

SUMMARY PROCEEDINGS
FOURTEENTH ANNUAL TRACHOMA CONTROL
PROGRAM REVIEW

Efficient Program Delivery: Doing More, Better, Faster

THE
CARTER CENTER



Waging Peace. Fighting Disease. Building Hope.

Atlanta, Georgia
March 11-13, 2013

Supported by:
Conrad N. Hilton Foundation
Lions Clubs International Foundation
Pfizer Inc

Conrad N. Hilton
FOUNDATION



Lions Clubs International
FOUNDATION



THE
CARTER CENTER



Waging Peace. Fighting Disease. Building Hope.

“Efficient Program Delivery: Doing More, Better, Faster”

**The Fourteenth Annual
Trachoma Control Program Review**



The Carter Center
Atlanta, Georgia

March 11-13, 2013

ACKNOWLEDGEMENTS

The Carter Center Trachoma Control Program would like to acknowledge the support of the following donors for the 2012 activities reviewed in this document:

Governments:

Sudanese Federal Ministry of Health

Foundations and Organizations:

Blum Family Foundation

Conrad N. Hilton Foundation

The William H. Donner Foundation, Inc.

Harris myCFO Foundation

John C. and Karyl Kay Hughes
Foundation

The John P. Hussman Foundation, Inc.

Kilimanjaro Centre for Community
Ophthalmology

Lions Clubs International Foundation

Manaaki Foundation

The New York Eye and Ear Infirmary

Sylvan and Ann Oestreicher Foundation,
Inc.

Francis I. Proctor Foundation

The Ring Foundation

Sightsavers

Corporations:

Pfizer Inc

Individuals:

Anonymous (2)

Charles W. Austin

Richard C. Blum

Anne Cox Chambers

Ann Davis

Pete and Amanda Docter

Stanley and Wendy Drezek

Ronald Herrmann

Peter and Sue Holm

Morton P. Hyman

Todd and Laurie Jorgensen

Aldo and Robyn Manzini

Alan and Melodie Solway

David L. Stutzman and Wendy Blank

Allan Taylor

Benny and Roxanne Varzi

Ruth D. Wagoner

And to many others, our sincere gratitude.

TABLE OF CONTENTS

Acronyms	1
Executive Summary	2
Trachoma Control Program Country Summaries	
Amhara Trachoma Control Program.....	3
Sudan Trachoma Control Program.....	8
South Sudan Trachoma Control Program.....	15
Niger Trachoma Control Program.....	21
Nigeria Trachoma Control Program.....	28
Mali Trachoma Control Program.....	34
Chad Trachoma Control Program.....	41
Summary Tables and Figures	
Table 1: Summary of National Data from Trachoma Interventions, Carter-Center assisted countries.....	43
Table 2: National Trachoma Control Programs Annual Targets 2013, Carter-Center assisted countries.....	44
Table 3: Carter Center-Assisted Implementation of SAFE, 2012.....	45
Table 4: Carter Center-Assisted Implementation of SAFE, 1999-2012.....	46
Fig. 1: Persons Operated for Trichiasis, Carter Center-Assisted Countries.....	47
Fig. 2: Azithromycin Distribution, Carter Center-Assisted Countries.....	48
Fig. 3: Villages with Health Education, Carter Center-Assisted Countries.....	49
Fig. 4: Household Latrines Constructed, Carter Center-Assisted Countries.....	50
Special Sessions	
The Rationale behind the Operational Research Conducted in Carter Center-assisted Trachoma Control Programs...	51
“A Living Death”: A Qualitative Assessment of Quality of Life among Women with Trichiasis in Rural Niger.....	53
Update on the Global Trachoma Mapping Project.....	55
Decisions, Decisions... Interpreting WHO Guidelines: Starting, Stopping, and Initiating Surveillance in Trachoma Elimination Programs.....	56
WASH/NTD Cross-sectoral Dialogue, Impact, and Implications for F and E.....	58
Update on the International Coalition for Trachoma Control Activities.....	60
Update on the International Trachoma Initiative and Pfizer Inc.....	62
Update from Sightsavers Trachoma Fast Track Initiative.....	63
Current and Future Collaboration with Swiss Tropical and Public Health Institute.....	65
MalTra IX Post-Campaign Coverage Survey: A Rapid Assessment.....	66
Update on Carter Center-UCSF Collaborations in Ethiopia and Niger.....	68
Post-Operative Trichiasis Assessment in Niger.....	69
Risk of Trachomatous Scarring in Children after Multiple Years of SAFE Interventions in Ethiopia.....	71
Getting the Target Right: Systematic Differences between School-Attending and Non-School-Attending Children in Ethiopia.....	72
Mass Drug Administration for Trachoma Control: Learning from the Field in order to Improve Practice in the Field.....	73
Fred Hollows Foundation Trachoma Update 2013.....	74
CBM Trachoma Update 2013.....	76
Accelerated Achievements in Localities with TF between 5-9% among Children Ages One to Nine Years.....	77
Trachoma Prevalence in Two States in Nigeria after Two Rounds of MDA.....	79
Best Practices in Health Education.....	80
Appendix I: The London Declaration on Neglected Tropical Diseases	82
Appendix II: Trachoma: The Disease	83
Appendix III: Ultimate Intervention Goal Definitions	84
Appendix IV: Agenda	85
Appendix V: Carter Center Trachoma Control Program Peer-Reviewed Articles 2012	88
Appendix VI: List of Participants	90

ACRONYMS

AMREF	African Medical and Research Foundation
BLTR	Bilamellar Tarsal Rotation
CARE	Cooperative for Assistance and Relief Everywhere
CBM	Christoffel Blindenmission
CDC	U.S. Centers for Disease Control and Prevention
CDD	Community Drug Distribution or Distributor
CLTSH	Community Led Total Sanitation and Hygiene
CNHF	Conrad N. Hilton Foundation
DFID	Department of International Development
FHF	Fred Hollows Foundation
FMOH	Federal Ministry of Health
GET2020	Alliance for the Global Elimination of Blinding Trachoma by 2020
GOSS	Government of South Sudan
GPS	Global Positioning System
GSM	Global Scientific Meeting
GTMP	Global Trachoma Mapping Project
HEW	Health Extension Worker
HKI	Helen Keller International
IECW	Integrated Eye Care Worker
ICTC	International Coalition for Trachoma Control
ITI	International Trachoma Initiative
JSI	John Snow, Inc.
KAP	Knowledge, Attitudes, and Practices
KCCO	Kilimanjaro Centre for Community Ophthalmology
LCIF	Lions Club International Foundation
LGA	Local Government Area (specific to Nigeria)
MalTra	Malaria and Trachoma Week
MDA	Mass Drug Administration
MOH	Ministry of Health
NGO	Non-governmental Organization
NTD	Neglected Tropical Disease
OPC	Organisation pour la Prévention de la Cécité
PCR	Polymerase Chain Reaction
POS	Pediatric Oral Suspension
PNLC(C)	Programme National de Lutte contre la Cécité
PRET	Partnership for Rapid Elimination of Trachoma
RDT	Rapid Diagnostic Test
RHB	Regional Health Bureau (specific to Ethiopia)
RTI	Research Triangle Institute International
SAFE	Surgery, Antibiotics, Facial Cleanliness, and Environmental Improvement
SanPlat	Modified Sanitation Platforms
STH	Soil-Transmitted Helminth
TAP	Trachoma Action Plan
TCC	The Carter Center
TEC	Trachoma Expert Committee
TEO	Tetracycline Eye Ointment
TF	Trachomatous Inflammation-Follicular
TF₁₋₉	Trachomatous Inflammation-Follicular (for children between one and nine years of age)
TI	Trachomatous Inflammation-Intense
TS	Trachomatous Scarring
TT	Trachomatous Trichiasis
UIG/UTG	Ultimate Intervention/Treatment Goal
UNICEF	United Nations Children's Fund (formerly United Nations Children's Education Fund)
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Hygiene
WHO	World Health Organization

EXECUTIVE SUMMARY

Efficient program delivery: Doing more, better, faster

The Fourteenth Annual Program Review of trachoma control programs was held at The Carter Center, March 11-13, 2013. In addition to the six Carter Center-assisted programs (Ethiopia, Mali, Niger, Nigeria, South Sudan, and Sudan), we were joined by a representative from the Ministry of Health from Chad, our donors and partners from the U.S. Centers for Disease Control and Prevention, Emory University, International Trachoma Initiative, Helen Keller International, Fred Hollows Foundation, CBM, London School of Hygiene and Tropical Medicine, Kilimanjaro Centre for Community Ophthalmology, University of California San Francisco, Swiss Tropical and Public Health Institute, the Task Force for Global Health, Sightsavers, Lions Clubs International Foundation, RTI International, the Queen Elizabeth Diamond Jubilee Trust, Pfizer Inc, and the Conrad N. Hilton Foundation.

The objective of the program review was to provide inspiration, education, and motivation to all those involved in delivering the SAFE strategy for trachoma control by reviewing the status of the national trachoma control programs; identifying challenges encountered in planning and implementation; discussing solutions and shared experience; and promoting the sharing and standardization of information. The year 2012 has been a pivotal year for the global trachoma program following the London Declaration on Neglected Tropical Diseases (Appendix I) in January, major funding from the UK government for the Global Trachoma Mapping Project (GTMP) in the summer, and an announcement that the two largest grants for implementation against blinding trachoma ever made will be forthcoming from the UK government and the Queen Elizabeth Diamond Jubilee Trust in 2013. With the target date of 2020 just seven years away and considerable resources on the table, it is now time for accelerated action and progress to be made. Recognizing the need for programs to do MORE in implementation, deliver BETTER programs, and to reach the goals FASTER, the review included special sessions highlighting evidence of how the targets of more, better, and faster can be achieved, in addition to the country presentations.

Under the theme of “more,” Sightsavers presented impressive progress in the global mapping project; Emory University presented innovative ways to engage and partner with agencies whose primary interest is water and sanitation; and Carter Center headquarters presented on the qualitative aspects of living life with trichiasis even before there is vision loss. Following the theme of “better,” there were presentations on post-mass drug administration coverage surveys using the tried and trusted methods from the smallpox eradication era; a new toolbox of current preferred practices that enhance efficiency and uptake of antibiotics; preferred practices in health education; and better post-operative care for trichiasis surgery patients. The final day included special sessions on faster delivery, such as a single dose of high-coverage antibiotic for the districts with prevalence of TF of 5-9% in children ages one to nine years at baseline.

With only seven years before the target date, one Carter Center-assisted country, Ghana, has reached the elimination targets for trachoma and needs to be assisted through to verification of being free of blinding trachoma. Mali, Sudan, Niger, and Amhara Regional State in Ethiopia appear to be on track to achieve elimination by the target date of 2015 whilst the rest of Ethiopia, Nigeria, and South Sudan need additional assistance if the targets are to be met.

SAFE in Amhara, Ethiopia

Presented by Tesfaye Teferi, The Carter Center Ethiopia

Background

In Ethiopia, The National Blindness and Trachoma Programs were founded in 1976 and Vision 2020 launched in 2002. The national blindness and low vision survey completed in 2006 with support from The Carter Center, CBM, the International Trachoma Initiative, and other partners found a national TF prevalence of 26.2% among children one to nine years old and a TT prevalence of 3.1% in adults. These results support that Ethiopia has the highest burden of trachoma in the world, with the Amhara National Regional State the most trachoma endemic among all 10 regional states. Out of the nine regional states and two city administrations, four regional states have a high burden of trachoma; however, the full SAFE strategy is currently implemented only in the entirety of the Amhara National Regional State.

Mapping is currently being conducted in Tigray, SNNPR, Oromia, and Somali regions by the respective Regional Health Bureaus and the Global Trachoma Mapping Project. Resources for program implementation have not yet been secured in all mapped areas. Support for the national trachoma control program include a new trachoma focal person recently assigned at the Federal Ministry of Health and a trachoma technical advisor assigned at the Ministry for one year through partner support.

The Carter Center started supporting the Amhara Regional Health Bureau in four districts of South Gondar Zone in 2000. With strong support from the Lions Clubs International Foundation, The Lions Clubs of Ethiopia, and other donors, The Carter Center has expanded the SAFE strategy to cover all 167 districts in the Amhara region. Of these districts surveyed after receiving three to five years of full SAFE, 69 have a TF prevalence greater than 10% among children one to nine years old. Four districts are between 5-9% TF and five have achieved the elimination target of less than 5%. Trachoma impact surveys will be conducted in over 41 districts in 2013.

Timeline of Events

- 1976: National Blindness Program and Trachoma Control Program started
- 2000: Prevalence and KAP surveys in four districts of South Gondar Zone
- 2000: TCC-supported trachoma control activities launched in four districts of South Gondar Zone
- 2002: Expansion to 15 districts in South Gondar and East and West Gojam Zone with TCC support
- 2002: Vision 2020 launched in Ethiopia
- 2005: First national strategic plan written for 2006-2010
- 2005-2006: National blindness, low vision and trachoma survey
- 2006: Expansion to all districts in 10 zones of Amhara region with TCC support
- 2008: First MalTra Week campaign
- 2010: 50 millionth dose of azithromycin distributed
- 2010: Impact evaluation surveys in South Wollo Zone
- 2011: Impact evaluation surveys in South Gondar Zone
- 2011: Five year strategic plan for NTDs written
- 2012: Impact evaluation surveys in North Gondar and West Gojam
- 2017: Target for the elimination of blinding trachoma in Amhara

Table 1. Program achievements in 2012

Indicator	RHB/Carter Center Targets	RHB/Carter Center Output
Persons operated for TT	80,000	66,766
Trichiasis surgeons trained	200	144
Doses of azithromycin distributed	15,787,572	12,620,643*
Doses of tetracycline distributed	349,368	311,025
Villages reached with health education	3,449	3,449
Household latrines built	118,865	520,883

**This number accounts for the ESMAT (Effect of Stopping Mass Antibiotic Treatment) study in which 14 districts were randomly selected to stop antibiotic treatment.*

Surgery (S)

The Amhara region reported an unprecedented 66,766 trichiasis patients received operations, an increase of 70.9% over the 2011 achievement. All 167 districts in Amhara have a TT prevalence greater than the WHO threshold of one case per thousand population. There are 299,751 surgeries remaining in order to reach the elimination threshold for elimination. The majority of these surgeries, 276,113, are in 108 districts with over 1,000 surgeries per district remaining to operate. In 2012, the program prepared a trichiasis operational manual and job description for integrated eye care workers. In order to reach elimination, the program is focusing on refresher trainings for integrated eye care workers, pre-campaign registration of trichiasis cases, and supported supervision in collaboration with the Regional Health Bureau.

Antibiotic Therapy (A)

The Carter Center supported the Amhara National Regional State in conducting two MalTra Week campaigns in 2012. The trachoma control program distributed 12,620,643 doses of the planned 15,787,572. The ESMAT study stopped distribution to 14 districts (2,588,467 people). Out of 167 districts, 124 had a reported coverage of greater than 80%, the minimum acceptable coverage; seven had coverage of 60-80%; and four had less than 60%. Dissemination of results from a qualitative study on resistance to participating in mass drug administration in one zone resulted in substantially improved achievement in seven out of eight districts.

Facial Cleanliness (F)

Prioritized zones are increasing advocacy for personal hygiene using mass media, training health workers, using social mobilization to spread knowledge about trachoma among health extension workers, school staff and one to five health service delivery structure leaders. Health education activities were assessed in December 2012 and materials will be revised. Activities in this area will focus on strengthening school-based health education, using the newly emerging community one to five structure and cooperating with relevant partners including water, sanitation and hygiene organizations.

Environmental Improvement (E)

In 2012, The Carter Center supported the National Trachoma Control Program in the construction of 520,885 latrines. The goal for latrine construction in 2012 was 118,865 latrines; however, due to increased demand, The Carter Center supported the construction of a significantly greater number of latrines than planned.

Targets for 2013

Surgery (S)

- Operate 110,754 trichiasis patients, all with Lions-Carter Center support
- Train 110 surgeons, all with Lions-Carter Center support

Antibiotic Therapy (A)

- Distribute 15,787,572 doses of azithromycin, all with Lions-Carter Center support
- Distribute 394,027 doses of tetracycline, all with Lions-Carter Center support

Facial Cleanliness (F)

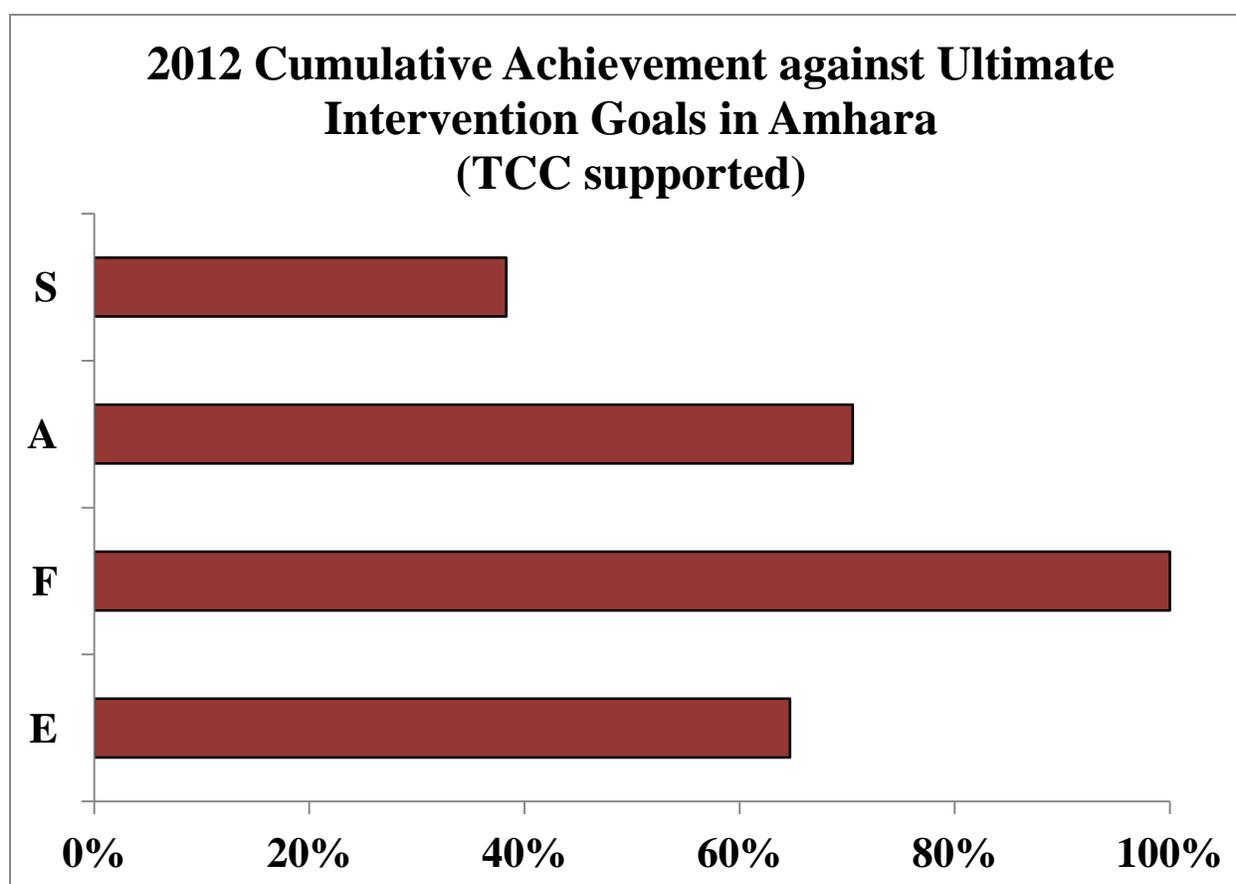
- Conduct health education in 3,449 villages, all with Lions-Carter Center support

Environmental Improvement (E)

- Construct 150,000 latrines, all with Lions-Carter Center support

Table 2. Cumulative achievement against ultimate intervention goals (UIGs) for Ethiopia: TCC-supported achievements¹

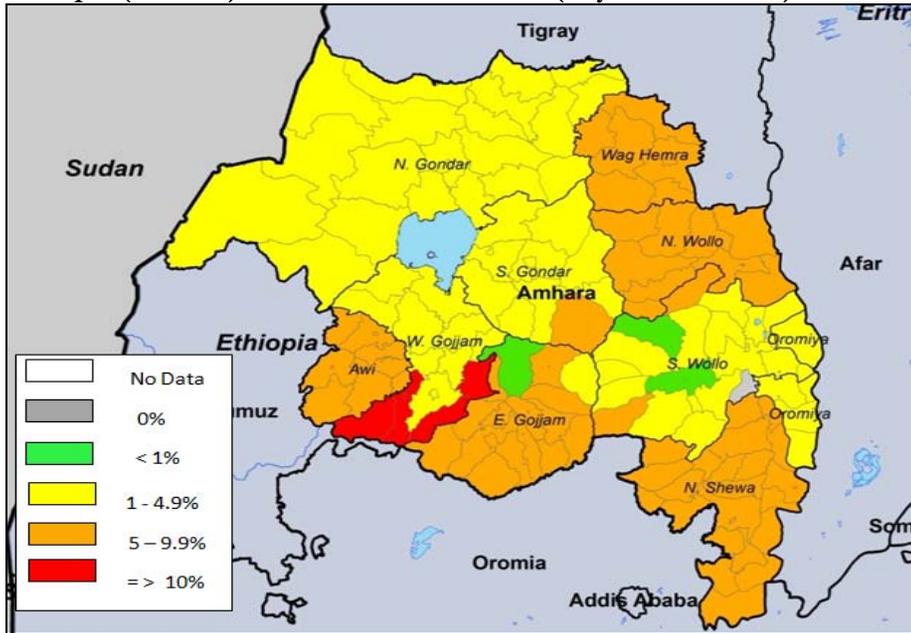
Intervention	TCC-Supported Achievements	UIG	Percentage of UIG Achieved with TCC Support
Surgery	296,448	774,005	38%
Antibiotic Distribution	12,620,643	17,897,498	71%
Facial Cleanliness (Villages)	3,449	3,449	100%
Environmental Improvement (Latrines)	2,667,488	4,123,877	65%



