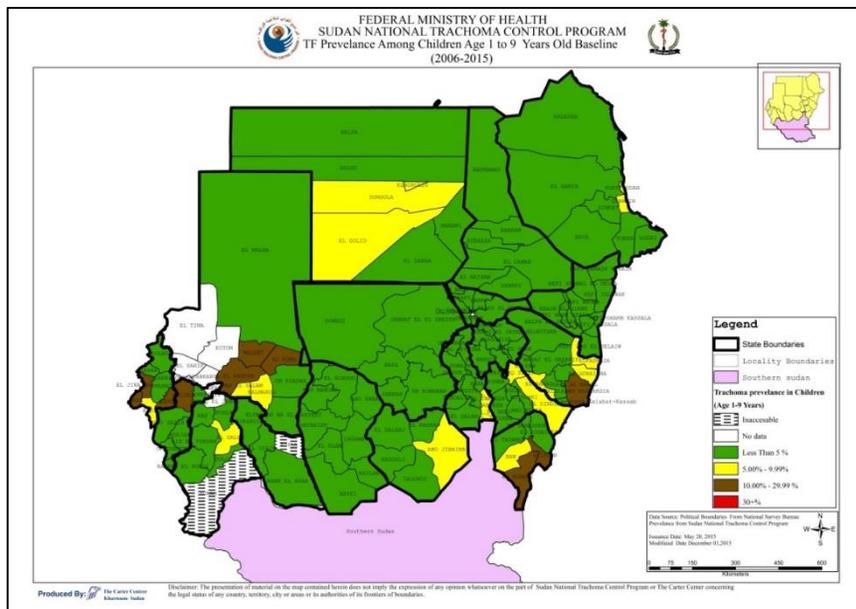
■ < 1%   ■ 1 - 4.9%   ■ 5 - 9.9%   ■ ≥ 10%   ■ = 0%

# Sudan: Surgical Backlog, 2015

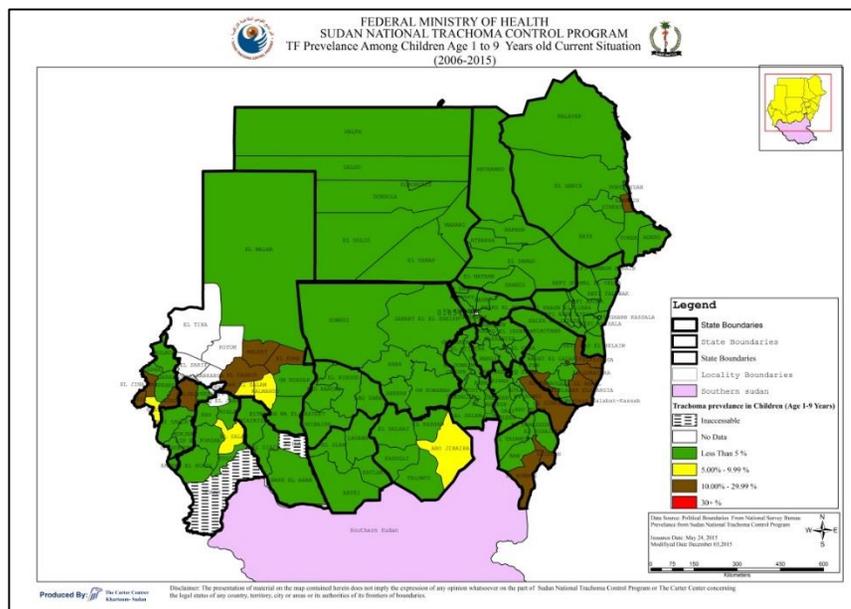


## Sudan: TF Prevalence among Children 1-9 years

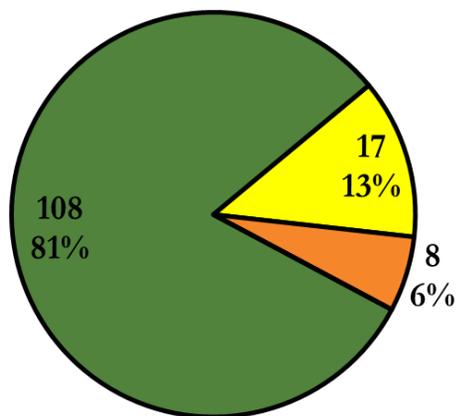
Baseline, 2006-2010



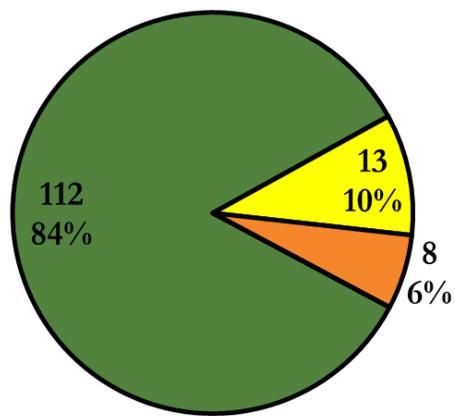
2015



Baseline (n = 133)



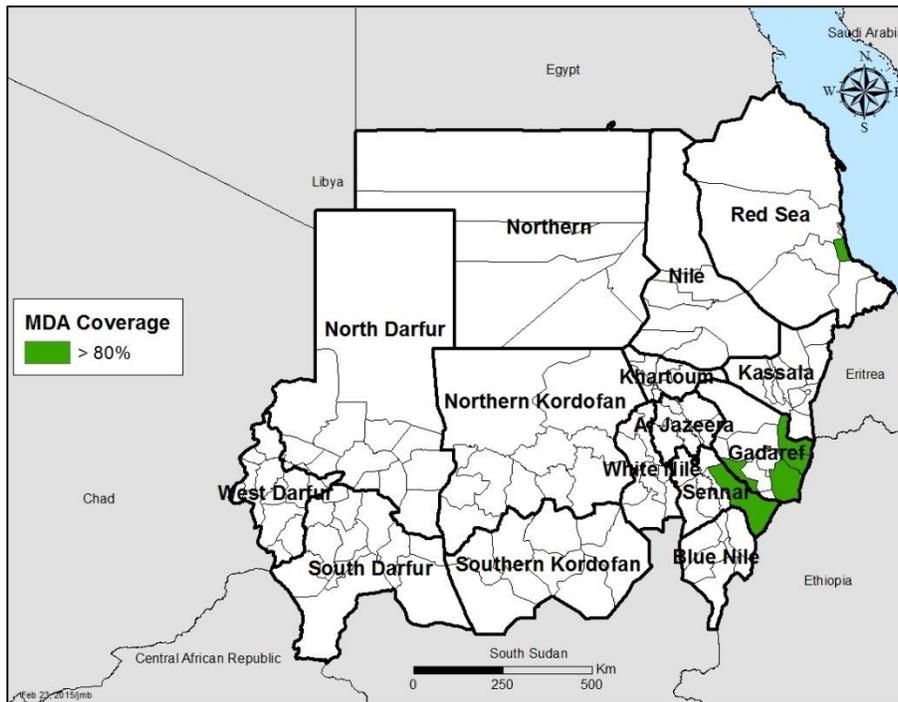
2015 (n = 133)



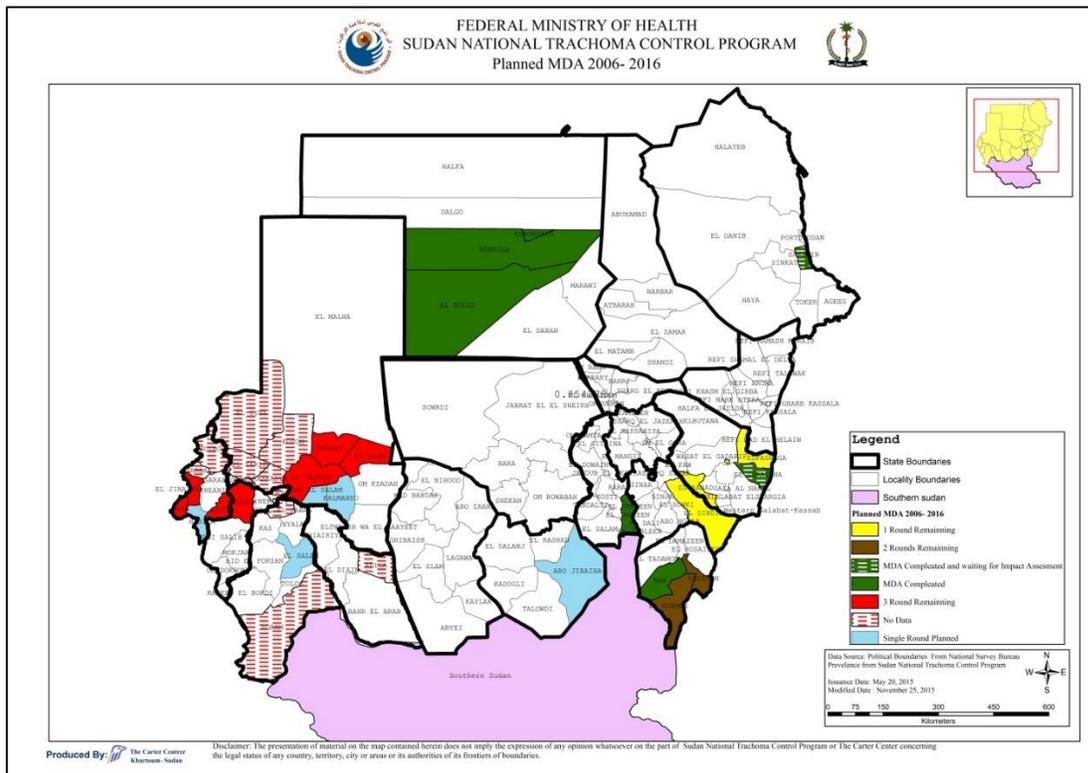
**Pie slice:**  
1. # Districts  
2. % of pie

■ < 5%   ■ 5 - 9.9%   ■ 10 - 29.9%   ■ ≥ 30%

## Sudan: MDA Reported Coverage, 2015



## Sudan: MDA Rounds Remaining, 2015



## **SAFE in Uganda**

*Presented by Dr. Patrick Turyaguma, National Trachoma Program Manager, Ministry of Health, Uganda*

### **Background**

Eye care is a key component of the Uganda National Minimum Health Care Package. Trachoma is included in the five-year Integrated NTDs Master Plan and is highlighted in the Uganda National Development Plan for the years 2011-2015. Trachoma and four other NTDs are earmarked for elimination by 2020 in the Health Sector Strategic and Investment Plan.

Trachoma is known to be endemic in 36 of 112 districts in Uganda. An estimated one million children less than 10 years old have active trachoma and 10.8 million more people of all ages are at risk. Currently, there are approximately 10,000 persons who have become blind due to trachoma. In regards to the implementation of the SAFE strategy, TT surgery is available in the two regions of Busoga and Karamoja and antibiotic distributions have been conducted annually in all 36 known endemic districts. The facial cleanliness and environmental improvement components of SAFE have not been adequately and uniformly addressed in endemic areas.

Following at least three years of MDA, impact assessments have been on-going since 2013, with 19 impact surveys conducted and 18 more planned in 2015. So far, these impact surveys have shown a drastic reduction in TF in most of the surveyed districts. The NTD program has developed advocacy strategies and tools to support the program, and the Ministry of Health launched a TAP in 2014.

### **Timeline of Events**

2006-2014: Baseline mapping

2007: National Trachoma Control Program began

2007: MDA for trachoma control with Pfizer-donated Zithromax® officially launched

2013: TAP drafted and impact assessments began

2014: The Carter Center becomes coordinating partner for the Queen Elizabeth Diamond Jubilee Trust Trachoma Initiative

2014: TAP launched

2014: Initiation of TT surgeon refresher trainings

2020: Target date for the elimination of blinding trachoma

**Table 1. Program Achievements in 2015**

Indicator	Goal	National	
		Target	Achieved
# of persons operated	25,112	15,498	8,734 (56%)
# of women operated			5,994
# of surgeons trained		0	0
# of surgeons retrained		25	16 (64%)
Doses of azithromycin distributed during MDA	2,058,630	2,058,630	1,267,640 (61%) <sup>7</sup>
Doses of TEO distributed during MDA	41,472	41,472	21,547 (52%) <sup>7</sup>
# of villages with health education		23,246	23,246 (100%)
# of household latrines built		N/A <sup>8</sup>	N/A

### **Surgery (S)**

As of March 2016, of the 48 districts found to be endemic during the 2014 baseline, no districts have a prevalence of TT greater than 10%. Furthermore, just over half of those districts (25) have achieved the elimination target of less than 1%. In 2015, the Ugandan National Program screened 20,780 people for TT; only 9,513 of these individuals required surgery. Of those identified as needing surgery, about 10% (933) surgery refused to be operated, leaving 8,734 that were operated, including nearly 6,000 women. Additionally, 224 people were epilated. At the current TT surgery rate, the current backlog of 25,112 would be cleared in three years and the program would need to perform at least 5,022 surgeries a year to clear the backlog by the 2020 global elimination target for blinding trachoma.

In November of 2015, the program performed TT surgery validation to verify surgeries among patients who had surgery within the previous six months. The study chose 120 randomly selected patients across two districts each in the Karamoja and Busoga regions. Of the 120 patients selected, 94 were located and interviewed with 100% verified as having TT surgery. 89 of these individuals (95%) responded that they were satisfied with the surgery and that they would recommend it to others that need the surgery.

### **Antibiotic Therapy (A)**

21 districts who were at risk in Uganda are currently below the 5% threshold for TF prevalence. Only two districts remain at or above the 30% mark for TF while the remaining eighteen fall between these cut points. In 2015, a little over two million doses of azithromycin were distributed across ten districts. Coverage in six of these districts was found to be below 80% while only one was above 80% and three districts have yet to report their coverage.

Several new districts now exist in the Karamoja region, due to restructuring of one district, and the baseline TF prevalence may not be as accurate had the new districts been surveyed individually. As a result of the restructuring, the National Program relaunched their trachoma elimination program in this area by engaging top leadership, retraining health care workers, and village health teams. Cross-border coordination with Kenya and South Sudan needs to be fostered in these districts to achieve programmatic goals in the future.

<sup>7</sup> Three districts had not yet reported on doses distributed by the 2016 Program Review.

<sup>8</sup> No target for latrines was set for 2015.

## **Facial Cleanliness (F)**

The Ugandan National Program pursued funding for F&E activities in 17 currently endemic districts including contracts with three WASH BCC partners at both the district and national level. In 2016, F&E reporting will be incorporated into the national NTD database and integrated into the National Sanitation Guidelines & School Sanitation Guidelines. Existing WASH messaging will be revised to include face washing.

## **Environmental Improvement (E)**

Sanitation coverage reached or surpassed the 77% national target for 2015 in 21 out of 48 districts. Latrine coverage is lowest in the Karamoja region, which will be a primary focus of interventions planned for 2016. The program plans to assess water access, sanitation clubs, and safe water user committees.