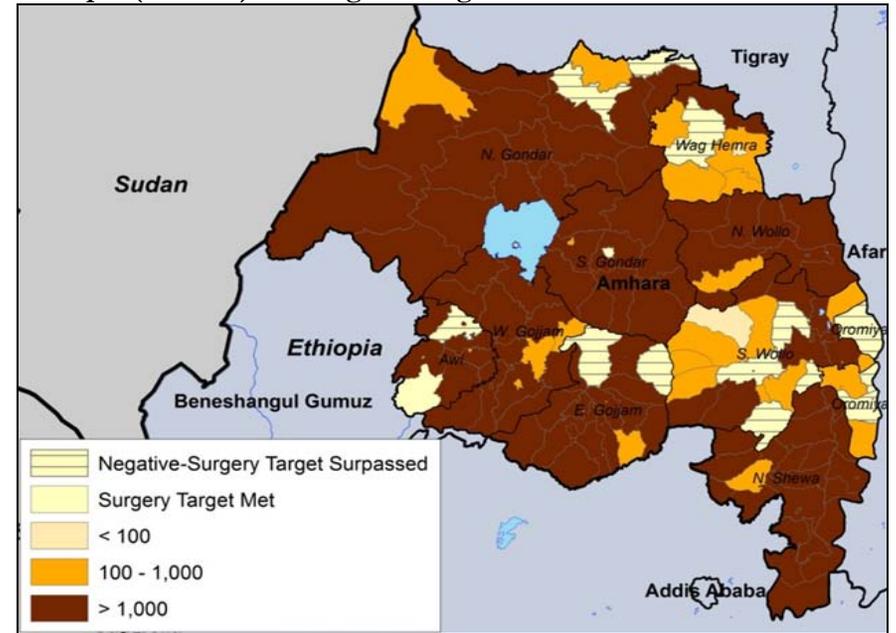
*See appendix III for UIG definitions

¹ No national intervention data available for the country Ethiopia; data reflects Carter Center-supported achievements in the Amhara Region only

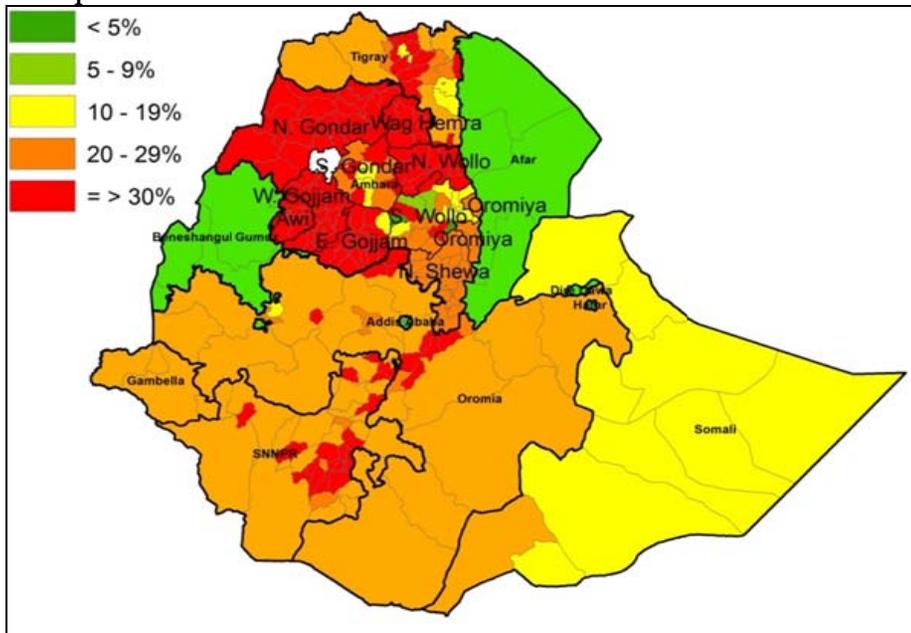
Ethiopia (Amhara) TT Prevalence in Adults (15 years and older)



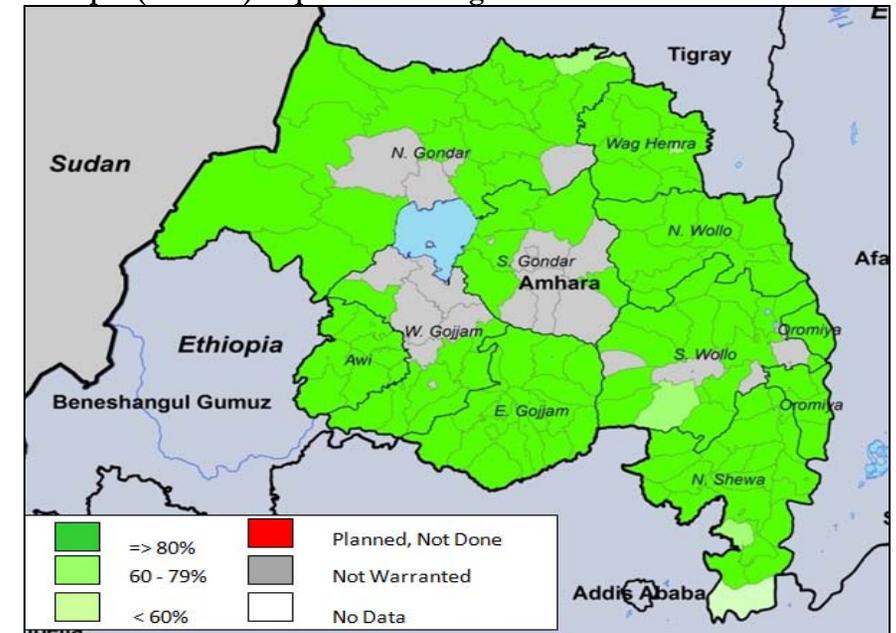
Ethiopia (Amhara) TT Surgical Targets



Ethiopia TF Prevalence in Children 1-9 Years Old



Ethiopia (Amhara) Reported Coverage with MDA 2012



SAFE in Sudan

Presented by Dr. Nabil Aziz, Sudan Country Representative, The Carter Center Sudan

Background

The Government of Sudan established the Prevention of Blindness Administration under the Federal Ministry of Health (FMOH) in 1962. Activities were reduced during the 1970s based on the belief that trachoma was no longer a public health problem, though reports of trachoma's persistence continued. However, anecdotal evidence of trachoma endemicity was not confirmed until The Carter Center began supporting the FMOH in conducting prevalence surveys in May 1999. Following the results of the survey, Pfizer Inc began donating Zithromax® through the International Trachoma Initiative in 2000. In 2005, the Trachoma Control Program became part of the National Program for the Prevention of Blindness and the program started to decentralize trachoma control activities to the state ministries of health and the localities (district equivalents).

All localities outside of Darfur were mapped through Carter Center-supported efforts between 2006 and 2010. Results showed that 50 localities in Sudan have a trichiasis prevalence of greater than 0.1% with an estimated total backlog of 54,575 un-operated cases. There remain 37,736 surgeries that need to be conducted to reach the ultimate intervention goal (UIG). Eleven districts have a TF prevalence higher than the WHO disease elimination threshold of 5%. Of the 11 districts, three have a TF prevalence of 10% or greater while eight are between 5-9% (Table 2). The 47 districts in Darfur remain unmapped due to insecurity.

The program plans to survey East El Galabat following its third round of mass drug administration (MDA) and conduct impact evaluations in four districts with a baseline prevalence 5-9% TF in children one to nine years that were randomized to receive a single district-wide distribution of antibiotics in 2013.

The Carter Center assists with the implementation of the SAFE strategy with funding from the John P. Hussman Foundation, Sightsavers, and the FMOH Sudan.

Timeline of Events

- 2000: Zithromax® donation by Pfizer Inc began
- 2005: National Trachoma Program moved to the FMOH
- 2005: Baseline prevalence surveys started
- 2006: Community participation protocol developed
- 2006: TT surgery manual locally adapted for training in Arabic; primary eye care manual modified to include the World Health Organization (WHO) simplified grading system for trachoma; survey protocol developed
- 2010: Prevalence survey mapping completed (except for Darfur states)
- 2010: Government pledged U.S. \$1 million to support River Blindness and Trachoma Control Programs
- 2011: National prevalence data published in *PLoS NTDs* (Hassan *et al.* 2011)
- 2015: Target date for the elimination of blinding trachoma in Sudan

Table 1. Program achievements in 2012

Indicator	National Program/Carter Center Targets	National Program/Carter Center Outputs
Persons operated for TT	5,000	1,495
Trichiasis surgeons trained	30	30
Doses of azithromycin distributed	451,970	331,825
Doses of tetracycline distributed	9,039	3,880
Villages reached with health education	72: intensive HE 153: mass media	76: intensive HE 153: mass media
Household latrines built	N/A ¹	N/A

Surgery (S)

In 2012, 738 of the 1,495 surgeries reported were conducted in the 18 districts known to have more than 1,000 surgeries remaining to be conducted in order to reach the ultimate intervention goal (UIG). The remainder were conducted in areas that had met their UIG or in Khartoum, which has not been fully mapped. The surgical achievement of 1,495 represents an increase of 23.6% over the number of surgeries conducted in 2011. Social mobilization encourages enhanced output at the state level and raises awareness of state politicians, officials, community leaders, the media, religious leaders and women's groups.

Since 2006, 180 trichiasis surgeons have been trained; 30 were trained in 2012. A Sustainable Training Centre at the Khartoum Eye Centre supports free surgery for trichiasis patients. A study on the recurrence rate was conducted by a resident ophthalmologist. The national program has discussed the TT backlog with policy makers at the national and state levels and utilize a mobile surgical theatre, provided by the MOH, to increase accessibility by patients. This is of utmost importance as the UIG for TT surgeries will not be met even by 2030 if the current rate of surgery provision remains the same.

Antibiotic Therapy (A)

The national program distributed 175,033 doses of antibiotics of the targeted 451,970 in districts having greater than 10% TF at baseline (among children 1-9 years). In addition, two districts received MDA as part of a study comparing the effects of one round of district-wide MDA versus sub-district surveys in districts with 5-9% prevalence at baseline among children one to nine years of age. Two districts with greater than 10% TF at baseline and one with 5-9% TF at baseline were not accessible due to insecurity. One district with 5-9% TF at baseline did not receive MDA due to shortage of drug.

Nine out of 12 sub-districts surveyed have TF greater than or equal to 10% TF and are eligible for MDA in 2013, 2014, and 2015.

¹ N/A: Not applicable, the program does not support specified intervention

Facial Cleanliness & Environmental Improvement (F & E)

The trachoma health education activities in 2012 included training focal persons, women's groups, student groups and conducting school lectures and environment cleaning campaigns. A total of 38 health educators were trained. Health education efforts included mass media, 14 radio and TV broadcasts, telecasts on live health programs, and broadcast news and advocacy reports. Materials distributed include t-shirts, caps, bags, posters, flipcharts, and leaflets in addition to 10 signboards.

Health education was extensively incorporated into all program activities, including MDA and trichiasis surgery camps.

UNICEF, development partners, and private companies support latrine construction.

Targets for 2013

Surgery (S)

- Operate 5,000 trichiasis patients
- Train 30 surgeons

Antibiotic Therapy (A)

- Distribute 1,330,057 doses of azithromycin
- Distribute 31,601 doses of tetracycline

Facial Cleanliness (F)

- Conduct health education in 535 villages

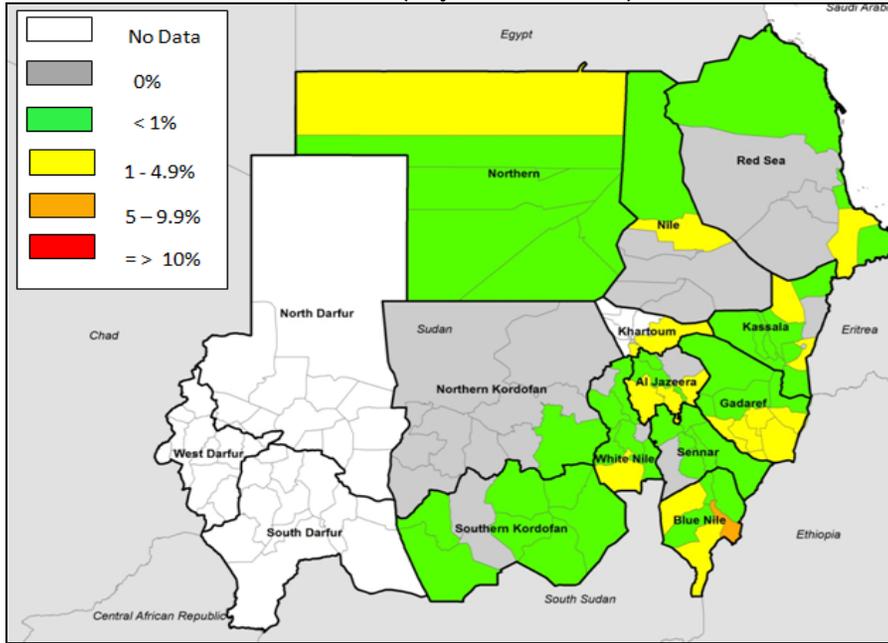
Environmental Improvement (E)

- Construct 0 latrines

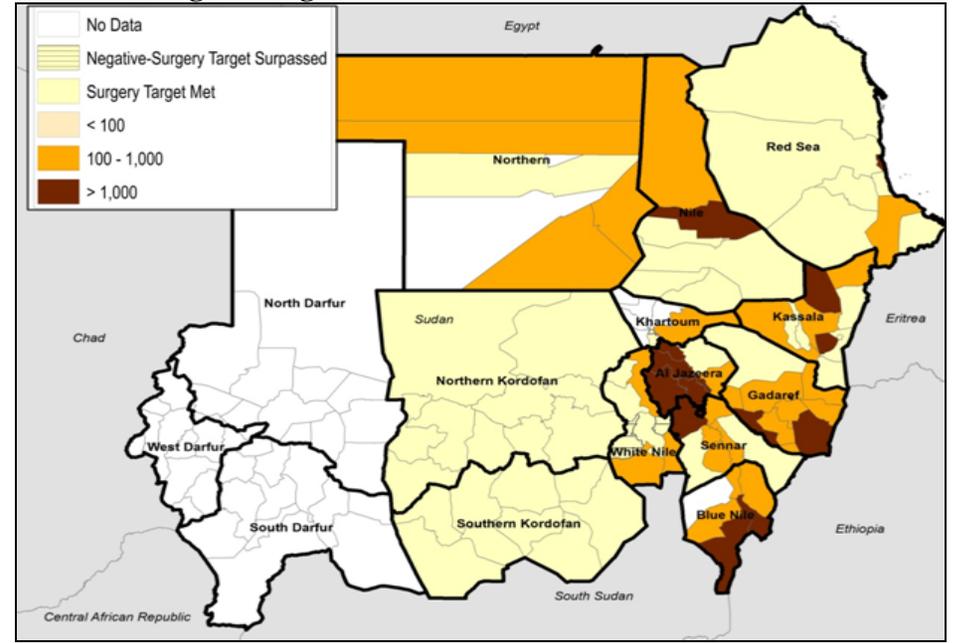
Table 2: Districts with TF prevalence >5% at baseline

		TF Prevalence (1-9)		TT Prevalence (all ages)		Elimination Target
State	District	Baseline	TIS	Baseline	TIS	
Blue Nile	Al Kurmuk	12.3%	No survey after baseline	2.1%	No survey after baseline	2015
Blue Nile	Gaissan	17.4%	No survey after baseline	2.9%	No survey after baseline	2015
Gedarif	B. El Gedarif	5.9%	10.6%	0.59%	0.78.	2015
Gedarif	El Fashaga	6.1%	17.2%	0.39%	0.46	2015
Gedarif	El Galabat East	19.8%	No survey after baseline	0.92%	No survey after baseline	2015
Gedarif	El Rahad	7.1%	29.4%	2.1%	0.7%	2015
Khartoum	Jabal Awlia	5.0%	No survey after baseline	1.1%	No survey after baseline	2015
Sennar	East Sennar	5.0%	No survey after baseline	0.8%	No survey after baseline	2015
Sennar	El Dender	8.5%	9.8%	0.8%	1.0%	2015
South Kordofan	Abo Jibaiha	6.1%	No survey after baseline	0.08%	No survey after baseline	2015
White Nile	El Jabalain	6.4%	No survey after baseline	0.23%	No survey after baseline	2015

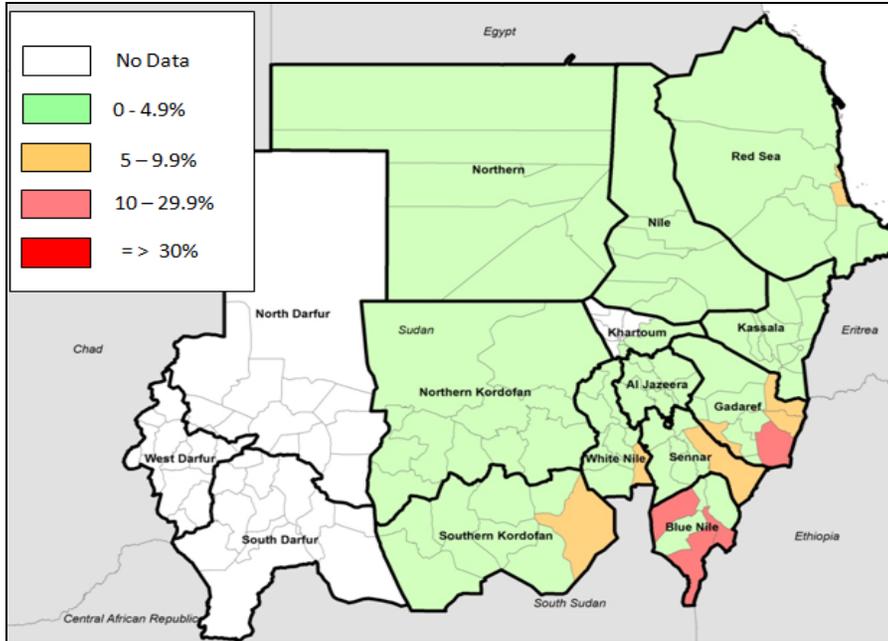
Sudan TT Prevalence in Adults (15 years and older)



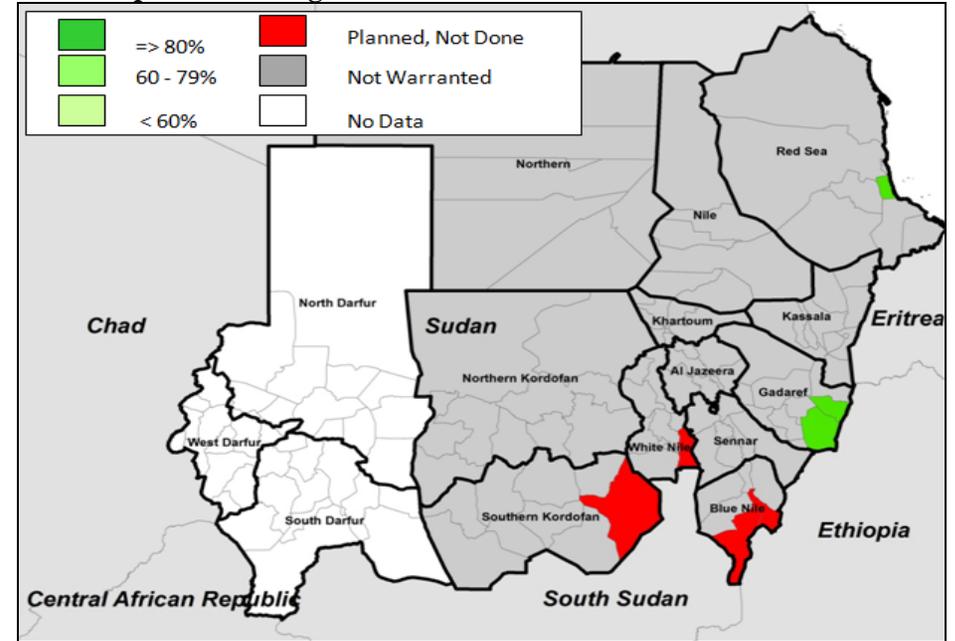
Sudan TT Surgical Targets



Sudan TF Prevalence in Children 1-9 Years Old



Sudan Reported Coverage with MDA 2012



**Table 3. Cumulative achievement against ultimate intervention goals (UIGs) in Sudan:
National and TCC-supported achievements**

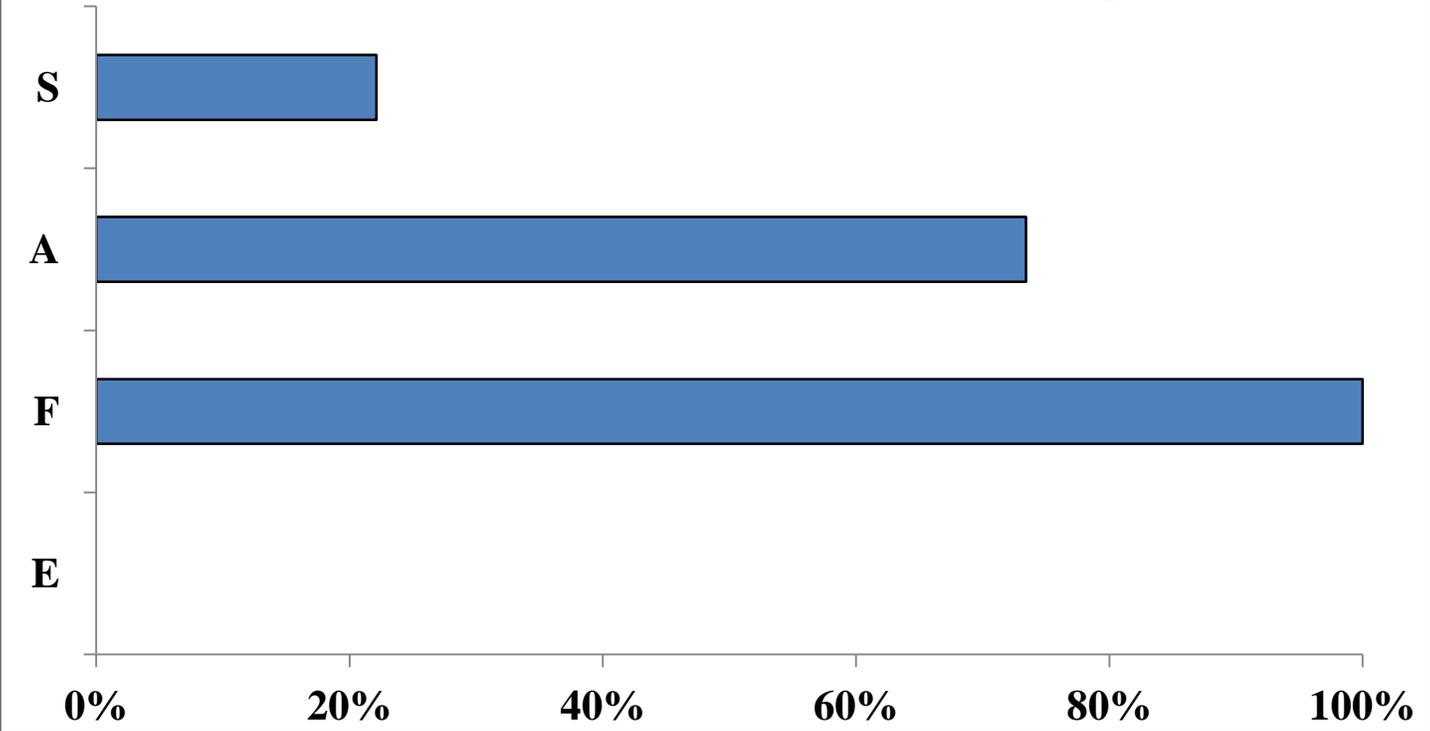
Intervention	National Achievements	UIG	Percentage of UIG Achieved by National Program
Surgery	13,686	61,873	22%
Antibiotic Distribution (for 2012)	331,825	451,970	73%
Facial Cleanliness (Villages)	260	260	100%
Environmental Improvement (Latrines)	N/A ¹	N/A	N/A

Intervention	TCC-Supported Achievements	UIG	Percentage of UIG Achieved with TCC Support
Surgery	6,369	55,145	12%
Antibiotic Distribution (for 2012)	331,825	451,970	73%
Facial Cleanliness (Villages)	76	72	105%
Environmental Improvement (Latrines)	N/A	N/A	N/A

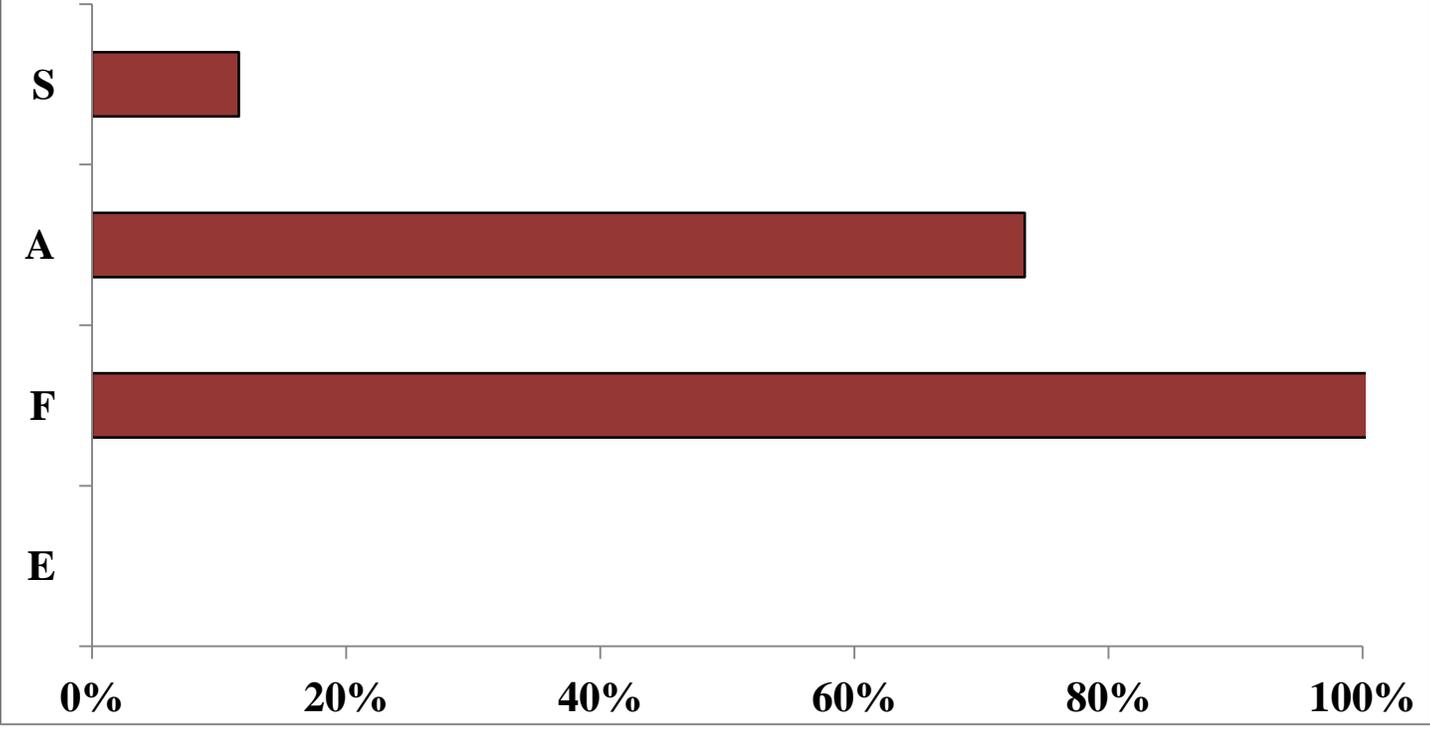
*See appendix III for UIG definitions

¹ N/A: Not applicable, the program does not support specified intervention

2012 Cumulative Achievement against Ultimate Intervention Goals in Sudan (National Program)



2012 Cumulative Achievement against Ultimate Intervention Goals in Sudan (TCC supported)



*See appendix III for UIG definitions

SAFE in South Sudan

Presented by Dr. Lul Riek, Ministry of NGO Affairs

Background

Trachoma control efforts began in the then 'southern' Sudan in 1989 through Operation Lifeline Sudan, a consortium of United Nations agencies and more than 40 non-governmental organizations (NGOs) that gave humanitarian aid during the civil war. The Carter Center began supporting these efforts in 2000, the same year that the International Trachoma Initiative sent Pfizer-donated Zithromax® to begin mass drug administration (MDA). Initial prevalence surveys showed TF prevalence as high as 77.2% among children one to nine years old and TT prevalence as high as 15.1% among adults 15 years and older. Currently, it is known that 25 counties exceed the WHO elimination target of one trichiasis case per 1,000 population and 22 exceed the TF elimination target of less than 5% prevalence among children one to nine years old.

The Trachoma Control Program in South Sudan is working to gain a complete picture of the distribution of trachoma in the country. Fifty-three out of 80 districts remain unmapped, although the epidemiological picture is fairly clear: trachoma is hyper-endemic in all areas east of the Nile and Unity state. It appears less common in the west of the country. Some counties are due for impact surveys where mass drug administration has been completed for more than five consecutive years. The program is working on a national database for a better reporting system, in order to standardize data. Partners continue to collaborate with the national trachoma program to scale-up SAFE; however, the program will need financial support to eliminate blinding trachoma by the year 2020. The national program completed its trachoma action plan (TAP), which will provide a framework to guide future trachoma-related activities. A trachoma taskforce exists; however, it needs to be strengthened.

Timeline of Events

- 2001: Trachoma control activities began
- 2005: Comprehensive Peace Agreement signed
- 2006: Ministry of Health, Government of Southern Sudan (GOSS) established
- 2007: MOH GOSS Trachoma Control Program established
- 2008: First Annual Trachoma Control Program Review was held; trachoma task force established
- 2011: Referendum on self-determination
- 2020: Target date for the elimination of blinding trachoma in South Sudan

Table 1. Program achievements in 2012

Indicator	National Program Targets	National Program Output	Carter Center Targets	Carter Center Output
Persons operated for TT	5,150	1,858	750	1,164
Trichiasis surgeons trained	11	N/R ¹	0	2
Doses of azithromycin distributed	501,000	323,708	363,580	239,111
Doses of tetracycline distributed	10,020	N/R	7,420	9,760
Villages reached with health education	114	N/R	114	150
Household latrines built	300	266	0	8

Surgery (S)

The program estimates that 100,961 surgeries need to be conducted in order to reach the UIG in the counties that have been surveyed, assuming that all surgeries conducted between 2001 and 2012 were conducted in the surveyed counties.

Twenty-two of the 25 mapped counties need to conduct more than 1,001 surgeries in order to reach their surgical UIGs. Of the 1,858 surgeries conducted in 2012, 1,172 took place in these priority areas. The Carter Center supported 1,164 of the 1,858 surgeries conducted during 2012. In order to reduce the backlog, the national program will need to identify a sustainable source of trichiasis surgeons and alternative delivery methods to reach the underserved populations. At the current rate, the ultimate intervention goal will not be reached even before 2030.

Antibiotic Therapy (A)

Of the surveyed counties, 19 have a TF prevalence greater than 10% among children ages one to nine; one is between 5-9%; and two have a prevalence below the elimination threshold of 5%. Of the 19, only nine received MDA due to limited resources to distribute. In the areas with support, 239,111 doses of antibiotic were distributed. In the areas that received MDA, one had coverage above 80%, five between 60 and 79%, and three less than 60%. The Carter Center distributed 239,111 out of 323,708 total doses.

Facial Cleanliness & Environmental Improvement (F & E)

The plan for 2012 included on-going health education in 104 Carter Center-supported villages and 114 total villages. In 2012, The Carter Center supported health education in 328 villages using both communities and schools as a platform for improving hygiene and sanitation. The Carter Center also supported the construction of eight out of 266 latrines built in 2012.

¹ N/R: Not reported by the program

Targets for 2013

Surgery (S)

- Operate 3,400 trichiasis patients, 1,000 with Carter Center support
- Train 15 surgeons, five with Carter Center support

Antibiotic Therapy (A)

- Distribute 468,530 doses of azithromycin, 338,530 with Carter Center support
- Distribute 47,470 doses of tetracycline, 10,470 with Carter Center support

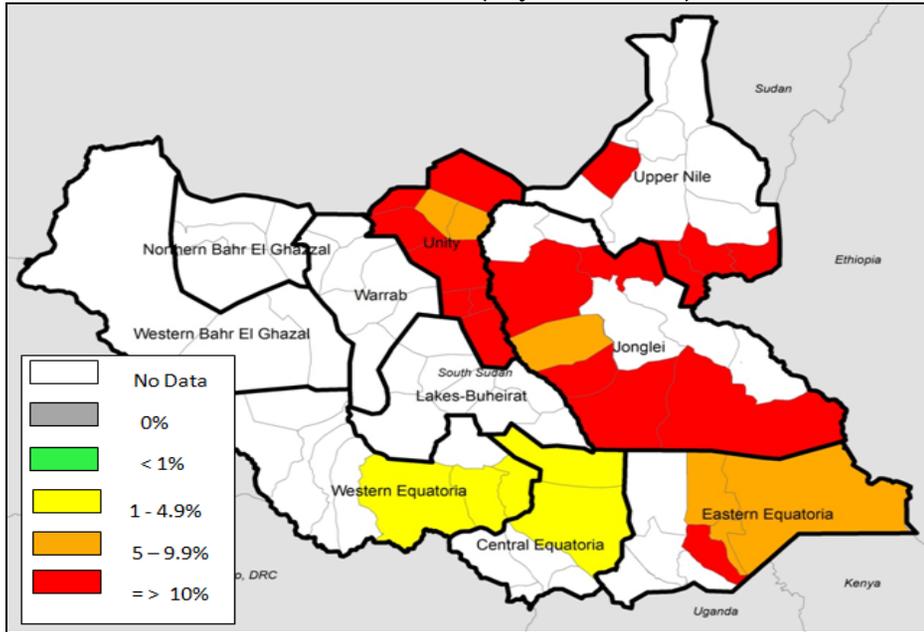
Facial Cleanliness (F)

- Conduct health education in 63 villages, 20 with Carter Center support

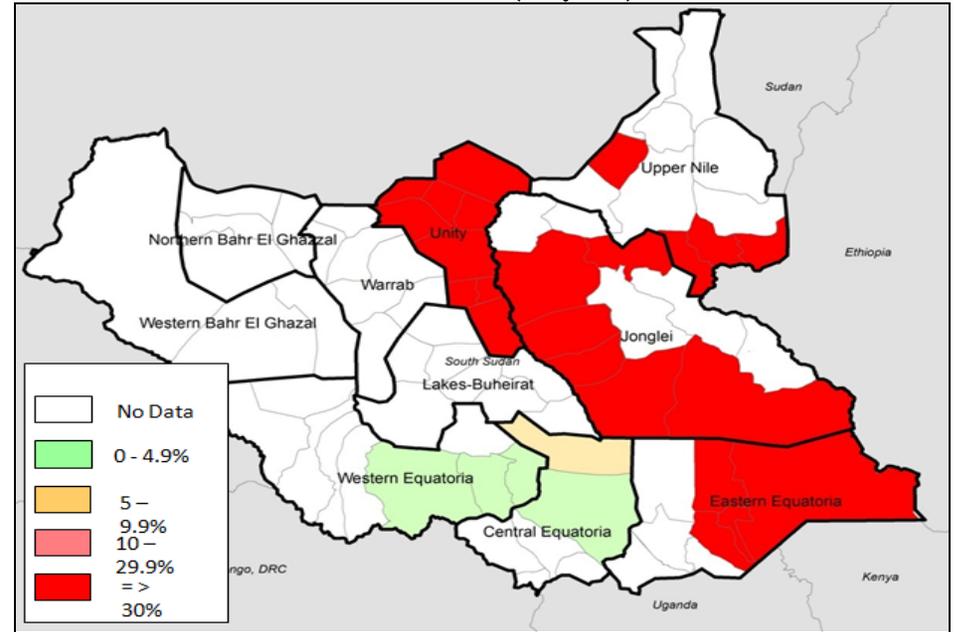
Environmental Improvement (E)

- Construct >10 latrines, 10 with Carter Center support

South Sudan TT Prevalence in Adults (15 years or older)



South Sudan TF Prevalence in Children (1-9 years)



South Sudan Reported coverage of MDA in 2012

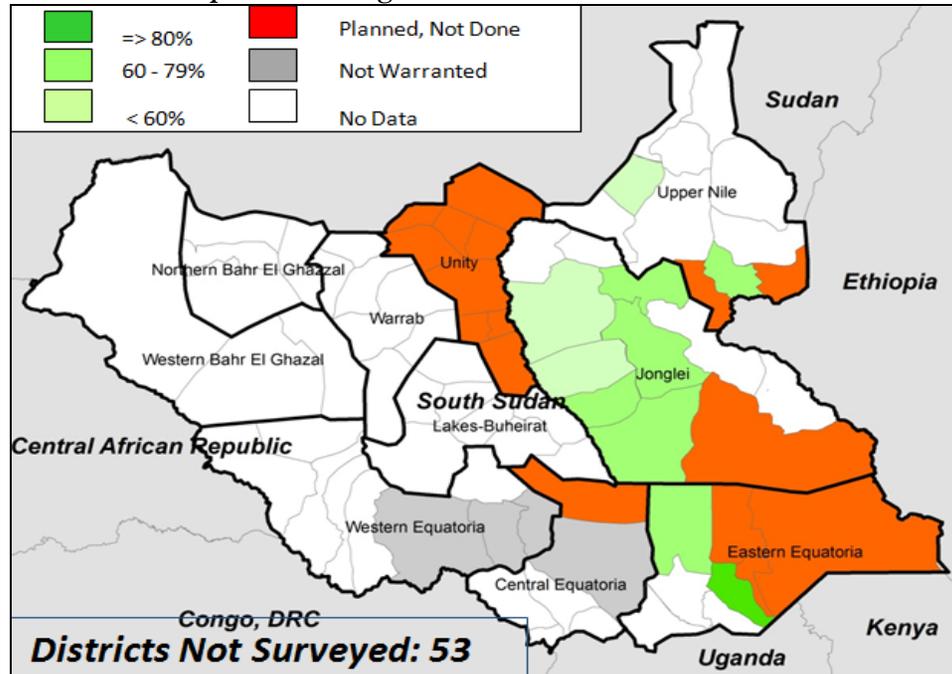


Table 2. Cumulative achievement against ultimate intervention goals (UIGs) in South Sudan: National and TCC-supported programs

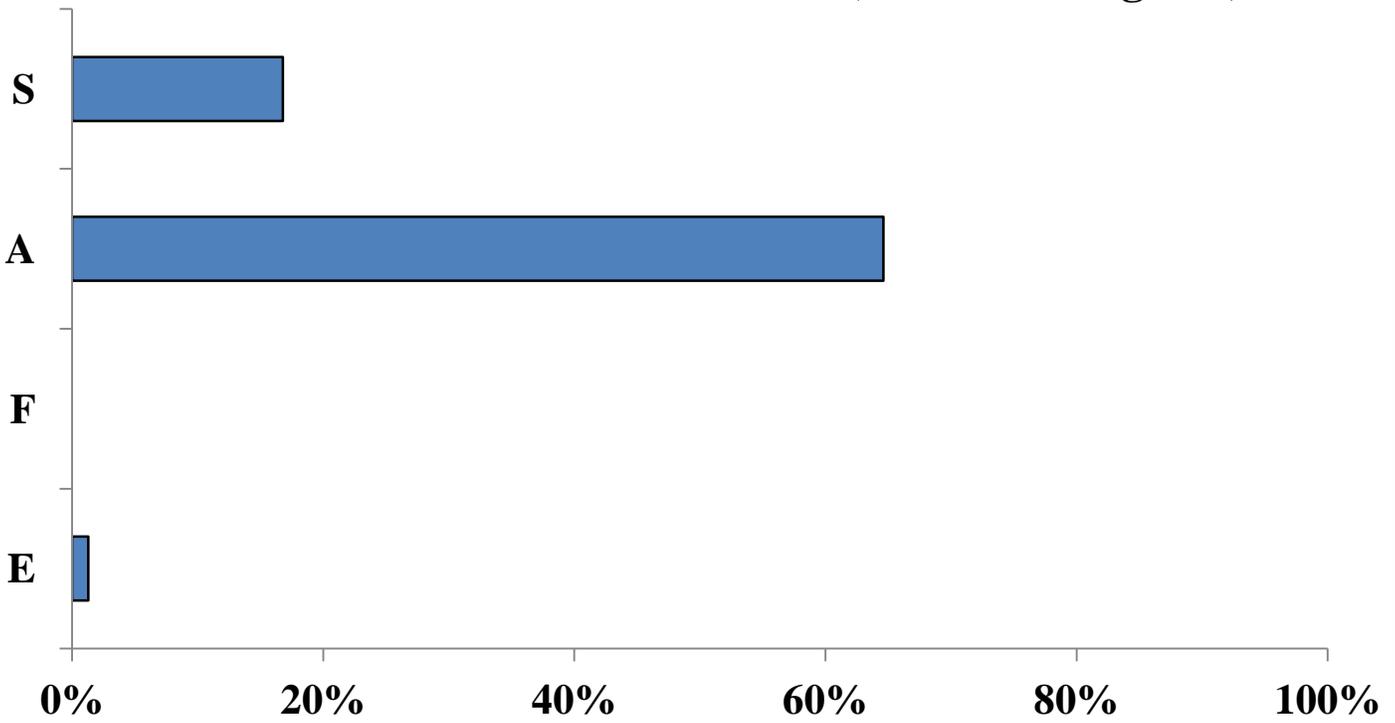
Intervention	National Achievements	UIG	Percentage of UIG Achieved by National Program
Surgery	23,987	142,881	17%
Antibiotic Distribution (for 2012)	323,708	501,000	65%
Facial Cleanliness (Villages)	N/R ¹	N/R	N/R
Environmental Improvement (Latrines)	3,202	248,455	1%

Intervention	TCC-Supported Achievements	UIG	Percentage of UIG Achieved with TCC Support
Surgery	11,217	130,111	9%
Antibiotic Distribution (for 2012)	239,111	363,580	66%
Facial Cleanliness (Villages)	150	114	132%
Environmental Change (Latrines)	136	23,865	1%

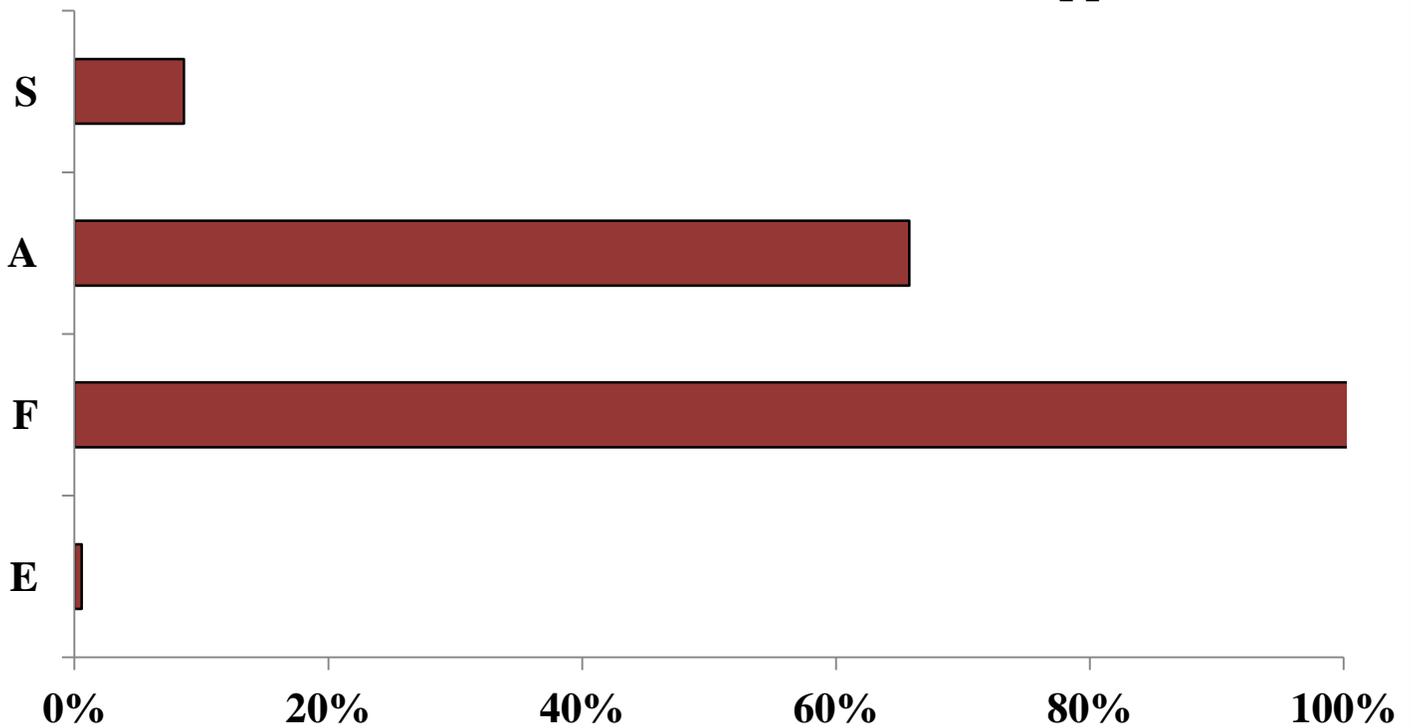
*See appendix III for UIG definitions

¹ N/R: Not reported by the program

2012 Cumulative Achievement against Ultimate Intervention Goals in South Sudan (National Program)



2012 Cumulative Achievement against Ultimate Intervention Goals in South Sudan (TCC supported)



*See appendix III for UIG definitions

SAFE in Niger

Presented by Dr. Kadri Boubacar, Deputy Coordinator, National Blindness Prevention Program

Background

The National Prevention of Blindness Program (PNLCC) was established in 1987 following national surveys showing a prevalence of blindness of 2.2%, with one-quarter due to trachoma. Baseline surveys conducted in 1997-1999 found that 44% of children ages one to nine had active trachoma (TF and/or TI) and 1.7% of women over 15 years of age had trichiasis. These surveys assisted in the prioritization of trachoma control activities in Diffa, Maradi, and Zinder based on their high prevalence of active trachoma and the full SAFE strategy was implemented throughout Zinder in 2002.