## **Programmatic Challenges**

Due to restructuring of districts in this region, it is challenging to compare baseline to current indicators. Additionally, there is a lack of funding for S, F&E interventions for other endemic districts outside of Karamoja and Busoga.

The National Program identified an issue of surgeons going to districts only to find lower numbers of TT patients needing surgery than expected. It is currently unclear if this is a result of an overestimation in the surgical backlog or if there is an issue of poor mobilization causing the issue.

## **Status of 2015 Program Review Meeting Recommendations**

**Recommendation 1:** The program and its partners should consider extending support to the three endemic regions (28 districts) for TT surgeries.

Completed: In April of 2016, a proposal for expansion will be submitted to Sightsavers and the Queen Elizabeth Diamond Jubilee Trust Trachoma Initiative.

**Recommendation 2:** The program should conduct cross-border collaborative meetings with South Sudan to create plans with both the implementing partners and member states.

Completed: In 2015, two cross border meetings were held with South Sudan in Nairobi and Kampala.

## **Targets for 2016 and Plans to Meet Targets**

### *Surgery (S)*

- Operate on 7,531 trichiasis patients
- Retrain and certify 32 TT surgeons

### *Antibiotic Therapy (A)*

- Distribute 1,622,529 doses of azithromycin
- Distribute 32,451 doses of TEO

### *Facial Cleanliness (F)*

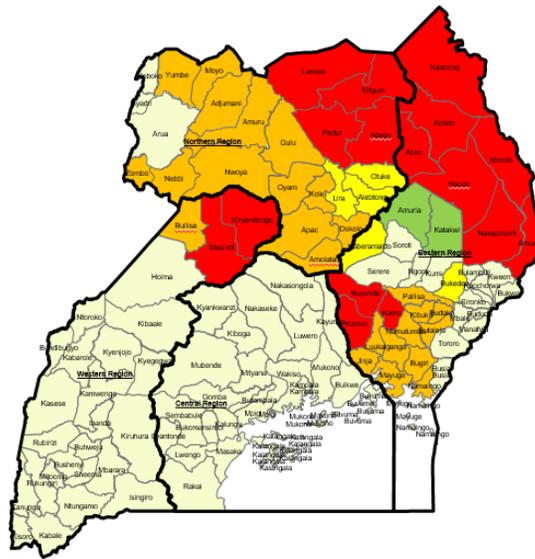
- Conduct health education in 23,246 villages

### *Environmental Improvement (E)*

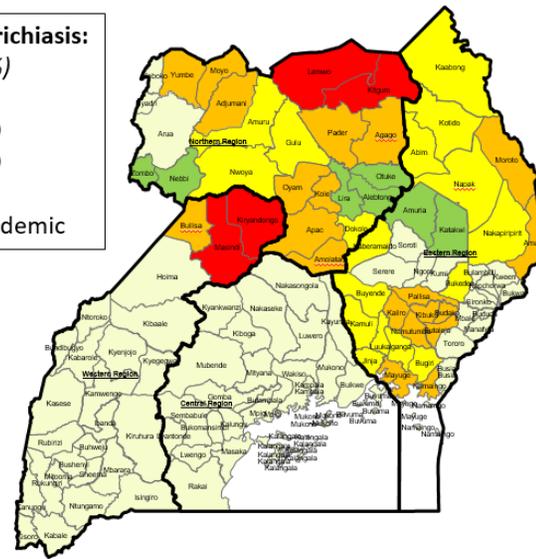
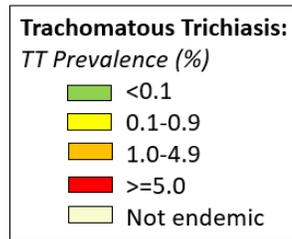
- Construct 403 latrines

# Uganda: Prevalence of TT among Adults ≥ 15 years

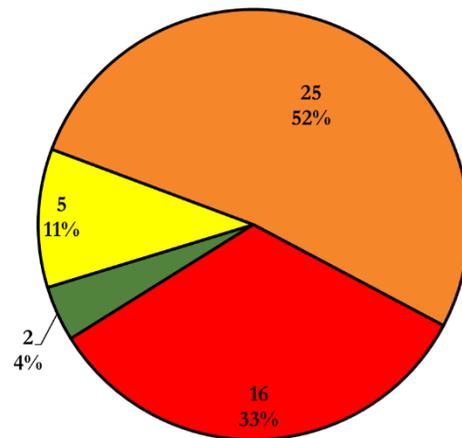
Baseline, 2006-2012



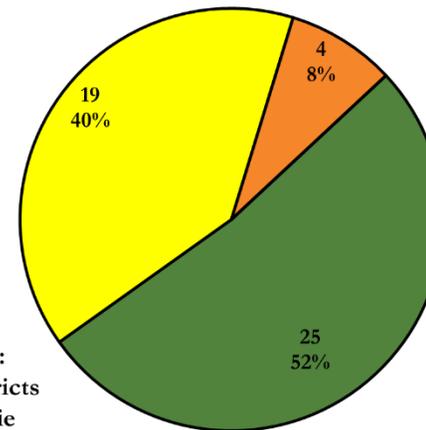
March 2016



Baseline (n = 48 districts)



March 2016



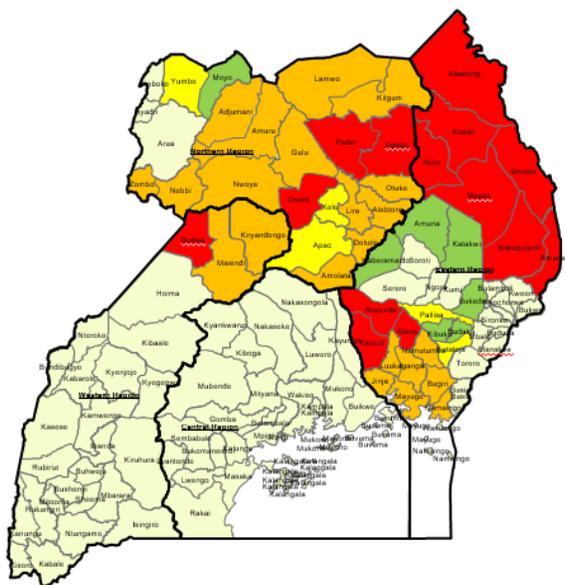
**Pie slice:**  
1. # of districts  
2. % of pie

■ <math>< 1\%</math> ■ 1 - 4.9% ■ 5 - 9.9% ■  $\geq 10\%$

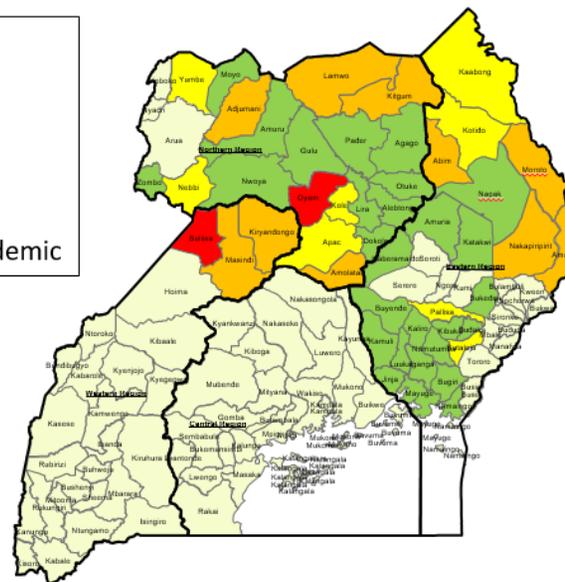
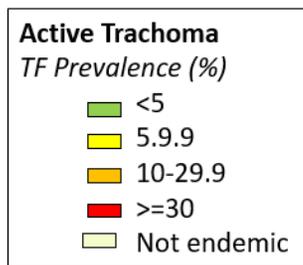


# Uganda: TF Prevalence among Children 1-9 years

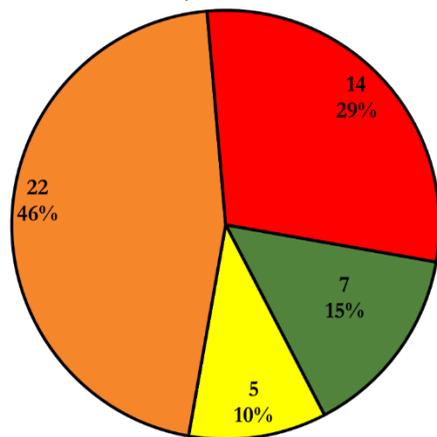
Baseline, 2006-2012



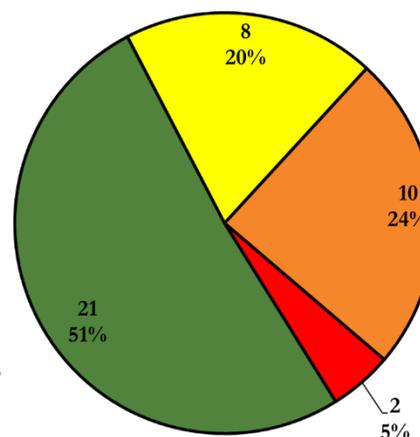
March 2016



Baseline (n = 48 districts)



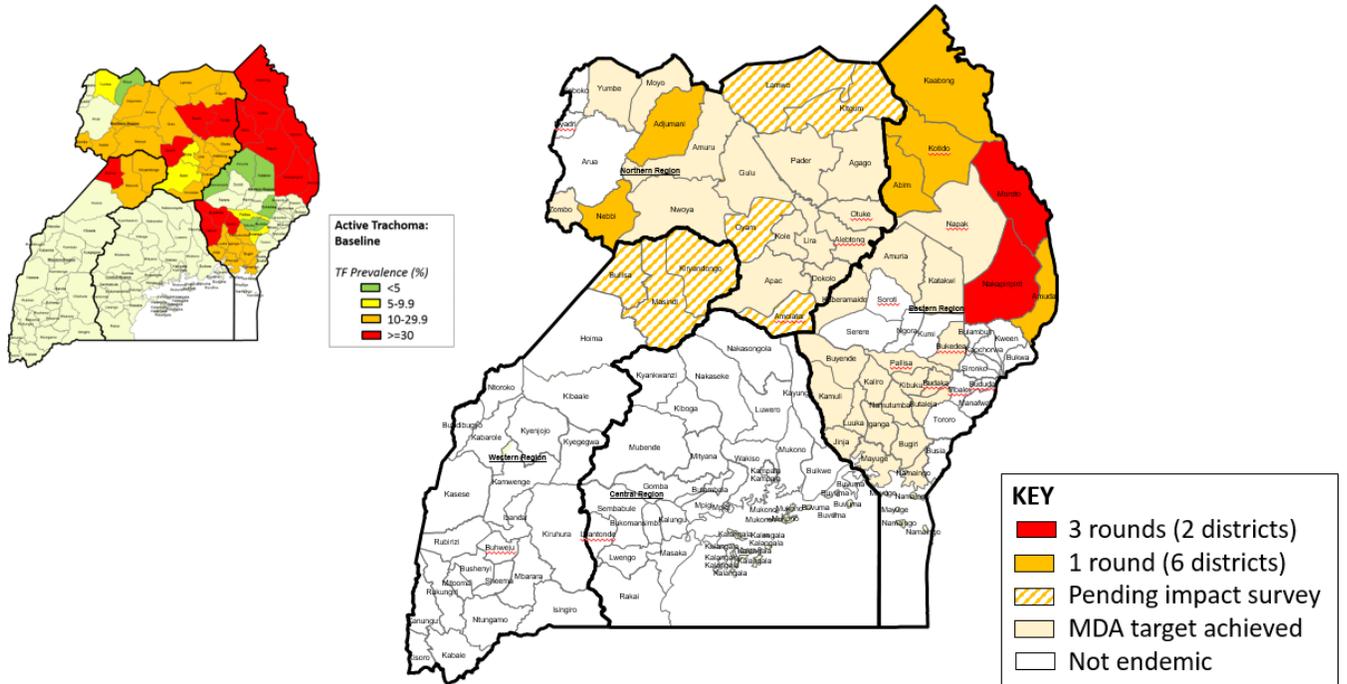
March 2016



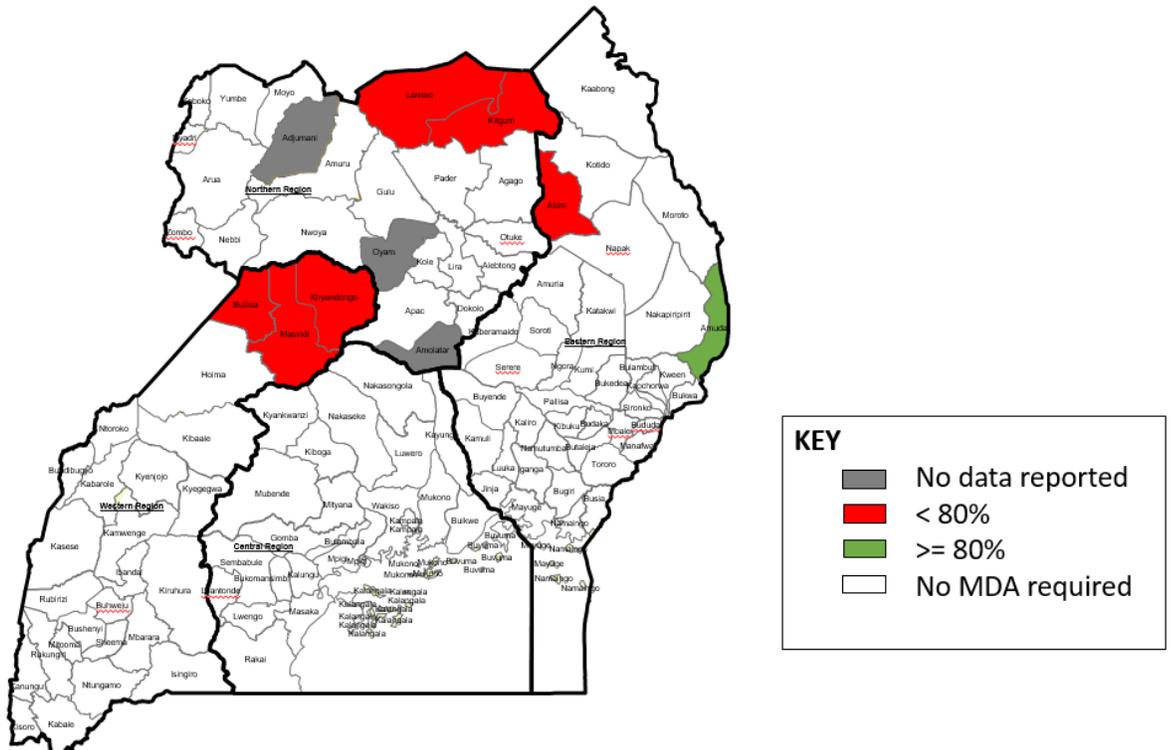
**Pie slice:**  
1. # of districts  
2. % of pie