In 1999, the PNLCC formed the National Trachoma Task Force and assigned to undertake writing a national strategic plan and supporting the elimination of blinding trachoma in Niger. The task force included members from the Ministries of Health, Water, Education and Social Development; the World Health Organization (WHO); The Carter Center; local Lions Clubs; Helen Keller International; CBM; the Niger Association for the Blind; and the African Muslim Agency.

Increased donor and partner support allowed the expansion of activities to implement the full SAFE strategy nationwide in 2008. The Carter Center, Helen Keller International and other partners currently support the implementation of the full SAFE strategy, with the financial support of the Conrad N. Hilton Foundation, the Lions Clubs International Foundation, the John P. Hussman Foundation and other donors.

Timeline of Events

- 1987: National Prevention of Blindness Program started
- 1997-1999: Baseline trachoma prevalence surveys conducted
- 2004: Program adopted five-year strategic plan (2005-2009)
- 2005: Impact surveys in two districts of Zinder region
- 2006: Impact surveys in four districts of Zinder region
- 2007: Neglected Tropical Disease Program launched
- 2008: The Carter Center and Helen Keller International expanded support to implement the full SAFE strategy
- 2009: ITI closed its Niamey office
- 2015: Target date for the elimination of blinding trachoma in Niger

Table 1. Program achievements in 2012

Indicator	National Program Targets	National Program Output	Carter Center Targets	Carter Center Output
Persons operated for TT	10,000	11,021	7,000	8,744
Trichiasis surgeons trained	6	N/R ¹	6	25
Doses of azithromycin distributed	6,815,440	5,069,468	2,685,647	0
Doses of tetracycline distributed	150,157	N/R	54,809	0
Villages reached with health education	634	634	634	634
Household latrines built	15,000	15,000	15,000	10,373

Surgery (S)

Out of a total of 36 mapped districts, 17 have a TT prevalence greater than 0.1%. The surgical backlog was estimated to be 69,242 as of the last surveys; an estimated 38,613 cases remaining to operate in order to reach the elimination target of one trichiasis case per 1,000 population. At the current rate, the program is set to reach the UIG by 2020. The majority of the remaining trichiasis cases are found in 12 districts with more than 1,000 remaining surgeries each. The Niger national program increased their surgical output by 36.9% between 2011 and 2012, largely the result of implementing recommendations made during a 2011 Quality Improvement Study for Trichiasis Surgery, designed to assess the entire surgical system and identify areas to improve.

Antibiotic Therapy (A)

The national program distributed 5,069,468 doses of azithromycin in districts with TF prevalence, among children ages one to nine years, of 10% or more, with a national coverage rate of 75.2%. Six of the districts receiving MDA had an estimated coverage rate of greater than or equal to 80%; eight had coverage between 60 and 80%; and two had coverage less than 60%.

One district with TF prevalence between 5-9% did not receive MDA. Future distributions are dependent on sub-district survey results scheduled for 2013.

Facial Cleanliness & Environmental Improvement (F & E)

The national program promotes SanPlat improved latrines, with a cement slab. The Carter Center supported 69% of the 15,000 latrines constructed in 2012. The UIG for latrine construction in Niger is 482,571, of which 117,637 have been completed. The program is working to reduce the prevalence of TF among children one to nine years old through stronger collaboration with the Ministries of Water and Environment, in addition to water and sanitation NGOs.

¹ N/R: Not reported by the program

Targets for 2013

Surgery (S)

- Operate 15,000 trichiasis patients, 11,000 with Carter Center support
- Train 20 trichiasis surgeons, all with Carter Center support

Antibiotic Therapy (A)

- Distribute doses of azithromycin 8,319,387 doses of azithromycin
- Distribute doses of tetracycline 170,000 doses of tetracycline, all with Carter Center support

Facial Cleanliness (F)

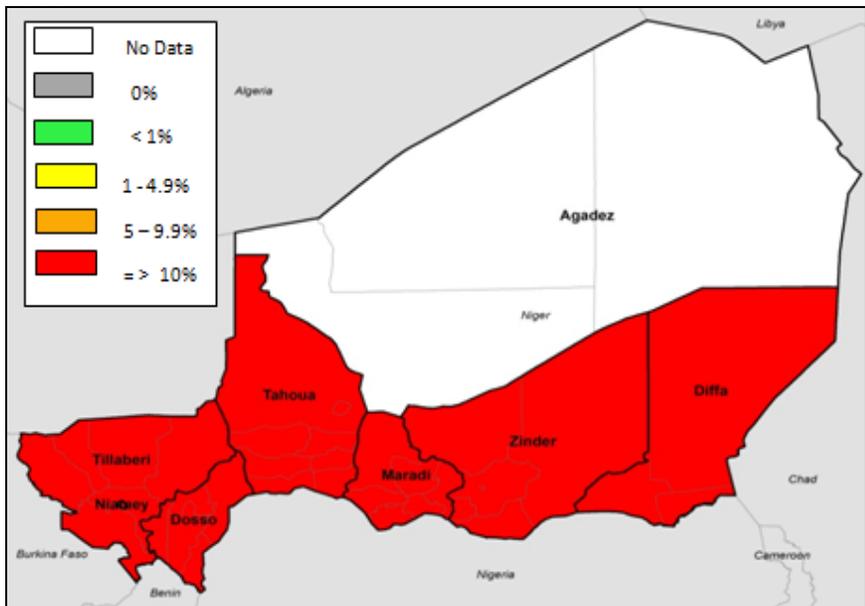
- Conduct health education in 634 villages, all with Carter Center support

Environmental Improvement (E)

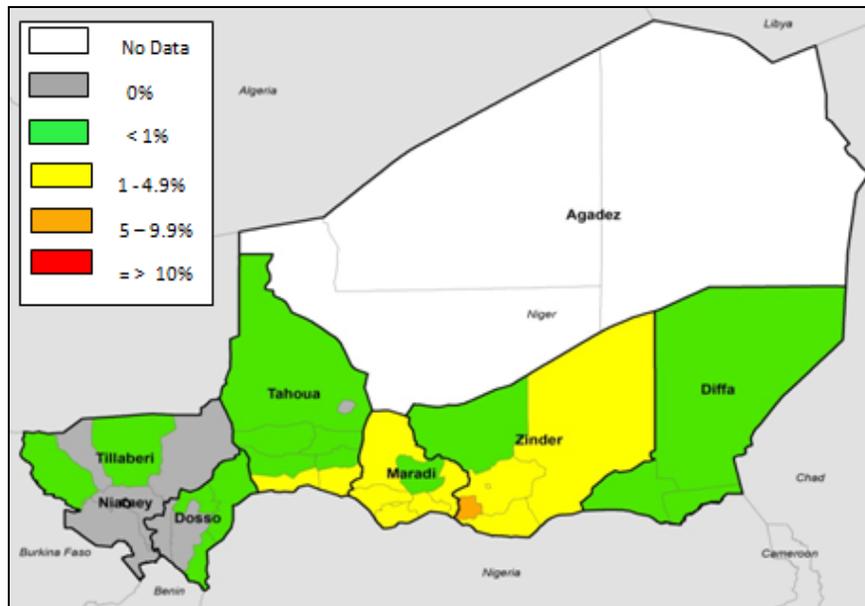
- Construct 15,000 latrines, all with Carter Center support

Niger TT Prevalence (15 years and older)

1999

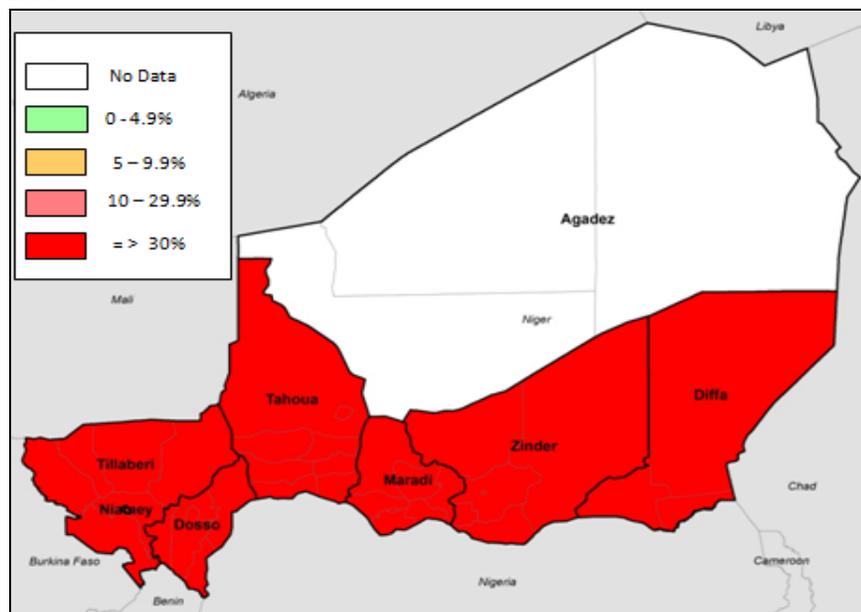


2012

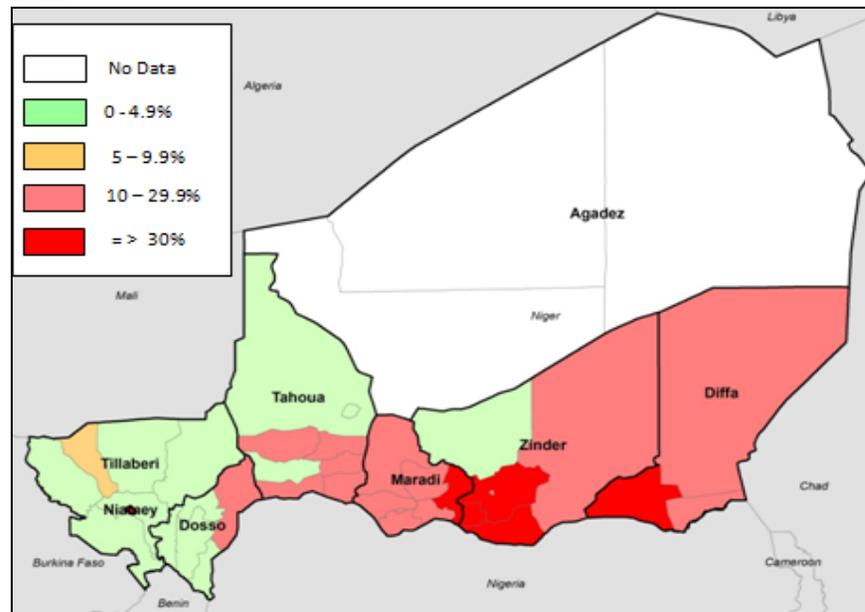


Niger TF Prevalence (1-9 years of age)

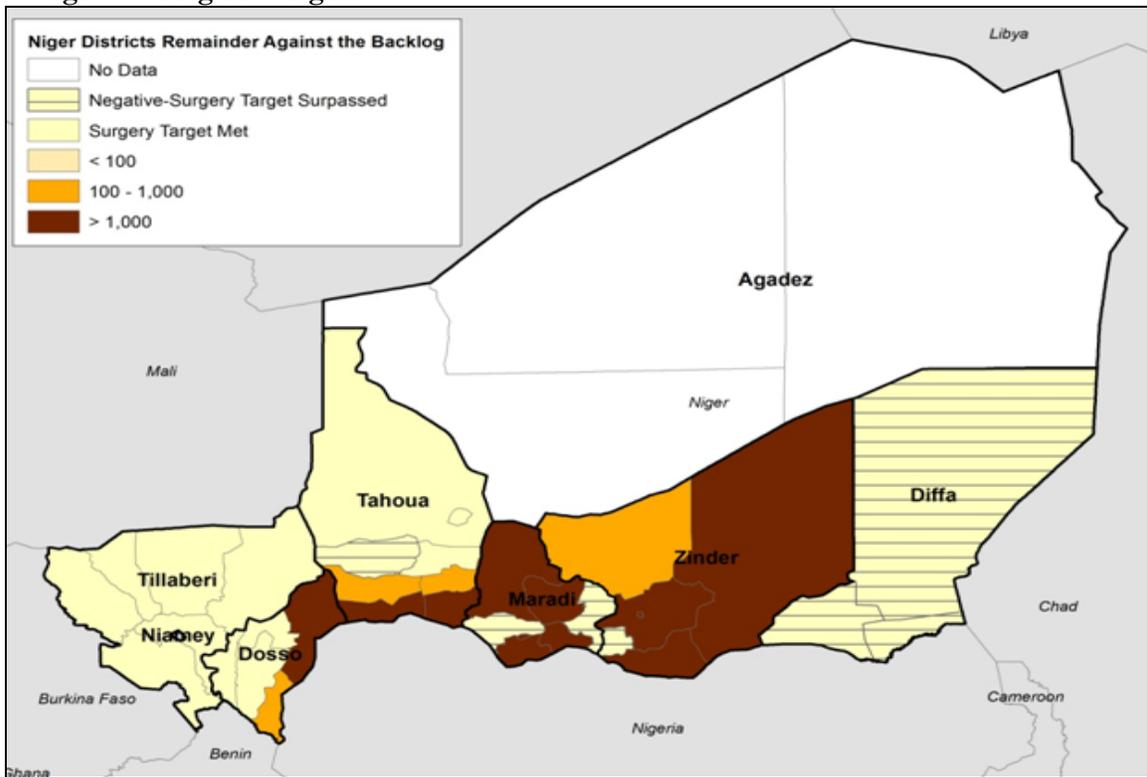
1999



2012



Niger TT Surgical Targets



Niger Reported Coverage with MDA 2012

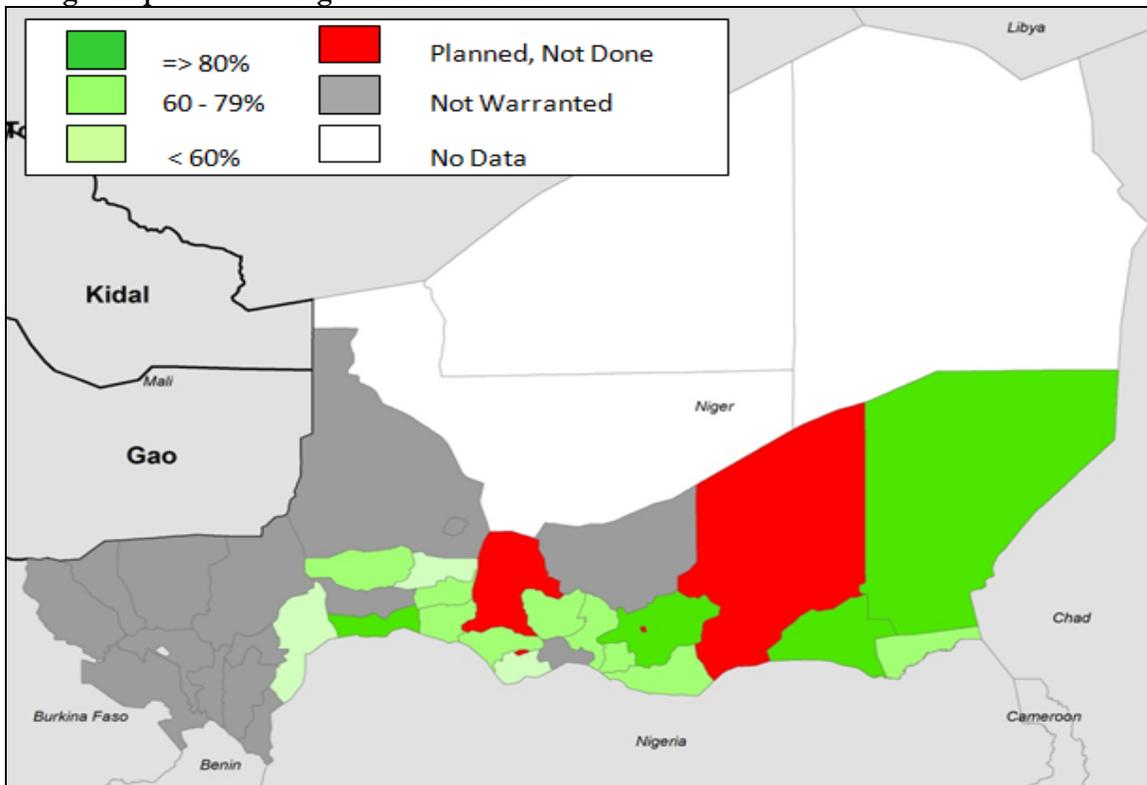


Table 2. Cumulative achievement against ultimate intervention goals (UIGs) in Niger: National and TCC-supported programs

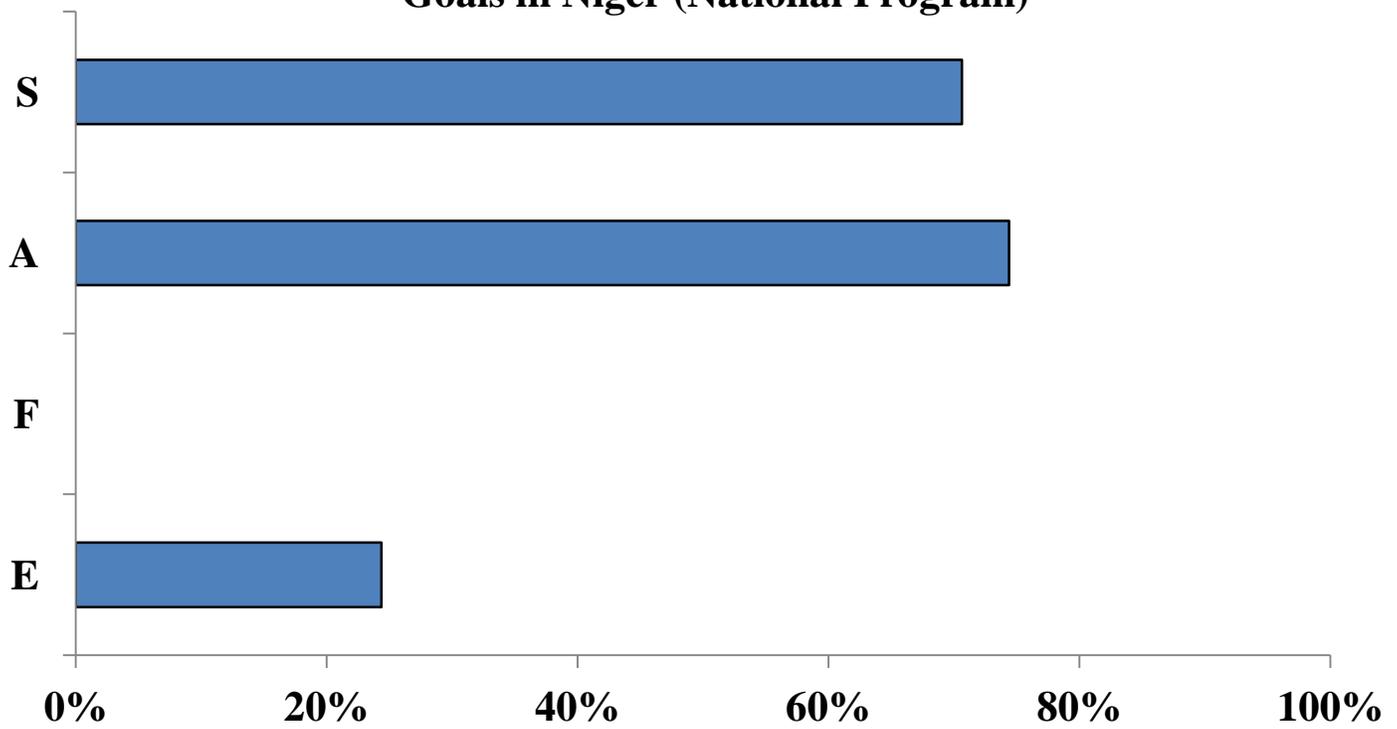
Intervention	National Achievements	UIG	Percentage of UIG Achieved by National Program
Surgery	70,567	99,896	71%
Antibiotic Distribution (for 2012)	5,069,468	6,815,440	74%
Facial Cleanliness (Villages)	N/R ¹	N/R	N/R
Environmental Improvement (Latrines)	117,637	482,571	24%

Intervention	TCC-Supported Achievements	UIG	Percentage of UIG Achieved with TCC Support
Surgery	23,801	72,201	33%
Antibiotic Distribution (for 2012)	N/A ²	N/A	N/A
Facial Cleanliness (Villages)	634	11,370	6%
Environmental Improvement (Latrines)	65,976	269,904	24%