■ < 5%   ■ 5 - 9.9%   ■ 10 - 29.9%   ■ ≥ 30%

## Uganda: MDA Rounds Remaining as of March 2016



## Uganda: MDA Reported Coverage, 2015



**Table 1. Summary of National Data from Trachoma Control Programs (Carter Center-Assisted Countries)**

*National Data as Reported for 2015 at the Seventeenth Annual Program Review, Atlanta, Georgia, March 7-9, 2016*

	<b>Mali</b>	<b>Niger</b>	<b>Sudan</b>	<b>South Sudan</b>	<b>Ethiopia</b>	<b>Uganda</b>	<b>Total**</b>
<b>Surgery</b>							
Surgeries	3,117	12,280	1,134	682	117,087	8,734	<b>143,034</b>
2015 Target	6,000	15,000	5,000	2,000	227,821	15,498	<b>271,319</b>
Percent Coverage	52.0%	81.9%	22.7%	34.1%	51.4%	56.4%	<b>52.7%</b>
<b>Antibiotics</b>							
<i>Azithromycin</i>							
Doses	0	N/R	1,576,432	105,688	38,405,928	1,267,640*	<b>40,088,048</b>
2015 Target	385,934	2,577,452	1,439,315	1,000,000	44,000,000	2,058,630	<b>51,461,331</b>
Percent Coverage	0.0%	N/A	109.5%	10.6%	87.3%	61.6%	<b>77.9%</b>
<i>Tetracycline</i>							
Doses	0	N/R	0	4,400	N/R	21,457*	<b>4,400</b>
2015 Target	4,000	51,550	28,786	10,000	N/R	41,472	<b>135,808</b>
Percent Coverage	0.0%	N/A	0.0%	44.0%	N/R	51.7%	<b>3.2%</b>
<b>Facial Cleanliness and Health Education</b>							
Villages with Health Education	227	6,018	896	24	N/R	23,246	<b>30,411</b>
2015 Target	521	6,018	732	200	N/R	23,246	<b>30,717</b>
Percent Coverage	43.6%	100.0%	122.4%	12.0%	N/R	100.0%	<b>99.0%</b>
<b>Environmental Improvements</b>							
Latrines	7,539	9,945	5,910	5	1,883,050	N/A	<b>1,906,449</b>
2015 Target	12,000	10,000	N/A	N/A	2,820,571	N/A	<b>2,842,571</b>
Percent Coverage	62.8%	99.5%	N/A	N/A	66.8%	N/A	<b>67.1%</b>

N/A=Not Applicable

N/R=Not Reported

\* Three districts had not yet reported on doses distributed by the 2016 Program Review.

\*\*Totals only include countries where data are available.

**Table 2. National Trachoma Control Program Annual Targets 2016 (Carter Center-Assisted Countries)**

*Targets<sup>‡</sup> as Presented at the Seventeenth Annual Program Review, Atlanta, Georgia, March 7-9, 2016<sup>§</sup>*

	Mali	Niger	Sudan	South Sudan	Ethiopia	Uganda	Total**
<b>Surgery</b>							
Persons to operate for TT	6,000	13,100	5,956	2,500	526,586	7,531	<b>561,673</b>
<b>Antibiotics</b>							
Doses of azithromycin to distribute during MDA <sup>†</sup>	66,153	3,928,475	3,601,942	245,440	69,424,399	1,622,529	<b>78,888,938</b>
Doses of TEO to distribute during MDA	1,000	80,173	72,038	7,363	N/R	32,451	<b>193,025</b>
<b>Facial cleanliness</b>							
Villages to reach through health education	300	7,000	350	75	30% of all villages graduated to model villages	23,246	<b>30,971</b>
<b>Environmental improvement</b>							
Household latrines to construct	7,000	10,000	N/A	80	3,418,283	403	<b>3,435,766</b>

N/A=Not Applicable

N/R=Not Reported

<sup>§</sup>All targets are subject to change.

<sup>†</sup>Antibiotic targets do not reflect ITI-approved allocations of Zithromax®

\*\*Totals only include countries where data are available.

**Table 3. Carter Center-Assisted Implementation of SAFE (Carter Center-assisted output)***Summary of Interventions per Country, January - December 2015*

Indicators	Mali	Niger	Sudan	South Sudan	Ethiopia- Amhara	Total
<b>Surgery</b>						
Persons operated for TT	838	9,962	766	432	71,460	<b>83,458</b>
2015 Target	2,625	10,000	2,000	1,000	58,672	<b>74,297</b>
Percentage	31.9%	99.6%	38.3%	43.2%	121.8%	<b>112.3%</b>
<b>Antibiotics</b>						
Doses of azithromycin distributed	N/A	N/A	1,576,432	105,688	15,081,130	<b>16,763,250</b>
2015 Target	N/A	N/A	1,439,315	236,000	18,826,517	<b>20,501,832</b>
Percentage	N/A	N/A	109.5%	44.8%	80.1%	<b>81.8%</b>
<b>Facial cleanliness and health education</b>						
Villages with ongoing health education	227	6,018	896	24	3,459	<b>10,624</b>
2015 Target	521	6,018	732	30	3,459	<b>10,760</b>
Percent Coverage	43.6%	100.0%	122.4%	80.0%	100.0%	<b>98.7%</b>
<b>Environmental improvement</b>						
Household latrines constructed	4,399	9,945	N/A	N/A	305,511	<b>319,855</b>
2015 Target	9,000	10,000	N/A	N/A	350,000	<b>369,000</b>
Percentage	48.9%	99.5%	N/A	N/A	87.3%	<b>86.7%</b>

N/A=Not Applicable

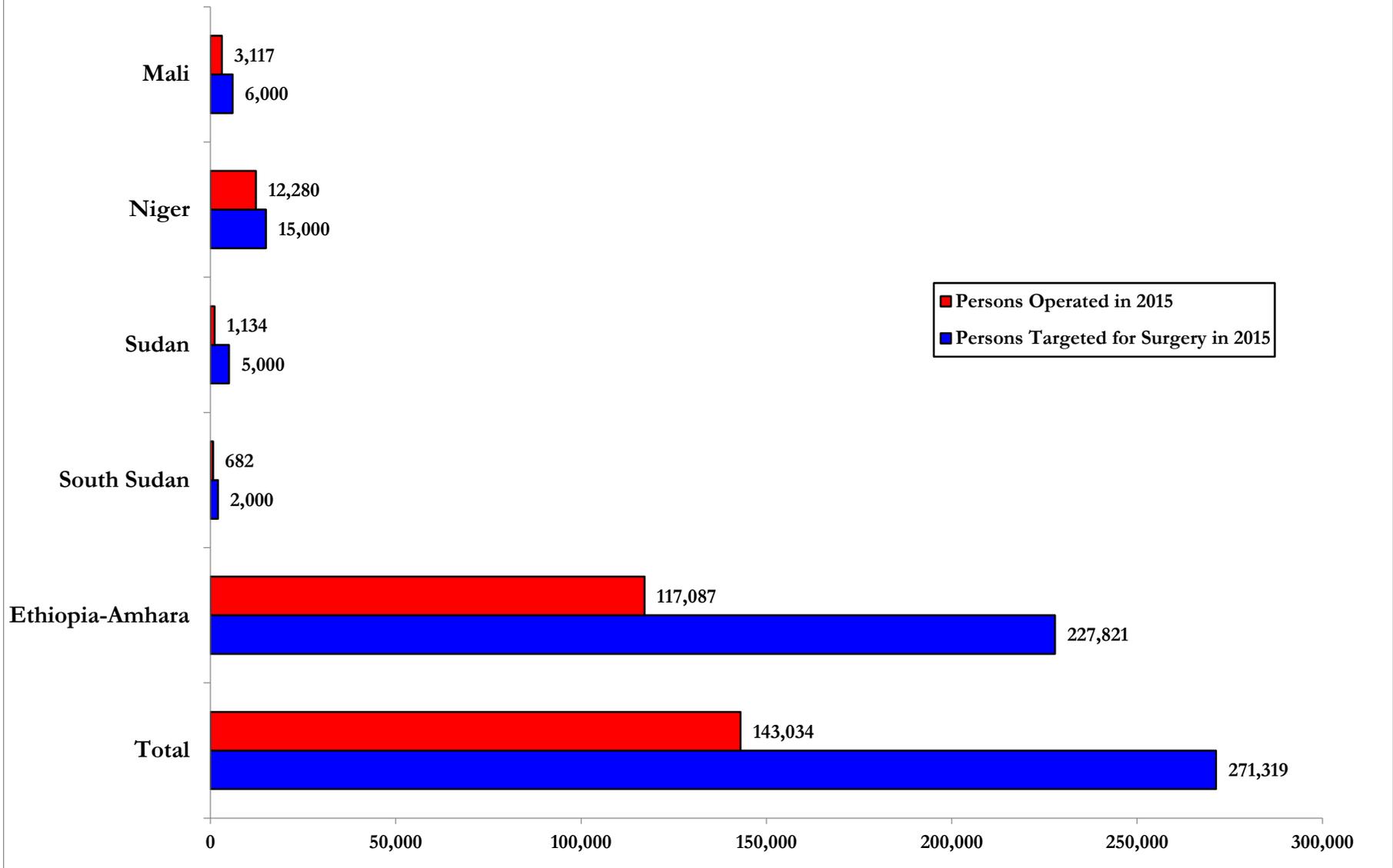
**Table 4. Carter Center-Assisted Implementation of SAFE***Cumulative Interventions per Country, 1999-2015*

<b>Indicators</b>	<b>Mali</b>	<b>Niger</b>	<b>Sudan</b>	<b>South Sudan</b>	<b>Ethiopia-Amhara</b>	<b>Total</b>
Persons operated for TT	29,270	57,663	9,174	6,668	455,881	<b>558,656</b>
Doses of azithromycin distributed	698,083	3,780,384	5,083,660	2,697,513	124,962,352	<b>137,221,992</b>
Villages with ongoing health education	2,622	6,018	2,421	3,574	3,459	<b>18,094</b>
Household latrines constructed	100,339	93,717	N/A	646	3,219,746	<b>3,414,448</b>

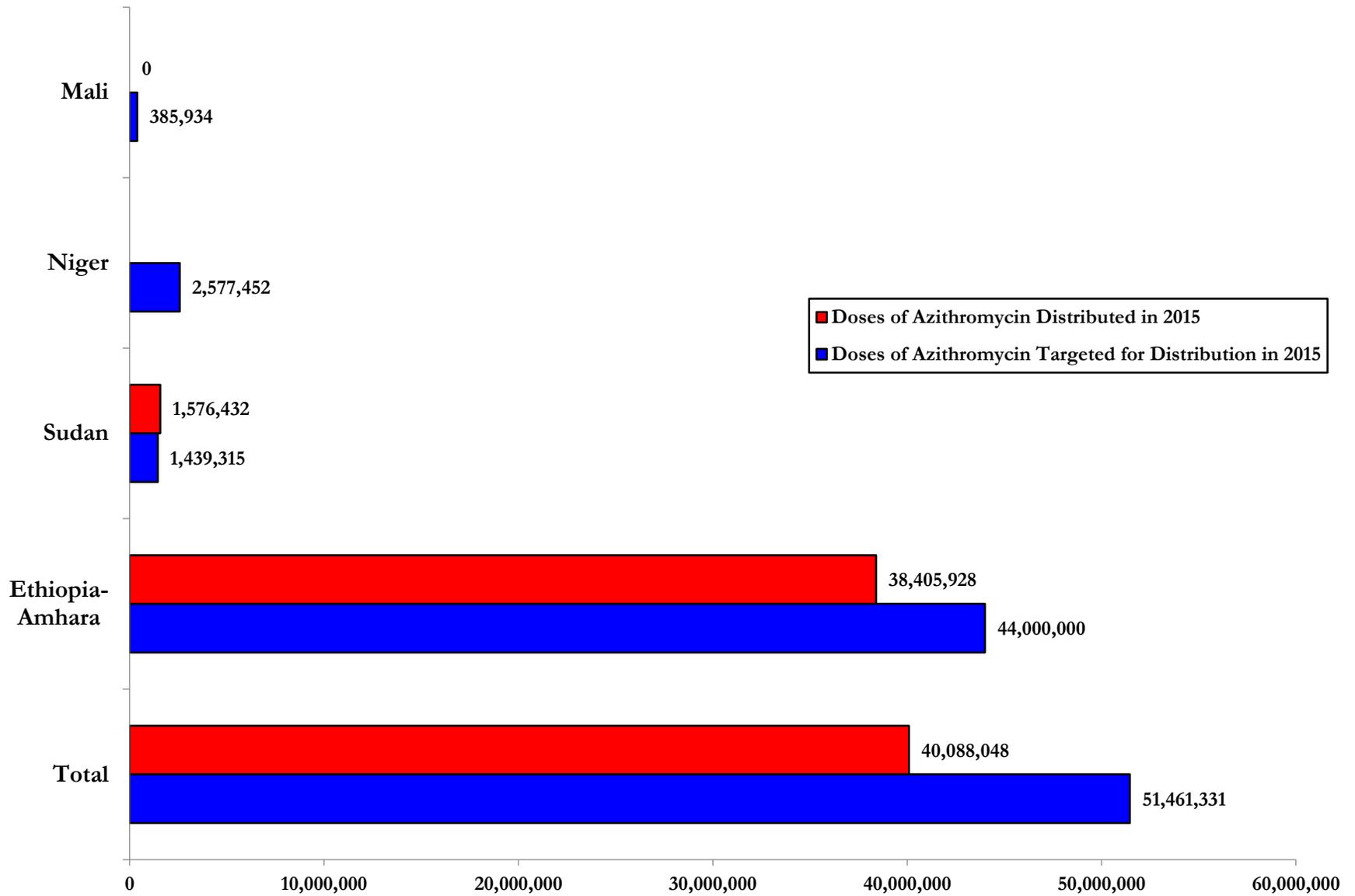
N/A=Not Applicable

**Figure 1. Persons Operated for TT, Carter Center-Assisted Countries**

*National Program data as presented for January - December 2015*

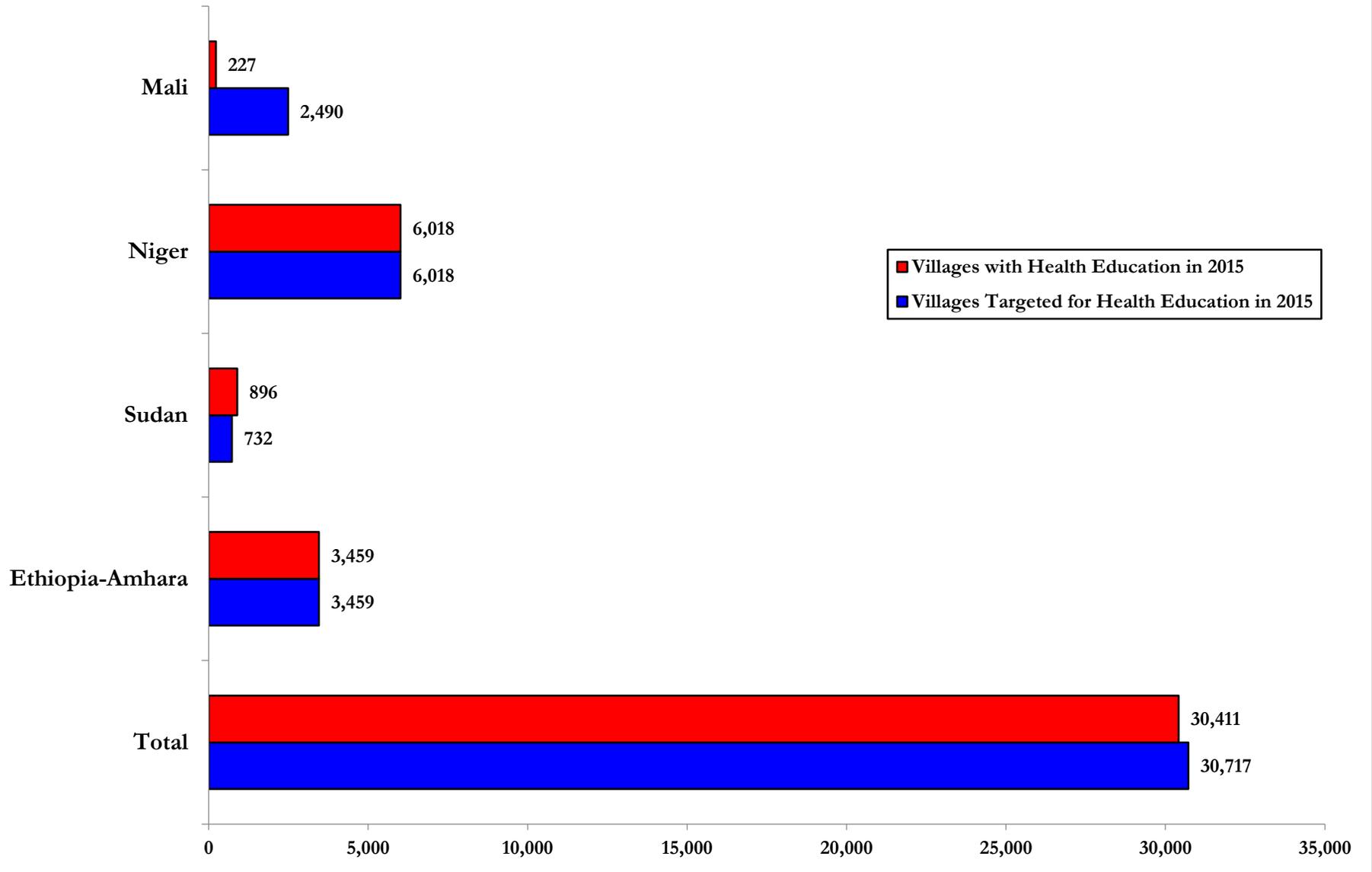


**Figure 2. Azithromycin Distribution, Carter Center-Assisted Countries**  
*National Program data as presented for January - December 2015*



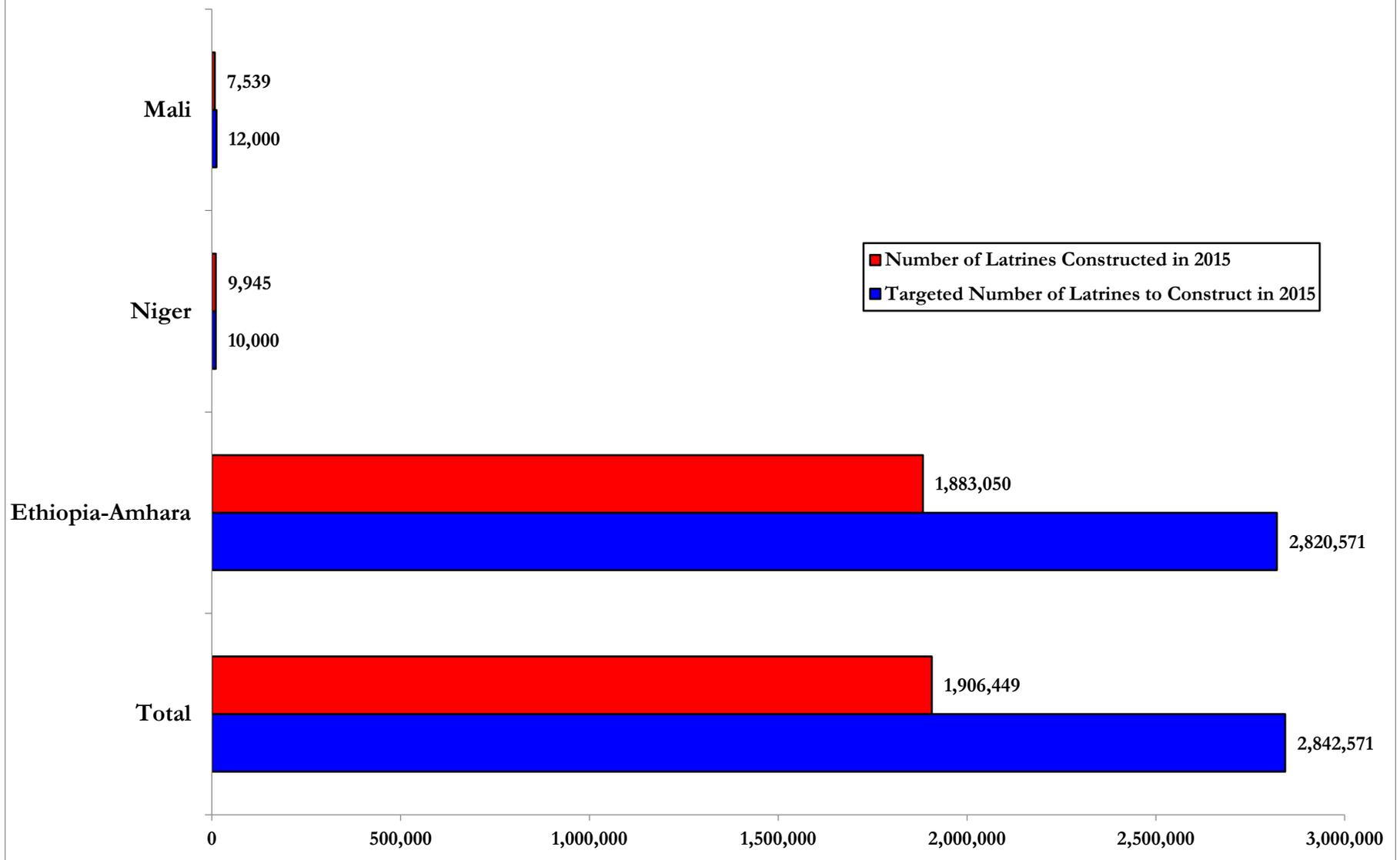
**Figure 3. Health Education, Carter Center-Assisted Countries**

*National Program data as presented for January - December 2015*



**Figure 4. Household Latrines Constructed, Carter Center-Assisted Countries**

*National Program data as presented for January - December 2015*



## Chlamydia trachomatis infection in Amhara, Ethiopia 2011-2015 Project Description and Preliminary Results

*Presented by Scott D. Nash, PhD, Epidemiologist, The Carter Center*

### **Background**

Trachoma control programs use TIS to measure the impact of interventions on the prevalence of trachoma. In addition to routine monitoring and evaluation activities, the Amhara trachoma program also engages with partners to perform operational research projects which seek to improve the efficacy of control activities and build general trachoma knowledge. In 2011, the Amhara Regional Health Bureau, the International Trachoma Initiative, the Francis I Proctor Foundation, and The Carter Center, with help from Abbott-donated laboratory equipment and supplies, established a m2000 polymerase chain reaction (PCR) system within the Bahir Dar Regional Health Laboratory (Figure 1) which considerably improved the research capacity within the Amhara region. The Abbott *m2000* system can be used to identify Chlamydia trachomatis (Ct) infection, the causative agent of trachoma. Because of the promise of increased capacity, ocular swabs were collected from children across the entire Amhara region during routine programmatic impact surveys and processed on the m2000 system. The results of this project may help in understanding both the true impact of multiple rounds of MDA interventions and the relationship between clinical signs of trachoma and Ct infection at programmatic levels.

### **Aim**

This study aimed to understand the effect of multiple years of MDA on Ct infection in Amhara, Ethiopia by describing the prevalence of Ct infection using a representative sample of children aged 1-5 years.

### **Methods**

District level population-based surveys were conducted across all 10 zones of Amhara, from 2011 to 2015 following 5 years of SAFE interventions. Grader training included a standardized test with photographs as well as a reliability exam in the field. Clinical signs of trachoma were assessed in all individuals in selected households. Ocular specimens were collected from children ages 1-5 years whose households were included in the surveys to estimate the zonal prevalence of Ct infection. Swabs were kept cold until frozen at -20°C in the laboratory. In 2015, the *Abbott RealTime* PCR assay was used to detect Ct DNA using the *Abbott m2000* system. Appropriate positive and negative controls and quality control procedures were used at each step of the assay. Samples from each district were 5-pooled according to the protocol used in randomized cluster trials conducted in Amhara. District prevalence was determined from the district pooled prevalence using maximum likelihood techniques. Zonal prevalence and confidence intervals were estimated using survey procedures in Stata.

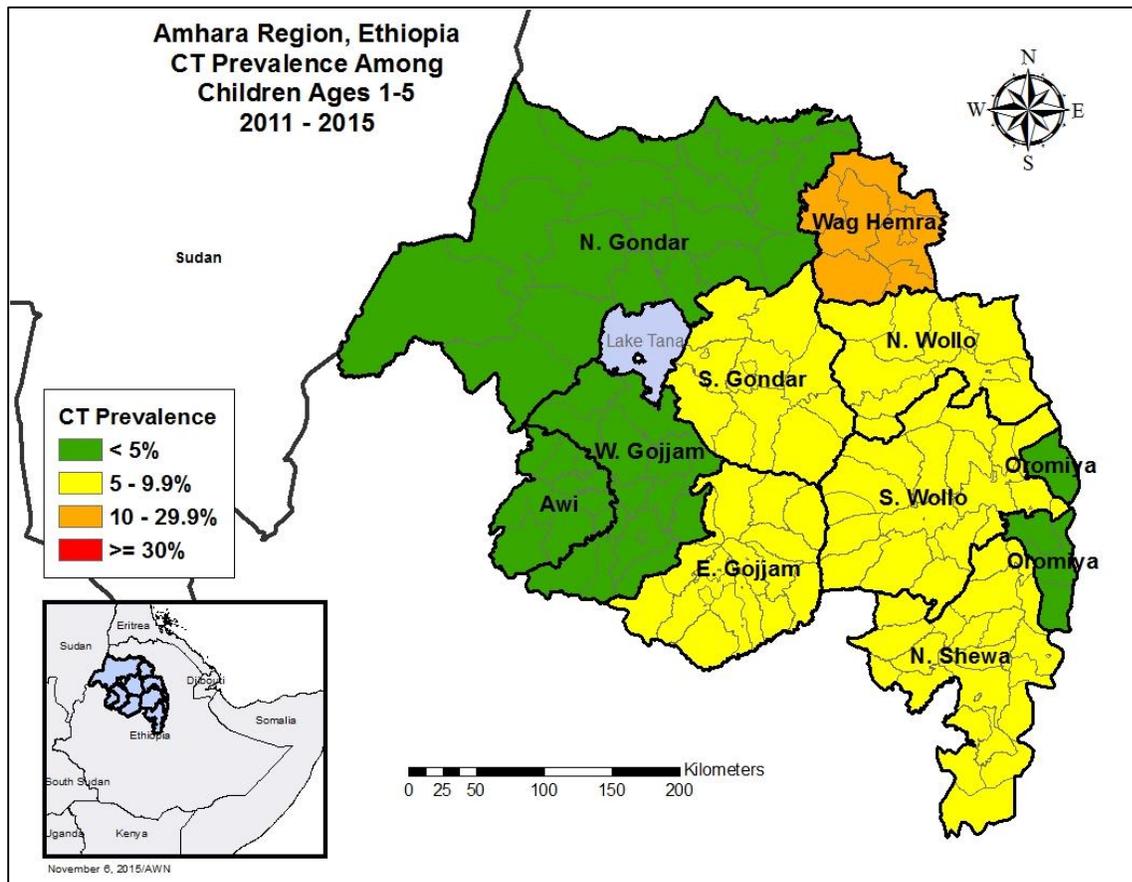
Figure 1. Location of Bahir Dar Regional Laboratory, Amhara, Ethiopia



### Preliminary Results

14,880 samples were collected across the 10 zones of Amhara. One (0.7%) negative field control pool tested positive indicating good laboratory quality control. Clinical signs of trachoma were assessed in 66,411 children ages 1-9 years. The prevalence of trachomatous-inflammation follicular (TF) in children ages 1-9 years in Amhara region was 26.1%, (95% Confidence Interval (CI):25.2, 27.1) with individual zonal prevalence ranging from 13.6% to 54.6%, and the regional prevalence of trachomatous inflammation intense (TI) was 5.7% (95% CI: 5.3, 6.1), zonal range: 2.8% to 13.6%. The prevalence of Ct infection in children ages 1-5 years was 5.5% (95% CI: 4.2, 6.7), with zonal estimates ranging from 1.0% in Awi zone to 15.3% in Waghemra zone (Figure 2). In each zone, the prevalence of TF was higher than the prevalence of Ct while the prevalence of Ct and TI were similar.

Figure 2. CT Prevalence Among Children Ages 1-5, Amhara, Ethiopia, 2011-2015



### Preliminary Conclusions and Next Steps

To our knowledge, this is the first report of Ct infection data at a regional level within a programmatic setting. Through a partnership with Abbott and the Amhara Regional Health Bureau, nearly 15,000 samples were collected and assayed for this project. Despite over 5 years of MDA, a considerable amount of Ct infection remains in Amhara, reaching as high as 15.3% in Waghemra zone. However, zonal Ct prevalence was variable, ranging from 1.0% to 15.3%. In these preliminary analyses TI was highly correlated with Ct infection at the zonal level and may represent a potential marker of infection that programs could use in measuring impact.

## What to do after several rounds of Azithromycin: The TIRET Trial

*Presented by Ms. Dionna Fry, Study Coordinator, University of California at San Francisco Francis I. Proctor Foundation*

### Background

Trachoma control strategies rely on an initial three to five years of mass administration of oral azithromycin to reduce infection of ocular chlamydia followed by reevaluation of infection levels. However, little long term evidence exists to guide this strategy. While repeated mass treatments can reduce and even eliminate ocular chlamydia in individual communities, control in broader areas has proven difficult. Other studies have shown that those villages able to achieve zero prevalence of chlamydial infection can see re-infection at later time points after treatments have been stopped. As the WHO 2020 target for the elimination of blinding trachoma approaches, the question remains of what to do after several rounds of mass antibiotic administration in order to maintain the reductions in infection.