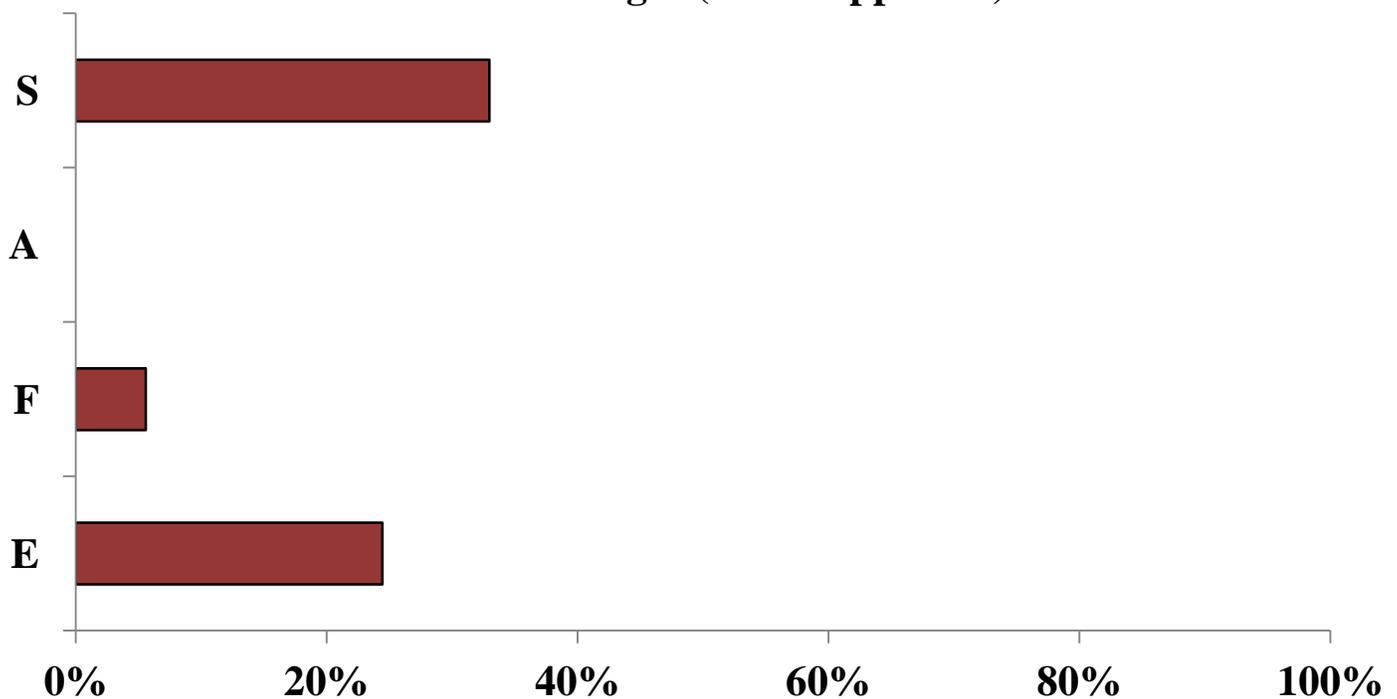
¹ N/R: Not reported by the program

² N/A: Not applicable, the program does not support specified intervention

2012 Cumulative Achievement against Ultimate Intervention Goals in Niger (National Program)



2012 Cumulative Achievement against Ultimate Intervention Goals in Niger (TCC supported)



*See appendix III for UIG definitions

SAFE in Nigeria

Presented by Dr. Benjamin Nwobi, National Eye Health Programme

Background

The National Eye Health Programme plans to eliminate blinding trachoma by 2020. Out of the 774 districts in Nigeria, only 152 have been mapped for trachoma. The Global Trachoma Mapping Project (GTMP) and USAID/RTI/ENVISION plan to conduct surveys to verify trachoma prevalence in areas that were previously only assumed to be endemic (11 northern states) or assumed to not be endemic in the south. There are 126 districts in Nigeria with confirmed trichiasis prevalence greater than 0.1%. The estimated backlog is 525,644 cases, with 487,486 patients needing surgery in order to reach the ultimate intervention goal (UIG).

The program plans to write a trachoma action plan in 2013 and revise Vision 2020. It plans to scale up interventions (including MDA) to eligible communities following GTMP results. Challenges faced by the program include inadequate government budgeting and release of funds, prolonged strikes by health workers in Plateau and Nasarawa states, security challenges and delayed acceptance to using azithromycin for MDA in Kano State. The program plans to strengthen inter-sectoral linkages for key sectors of the F and E components of the SAFE strategy and strengthen coordinated implementation with other NTDs (lymphatic filariasis, schistosomiasis, soil-transmitted helminths, and leprosy) and deploy other initiatives to enhance the up-take of services.

Timeline of Events

- 1991: National Program for Prevention of Blindness launched
- 2001: National Trachoma Control Program began and Trachoma Task Force formed
- 2005: National blindness survey conducted
- 2007-2008: Baseline prevalence surveys in Plateau and Nasarawa states
- 2007: Nigeria approved to receive the Zithromax® donation from Pfizer Inc
- 2010: Mass drug administration for trachoma control with Pfizer Inc-donated Zithromax® was officially launched
- 2011: Mapping of Zamfara and Taraba States
- 2020: Target date for the elimination of blinding trachoma in Nigeria

Table 1. Program achievements in 2012

Indicator	National Program Targets	National Program Output	Carter Center Targets	Carter Center Output
Persons operated for TT	60,000	13,556	850	205
Trichiasis surgeons trained	64	N/R ¹	0	0
Doses of azithromycin distributed	6,911,908	0 ²	1,092,859	0
Doses of tetracycline distributed	138,238	0	20,732	0
Villages reached with health education	>1,425	855	855	855
Household latrines built	N/A ³	N/A	N/A	N/A

Surgery (S)

Sightsavers, CBM and The Carter Center are the primary surgical partners of the Nigeria trachoma control program. The program completed 13,556 surgeries in 2012, a slight decrease from 2011 (13,601). Of the mapped districts, 86 require more than 1,000 surgeries conducted in order to reach the UIG; 32 require 100-1,000; eight require 1-100; and 26 have met the UIG. In 2012, 5,917 surgeries out of the total 13,556 surgeries were conducted in districts with 1,001+ remaining surgeries.

Antibiotic Therapy (A)

Seventy-one districts are known to have a TF prevalence greater than or equal to 10% among children ages one to nine years, and, therefore, are eligible for mass drug administration. Forty-two of these have a NGO partner which have planned to distribute MDA. Thirty-three have TF prevalence between 5-9% and warrant targeted A, F, and E. No antibiotics were distributed during calendar year 2012 due to challenges faced clearing the Zithromax® shipment through customs. These drugs were distributed during the first quarter of 2013.

Facial Cleanliness (F)

The Carter Center supports a trachoma instructional program in six private schools in Langtang North, Shendam and Wase districts of Plateau state. The project is currently field-testing four documents: a trachoma technical guide, a trachoma teachers' guide, and trachoma workbooks for upper and lower primary schools. The project emphasizes activities that link schools and homes/communities to increase the impact. The project will be scaled-up to all government and private schools in three local government areas (LGAs). The National Program plans to include trachoma into the school health curriculum and explore the benefits of Inclusive Education Programme, a Sightsavers initiative.

¹ N/R: Not reported by the program

² No drug available for distribution—antibiotic distribution to occur in 2013

³ N/A: Not applicable, the program does not support specified intervention

Environmental Improvement (E)

The program did not report the number of latrines constructed, but plans to strengthen collaboration among sectoral Ministries and stakeholders. Communities are encouraged to build wells, rehabilitate water points, and harvest rainwater through collaboration with NGO partners and the Ministry of Water Resources.

Targets for 2013

Surgery (S)

- Operate 60,000 trichiasis patients, 500 with Carter Center support
- Train 37 surgeons, two with Carter Center support

Antibiotic Therapy (A)

- Distribute 7,138,500 doses of azithromycin, 1,120,182 with Carter Center support
- Distribute 145,684 doses of tetracycline, 22,404 with Carter Center support

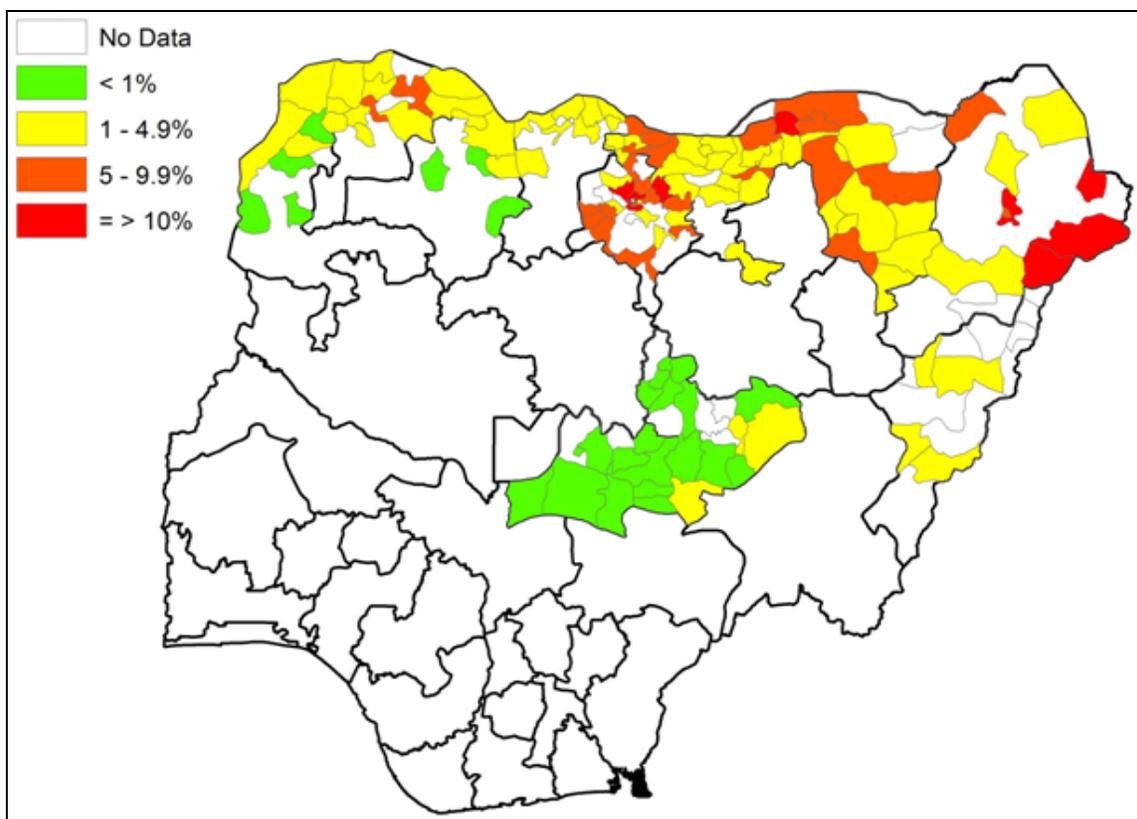
Facial Cleanliness (F)

- Conduct health education in 855 villages, all with Carter Center support

Environmental Improvement (E)

- Promote latrine construction in endemic communities

Nigeria TT Prevalence in Adults (15 years or older)



Nigeria TF Prevalence in Children (1-9 years)

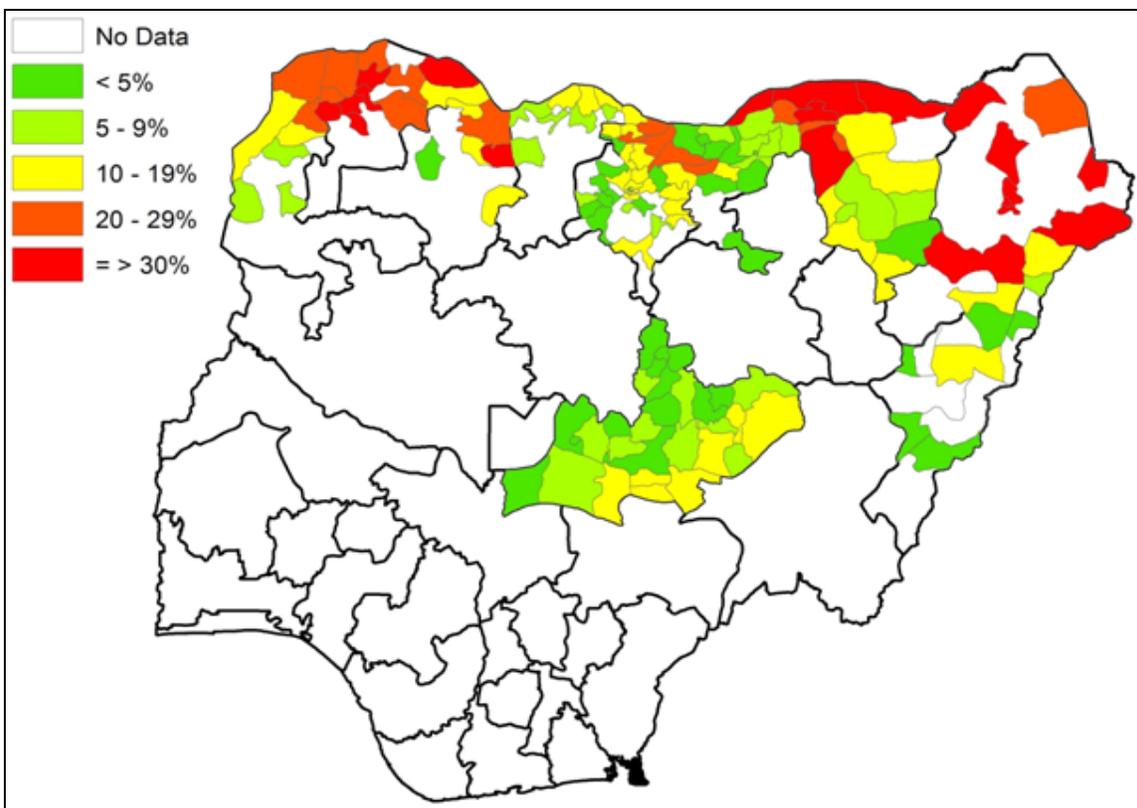
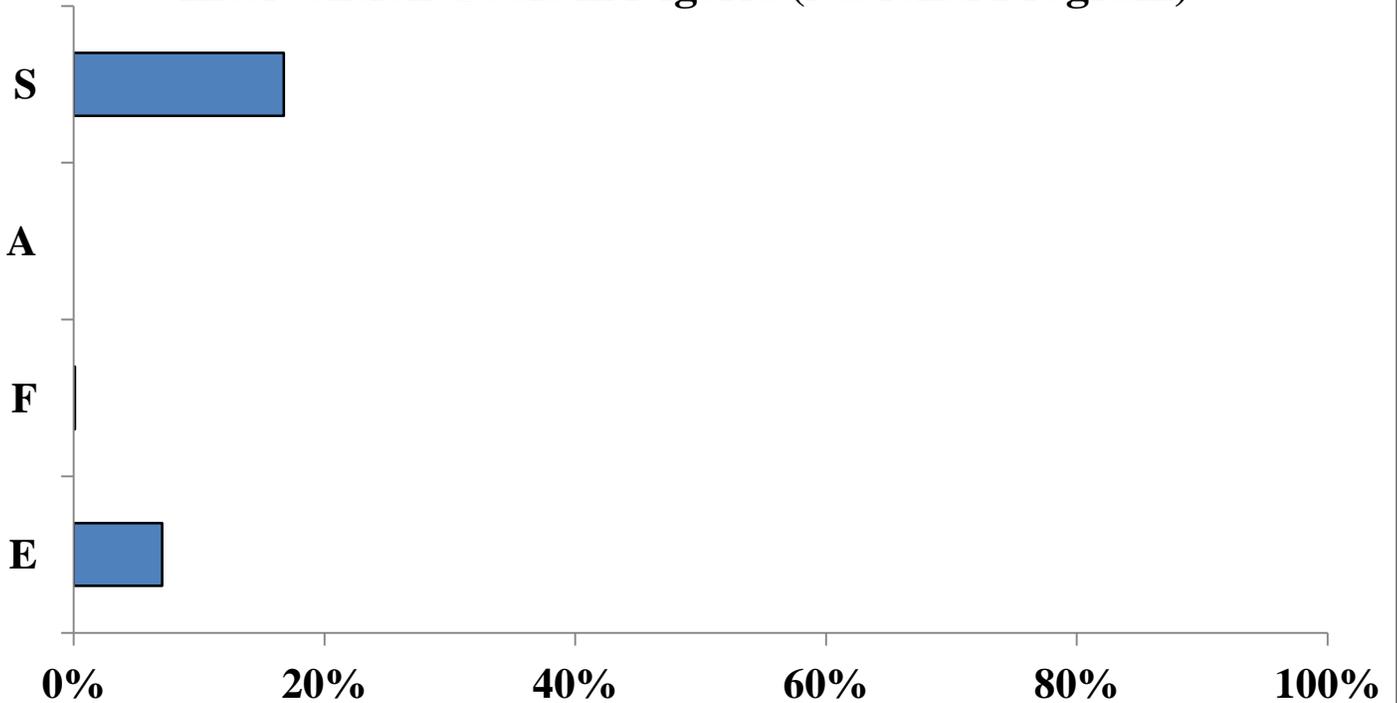


Table 2. Cumulative achievement against ultimate intervention goals (UIGs) in Nigeria: National and TCC-supported programs

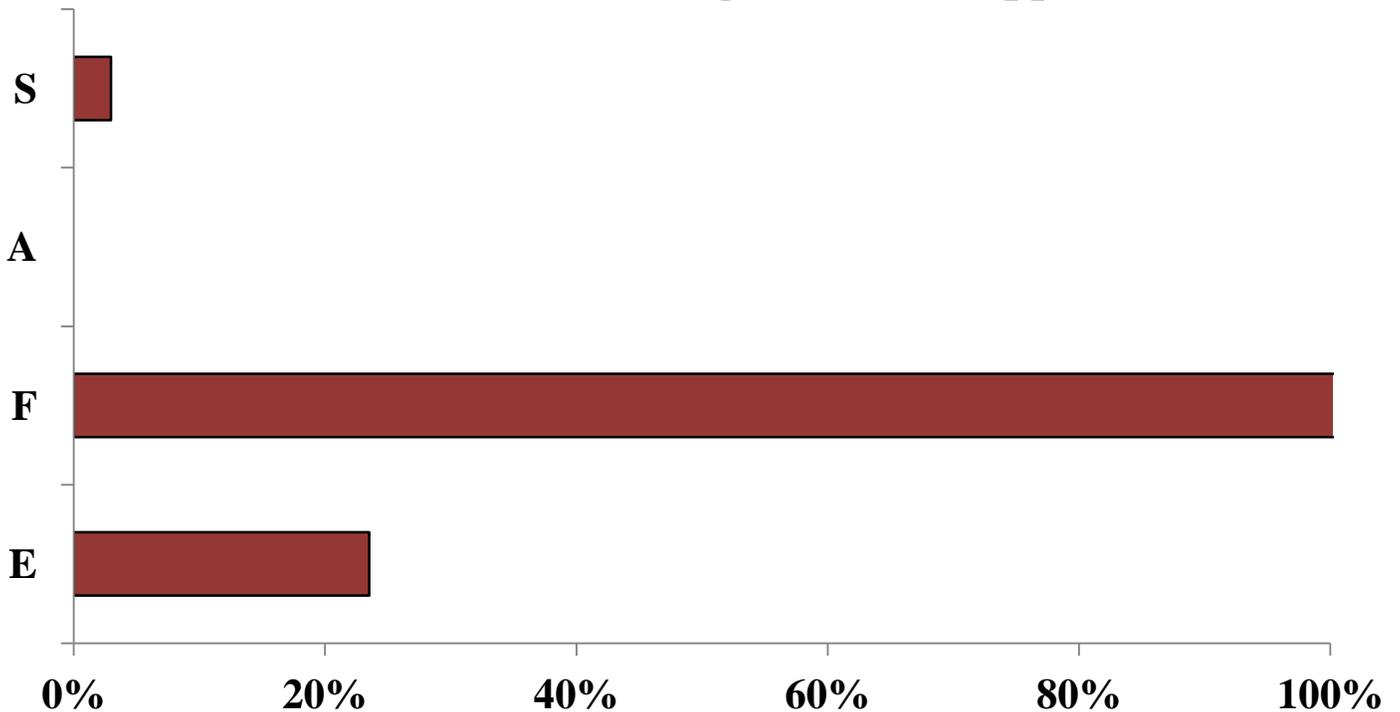
Intervention	National Achievements	UIG	Percentage of UIG Achieved by National Program
Surgery	101,160	603,705	17%
Antibiotic Distribution (for 2012)	0	6,911,908	0%
Facial Cleanliness (Villages)	1,425	1,404,378	0%
Environmental Improvement (Latrines)	45,395	643,231	7%

Intervention	TCC-Supported Achievements	UIG	Percentage of UIG Achieved with TCC Support
Surgery	205	6,906	3%
Antibiotic Distribution (for 2012)	0	1,092,859	0%
Facial Cleanliness (Villages)	860	855	101%
Environmental Change (Latrines)	12,081	51,376	24%

2012 Cumulative Achievement against Ultimate Intervention Goals in Nigeria (National Program)



2012 Cumulative Achievement against Ultimate Intervention Goals in Nigeria (TCC supported)



*See appendix III for UIG definitions

SAFE in Mali

Presented by Dr. Sanoussi Bamani, National Coordinator, National Blindness Prevention Program

Background

From 1960 to 1978, a large national effort was made to address trachoma through the mass distribution of tetracycline via efforts of the Organisation de Coordination Communautaire de Lutte des Grandes Endémies (OCCGE). *Projet Yelen* (Project Sight) operated between 1978 and 1986 with the goal of providing ophthalmological care throughout the country via training and placement of ophthalmologists.

In 1994, The National Blindness Prevention Program (PNLC) was created. Surveys conducted in 1996-1997 by a consortium of partners, including The Carter Center, identified trachoma as a public health problem with TF prevalence of 35% among children less than ten years and a TT prevalence of 2.5% among women 15 years and older. The Carter Center also supported a knowledge, attitudes, and practices (KAP) survey and the development of health education materials in 1998. Following the results of these surveys, a national trachoma control program was established in 1999.

The full SAFE strategy was implemented in all endemic districts by 2008 thanks to a partnership between The Carter Center and Helen Keller International, with the financial support of the Conrad N. Hilton Foundation. To date, the PNLC is implementing the full SAFE strategy in 13 of the 22 endemic districts, 10 of which have a prevalence of greater than 10% TF in children ages one to nine years. Of Mali's 53 total districts, 32 have a TT prevalence >0.1% (the TT elimination target) and 21 districts have reached their TT elimination target.

In March 2012, the military removed President Amadou Toumani Touré from office in a coup d'état. Touaregs in the north then launched an offensive to establish an autonomous homeland and formed an alliance with various Islamist groups. The Islamist groups took control of the northern regions of Gao, Timbuktu, and Kidal. Despite the insecurity in the country and instability within the government, the national program was able to continue carrying out many activities as planned.