In two arms of the Trachoma Amelioration in Northern Amhara (TANA) study, 109 Ethiopian communities with hyper-endemic trachoma were treated with either annual or biannual mass azithromycin distributions over 4 years. These treatments lowered, and in some cases, eliminated infection. The TIRET (Tripartite International Research for the Elimination of Trachoma) study is a continuation of TANA, funded by NEI/NIH. It was designed to follow villages from TANA Arms A (annual treatment) and B (biannual treatment) for an additional 36 months to assess what measures are necessary to keep ocular chlamydia infection from returning.

### Study Aims

*Specific Aim 1:* Can we stop antibiotics after four years?

*Specific Aim 2:* Can infection be completely eliminated if mass treatments continue for seven years?

*Specific Aim 3:* Can treatment targeted to pre-school aged children, or to households in which a pre-school aged child has clinically active trachoma, prevent infection from returning in the community at large?

### Specific Aim 1: Stop mass antibiotic distribution

We hypothesized that infection would return, even from low levels. Twenty-four communities which received either annual or biannual repeated mass treatments for four years were monitored for an additional three years after distributions were stopped to determine if ocular chlamydia infection returned.

**Specific Aim 1 Results:** The mean prevalence of ocular chlamydia infection in 0-9 years old children before mass azithromycin distributions was 40.6% (95%CI 36.9 to 43.9%) for TANA arms A and B overall. 12 communities received 4 annual mass azithromycin distributions, and 12 communities received 8 biannual distributions prior to discontinuing treatment. 6 months after the mass distributions were stopped, the mean prevalence was 8.3% (95%CI 4.2 to 12.4%) in children 0-9 years of age. After three years with no further treatment, the average prevalence rose to 14.7% (95%CI 8.7 to 20.8%);  $P=0.04$ . Ocular chlamydia infection also rose in individuals 10 years and older during the same time period, from a mean of 0.7% (95%CI 0.2 to 1.2%) to 3.1% (95%CI 1.3 to 4.9%);  $P=0.01$ . No significant differences were found between annual and biannual treatment groups in average prevalence of ocular chlamydia infection or increase in prevalence over time.

**Specific Aim 1 Conclusion:** Four years of repeated mass azithromycin distributions reduced the prevalence of ocular chlamydia infection to a low level. While infection returned significantly after treatments were discontinued, infection did not return quickly. Three years after treatment, infection has returned to one-third

of pre-treatment levels. Nevertheless, maintenance therapy appears necessary for trachoma elimination in areas with hyper-endemic disease.

### **Specific Aim 2: Continue mass antibiotic distribution**

We hypothesized that infection would be completely eliminated in all communities. In these arms, 12 communities continued to receive annual mass treatments and 12 continued to receive biannual treatments for an additional 3 years. A random sample of children aged 0-9 years from each community was monitored for ocular chlamydia infection 6 months after the final mass treatment.

**Specific Aim 2 Results:** The 12 randomly selected annual mass azithromycin communities received 8 antibiotic distributions, and the 12 biannual communities received 15 antibiotic distributions over 7 years. 6 months after the final mass distribution, the mean prevalence of ocular chlamydia in children aged 0-9 years was 4.5% (95%CI 1.4 to 9.2%) in the annually treated communities and 1.7% (95%CI 0.5 to 3.9%) in the biannually treated communities ( $P=0.25$ ). At the final visit, 6 (50%) annually treated communities and 9 (75%) biannually treated communities had zero chlamydial infections detected ( $P=0.40$ ).

**Specific Aim 2 Conclusion:** Seven years of mass azithromycin distributions were insufficient to eliminate ocular chlamydia in a region with hyper-endemic trachoma in all communities. Biannual mass azithromycin administrations were not significantly better than annual treatment.

### **Specific Aim 3: Target antibiotic distribution**

We hypothesized that identifying and treating clinically active cases would delay or prevent reemergence at a far lower cost than mass treatment of all individuals. Annual treatment was targeted to 0-5 year old children in 12 communities, and treatment was targeted at households in 12 separate communities that had at least one pre-school age child with clinically active trachoma (TF/II) as identified via exam.

**Specific Aim 3 Results:** Infection increased between baseline and 36 months in both of the targeted treatment arms: from 4.3% to 9.3% in the arm with targeted treatment to pre-school age children, and from 2.8% to 7.0% where treatment was targeted to clinically active cases and their households. Cost effectiveness analyses are not yet complete.

**Specific Aim 3 Conclusion:** Targeting pre-school children and households with trachoma infected children were both successful in maintaining low (<10%) levels of trachoma. Neither maintenance strategy was found to be superior to the other.

### **Conclusion**

This study shows that it is difficult to eliminate trachoma entirely in all communities through mass antibiotic treatment. After mass drug administration is discontinued, some form of maintenance therapy appears necessary for trachoma elimination in areas with hyper-endemic disease. Targeted treatment strategies may save resources and prevent infection from returning to pre-treatment levels. Targeted treatment of either pre-school age child or children with active trachoma and their households appear to be viable maintenance therapy options.

## **Training of MDA distributors, community mobilization and community knowledge of MDA: A qualitative post-MDA assessment East Amhara, Ethiopia**

*Presented by Mr. Eshetu Sata, Monitoring and Evaluation Manager, The Carter Center, Ethiopia*

### **Background**

For trachoma control, the WHO recommends the SAFE strategy. In communities where the prevalence of TF among children ages 1–9 years exceeds 10%, annual community-wide MDA of antibiotics at the district level is warranted. During MDA, azithromycin is offered to all community members over the age of six months, with the exception of self-reporting pregnant women in their first trimester.

The MalTra week campaign was launched in 2008 in Amhara, Ethiopia and covered the entire region with annual MDA. Since 2008, MDA has continued in eligible woredas with the most recent MDA campaign completed in June 2015 in East Amhara. Training of distributors, and community mobilization and knowledge are instrumental in MDA implementation. A qualitative, post-MDA study was conducted to better understand the training and supervision of MDA distributors, community awareness, and community mobilization led by health care workers.

### **Study Aims**

The study objectives of the study were:

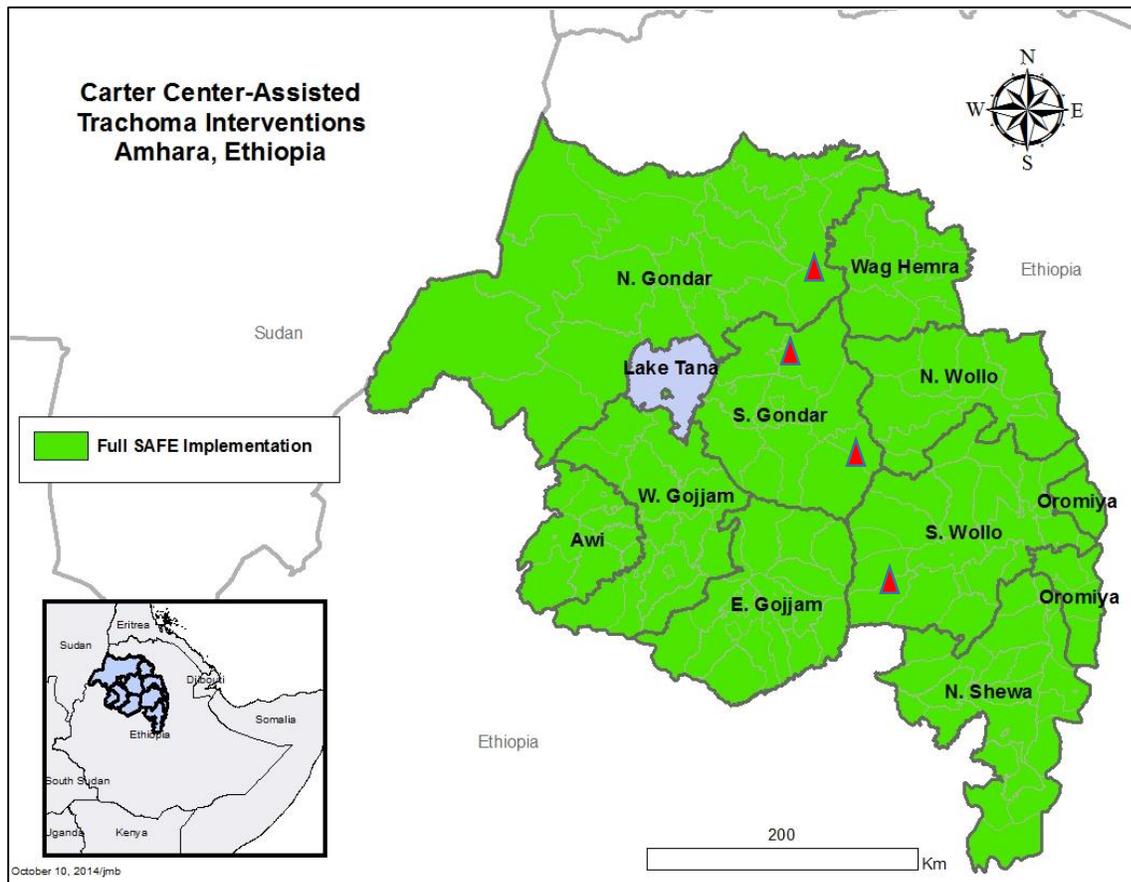
1. To assess whether MDA campaign trainings were conducted as recommended.
2. To assess the roles of health workers in creating awareness and mobilizing community members during the campaign.
3. To assess the community's knowledge and awareness of MDA mobilization activities during the campaign

### **Methods**

The study was conducted in June 2015 in four selected districts from East Amhara - two with high reported MDA coverage (Tehuldere and Taramber) and two with low reported MDA coverage (Sekota Town and Lasta) (May 2015 Trachoma XIII campaign). Stakeholder interviews with health workers (objectives 1 and 2) were conducted to assess whether MDA campaign trainings were conducted as recommended and to assess the role of healthcare workers in generating community knowledge and mobilization during MDA campaigns. Focus group discussions (FGDs) with community members were conducted to assess the community's knowledge and awareness of MDA mobilization activities. FGD participants included teachers, religious leaders, members of the Women's Health Development Army, among others. EData collectors and supervisors received standardized training on the study objectives and instrument.

Results from the stakeholder interviews and FGDs were transcribed and translated verbatim to English. A random selection of transcripts (25%) were checked against the recording by a trained staff member not involved in data collection. English transcripts were analyzed in MaxQDA using memoing and coding techniques to create thematic groups based on the study objectives. A total of 12 interviews and 4 FDGS were conducted which included a total of 35 participants.

Figure 1: Location of Qualitative Surveys in East Amhara, Ethiopia, June 2015



## Results

Roles and responsibilities at all levels (district health officers, HEWs, HDA) were well understood and all districts recognized the importance of multi-sector involvement of stakeholders during the MDA campaign. The revised training manual was well-received, and training of drug distributors is consistently implemented in accordance with standardized procedures, though a one-day training may not be sufficient. With respect to community mobilization and health education, the results of the study showed that involvement of Health Development Army (HDA) was effective in community mobilization and health education and was described as “essential” across zones to ensure participation. With the ongoing health education, negative sentiments about the drugs have been dispelled and people continued to take the drug. The study also revealed that MDA conducted at a central point within the village and location of drug distribution convenient and accessible. These study findings show involvement of HDA and community leaders in social mobilization and comprehensive health education appeared to improve MDA coverage. Recommendations for improving coverage include increasing training to two days, involving HDA and community leaders in social mobilization, and continuing to provide comprehensive health education before and during campaigns.

## Applying F&E Experiences: Panel Discussion

*Moderated by Ms. Angelia Sanders, Associate Director, The Carter Center*

### *Panel Members:*

*Ms. Aisha Stewart, Associate Director, The Carter Center*

*Mr. Belay Bayissasse, Trachoma Program Manager, The Carter Center, Ethiopia*

*Ms. Zeinab Abdalla, Trachoma Program Manager, The Carter Center, Sudan*

*Dr. Edridab Tukabebwa, National NTD Program Manager, Ministry of Health, Uganda*

### **Purpose**

In order to eliminate blinding trachoma, all components of the SAFE strategy must be in place. However, Facial cleanliness and Environmental improvement are often given less attention and financial resources. Many national programs are eager to implement F&E activities but do not know where or how to start. A special F&E panel discussion was conducted to highlight some of the F&E activities that are occurring in various countries. The goal of the panel was to provide participants with an array of F&E activity ideas and lessons learned from the countries that implement them.

### **Ethiopia**

In 2015, The Carter Center, in partnership with the regional health bureau, conducted a qualitative behavior change assessment in Amhara, Ethiopia. This behavior change communication (BCC) study was developed to assess determinants influencing face washing, latrine construction, repair and usage, and hand washing. Results from the study helped in identifying opportunities for messaging and development of appropriate education tools. One district from each of the 10 Amhara zones was purposively selected for inclusion in the study. Within each of those districts, two villages were chosen. Semi-structured interviews were conducted at the household level and with HEWs. Focus group discussions (FGDs) and participatory learning activities were held with Health Development Army volunteers, primary school teachers, primary school students, and community leaders. These interviews and FGDs were conducted in the local Amharic language and audio-recorded. The recordings were transcribed verbatim and then translated into English. A coding framework in MaxQDA was based on recurring themes, and a comparison was done across zones. Some of the limitations of the study included participants' willingness to be open during the questioning, long travel time between households over difficult terrain, and the time it took to analyze large amounts of qualitative data.

The study revealed significant information about community members' perceptions regarding face washing and latrines. Participants recognized that face washing was a source of cleanliness and good hygiene, and that it could prevent disease. However, the participants gave several reasons for not washing including lack of soap, stigma around women being "too clean", limited water availability, being too tired at the end of the day, and laziness. Community members also acknowledged that latrines created privacy (especially for women), prevented disease, and improved environmental cleanliness. Despite the benefits, some of the reasons for not building and/or using latrines included: land not being conducive to building, no space for building, not enough money or time, lack of knowledge on how to build latrines, tradition of open defecation, the belief that latrines cause constipation, and fear of falling into a latrine hole.

The results of the study were incorporated into the process of revising Amhara's school trachoma program that aims to: 1) improve facial cleanliness among primary school children, 2) encourage students to practice behaviors to prevent trachoma, and 3) improve good hygiene behaviors. The curriculum revision process also

included four workshops with various stakeholders from the health and education sectors, collaborators from the University of California San Francisco Francis I. Proctor Foundation, and an external curriculum consultant. The objectives of these workshops were to bring together stakeholders working in education and provide feedback and input at each stage of the revision process. Moving forward, all materials will be piloted in the Amhara region before being finalized. Ultimately, over 15,000 teachers working in more than 7,000 schools across Amhara will be trained to use the revised school trachoma materials in order to promote behavior change and increase uptake of the F&E components of the SAFE strategy.

## **Sudan**

In 2011, the National Trachoma Control Program (NTCP) conducted a media habits survey in Gedarif state to better understand daily media behaviors of the communities and determine the most efficient methods to disseminate health education messages. Health education materials are revised regularly, amended, and field tested before going to print. Once finalized they are distributed during all trachoma control activities and include manuals, stickers, posters, leaflets, calendars, t-shirts, caps, bags, etc.

Mass media campaigns involve health education television and radio broadcasts, interviews with health professionals, radio listening clubs, loud speakers in villages, roleplays, movies, environmental sanitation and improvement campaigns, and distribution of health education materials. Community campaigns include designation of a community leader as a trachoma focal person, F&E messaging during opening ceremonies where politicians, policy makers and community leaders are in attendance, and discussions in weekly group meetings in a suitable time and place (example: mosques, social clubs, and schools). Women's groups are also engaged to participate.

In 2015 the national program worked to engage the FMOH and Federal Ministry of Education (FMOE) to coordinate efforts to improve health education in schools. With the support of the National Centre for Curriculum and Education Research (NCCER), The Carter Center and NTCP developed school health education materials, while the NCCER and FMOE revised and approved the trachoma curricula. Together, the FMOE, NTCP and The Carter Center produced teachers' guidelines for basic and secondary schools on how to deliver information related to trachoma control. Training workshops were conducted for school teachers on how the new trachoma curricula was to be implemented. In 2015, 72 state coordinators, localities' education inspectors and school hygiene coordinators were trained on the trachoma curricula to be trainers for teachers. 2,000 teachers were trained on the trachoma curricula and 105,000 trachoma curricula and 1,900 manuals were distributed in basic and secondary schools. As part of this school based program, books, flipcharts and posters are used in the schools and to facilitate role plays by older students within the classroom. It is hoped that the school based programming will result in schools and students becoming more involved in sanitation campaigns in the community and that students will share knowledge with their family and community members, thereby becoming agents of change.

## **Uganda**

The Queen Elizabeth Diamond Jubilee Trust provided funding specifically for F&E activities in 17 districts in Uganda. An F&E situational analysis for these 17 districts (located in Busoga and Karamoja) was conducted in order to understand the WASH situation in these regions. Following the analysis, a workshop was held with representatives from the MOH, Ministry of Water and Environment, Ministry of Education and Sports, and various WASH and trachoma organizations. During this workshop, the partners came to a consensus on which F&E activities should be implemented in the country:

1. Integration of face washing and trachoma messages into existing WASH strategies and activities in Busoga and Karamoja regions
2. Revision and dissemination of school sanitation guidelines
3. Revision and dissemination of national sanitation guidelines
4. Development of a social and BCC strategy to be used as part of mass media campaigns (radio, tv, videos etc.).

A review committee of line ministry representatives selected the best proposals/partner for each activity. Water Aid Uganda and Water Missions Uganda will be responsible for #1, while John Hopkins University Center for Communication Programs (JHU-CCP) will be responsible for #2-4, though the media campaigns that JHU-CCP develops will be implemented by Water Aid and Water Missions.

In addition to the F & E activities identified above, there has been an increase in cross-collaboration between the MOH and F&E Partners. Currently, F&E partners attend and fully participate in trachoma quarterly and annual review meetings. F&E partners' activities are included in the quarterly trachoma detailed implementation plan and reports to the MOH. The MOH-NTD Program and The Carter Center became members of the National Sanitation Working Group and representatives from the F&E partners have been identified to be members of the NTD Technical Committee.

A few of the lessons learned include: the importance of conducting a situational analysis of existing NTD and WASH activities in order to identify trachoma activity gaps; the benefit of the initial stakeholders workshop and developing a consensus on prioritization of activities in order to create ownership; proposal development, partner identification, contract negotiation and finalization takes time and requires patience; and finally, the provision of financial support to WASH partners to incorporate trachoma messages into their activities helped bring them to the table.

## Posterior versus bilamellar tarsal rotation surgery for TT in Ethiopia: a randomized controlled trial

*Presented by Mr. Esmael Habtamu, Trachoma Research Program Office, The Carter Center, Ethiopia and PhD Student, London School of Hygiene and Tropical Medicine*

### Background

Eyelid surgery is performed to correct TT to prevent blindness. There is an unprecedented effort to scale up global trichiasis surgery output and improve outcomes, in order to clear the growing trichiasis backlog. However, recurrent trichiasis is frequent, presenting a substantial limitation in preventing vision loss from trachoma. Among several factors contributing to recurrent trichiasis, operation type is a major determinant [1-3]. Two procedures are recommended by WHO and are in routine practice: bilamellar tarsal rotation (BLTR) and posterior lamellar tarsal rotation (PLTR). However, the relative effectiveness of these two surgical procedures is not known, and identifying the surgical intervention with the lowest recurrence rate has been a WHO research priority for many years [4]. With an adequate sample size and follow up period, this study was done to identify which of these two most frequently performed operations has the best outcomes in a programmatic setting and which procedure yields better results [5].

### Aim

To determine whether BLTR or PLTR surgery gives superior results under programmatic conditions.

### Methods

A randomized, controlled, single masked clinical trial was conducted in Ethiopia. Participants had upper lid TT with one or more eyelashes touching the eye or evidence of epilation, in association with tarsal conjunctival scarring. Exclusion criteria were age less than 18 years, recurrent trichiasis after previous surgery, hypertension, and pregnancy. Participants were randomly assigned (1:1) to either BLTR or PLTR surgery, stratified by surgeon. The sequences were computer-generated by an independent statistician. Surgery was done in a community setting following WHO guidelines. Participants were examined at 6 months and 12 months by assessors masked to allocation. The primary outcome was the cumulative proportion of individuals who developed recurrent trichiasis by 12 months. Primary analyses were by modified intention to treat. The intervention effect was estimated by logistic regression, controlling for surgeon as a fixed effect in the model.

### Results

1,000 participants with trichiasis were recruited, randomly assigned, and treated (501 in the BLTR group and 499 in the PLTR group) between Feb 13, 2014 and May 31, 2014. 8 participants were not seen at either 6 month or 12 month follow-up visits and were excluded from the analysis: 3 from the PLTR group and 5 from the BLTR group. The follow-up rate at 12 months was 98%. Cumulative recurrent trichiasis by 12 months was more frequent in the BLTR group than in the PLTR group (110/496 [22%] vs 63/496 [13%]; adjusted odds ratio (OR)=1.96, 95% CI 1.40–2.75;  $p=0.0001$ ), with a risk difference of 9.50% (95% CI 4.79–14.16). For secondary outcomes, BLTR was associated with more bleeding (OR=2.76; 95%CI 1.27–6.00), post-operative infection (OR=4.44; 95%CI 2.11–9.33), postoperative pain (OR=1.46; 95%CI 1.24–1.89) and under-correction. There was no difference in clinically significant eyelid contour abnormality (ECA), however BLTR had fewer clinically non-significant ECA (RRR=0.50; 95%CI 0.34–0.73). BLTR was associated with fewer post-operative granulomas (OR=0.41; 95%CI 0.20–0.83).

## Conclusion

PLTR procedure was superior to the BLTR in terms of lower trichiasis recurrence and fewer intraoperative and immediate postoperative complications. PLTR could be the preferred procedure for the programmatic management of trichomatous trichiasis. We suggest new surgical trainees in both established and new programs should be trained in the PLTR procedure. Additionally, consideration could be given to further research to investigate whether individuals previously trained to conduct BLTR surgery need to be re-trained in PLTR surgery.

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# Impact of Trichiasis Surgery on Quality of Life: a longitudinal study in Ethiopia

*Presented by Mr. Esmael Habtamu, Trachoma Research Program Office, The Carter Center, Ethiopia and PhD Student, London School of Hygiene and Tropical Medicine*

## Background

Trachomatous trichiasis significantly reduces vision and health related quality of life (QoL), even when vision is not impaired [1]. Although trichiasis surgery is widely performed to treat trichiasis, there is little data on the effect of surgery on QoL. We measured the impact of trichiasis surgery on vision and health related QoL in a longitudinal study from Amhara region, Ethiopia [2].

## Aim

To determine the long-term impact trachomatous trichiasis surgery on vision and health related quality of life of affected individuals.

## Methods

1000 adult participants with trichiasis (cases) were recruited and 200 comparison participants were matched to every fifth trichiasis case on age (+/- two years), sex and location. Vision-related quality of life (VRQoL) and health-related quality of life (HRQoL) were measured using the WHO/PBD-VF20 and WHOQOL-BREF questionnaires respectively, at enrollment and 12 months after enrollment. All trichiasis cases received free standard trichiasis surgery immediately after enrollment. For cases and comparison participants, the mean difference in QoL scores between enrollment and follow-up was estimated using random effects linear regression. The difference-in-difference by baseline trichiasis status was analyzed using random effects linear regression, adjusted for age, sex and socioeconomic status.

## Results

At 12-months follow-up, data was collected from 980 (98%) and 198 (98%) trichiasis cases and comparison participants respectively. At this follow-up visit, VRQoL and HRQoL scores of trichiasis cases improved substantially in all subscales and domains by 19.1 to 42.0 points ( $p < 0.0001$ ) and 4.7 to 17.2 points ( $p < 0.0001$ ), respectively. In contrast, among the comparison participants, there was no evidence of improvement in VRQoL and HRQoL domain scores during follow-up. The improvement in VRQoL and HRQoL in cases was independent of the presence of visual acuity improvement at 12 months. However, larger improvements were observed among trichiasis cases with visual improvement compared to those with vision deterioration or no change, in the VRQoL overall eyesight ( $p < 0.0001$ ), physical ( $p = 0.006$ ) and general functioning ( $p = 0.03$ ) subscales. In multivariable analysis, longer trichiasis duration ( $p < 0.02$ ) and central corneal opacity at baseline ( $p < 0.005$ ) predicted larger improvements in all VRQoL subscales.

## Conclusions

The results provide clear evidence that the benefit of trichiasis surgery goes beyond preventing the risk of blindness and improves both VRQoL and HRQoL even when there is no visual acuity change. Unprecedented effort is needed to scale-up trichiasis surgical programs and provide prompt surgical intervention not only to prevent the risk of sight loss but also to improve overall wellbeing and health perception of affected individuals.

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## **The Use of HEAD START in Refresher Training and Supportive Supervision in Niger**

*Presented by Dr. Emily Gower, Associate Professor, Wake Forest University and Ms. Stephanie Palmer, Program Officer, NTDs, Helen Keller International*

### **Background**

The target date to eliminate blinding trachoma is 2020, and consequently, countries are ramping up surgical efforts in order to meet this target. Many new and existing surgeons need training and supportive supervision to ensure that they can provide quality surgical services, which is critical for patient recruitment and satisfaction. This also serves to ensure that gains towards reaching the ultimate intervention goals for trichiasis surgery are not undermined by post-operative trichiasis cases.

Until recently, trichiasis surgeon trainees moved directly from theoretical classroom training to live surgery. The HEAD START mannequin was developed to bridge the two and has been shown to be beneficial in training new surgeons. However, prior to the current project, HEAD START had not previously been used in refresher trainings and supportive supervision.

### **Study Aim**

We aimed to develop and test a protocol to incorporate HEAD START into refresher training/supportive supervision with experienced trichiasis surgeons and determine whether this process can improve the skills of these surgeons.

### **Methods**

Informed consent was obtained from each trainee and from trichiasis patients who would receive surgery as part of this study. The trainees performed one to two live surgeries under observation by a master trainer. The trainers then led the trainees through a standardized training on HEAD START, which began with the trainer demonstrating surgery on HEAD START; then a step-by-step method whereby the trainer conducted one step, which the trainee mimicked; then the trainee practiced one surgery under observation of and with assistance from the trainer; and finally, the trainee performed a surgery on HEAD START under observation but without assistance from the trainer. Finally, the trainee conducted two additional live surgeries.

Data were collected on a standardized data form at three different time points: following the initial live surgeries, after the HEAD START training, and after the second set of live surgeries. The trainer evaluated the trainees on 11 different skills<sup>9</sup>, and skills were scored on a scale from one (poor) to five (excellent). Scores of one and two were considered unacceptable and required additional training; scores three through five were considered acceptable and did not require the trainee to undergo more training.

### **Results**

Our team trained a total of 23 trichiasis surgeons in three districts of Niger. Ten of the surgeons were not certified; four had been certified for < 2 years; and 9 had been certified for two years or more.

At baseline, the number of skills for which trainees met the minimum acceptability scores (i.e. 3-5) varied widely with several trainees not meeting minimum acceptability thresholds for some to all of the assessment

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<sup>9</sup> Putting on gloves, maintaining sterility, administering anesthesia, placing the traction suture, placing the Trabut plate/correctly everting the eyelid, manipulation of the instruments, making a straight incision, taking appropriate suture bites, regularly spacing the sutures, aligning the sutures appropriately, and following the logical order of surgery using appropriate technique.

criteria. Following the HEAD START training, all trainees attained acceptable scores on all assessment criteria. The most improved areas of the surgeons' skills were making incisions and suturing.

We also asked trainers and trainees for feedback on HEAD START. The trainees liked being able to see and correct their mistakes, as well as receiving immediate feedback. However, they did not like having to operate using ocular loupes. The trainers also stated that HEAD START helps trainees operate with more confidence and conduct surgeries with more precision.

In summary, HEAD START appears to be quite useful in refresher training of existing surgeons.

## International Coalition for Trachoma Control (ICTC) Update

*Presented by Virginia Sarah, Chair of ICTC<sup>1</sup>*

### Background

Just four years remain to reach the 2020 target of eliminating blinding trachoma as a public health problem. Now is the time to redouble our efforts and build on the significant momentum in the trachoma community and the wider NTD sector.

For the Coalition to remain effective, relevant, and responsive to the changing global landscape, members and observers invested valuable time and energy in 2015 in considering their collective capacity, ensuring coordination and collaboration efforts are aligned with the needs of the global program, and adding value to the work undertaken by the membership.

Through the strategy review and various member engagement initiatives, people used many superlatives to describe how they felt about ICTC's progress over the last few years including '*phenomenal*', '*terrific*' and '*fantastic*'. Members responded that ICTC has proven to be '*a successful platform for coordination*' and '*a catalyst for more action and funding*'. Its membership has grown significantly in both size and type of organisations, and ICTC has contributed to a good interface between members and WHO. Donors have expressed their appreciation for the Coalition's value in coordinating responses, catalysing action, promoting good practice, and measuring progress. The added value of the Coalition has been widely appreciated and there continues to be a strong commitment by members to contribute to '*the greater good*.' Smaller, newer members also highlighted the added value of membership, which gave them greater standing in their local contexts.

### Adoption of the 2015-2020 ICTC Strategic Plan

The 5-year strategic plan, 2015-2020, adopted at the Neglected Tropical Disease NGDO Network (NNN) meeting in Abu Dhabi, represents the Coalition's strong commitment to the GET2020 Alliance and trachoma endemic communities. The strategy outlines the work of over 45 organizations with a collective sense of responsibility and urgency for action to GET2020. As such, the membership comes together to:

1. Increase political will for, and commitment to, trachoma elimination among donors and decision makers.
2. Increase investment, as required, in trachoma elimination programs and SAFE interventions.
3. Strengthen capacity and human resources needed to achieve trachoma elimination by 2020.
4. Coordinate the provision of technical assistance and the sharing of knowledge to support high quality outcomes in trachoma elimination programs.
5. Ensure an effective coalition model and way of working that responds appropriately to changing contexts.