Timeline of Events

- 1994: National Blindness Prevention Program launched
- 1996-1997: National baseline prevalence survey
- 1999: Mali Trachoma Control Program launched
- 2000: Distribution of Pfizer Inc-donated Zithromax® begins
- 2006: Launching of USAID Neglected Tropical Disease Program
- 2008: The Carter Center and Helen Keller International expand support to implement full SAFE strategy
- 2012: Coup d'état and takeover of Gao, Timbuktu and Kidal regions by Islamist forces
- 2015: Target date for elimination of blinding trachoma in Mali

Table 1. Program Achievements in 2012

Indicator	National Program Targets	National Program Output	Carter Center Targets	Carter Center Output
Persons operated on for trichiasis	10,000	9,068	6,000	4,872
Doses of azithromycin distributed	876,899	698,083	0	698,083
Doses of tetracycline eye ointment distributed	17,538	14,247	15,000	14,247
Villages reached through health education	2,490	2,622	250	2,622
Household latrines constructed	10,000	6,001	7,000	6,001

Surgery (S)

In 2012, 9,068 surgeries were conducted (91% of the targeted 10,000). Surgeries were conducted by individual surgeons using motorcycles (“moto sorties”); surgeons traveling from Bamako by car and joined by surgeons from rural posts (“auto sorties”); and through static facility-based service.

Backlog estimates were recalculated in 2012; 29,874 persons are now estimated to need surgery in order to meet the elimination threshold of one case per 1,000 population. Out of a total of 53 districts, 21 have met this target, while 32 others still require additional intervention. The PNLC plans to focus upcoming surgical campaigns in the 14 districts that have more than 800 cases to operate to enable them to stay on track to reach their elimination goals by 2015; at the current rate, the program will achieve the UIG by 2020. In addition, the program plans to put in place a plan for active case detection where anecdotal evidence suggests there are still cases but where survey data shows very low prevalence.

Antibiotic Therapy (A)

Antibiotics in Mali are normally distributed by the Ministry of Health (MOH) with support from the USAID NTD initiative through Helen Keller International. However due to the coup d’état, the U.S. government did not recognize the new government and suspended all aid, including support for distribution. The Carter Center covered the cost of distribution in all three districts planned for distribution in 2012. A total of 698,083 doses of azithromycin and 14,247 doses of tetracycline eye ointment were distributed.

A total of 10 districts have TF prevalence of >10% among children ages one to nine years, indicating that they warrant district-wide MDA. Another 13 districts have a TF prevalence between 5-9 %, indicating that they warrant targeted MDA. However, of the districts warranting any antibiotic distribution, 10 are in the northern half of the country and are currently inaccessible. The PNLC is aware of its inability to eliminate blinding trachoma if these districts cannot receive intervention; the program will be developing plans for intervention in those areas as security permits.

Facial Cleanliness (F)

In 2012, 2,622 villages received ongoing health education. Activities included training members of women’s groups in traditional soap-making and health education sessions focusing on the importance of hygiene and

sanitation for trachoma control. In addition, the PNLC, with support from The Carter Center and Helen Keller International, promotes radio broadcasts disseminating information on the SAFE strategy and surgical campaigns.

Environmental Improvement (E)

The PNLC built 9,068 latrines in 2012 out of a targeted 10,000 and plans to construct 10,000 additional latrines in 2013. The program continues to work toward the UIG of 315,464 latrines constructed, having completed 111,249. Additional masons will be trained as needed in order to meet the demand, and masons will be given tools and some construction materials in order to carry out their work.

Targets for 2013

Surgery (S)

- Operate 10,000 trichiasis patients, 5,300 with Carter Center support
- Train 15 surgeons; two with Carter Center support

Antibiotic Therapy (A)

- Distribute 981,882 doses of azithromycin
- Distribute 19,637 doses of tetracycline eye ointment, all purchased with Carter Center support

Facial Cleanliness (F)

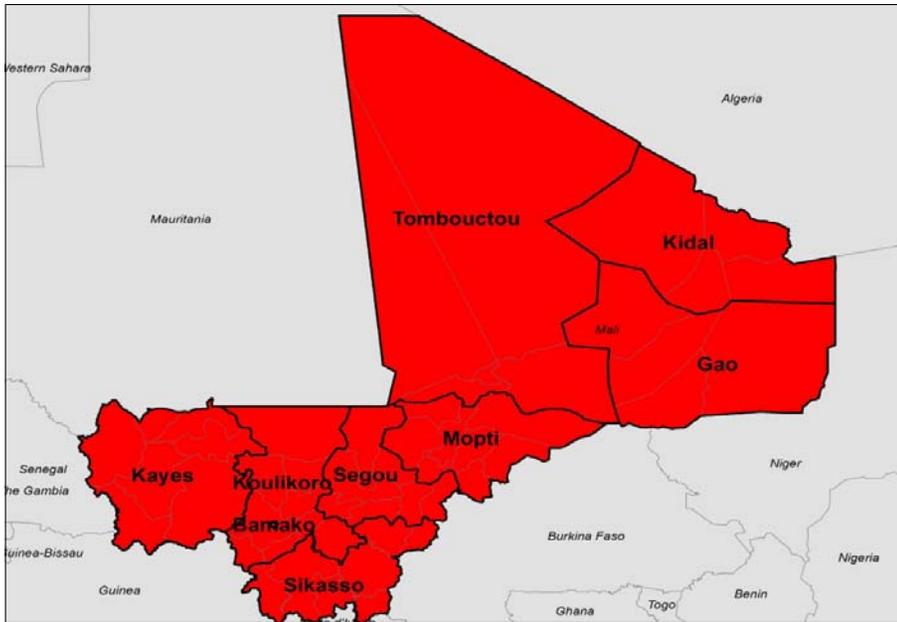
- Conduct health education in villages in all districts with TF prevalence $\geq 5\%$, 125 villages with Carter Center support

Environmental Improvement (E)

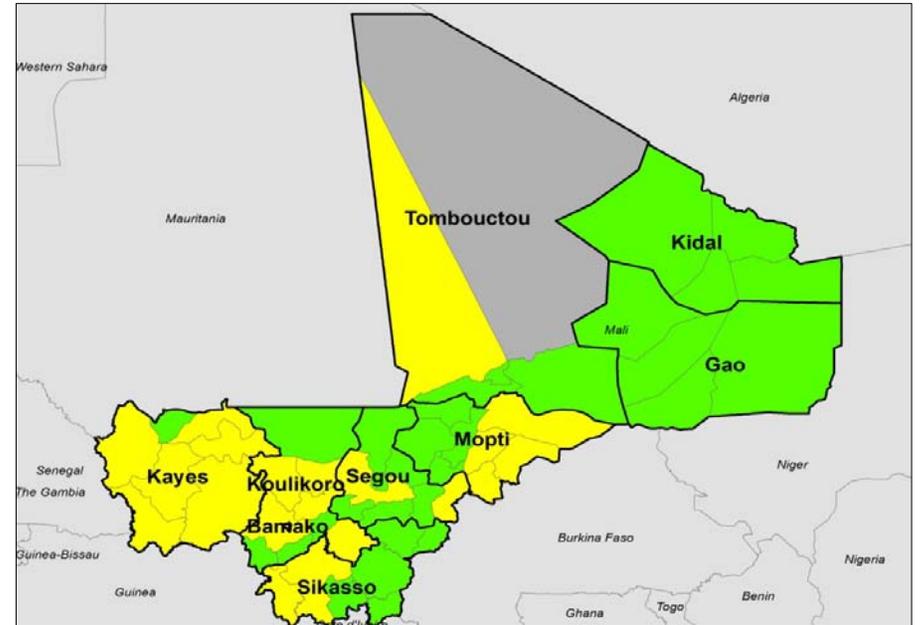
- Construct 10,000 household latrines, 5,500 with Carter Center support

Mali TT Prevalence (15 years and older)

1999

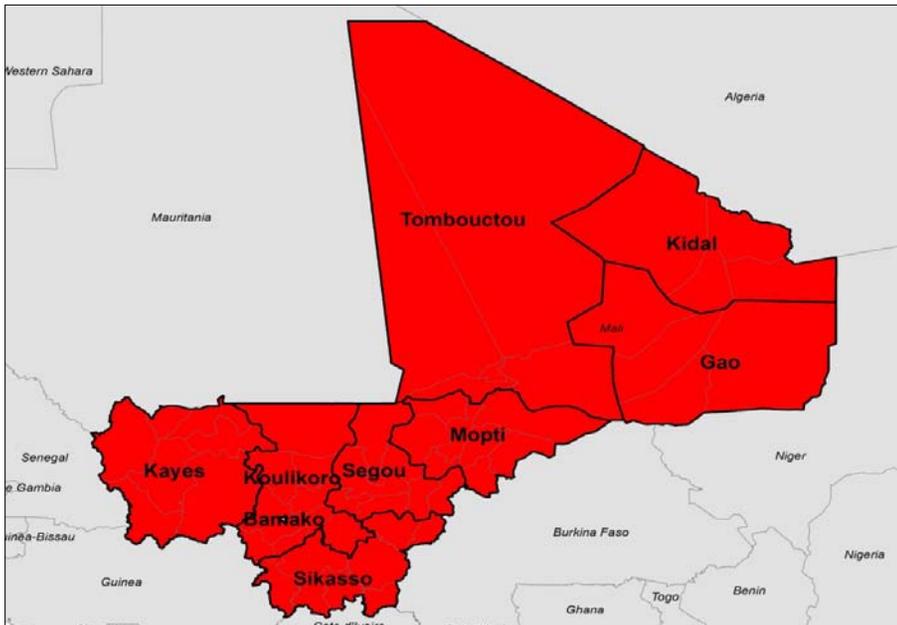


2012

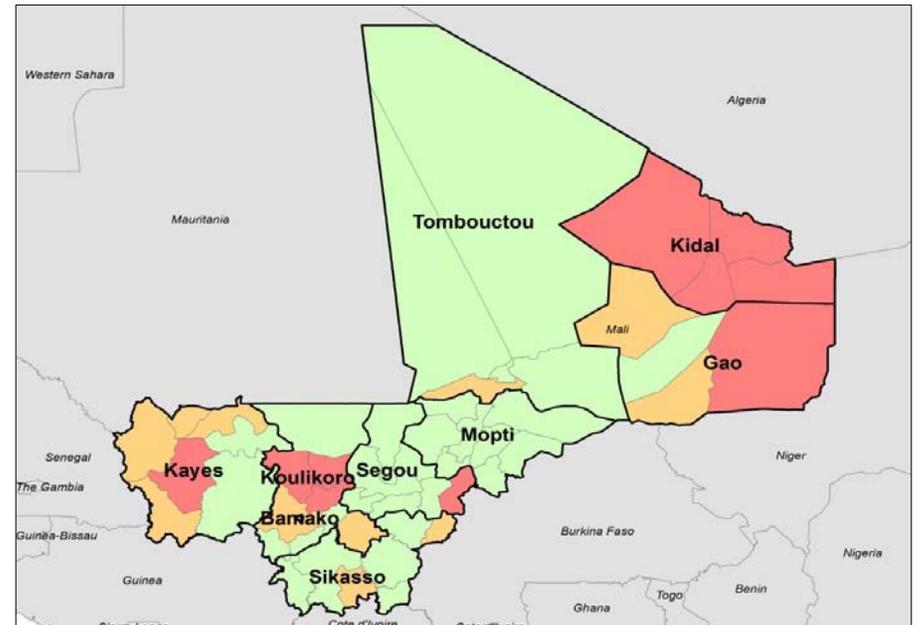


Mali TF Prevalence (1-9 years of age)

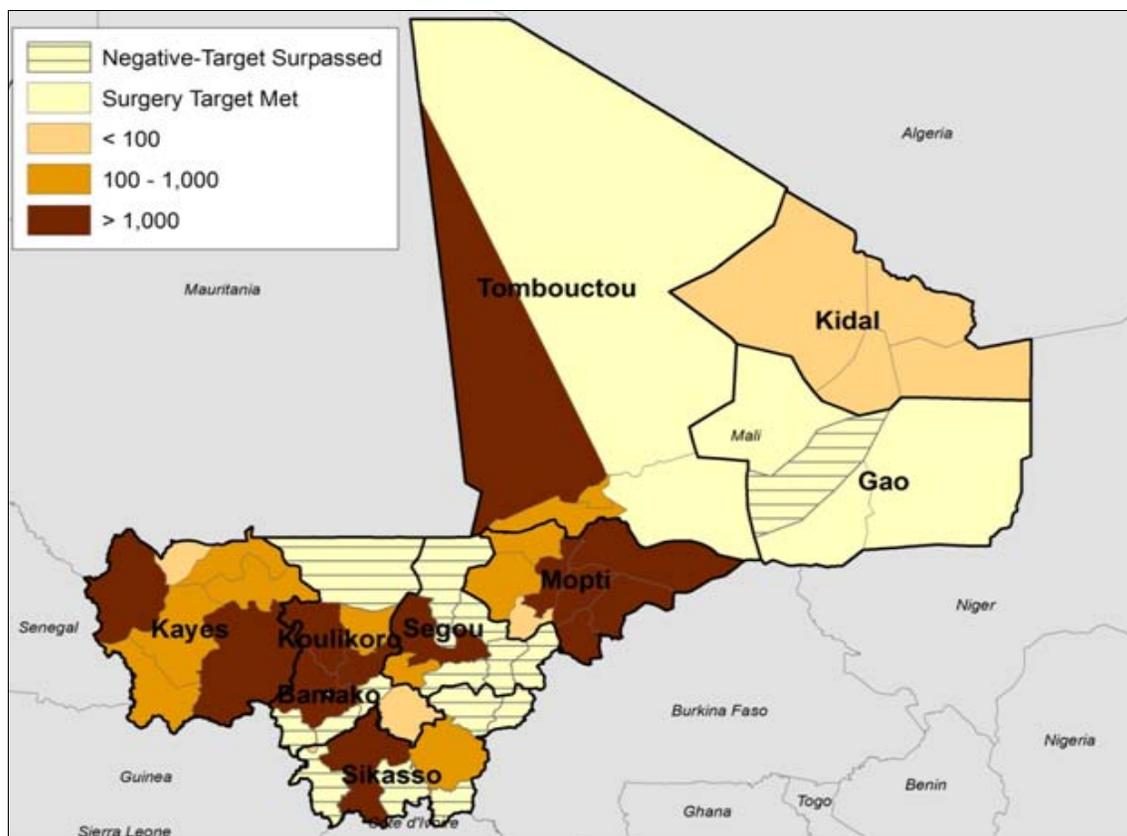
1999



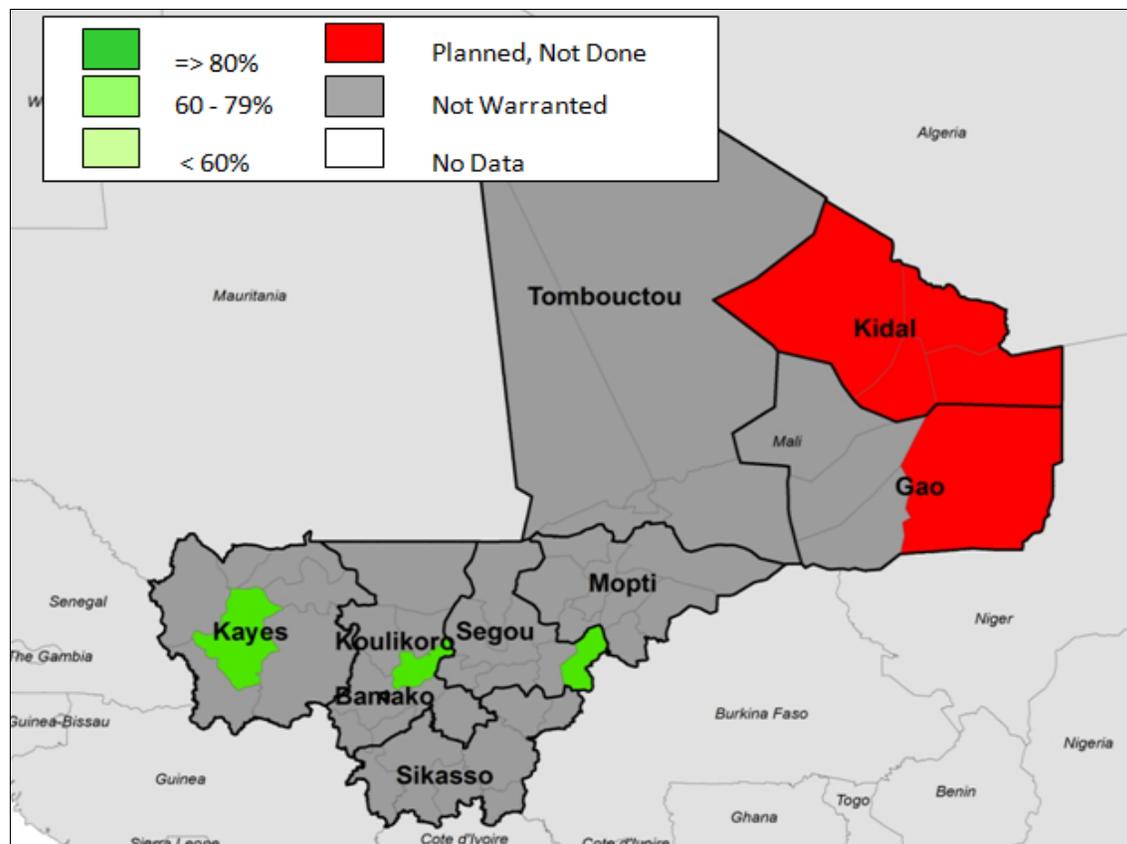
2012



Mali TT Surgical Targets



Mali Reported Coverage for MDA 2013



**Table 2. Cumulative achievement against ultimate intervention goals (UIGs) in Mali:
National and TCC-supported achievements**

Intervention	National Achievements	UIG	Percentage of UIG Achieved by National Program
Surgery	61,988	95,953	65%
Antibiotic Distribution (for 2012)	565,857	876,899	76%
Facial Cleanliness (Villages)	N/R ¹	N/R	N/R
Environmental Improvement (Latrines)	111,249	315,464	35%

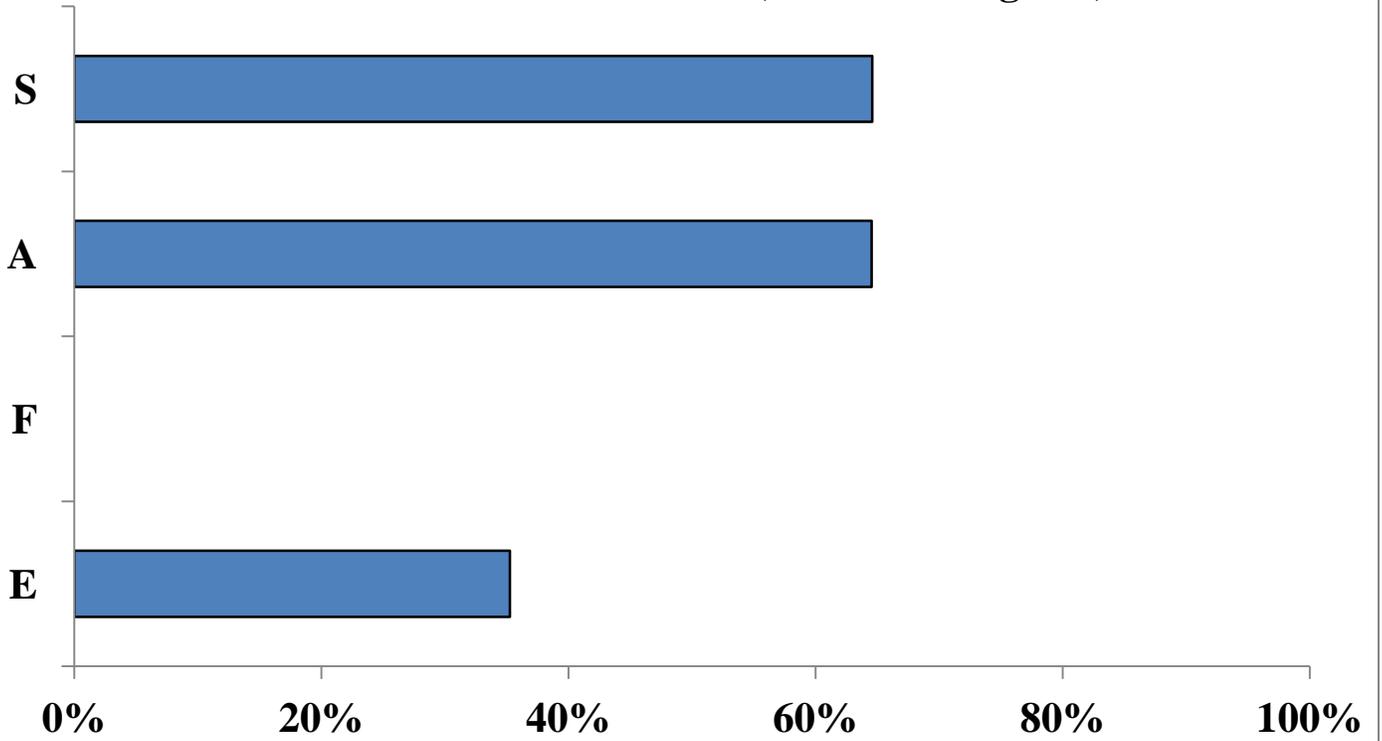
Intervention	TCC-Supported Achievements	UIG	Percentage of UIG Achieved with TCC Support
Surgery	17,988	51,953	35%
Antibiotic Distribution (for 2012)	700,329 ²	876,899	N/A ³
Facial Cleanliness (Villages)	2,490	5,374	46%
Environmental Improvement (Latrines)	83,239	170,924	49%