The strategy is available at [www.trachomacoalition.org/2015strategyreview](http://www.trachomacoalition.org/2015strategyreview)

### Increasing political will and mobilising resources for trachoma

In response to requests from the GET2020 Alliance to identify funding gaps and mobilise the necessary resources to support the global program, the Coalition has produced a Global SAFE Implementation Cost

Calculator and is currently focusing its efforts on developing a 2020 roadmap (working title). This work builds on ICTC's 2020 *INSight: The end in sight (2011)* - a global strategy which sought to identify common goals for the trachoma community and convince partners that a dollar spent on trachoma, the world's leading infectious cause of blindness, is a dollar well spent. This resource was a remarkably successful advocacy tool which brought the sector together and attracted the attention of donors and other stakeholders contributing to the formation of a number of high impact partnerships. The 2020 roadmap assesses the current disease profile, define priorities through 2020, communicate a strong call to action for continue and increased support for trachoma elimination, and celebrate achievements made since 2011 including completion of the global mapping of trachoma - the largest ever survey of an infectious disease. Primary audiences include funders, endemic countries, policy makers, and implementation partners. The roadmap will be proposed for adoption by the 20<sup>th</sup> meeting of the GET2020 Alliance in Sydney, Australia in April 2016.

### **Improving technical assistance and knowledge base**

The Coalition has continued to support the development of planning tools and resources which assist members and partners to operationalise WHO strategies and guidelines, as well as to build their capacity to support national elimination programs.

One of ICTC's recent publications, *All you need for F&E*, reflects the growing demand for information to facilitate critical WASH and NTD engagement for sustained progress towards elimination. This resource helps program managers and planners to identify potential partnerships with other organisations already working in water and sanitation, education, finance and health promotion, and to guide them through the process of planning for relevant WASH interventions.

Other recent resources include *Trichiasis counselling manual* and *Trichiasis Case Finders Training Curriculum* with a micro-planning manual for effective Zithromax® MDA expected imminently.

These resources are available at [www.trachomacoalition.org/resources](http://www.trachomacoalition.org/resources).

### **Collaboration and coalition building**

In response to strategic priorities, ICTC has focused on the following initiatives to strengthen opportunities for members to engage, share information, and collaborate effectively:

- Ensuring a strong partnership for implementation of scale-up initiatives funded by The Queen Elizabeth Diamond Jubilee Trust and DFID, and managed by Sightsavers on behalf of the Coalition.
- Identifying where members are working in support of national elimination efforts, to foster greater collaboration and active partnerships. A partners' map will be available on the website.
- Improving information sharing and coalition engagement with the wider NTD community through the NNN and Uniting to Combat NTDs and through opportunities to provide input to the development of an NTD indicator and the scope of other associated indicators (e.g. for universal health coverage).
- Promoting the work of our members to new audiences through the website and social media.

## Members and observers



For more information visit [www.trachomacoalition.org](http://www.trachomacoalition.org).

## **Water, Sanitation, and Hygiene for Trachoma Elimination: Where are we now?**

*Presented by Ms. Yael Velleman, Senior Policy Analyst (Health & Hygiene), WaterAid – on behalf of WHO*

### **Background**

Water, sanitation and hygiene are thought to be essential for the prevention of trachoma, and for sustaining the impact of treatment interventions on elimination. Although the role of WASH has been enshrined under the SAFE strategy, progress on the F&E components of the strategy remains challenging. This presentation provides an overview of the new Global Strategy on water, sanitation, and hygiene for accelerating and sustaining progress on NTDs, issued by WHO in summer 2015, and its relevance for the trachoma community. It provides information on the implementation of the strategy to-date and provides examples of actions to enhance the delivery of the F and E components of the SAFE strategy.

### **The F&E challenge**

Efforts towards trachoma elimination are undertaken within a challenging environment. Although much progress has been made in terms of access to drinking water and sanitation, this progress has not kept pace with the challenges of population growth, increased climate vulnerability, and inequitable investments in infrastructure. 2.4 billion people, about one third of the world's population, lack access to improved sanitation, and almost 1 billion defecate in the open. 663 million people still lack access to improved water sources. There are also large disparities between and within countries, between regions, and between rural and urban settings. Eight out of ten people without improved drinking water sources live in rural areas; seven out of ten people without improved sanitation facilities, and nine out of ten people still practicing open defecation, live in rural areas. Additionally, people in the poorest quintile have least access to water and sanitation services. All of these have a profound impact on the transmission of trachoma in endemic countries.

There is a clear need for collaboration between the WASH and trachoma communities at all levels to reduce transmission of *Chlamydia trachomatis* from eye to eye, and to sustain low levels of endemicity where progress has been achieved through MDA initiatives. Yet such collaboration is challenging, due to many aspects such as the different objectives of the two communities, limited communication between relevant government and donor agencies, and limited evidence and guidance on how to deliver WASH alongside other trachoma interventions most effectively. The new efforts by WHO and other key partners within the NTDs community aim to reduce the gap between the WASH and NTDs sector by focusing on the co-benefits of enhanced collaboration, and by finding practical approaches to coordination and integration.

### **A Global Strategy and Action Plan on Wash and NTDs**

The need for a concerted effort by WHO was clearly heard at the 2014 GET2020 meeting. Subsequently, WHO set up an internal coordination group bringing together the NTDs department and the Water Sanitation and Health team under the Public Health and the Environment Departments. The group has initiated a process of defining an organisational strategy for WASH and NTDs, with trachoma as one of the focal diseases. Following a substantial multi-stakeholder consultation, the Strategy and Action Plan was published in summer 2015, and launched at the Stockholm World Water Week and the NNN meeting in Abu Dhabi in September 2015. The vision of the strategy is: *Accelerated and sustained achievement of the NTD roadmap milestones, particularly among the poorest and most vulnerable, through better-targeted and joint WASH and NTD efforts.*

## Strategic Objectives:

1. Increase awareness about the co-benefits of joint WASH and NTD action by sharing experiences and evidence from improved delivery
2. Use WASH and NTD monitoring to highlight inequalities, target investment, and track progress
3. Strengthen evidence on how to deliver effective WASH interventions for NTDs and embed the findings in guidance and practice
4. Plan, deliver and evaluate programmes with mutual inputs from WASH, health and NTD stakeholders at all levels

The Strategy document includes a detailed action plan that outlines the actions to be implemented by WHO as well as countries and partners for the successful delivery of the strategic objectives and the overall vision.

## Progress on Strategy Implementation – Focus on Trachoma

*SO1: Increase awareness about the co-benefits of joint WASH and NTD action by sharing experiences and evidence from improved delivery*

- Beyond the launch at Stockholm World Water Week and the NNN meeting, the Strategy has also been presented at the South Asia Conference on Sanitation (SACOSAN), the STH Advisory Committee, meetings at EURO and WPRO, UNC Water and Health Conference, and through a webinar organised by FHI 360. Both WASH and NTDs audiences have been extensively engaged to increase awareness of and buy-in to the Strategy.
- Efforts are ongoing to increase the knowledge base on the need for and benefits of collaboration. WHO is working with the NNN WASH Working Group to develop a template for gathering case studies, and a new web-based platform on NTDs (InfoNTDs) includes WASH-related resources.

*SO2: Use WASH and NTD monitoring to highlight inequalities, target investment, and track progress*

- WHO has begun to explore the use of NTD endemicity as an indicator of equity of access to WASH across wealth quintiles. This work is currently being carried out by the WHO and UNICEF Joint Monitoring Programme on Drinking Water and Sanitation (JMP).
- The need for a robust set of program-level indicators that can be used by both WASH and NTDs programs has been repeatedly recognized in several WASH and NTDs discussions. Following the WASH and NTDs roundtable hosted by the SHARE research consortium in London in September 2014, the WASH working group of the NNN conducted a Delphi-method consultation process on this topic. Three consultation rounds were conducted in 2015 involving a large set of NTDs and WASH experts, resulting in a set of core WASH-NTDs indicators. A further round is currently being conducted to agree specific indicators for trachoma, STH, schistosomiasis, and Disease Management, Disability and Inclusion.

*SO3: Strengthen evidence on how to deliver effective WASH interventions for NTDs and embed the findings in guidance and practice*

- The need for further research, and particularly operational research, on WASH and NTDs has been raised in various forums, and is an ongoing priority for WHO. A number of research projects are now underway, but more work is needed.
- ICTC has published “All you need for F and E – a practical guide to partnering and planning”. This tool is designed to inform trachoma programme managers as well as other stakeholders involved in trachoma programming, initially under the auspices of funded programmes (the Queen Elizabeth Diamond Jubilee Trust and the DFID trachoma programmes); however, the intention is to make the tool widely available to all stakeholders who may find it useful.

- ICTC and its members are addressing specific knowledge gaps around: a) the behavioural motives of facial cleanliness and other hygiene practices to inform better behaviour change programming (The Fred Hollows Foundation, through funding formative research work in Ethiopia); and b) the global cost of implementing comprehensive SAFE, including WASH interventions for trachoma elimination in national programs at different stages of the intervention life cycle – start-up, ongoing implementation and maintenance, etc. (through funding work by PriceWaterhouseCooper).

*SO4: Plan, deliver and evaluate programmes with mutual inputs from WASH, health and NTD stakeholders at all levels*

- In order to sustain momentum on the delivery of the strategy in support of Roadmap targets, WHO is providing dedicated support to joint planning in Ethiopia and Nigeria. This work is being documented, and further communication will be made in forthcoming meetings.
- Important progress has been made on collaboration between WASH and NTDs stakeholders at country level. The tools comprising the ICTC F and E planning guide have already been tested in several funded countries, and have resulted in:
  - Detailed situational analyses developed by WASH and trachoma stakeholders as a basis for joint planning (in Kenya, Chad, Uganda, Ethiopia, Malawi, Tanzania and Zambia).
  - Collaboration with behaviour change experts to achieve program objectives: At the F&E planning workshop in Ethiopia social and behavioural researchers from 4 regional universities participated in the cross-sectoral planning activities. In Zambia, the Manoff group is working with the local partner Akros to design and develop innovative behaviour-centered programming to deliver multimedia and peer-to-peer materials for trachoma prevention.
  - Unprecedented collaboration between the WASH and trachoma communities at country level (Ethiopia, Chad, Uganda, Malawi): In Malawi, WaterAid is leading the coordinated effort of WASH and NTD programs to design and deliver NTD trachoma focused WASH interventions. In Chad, Ethiopia, Malawi and Uganda, work is underway with WASH and trachoma partners to adapt existing sanitation strategies to focus on hygiene and trachoma messaging. This has mainly focused on adapted CLTS models and strategies.
  - During a presentation at the NNN meeting in September 2015, NTD stakeholders in Ethiopia demonstrated the importance of coordinated efforts to scale up and leverage interventions for NTD control and elimination for trachoma, onchocerciasis, visceral leishmaniasis, STH, schistosomiasis, and podonconiosis programmes.

## **Conclusions**

The progress made over the past year shows that improved collaboration between WASH and trachoma/NTDs stakeholders is not only essential but also possible, given the right tools and support. Current momentum should be sustained and emphasis should be placed on documenting and sharing improved practices.

## 2016 Trachoma Control Program Review Recommendations

### General Recommendations:

1. National Trachoma Control Programs should continue to enhance, and strengthen, collaboration with all stakeholders of WATSAN/WASH.
2. National Trachoma Control Programs should make the effort to obtain and share data on latrines constructed by other partners through concerned government institutions.
3. National Trachoma Control Program should enlist partners to help share F & E and Trachoma WASH-related school curricula, teaching manuals, and guides with other partners, sectors, and with other countries.
4. National Trachoma Control Program should share learnings widely from F & E inter-sectoral and partner collaborations.
5. National trachoma programs should publish data documenting their experiences related to levels of TF, stopping MDA, follow up, and the number of districts and the sum of the population that were formerly endemic and now have  $TF_{1-9} < 5$  percent as a success story.
6. WHO should work with partners to develop an electronic data collection tool to track TT surgeries and refusals with patient identifying information for follow up, and support dossier.
7. Adopt standardized ranges for displaying TT and TF prevalence maps across all countries; lowest bins should be  $< 0.2\%$ ,  $0.2\% - 1\%$  for TT prevalence in adults.
8. National trachoma programs and partners should ensure priorities towards elimination, data collection and data reporting on expenditure, outputs, and outcomes are shared at every stage.
9. Future Program Reviews should include an update from ITI on current status of supply chain and global elimination to meet approved country plans. This should complement manufacturing updates from Pfizer and distribution reports against targets by national programs.
10. The WHO Alliance for GET2020 should harmonize reporting requirements on outcomes for F & E activities so that they align with WASH sector engagement and the new 2030 development agenda.
11. The national program should make every effort to communicate best practices for TT surgeries to all organizations and institutions performing surgeries in country, and engage all organizations and institutions to provide regular TT surgery reports (persons screened, TT surgeries performed, etc.).
12. To achieve elimination objectives and support resource mobilization efforts, WHO GET2020 Alliance should encourage endemic countries to include the NTD indicator, “number of people requiring interventions against NTDs” [Target 3.3], in country mechanisms for monitoring achievement of the SDGs.
13. All countries with cross border issues should determine if there are components of the SAFE strategy that require cross-border collaboration. Any and all cross border collaboration should be documented by the national program.

## Country-Specific Recommendations:

### Amhara, Ethiopia

1. The Program should evaluate teacher and student understanding of new F & E curricula after a specified period of time.

### Mali

1. Mali should develop a detailed plan of action with partners by July 2016 to clear the TT backlog by the end of 2018.
2. Mali and Niger should continue cross border collaboration.

### Niger

1. Niger should consider a trachoma-specific MDA if the integrated plan cannot be put into place in time.
2. Niger should investigate options for cross border collaboration with Nigeria.
3. Mali and Niger should continue cross border collaboration.
4. Niger should consider implementing a plan to increase the TT surgeries to reduce the number of years required to clear the TT backlog.

### Sudan

1. Sudan should develop a detailed plan of action with partners by June 2016 to clear the TT backlog by end of 2019.
2. Sudan should investigate options to reduce the length of time required for a TT surgical camp to allow more female residents (surgeons) to participate.
3. The Program should evaluate teacher understanding of new F & E curricula after a specified period of time.
4. Sudan should identify ways to collaborate with other NGOs conducting TT surgeries to ensure appropriate reporting and alignment with FMOH recommended practices for conducting TT surgery.

### South Sudan

1. The Program should strive to implement the full SAFE strategy (with emphasis on F & E) in states considered secure. To achieve this, the program should consider engaging WASH partners to contribute toward latrine construction and water provision.
2. The trachoma community should consider supporting South Sudan in developing a strategy to clear the TT backlog and complete mapping for trachoma in the country.

### Uganda

1. The Program should reach at least 80% MDA coverage in all districts.
2. The Program should conduct post-MDA coverage surveys in as many trachoma endemic districts as possible to validate the coverage, and present those results at the next Program Review.

## Trachoma: The Disease

Trachoma, the world's leading cause of preventable blindness, can be found in over 50 countries. More than 200 million people are at risk for trachoma, and approximately 3.2 million are at immediate risk for blindness from trichiasis. Trachoma is caused by repeated infections of the conjunctiva (the lining of the eye and eyelid) by the bacterium *Chlamydia trachomatis*, and can be prevented through simple hygiene practices. Most cases occur in rural, arid areas of developing countries, such as the Sahelian region of Africa, where access to clean water is limited.

The early stage of the disease is called *inflammatory trachoma*, and is most common among children. Inflammatory trachoma can present as either the formation of whitish follicles on the conjunctiva under the upper lid or around the cornea, or as an intense painful or uncomfortable inflammation with thickening of the conjunctiva. Repeated cycles of infection and resolution lead to the formation of scar tissue on the conjunctiva. Women are repeatedly exposed to inflammatory trachoma in their role as primary caretakers of children. It is therefore not surprising to find that women develop chronic trachoma twice as often as men. Trachoma is transmitted through discharge from the eyes and nose of infected individuals by contact with hands, towels and clothing, or by flies, which are attracted to ocular and nasal discharge. As trachoma patients' eyelids are repeatedly infected with *Chlamydia trachomatis*, subsequent scarring of the conjunctiva deforms the eyelid margin, resulting in eyelashes turning inward and rubbing against the cornea. This condition, called *trichiasis*, causes disabling pain and physically abrades the cornea, scratching it and introducing other infections. Trichiasis is horrific in itself, but also rapidly leads to blindness.

Recent developments have brought new hope that we can effectively control this disease. In 1987, eye care experts and the WHO developed a simplified trachoma grading scale, which facilitated and standardized the diagnosis and identification of all stages of trachoma. In 1997, the WHO established the GET 2020 Alliance, which brought international non-governmental development organizations, donors and researchers together to work collectively in controlling trachoma. In addition, with support from the Edna McConnell Clark Foundation and WHO, the *SAFE strategy* was created to control trachoma through community-based interventions. In 2004, ICTC, a coalition of NGOs, donors, academic institutions, and other partners, was created to support GET2020 and to advocate for the implementation of the SAFE strategy.

Another important development was the finding that the oral antibiotic azithromycin, taken once or twice annually, is as effective in preventing chronic trachoma as six weeks of daily treatment with tetracycline eye ointment, the previously recommended therapy. In 2009, Pfizer Inc, manufacturer of Zithromax<sup>®</sup>, recommitted to supporting the WHO GET2020 goal of eliminating blinding trachoma by the year 2020. Since the beginning of the donation in 1998, approximately 500 million doses of Zithromax<sup>®</sup> have been donated by Pfizer Inc and managed by ITI. The donation has reached more than 30 countries with plans to continue expansion in 2016. The existence of the donation program has served to invigorate national trachoma programs and global support for the elimination of blinding trachoma.

***“All Eyes on 2020”***  
The Seventeenth Annual Trachoma Control Program Review  
The Carter Center  
March 7-9, 2016

**Monday, March 7**

<b>8:15</b>	<b><i>~Depart the Sheraton Hotel for The Carter Center~</i></b>	
<b>8:30 – 9:00</b>	<u>Breakfast</u>	
<b>9:00 – 9:10</b>	Welcome, Introductions & Opening Remarks	Mr. Craig Withers Acting Vice President, Health Programs The Carter Center
<b>9:10 – 9:15</b>	Informational Overview	Ms. Nina Bloch Program Assistant, Trachoma Control Program The Carter Center
<b>9:15 – 9:30</b>	Program Review Overview & Chairperson Announcements	Ms. Kelly Callahan (Chairperson) Director, Trachoma Control Program The Carter Center
<b>9:30 – 10:30</b>	Ethiopia SAFE Update	Mr. Biruck Kebede Neglected Tropical Diseases Team Leader Federal Ministry of Health - Ethiopia
<b>10:30 – 11:00</b>	<u>Coffee Break</u>	
<b>11:00 – 12:00</b>	Amhara SAFE Update	Mr. Mulat Zerihun Regional Trachoma Project Manager The Carter Center - Ethiopia
<b>12:00 – 12:30</b>	The Prevalence of <i>Chlamydia trachomatis</i> Infection in Amhara	Dr. Scott Nash Epidemiologist, Trachoma Control Program The Carter Center
<b>12:30 – 1:30</b>	<u>Lunch</u>	
<b>1:30 – 1:40</b>	<u>Chairperson Announcements</u>	
<b>1:40 – 2:10</b>	What To Do After Several Rounds of Azithromycin: The TIRET Trial	Ms. Dionna Fry Study Coordinator University of California at San Francisco Francis I. Proctor Foundation
<b>2:10 – 2:40</b>	A Qualitative Post-MDA Assessment	Mr. Eshetu Sata M&E Manager The Carter Center - Ethiopia
<b>2:40 – 3:00</b>	<u>Coffee Break</u>	
<b>3:00 – 4:00</b>	WHO Update	Dr. Anthony Solomon Medical Officer, Trachoma; and Chief Scientist, Global Trachoma Mapping Project Department of Control of NTDs, World Health Organization
<b>4:00 – 5:00</b>	South Sudan SAFE Update	Ms. Aja Isaac Kuol Deputy Director of PC-NTDs Ministry of Health - South Sudan
<b>5:00 – 6:30</b>	<u>Reception</u> (The Carter Center Library and Museum Lobby) <i>**Shuttle will be available to return to the Sheraton Hotel following the reception for anyone who does not wish to stay for the documentary screening</i>	
<b>6:30 – 7:30</b>	<b><i>Documentary Screening</i></b>	
<b>7:30</b>	<b><i>~Shuttle Departure to Sheraton Hotel~</i></b>	

***“All Eyes on 2020”***  
 The Seventeenth Annual Trachoma Control Program Review  
 The Carter Center  
 March 7-9, 2016

**Tuesday, March 8**

<b>8:15</b>	<b><i>~Depart the Sheraton Hotel for The Carter Center~</i></b>	
<b>8:30 – 9:00</b>	<u>Breakfast</u>	
<b>9:00 – 9:10</b>	<u>Chairperson Announcements</u>	
<b>9:10 – 10:10</b>	Sudan SAFE Update	Dr. Balgesa Elshafie National Coordinator, Trachoma Control Program Federal Ministry of Health - Sudan
<b>10:10 – 10:40</b>	Pfizer Update	Ms. Julie Jenson Director, Supply Chain Planning Pfizer Inc.
<b>10:40 – 11:15</b>	<u>Coffee Break &amp; Group Photo</u>	
<b>11:15 – 12:35</b>	Applying F&E Experiences Moderator: Ms. Angelia Sanders	Panel Members:  Ms. Aisha Stewart The Carter Center  Mr. Belay Bayissasse The Carter Center - Ethiopia  Ms. Zeinab Abdalla The Carter Center - Sudan  Dr. Edridah Tukahebwa Ministry of Health - Uganda
<b>12:35 – 1:35</b>	<u>Lunch</u>	
<b>1:35 – 1:45</b>	<u>Chairperson Announcements</u>	
<b>1:45 – 2:50</b>	Posterior Lamellar vesrus Bilamellar Tarsal Rotation Surgery for Trachomatous Trichiasis in Ethiopia: a randomized controlled trial	Mr. Esmael Habtamu Study Coordinator London School of Hygiene and Tropical Medicine
	Impact of Trachomatous Trichiasis Surgery on Quality of Life: a longitudinal study in Ethiopia	
<b>2:50 – 3:20</b>	<u>Coffee Break</u>	
<b>3:20 – 4:20</b>	The Use of HEAD START in Supportive Supervision and Refresher Training of Trichiasis Surgeons	Dr. Emily Gower & Ms. Stephanie Palmer Associate Professor & Program Officer, Neglected Tropical Diseases Wake Forest University & Helen Keller International
<b>4:20 – 4:50</b>	Niger SAFE Update	Dr. Kadri Boubacar National Coordinator, Trachoma Control Program Ministry of Health - Niger
<b>5:00</b>	<b><i>~Shuttle Departure to Sheraton Hotel~</i></b>	
<b>6:00</b>	<b><i>~Shuttle Departure from Sheraton Hotel to Atlantic Station Shopping Center~ (6:00-9:00)</i></b>	

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**Wednesday, March 9**

8:15	<i>~Depart the Sheraton Hotel for The Carter Center~</i>	
8:30 – 9:00	<u>Breakfast</u>	
9:00 – 9:10	<u>Chairperson Announcements</u>	
9:10 – 10:10	Mali SAFE Update	Professor Lamine Traoré National Coordinator, National Eye Care Program Ministry of Health - Mali
10:10 – 10:40	International Coalition for Trachoma Control Update	Ms. Virginia Sarah Chair International Coalition for Trachoma Control
10:40 – 11:10	<u>Coffee Break</u>	
11:10 – 12:10	Uganda SAFE Update	Dr. Patrick Turyaguma Trachoma Program Manager Ministry of Health - Uganda
12:10 – 1:00	Water, Sanitation and Hygiene for Trachoma Elimination: Where Are We Now?	Yael Velleman Senior Policy Analyst on Health and Sanitation WaterAid
1:00 – 2:00	<u>Lunch</u>	
2:00 – 2:10	<u>Chairperson Announcements</u>	
2:10 – 3:10	Conclusions & Recommendations	Ms. Kenya Casey Associate Director, Office of Program Support The Carter Center
3:10 – 3:40	<u>Coffee Break</u>	
3:40 – 4:10	Conclusions & Recommendations cont.	Ms. Kenya Casey Associate Director, Office of Program Support The Carter Center
4:10 – 4:30	Closing Remarks	Ms. Kelly Callahan Director, Trachoma Control Program The Carter Center
4:30*	<i>~Depart The Carter Center for the Sheraton Hotel~</i>	

*\*Time subject to change. Bus will depart The Carter Center shortly after the conclusion of the meeting.*

**Ethiopia**

Mr. Melesew Chanyalew (ARHB)  
 Mr. Biruck Kebede (FMOH)  
 Dr. Zerihun Tadesse (The Carter Center)  
 Mr. Belay Bayissasse (The Carter Center)  
 Mr. Aderajew Mohammed (The Carter Center)  
 Mr. Eshetu Sata (The Carter Center)  
 Mr. Mulat Zerihun (The Carter Center)  
 Mr. Berhanu Melak (The Carter Center)

**Mali**

Prof. Lamine Traoré (MOH)  
 Mr. Sadi Moussa (The Carter Center)  
 Mr. Yaya Kamissoko (The Carter Center)

**Niger**

Dr. Kadri Boubacar (MOH)  
 Mr. Mohamed Salissou Kane (The Carter Center)  
 Mr. Tahirou Oungouila (The Carter Center)

**South Sudan**

Mr. Makoy Samuel (MOH)  
 Ms. Aja Isaac Kuol (MOH)  
 Ms. Joy Chebet (The Carter Center)

**Sudan**

Dr. Isameldin Mohammed Abdalla (FMOH)  
 Dr. Balgesa Elkheir Elshafie (FMOH)  
 Dr. Nabil Aziz Awad Alla (The Carter Center)  
 Ms. Zeinab Abdalla (The Carter Center)

**Uganda**

Dr. Edridah Muheki Tukahebwa (MOH)  
 Dr. Patrick Turyaguma (MOH)  
 Ms. Peace Habomugisha (The Carter Center)  
 Ms. Stella Kanyesigye (The Carter Center)

**Abbott**

Ms. Ann Matz-Tirado  
 Mr. Andy Wilson

**The Fred Hollows Foundation**

Ms. Virginia Sarah

**Helen Keller International**

Dr. Joe Amon  
 Ms. Stephanie Palmer  
 Dr. Steven Reid

**Conrad N. Hilton Foundation**

Mr. Edmund Cain  
 Dr. Shaheen Kassim-Lakha  
 Mr. Robert Miyashiro

**International Trachoma Initiative**

Dr. Menbere Alemu  
 Ms. Birgit Bolton  
 Dr. Paul Emerson  
 Ms. PJ Hooper  
 Dr. Teshome Gebre Kanno  
 Ms. Girija Sankar

**Light for The World-Ethiopia**

Mr. Nemera Woyessa

**Lions Clubs International Foundation**

Hon. Dr. Tebebe Y. Berhan  
 Mr. Boube Abdoukadi  
 Mr. Phillip Albano  
 Mr. Polly Ndyarugahi  
 Mr. Mama Tapo

**London School of Hygiene and Tropical Medicine**

Dr. Matthew Burton  
 Mr. Esmael Habtamu

**Noor Dubai Foundation**

Mr. Omar Ba

**Orbis-Ethiopia**

Mr. Temesgen Kabeto

**Pfizer Inc**

Ms. Julie Jenson

**Francis I. Proctor Foundation, UCSF**

Ms. Dionna Fy

**The Queen Elizabeth Diamond Jubilee Trust**

Dr. Andrew Cooper

**Rollins School of Public Health, Emory University**

Ms. Nicole Devereaux  
 Ms. Maryann Delea  
 Ms. Kelly Fletcher  
 Dr. Matthew Freeman  
 Dr. Deb McFarland  
 Mr. Andrew Nute  
 Mr. Oumer Shafi

**RTI International**

Ms. Lisa Rotondo  
 Ms. Alexis Serna

**Sightsavers**

Dr. Agatha Aboe  
 Mr. Colin Beckwith  
 Mr. Elie Kamate  
 Ms. Michaela Kelly

**The Task Force for Global Health**

Dr. Mark Rosenberg  
 Dr. David Ross

**Trachoma Expert Committee**

Dr. Joseph Feczko

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

Dr. Stephanie Bialek  
 Dr. Diana Martin  
 Capt. Monica Parise

**Wake Forest University**

Dr. Emily Gower

**WaterAid**

Yael Velleman

**World Health Organization**

Dr. Anthony Solomon

**The Carter Center**

Ms. Nina Bloch  
 Dr. Stephen Blount  
 Ms. Patti Bunker  
 Ms. Kelly Callahan  
 Ms. Kenya Casey  
 Mr. Yohannes Dawd  
 Mr. Don Denard  
 Ms. Emily Griswold  
 Ms. Madelle Hatch  
 Mr. Andrew Heacox  
 Ms. Alicia Higginbotham  
 Dr. Don Hopkins  
 Dr. Moses Katarbarwa  
 Mr. Curtis Kohlhaas  
 Ms. Nicole Kruse  
 Mr. Jarod Mooney  
 Dr. Mesrak Nadew  
 Dr. Scott Nash  
 Ambassador Mary Ann Peters  
 Ms. Lindsay Rakers  
 Dr. Frank Richards  
 Dr. Ernesto Ruiz-Tiben  
 Ms. Angelia Sanders  
 Ms. Alethia Sanon  
 Ms. Tara Shariff  
 Mr. Randy Slaven  
 Ms. Rennie Sloan  
 Ms. Shelley Smart  
 Ms. Emily Staub  
 Ms. Aisha Stewart  
 Mr. Marc Tewari  
 Mr. Craig Withers