¹ N/R: Not reported by the program

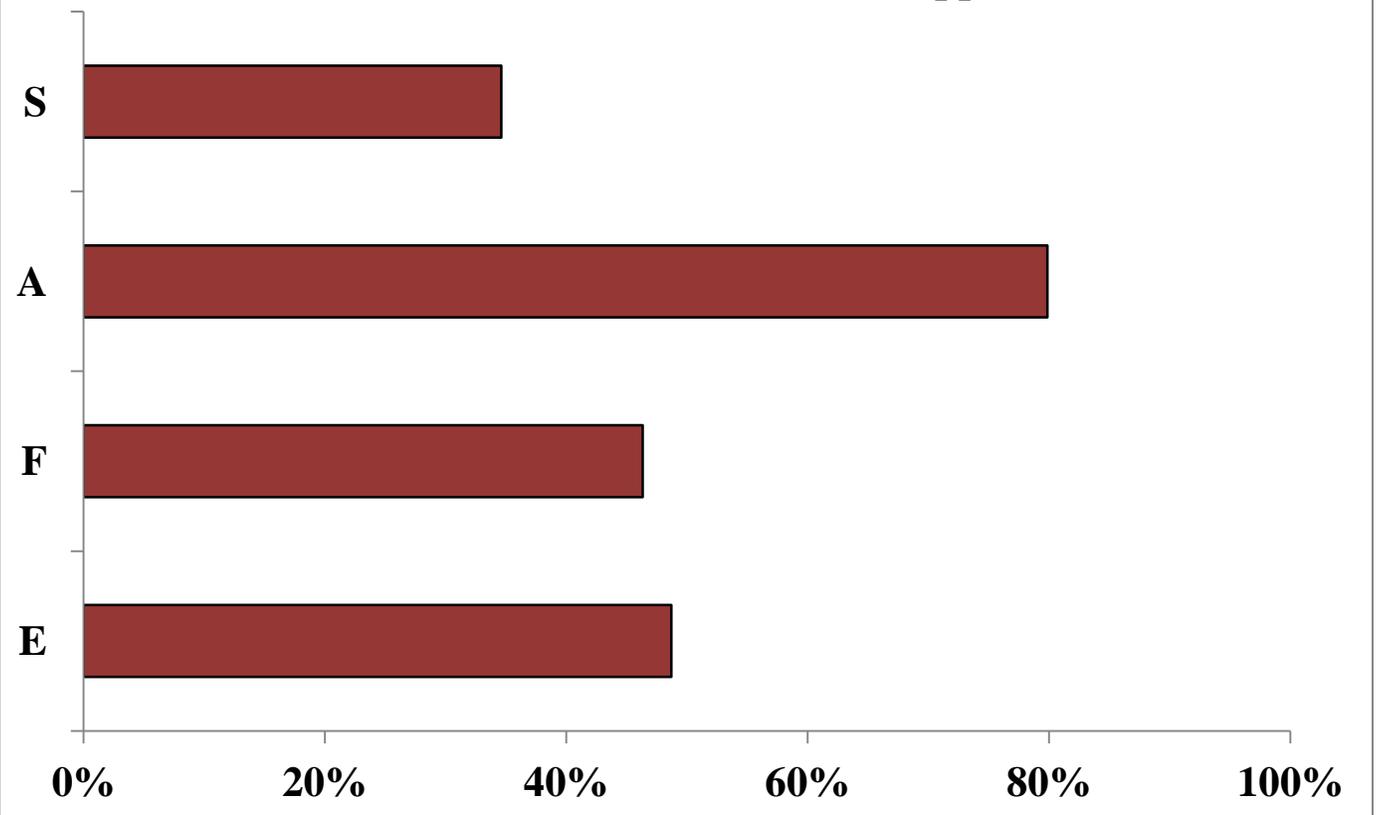
² Though TCC does not regularly support antibiotic distribution in Mali, azithromycin distribution was supported by TCC in 2012, due to the coup d'état

³ N/A: Not applicable, the program does not support specified intervention

2012 Cumulative Achievement against Ultimate Intervention Goals in Mali (National Program)



2012 Cumulative Achievement against Ultimate Intervention Goals in Mali (TCC supported)



*See appendix III for UIG definitions

SAFE in Chad

Presented by Dr. Djore Dezoûmbe, Chef du Programme National de Lutte contre la Cécité (PNLC) – PNLO

Chad currently has a population of 10,329,208, living in 22 regions. These include 61 districts in the country, excluding those within N'Djamena, the capital. The most recent surveys, which consisted of 19 districts in 2000 and 14 districts in 2004, revealed that all 33 districts surveyed were endemic for trachoma with TF prevalence ranging from 17.5% to 33.2% and with the TT prevalence between 1.3% and 6.2%. The National Program plans to conduct spot checks to validate the oldest survey results from 2000 during the summer of 2013. Nevertheless, 28 districts remain to be mapped.

Timeline of Blindness Prevention Initiatives

- 1970-1996: Partial prevalence surveys, trichiasis surgery, and use of tetracycline ointment during field mission with the French cooperation
- 1978-1979: Survey of 10 out of 14 prefectures (administrative unit in Chad) reveals high prevalence of eye diseases, including trachoma
- 1991-1996: Creation of the Programme Against Blindness with the support of the French Cooperation with the development of ophthalmic services in Moudou, Abeche, Mongo, and Fay Biltine
- 2000-2004: Prevalence surveys of 33 districts
- 2012: In March 2012, with support from ITI and OPC, the PNLC participates in a workshop to develop a five-year (2013-2017) National Trachoma Action Plan (TAP)*
- 2012: In June 2012, the plan is finalized and awaits Ministry of Health validation
- 2012: The ITI Trachoma Expert Committee (TEC) approves the use Zithromax® antibiotic donation within the context of the SAFE strategy for two districts: Bitkine and Mongo
- 2013: In January, ITI funds John Snow, Inc. to conduct a supply chain assessment
- 2020: Target date for the elimination of blinding trachoma in Niger

*In March 2012, with support from ITI and collaboration from OPC, a Trachoma Action Plan Workshop was held in N'Djamena. The meeting was well attended by key stakeholders such as the representatives from various levels of the Ministry of Health, eye health professionals, and stakeholders such as the WHO and CBM. Proceedings from workshop led to the development of a 2013-2017 National Trachoma Action Plan.

Trachoma Action Plan (2013-2017):

Vision: Improve the living conditions of Chadians

Final goal: Eliminate Blinding Trachoma by 2020

Overall objective: Reduce the prevalence of blinding trachoma to a level where it no longer constitutes a public health problem by 2020

SAFE Goals

S: Operate 100% of diagnosed TT cases;

A: Treat at least 80% of the eligible population with antibiotics in confirmed endemic areas;

F: Achieve that 90% of mothers clean the faces of children under ten years of age by 2017; and

E: Bring 70% of households to live in a safe, clean environment.

Although the Trachoma Action Plan has been developed, the National Program needs technical and financial support to implement it.

Zithromax® Donation Program:

In June 2012, an application for the donation of Zithromax® by Pfizer Inc through the International Trachoma Initiative was approved for implementation in 2013. The program will start in two districts, Bitikine and Mongo in Guéra region, while validation of prevalence and additional prevalence surveys will take place in the next three years. During the first year of implementation, a total population of 405,000 is targeted, with a steep scale-up plan to reach almost eight million people in 2017.

In addition to a major scale up over the coming years for the Zithromax® distribution, there is also a need to scale up the other components of the SAFE strategy. The prevalence of trichiasis ranged from 1.3% to 6.2%, with an estimated backlog of 80,000 cases in need of trichiasis surgery. However, after finishing surveys in the remaining districts, this number is expected to increase.

Next Steps

- Training of graders to conduct surveys: July 2013
- Validation of 2000-2001 prevalence surveys: 2013
- Training supervisors and distributors: October 2013
- Social mobilization and education: Autumn 2013
- Mass drug administration: November 2013

Challenges

- Training ophthalmic technicians to operate TT cases
- Acquiring surgery materials

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

National Data as Reported for 2012 at the Fourteenth Annual Program Review, Atlanta, Georgia, March 11-13, 2013

	Mali	Niger	Sudan	South Sudan	Ethiopia-Amhara	Nigeria	Total
Surgery							
Surgeries	9,068	11,021	1,495	1,858	66,766	13,556	103,764
2012 Target	10,000	10,000	5,000	5,150	80,000	60,000	170,150
Percent Coverage	90.7%	110.2%	29.9%	36.1%	83.5%	22.6%	61.0%
Antibiotics							
<i>Azithromycin</i>							
Doses	698,083	5,069,468	331,825	323,708	12,620,643	0	19,043,727
2012 Target	876,899	6,815,440	451,970	501,000	15,787,572	6,911,908	31,344,789
Percent Coverage	79.6%	74.4%	73.4%	64.6%	79.9%	0.0%	60.8%
<i>Tetracycline</i>							
Doses	14,247	N/R	3,880	N/R	311,025	0	329,152
2012 Target	17,538	150,157	9,039	10,020	349,368	138,238	674,360
Percent Coverage	81.2%	N/A	42.9%	N/R	89.0%	0.0%	48.8%
Facial Cleanliness and Health Education							
Villages with Health Education	2,622	634	76	N/R	3,449	855	7,636
2012 Target	2,490	634	72	114	3,449	1,425	8,184
Percent Coverage	105.3%	100.0%	105.6%	N/R	100.0%	60.0%	93.3%
Environmental Improvements							
Latrines	6,001	15,000	N/A	266	520,885	N/A	542,152
2012 Target	10,000	15,000	N/A	300	118,865	N/A	144,165
Percent Coverage	60.0%	100.0%	N/A	88.7%	438.2%	N/A	376.1%

N/A=Not Applicable

N/R=Not Reported

In Nigeria, only data on villages with health education supported by The Carter Center were available.

Totals only include countries where data are available.

Table 2. National Trachoma Control Program Annual Targets 2013 (Carter Center-Assisted Countries)*Targets[†] as Presented at the Fourteenth Annual Program Review, Atlanta, Georgia, March 11-13, 2013[§]*

	Mali	Niger	Sudan	South Sudan	Ethiopia-Amhara	Nigeria	Total*
Surgery							
Persons to operate for trichiasis	10,000	15,000	5,000	3,400	110,754	60,000	204,154
Antibiotics							
Doses of azithromycin to distribute during MDA [†]	981,882	8,319,387	1,330,057	468,530	15,787,572	7,138,500	34,025,928
Doses of tetracycline ointment to distribute during MD.	19,637	170,000	31,601	47,470	394,027	145,684	808,419
Facial cleanliness							
Villages to reach through health education	2,490	634	535	63	3,449	N/A	7,171
Environmental improvement							
Household latrines to construct	10,000	15,000	N/A	>10	150,000	N/A	175,000

N/A=Not Applicable

[§]All targets are subject to change.[†]Antibiotic targets to 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 2012*

Indicators	Mali	Niger	Sudan	South Sudan	Ethiopia-Amhara	Nigeria	Total
Surgery							
Persons operated for trichiasis	4,872	8,744	905	1,164	66,766	205	82,656
Target persons	6,000	7,000	5,000	750	80,000	850	99,600
Percentage	81.2%	124.9%	18.1%	155.2%	83.5%	24.1%	83.0%
Antibiotics							
Doses of azithromycin distributed	698,083	0	331,825	239,111	12,620,643	0	13,889,662
Target population	0	2,685,647	451,970	363,580	15,787,572	1,092,859	20,381,628
Percentage	N/A	0.0%	73.4%	65.8%	79.9%	N/A	68.1%
Facial cleanliness and health education							
Villages with ongoing health education	2,622	634	76	150	3,449	855	7,786
Environmental improvement							
Household latrines constructed	6,001	10,373	N/A	8	520,885	0	537,267
Target for latrines	7,000	15,000	N/A	0	118,865	0	140,865
Percentage	85.7%	69.2%	N/A	N/A	438.2%	N/A	381.4%

N/A=Not Applicable

Table 4. Carter Center-Assisted Implementation of SAFE*Cumulative Interventions per Country, 1999-2012*

Indicators	Mali	Niger	Sudan	South Sudan	Ethiopia-Amhara	Nigeria	Total
Persons operated for trichiasis	22,550	23,801	6,368	7,784	299,104	333	359,940
Doses of azithromycin distributed	698,083	3,780,384	2,317,735	2,451,390	78,371,925	1,709,459	89,328,976
Villages with ongoing health education	2,622	634	378	3,574	3,449	855	11,512
Household latrines constructed	89,841	74,591	N/A	575	2,667,488	31,979	2,864,474

N/A=Not Applicable

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

National program data as presented for January - December 2012

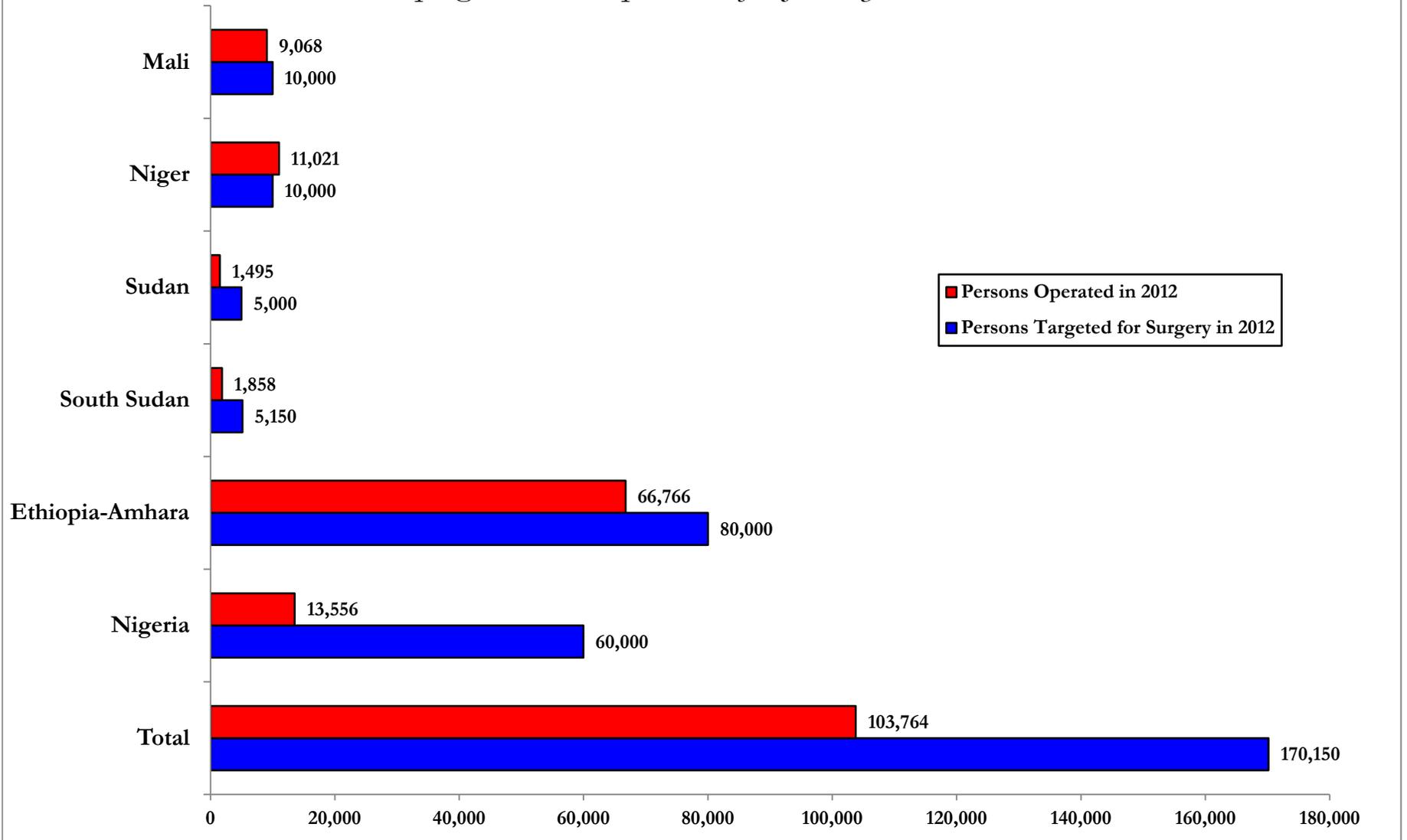


Figure 2. Azithromycin Distribution, Carter Center-Assisted Countries

National program data as presented for January - December 2012

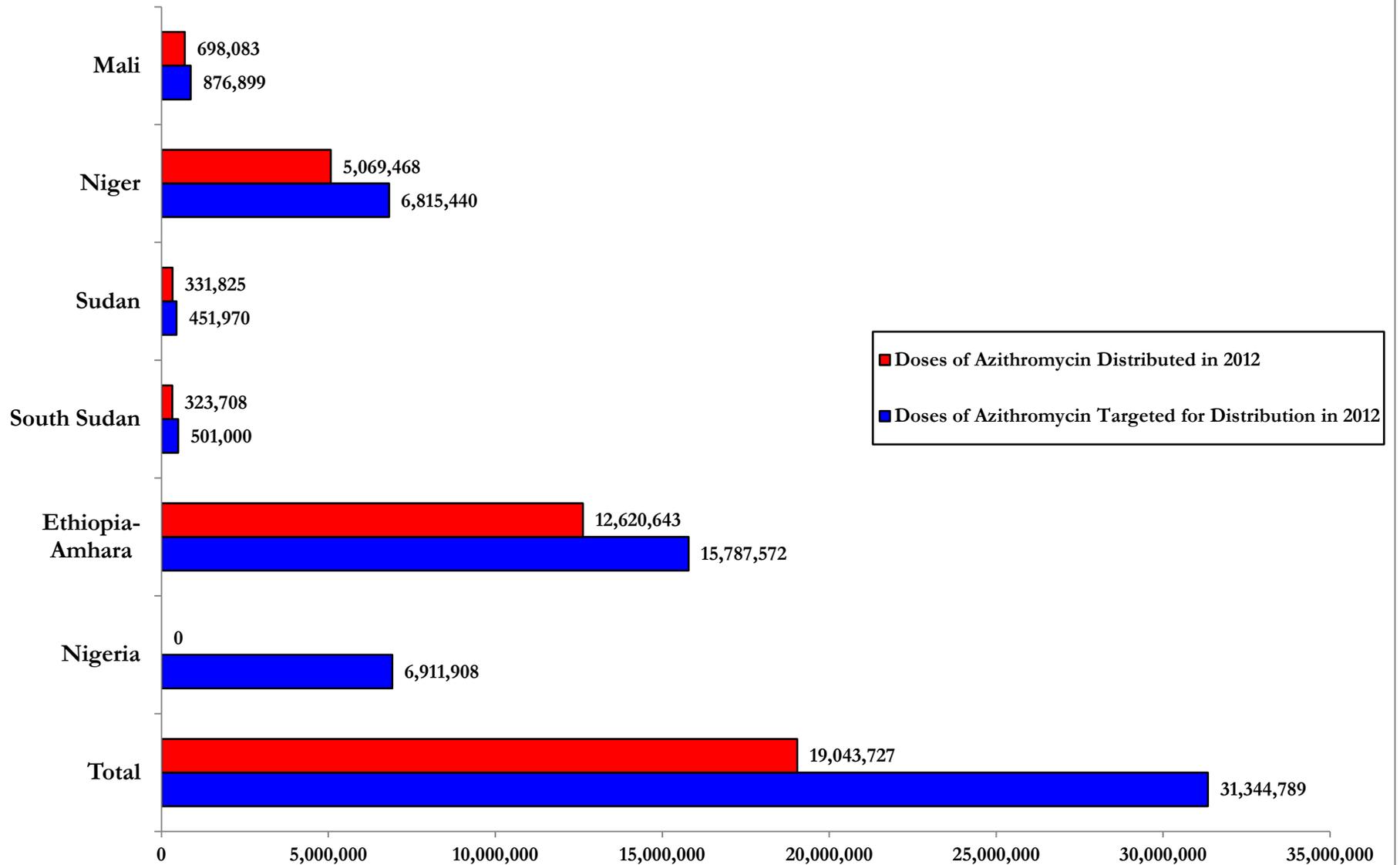


Figure 3. Health Education, Carter Center-Assisted Countries

National program data as presented for January - December 2012

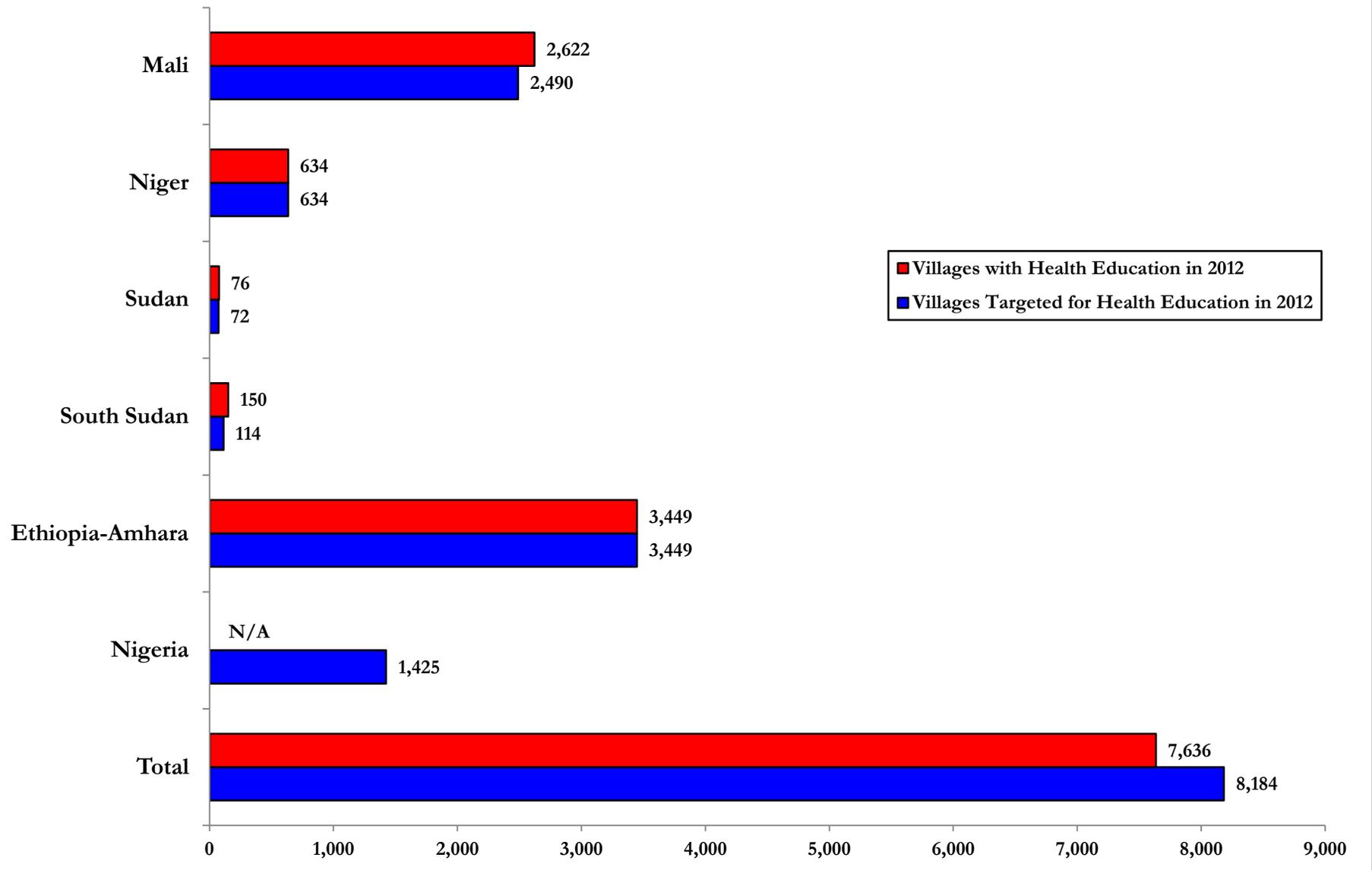
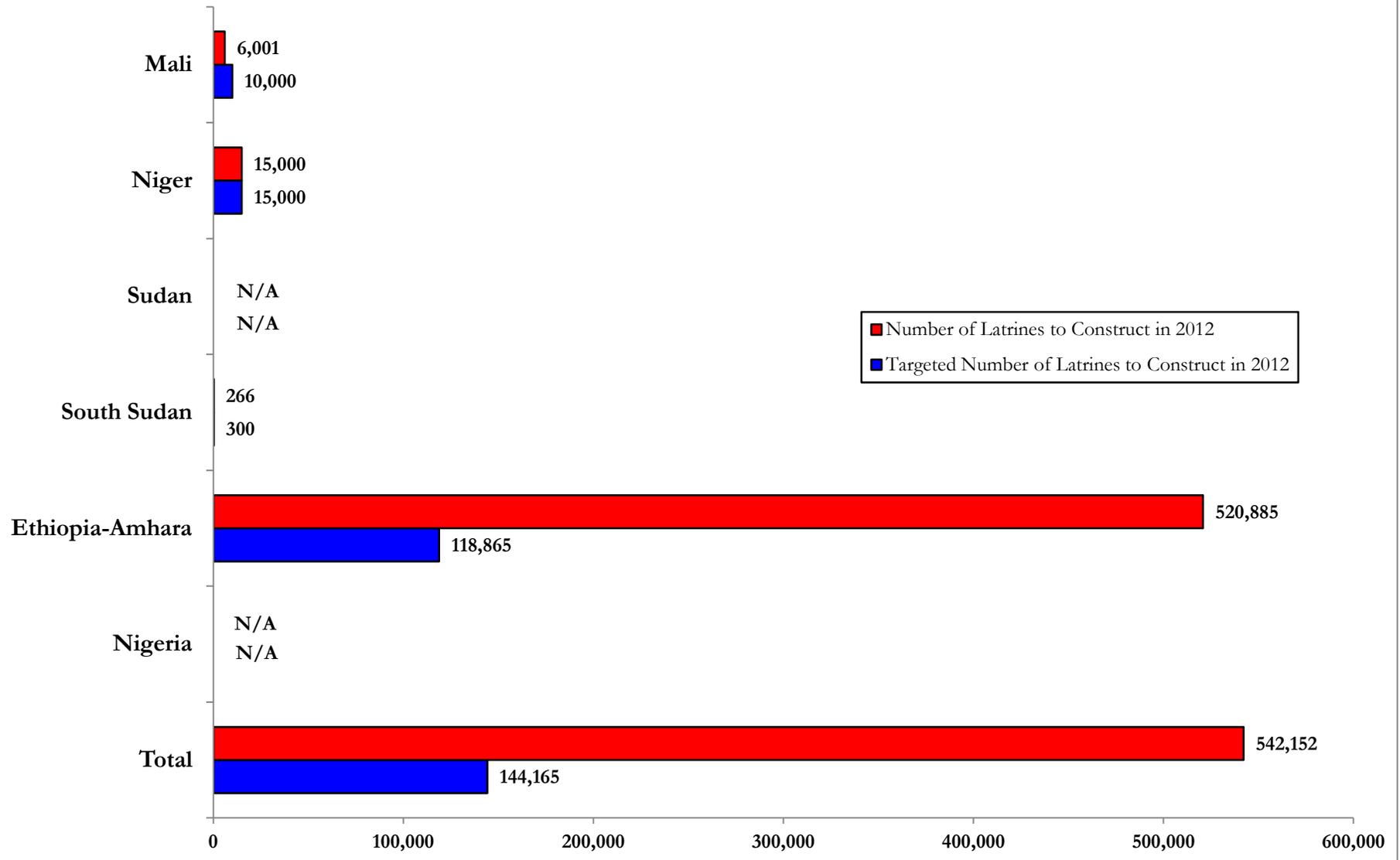


Figure 4. Household Latrines Constructed, Carter Center-Assisted Countries

National program data as presented for January - December 2012



The rationale behind the operational research conducted in Carter Center-assisted trachoma control programs

Presented by Dr. Paul Emerson, The Carter Center

Introduction

Operational research is not just about eliminating blindness from trachoma; it is about a public health approach to transformational development using trachoma as the entry point.

In a “virtuous cycle,” programs founded on operational research can help bring families and communities out of poverty. The SAFE strategy supports improved access to water and sanitation, hygiene promotion, access to antibiotics, and access to surgery. Integration with other neglected tropical disease programs can bring additional health-promoting interventions, including bednets, antimalarials, and deworming medications. These synergistically promote more productive time that can lead to better health, improved agricultural output, better nutrition, improved income and better performance in schools. These factors support enhanced choices and opportunities and the possibility of escaping the cycle of poverty—in other words, development.

The big tests

We refer to three big tests when posing operational research questions:

- **The Don Hopkins test:** ‘So what?’
- **The Robin Bailey test:** ‘And what are you going to do with that data?’
- **And the Emerson test:** ‘How will doing this work improve the lives of those we work for?’

There are no ‘make work’ projects and no room for passengers; everything must contribute to program improvement.

Programs as platforms

Refining implementation

Each year, every aspect of every program should get better. Those who are involved in the day-to-day delivery of the program should be involved in framing the research questions and coming up with the answers. Programs should encourage feedback from all levels to refine delivery and enhance uptake. Annual Program Reviews assist programs by reviewing progress and discussing challenges.

Innovation

History has shown that we can identify bottlenecks and come up with scalable solutions. New WHO guidelines are based on experience from the field and we help provide the experience. Using data for decision-making makes us ‘activist leaders:’ the metaphorical tip of the spear in the global program.

Human resource development

We want to develop the next generation of implementers and train/influence the public health leaders of tomorrow.

Past successes

The decision to promote latrines as part of the SAFE strategy was based on operational research. This research demonstrated that eye-seeking flies are trachoma vectors that breed in human feces, but not in latrines. Latrines decrease individual exposure to trachoma vectors, and programs showed that it was possible to go to scale with latrines. Operational research has been used to monitor true latrine coverage and shown that innovation leads to context-specific latrine design and delivery mechanisms.

On-going areas

The Carter Center is still actively involved in the following areas:

1. Continuing to develop our state-of-the-art data collection tool;
2. Developing criteria for stopping MDA and program delivery;
3. Researching the most rational use of resources for districts with a prevalence of TF among children ages one to nine years between 5-9% at baseline;
4. Implementing post-endemic surveillance;
5. Continuing work on collateral benefits of SAFE, in particular A, F, and E;
6. Implementing scalable F and E interventions; and,
7. Thinking beyond the DALYs -- further understanding of the effect on quality of life from SAFE interventions.

Backburner issues

If we knew how to, we would also research the excess mortality associated with trichiasis; develop a simple, valid and repeatable indicator that can be used to measure the effect of hygiene promotion; and, test whether there is a synergistic effect of F and E interventions on the uptake of S and A.

Conclusion

The Carter Center bases its programs on operational research that not only influences how we assist programs, but also affects international guidelines and how trachoma control programs are implemented worldwide.

“A living death”: A qualitative assessment of quality of life among women with severe trachoma in rural Niger

Presented by Stephanie Palmer, The Carter Center

Trachoma causes visual impairment and blindness, but even prior to vision loss, evidence suggests that it has a profound effect on women’s abilities to lead a normal life. However, most of the evidence available is anecdotal in nature. In order to address this, we aimed to answer three questions:

1. How do women in rural Niger define “quality of life?”
2. How does trichiasis affect this ideal?
3. How does trichiasis surgery affect quality of life?

Women were recruited into the study using a two-step purposive sampling process, which involved a clinical examination and informal focus group discussion. In-depth, semi-structured interviews were conducted with operated and unoperated women and a friend of their choosing. Heads of households of women with trichiasis were also invited to participate in separate focus group discussions to contribute contextual information.

A total of 23 women (13 operated and 10 unoperated) were interviewed and four focus groups were held in six villages of four districts of the Zinder and Maradi regions of Niger. Women defined quality of life in terms of health, security, family and community, social status and fulfillment of religious obligations.

Trichiasis profoundly affects quality of life by causing social withdrawal and exclusion, loss of independence due to severe pain that leads to their inability to work, move about, and earn personal income. In turn, women lose social status, as they are no longer able to engage in social obligations, such as reciprocal giving, which also help to fulfill religious obligations. When a woman has trichiasis, she creates an extra burden on the family, as she is no longer able to perform her daily activities and someone will need to take on her tasks in addition to their own. Her illness also creates financial strain on the family, as she may no longer be bringing in income. In addition, she requires money for treatment, and the family may also need to expend money on food, water, and wood, which she would normally gather herself. Some of this burden is placed on other women, though at times, men in the household are forced to take on these duties, which may lead to loss of social status for them.

Trichiasis surgery was described as a “newfound life” by patients. Health was regained, as was their independence and integration with their communities. Surgery was viewed as positive and desirable and preferable to practices such as epilation. The reason for this preference was because epilation was viewed as part of the disease process. While epilation relieves the pain of trichiasis in the short-term, it needs to be repeated every couple of days, whereas surgery was viewed as a long-term cure. Patients took post-surgical instructions from the surgeons very seriously and blamed themselves for poor surgical outcomes. However, women also viewed surgery as improving their quality of life, even in some cases where they had major or severe postoperative trichiasis. Because pre-surgical clinical data were not available, we were unable to compare their pre- and post-surgical statuses, so one explanation is that despite an outwardly poor outcome, the surgery may actually have improved their clinical state. Other explanations include satisfaction with the

entire process, rather than just focusing on the clinical results; or perhaps women felt better psychologically, as they had made the decision to do something about their condition.

Trichiasis has a profound and disabling effect on most women, even those with less severe symptoms. However, these effects are not currently taken into account in standard measures of disease burden, such as DALYs, which only take into account blindness and loss of visual acuity as morbidities due to trachoma. DALYs and other measures may be used to prioritize disease funding and intervention, which may translate to under-prioritizing and under-funding trachoma control and elimination programs.



A woman and her confidante are interviewed about the effects of trichiasis on quality of life.

Update on the Global Trachoma Mapping Project

Presented by Mr. Simon Bush, Sightsavers

Introduction

In the last 12 years 1,115 districts have been mapped for trachoma with 559 districts confirmed as endemic. In July 2012 the Global Trachoma Mapping Project Consortium (GTMP) was awarded £10.6M by Department of International Development (DFID) to map the estimated remaining 1,238 districts, in over 30 countries, by March 2015.

Sightsavers is leading a consortium of key partners - London School of Hygiene and Tropical Medicine (LSHTM), International Trachoma Initiative (ITI), International Coalition for Trachoma Control (ICTC); Ministries of Health, and partner NGOs around the world.

The GTMP has worked closely with the expert trachoma community (including WHO) to develop and roll out for global use:

- standard methodologies and protocols
- training materials and processes
- electronic data capture

The GTMP will also provide both funding and expert resources to support suspected endemic countries to quickly scale-up their trachoma mapping plans while maintaining the quality required to support SAFE.

Performance

By the end of March 2013 we anticipate that the project will have completed the mapping in over 250 districts and have 130 fully supported and supervised mapping teams in the field. The initial focus of the GTMP was to support the start of mapping in Ethiopia and Nigeria which together have 50% (over 600 districts) of the suspected endemic districts left to map.

Ethiopia – 419 districts (33% of total)

We are currently mapping four regions in Ethiopia (Oromia, Tigray, Somali and SNNPR) and we anticipate that over 200 districts will be mapped by the end of March 2013. The mapping for Oromia and Tigray should be complete by the end of April 2013.

Nigeria – 206 districts (17% of total)

We are currently mapping four states in Nigeria (Kaduna, Kano, Katsina and Jigawa) and potentially in two more states (Niger, Federal Capital Territory) by the end of March 2013. We anticipate that 60 districts will be mapped by the end of March. The plan is to complete the mapping of all of the four (or possibly six) states by the end of May 2013.

Conclusion

This project is underpinned by a consortium of expert and motivated people and organisations who are working tirelessly together to take this important step towards the elimination of blinding trachoma. The Carter Center is a key member of the project advisory committee. The Ministries of Health, both at a national and regional level, have provided resources and expertise in great numbers and have been supportive at every stage.

Decisions, decisions...interpreting WHO guidelines: Starting, stopping and initiating surveillance in trachoma elimination programs

Presented by Mr. Jonathan D. King, The Carter Center

The presentation provided a summary interpretation of current WHO guidelines regarding trachoma elimination activities, specifically starting the SAFE strategy, stopping mass azithromycin distribution, and initiating surveillance. Currently, both starting and stopping interventions to eliminate blinding trachoma are based on the prevalence of clinical signs of trachomatous inflammation follicular (TF₁₋₉) among children aged one to nine years and trachomatous trichiasis among all ages, including adults, as estimated using population-based, cluster randomized surveys. The recommended SAFE implementation unit for initiating activities is the district level of approximately 200,000 population, but a larger administrative unit may be used where high TF prevalence is expected. Areas of TT prevalence greater than 1% among adults are priority for providing enhanced surgical services. Where prevalence of TF₁₋₉ is greater than or equal to 10%, SAFE is warranted for at least three years. Under current guidelines, no mass drug administration (MDA) with azithromycin is warranted where prevalence of TF₁₋₉ is less than 5%. Targeted mass distribution of azithromycin is indicated for areas where TF₁₋₉ is between 5-9%.

Once SAFE is initiated, the program targets are to achieve 100% antibiotic coverage during annual trachoma MDA; 100% of communities receiving behavior change communication to promote facial cleanliness and environmental improvements; 100% of households using at minimum a household pit latrine; 100% of households with access to water within 30 minutes round-trip collection. The impact of SAFE interventions should be monitored after at least three years (five years in baseline hyper-endemic areas). The recommended impact evaluation unit is the district-level, but subsequent decisions to stop MDA are made based on sub-district level prevalence of TF₁₋₉. If TF₁₋₉ is greater than 5% upon impact assessment (at sub-district level), targeted MDA is warranted for an additional three years before repeating impact assessment. Where TF₁₋₉ is less than 5% in the sub-district evaluation unit, MDA can be stopped and surveillance activities initiated.

Surveillance activities are to be implemented in areas that stop MDA and a repeat impact evaluation survey should be conducted after at least three years of surveillance. Activities should monitor the presence of TF₁₋₉ to detect and respond to potential resurgence above 5%. At minimum this would include surveying two communities per district per year biased to the least developed and suspected most endemic communities. Where TF₁₋₉ is greater than 5% the community should be treated with antibiotics and the investigations should be extended to the sub-district. If the sub-district prevalence of TF₁₋₉ is greater than 5%, then MDA should be re-initiated for three years and investigations extended to the district. The response should cascade according to larger evaluation units with re-initiation of MDA when TF₁₋₉ is greater than 5%. In each community surveyed, the presence or absence of TT cases should be documented, and household uptake of F and E interventions should be assessed.

Additionally, surveillance involves the ongoing collection and review of TT surgical output data to ensure that eye care services are capable of operating incident and recurrent TT cases. Incorporating TT into existing surveillance systems will be necessary to monitor incidence of blinding trachoma. The elimination target for TT is less than 1 case per 1000 total population (0.1%). Surveillance activities are intended to be integrated into the current health system where possible and sustained for three years after surveys have shown that elimination targets have been achieved.

Background WHO guideline references:

- 1996: Report from the 1st Global Scientific Meeting (GSM) on the future approaches to trachoma control
- 1997: Global Alliance for the Elimination of Blinding Trachoma by the year 2020 (GET2020)
- 1998: World Health Assembly Resolution (WHA 51.11)
- 2003: Report from the 2nd GSM on Trachoma
- 2006: Trachoma Control: Guide for Program Managers
- 2008: Informal Report from Meeting on Trachoma Surveillance
- 2010: Report from the 3rd GSM

WASH/NTD cross-sectoral dialogue, impact, and implications for F and E

Presented by Ms. Stephanie Ogden, WASH/NTD Coordinator, International Trachoma Initiative and Dr. Matthew Freeman, Assistant Professor, Department of Environmental Health, Emory University

Introduction

The need for increased access to water, sanitation, and hygiene (WASH) is implicit within the SAFE strategy for trachoma control, and WASH is an essential component of reaching 2020 global trachoma elimination targets. However, because trachoma control programs are unlikely to directly impact WASH service provision at scale, the most effective way of ensuring improved WASH access in trachoma endemic communities, and enabling sustainable prevention of trachoma (and other neglected tropical diseases or NTDs), is via collaboration or coordination with the WASH sector. However, conversations between the NTD and WASH sectors suggest that in order for collaboration to occur, benefits to both sectors must be clearly articulated.

The WASH sector is a diverse set of stakeholders that includes government service providers, multi and bi-lateral organizations, and NGOs - with a variety of investment and program strategies. Understanding the various objectives and motivations within the WASH sector, and the interaction of trachoma and NTD control within those objectives, is key to successful collaboration. Furthermore, though the investment required to scale up WASH infrastructure in trachoma endemic communities is substantial, WASH is generally underfunded at the national level in comparison to other sectors; median government expenditures to WASH is one-third of the expenditures to the health sector, and one-sixth of expenditures to education. Within the WASH sector, primary investment is made in urban water supply systems, with relatively little public investment in sanitation, and even less in hygiene education programs. Understanding funding and political constraints within the WASH sector, and facilitating WASH sector improvement in areas key to trachoma control, may be necessary elements of engaging the WASH sector for effective trachoma control.

Next steps for collaboration between the WASH and NTD sectors

A roundtable discussion was held between key representatives of the WASH and NTD sectors at the Bill & Melinda Gates Foundation in December 2012. Participants discussed practical considerations to collaboration between the sectors and defined next steps in the following areas of mutual concern: research, advocacy and policy, capacity building, and mapping, monitoring, and data collection. Various initiatives are now underway in each of these areas, including: the development of materials for capacity building between the two sectors, the inclusion of WASH indicators in the global trachoma mapping, joint advocacy that serves to elevate both issues in importance, and research that addresses key knowledge gaps regarding the impact of WASH on NTD control.

Evidence base for WASH impact on trachoma infection

The International Trachoma Initiative, Children Without Worms, and Emory University partnered to conduct a systematic review and meta-analysis of all available literature to better understand the potential impact of WASH access and practices on trachoma infection. Key findings are summarized below:

- The importance of the F and E components of the SAFE strategy are clear and justified
- Facial cleanliness is highly associated with reduced trachoma; clean faces are associated with a 65% reduction in TF/TI. However, the relationship between clean faces and trachoma is mutually causative, as ocular discharge is both a symptom of, and risk factor for trachoma. Thus, facial cleanliness may not be a clear indicator of facial hygiene practices.
- Practice of washing one's face daily is shown to be associated with 36% reduction in risk of TF/TI. More frequent face washing practices have marginal added benefits.
- Access to a household latrine is an important variable in trachoma infection. Households with access to a latrine have more than 50% reduced risk of trachoma infection, though the effect is less marked on TF/TI. We saw no association between latrine use and TF/TI or trachoma infection, though this may be a product of ineffective indicators for latrine use.
- Access to water within one kilometer of the household does not appear to be a significant protective factor for trachoma. Though distance to water source is likely an important variable in trachoma control, the distance of one kilometer appears to be too far from the household to be an important metric. This finding has policy and program significance as the WHO definition for water access is within one kilometer (or 30 minutes round-trip walking distance) from the household. Our results suggest that even if global targets for water access were achieved, a reduction in trachoma would not necessarily ensue.
- The use of soap in face washing does appear to have significant association with reduced risk of trachoma. This may suggest that use of soap in face washing is a valuable recommendation for trachoma control, but may also suggest that families who use soap in face washing are likely to have better overall hygiene practices that are protective against trachoma.

Update on ICTC activities

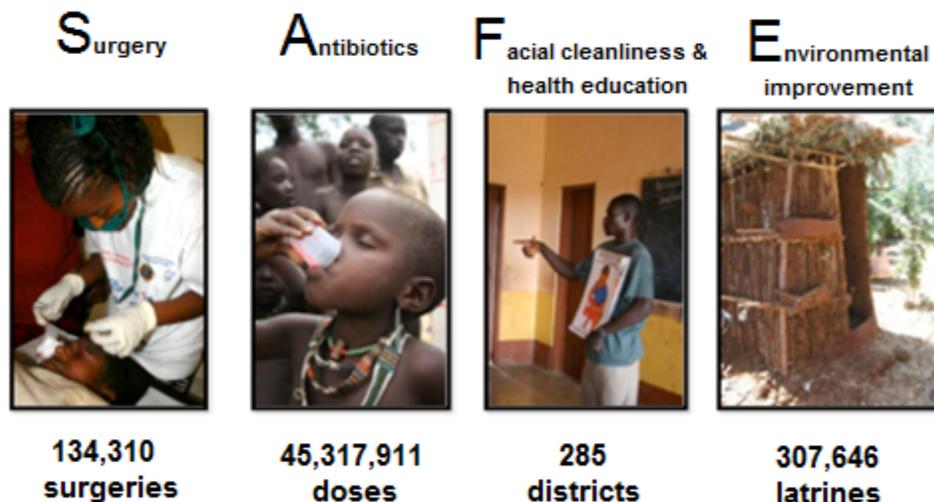
Presented by Dr. Martin Kollmann, CBM

The International Coalition for Trachoma Control (ICTC) is a group established in 2004 for the purpose of contributing to the global effort to eliminate blinding trachoma through the WHO-endorsed SAFE strategy. The Coalition is composed of likeminded non-governmental development organizations, donors and foundations, and academic institutions.

ICTC has a four-year strategic plan, 2012 – 2015, articulating the members' strong commitment to the GET 2020 Alliance and identifying how it will assist through supporting the implementation of ICTC's 2020 INSight roadmap. ICTC members have a collective sense of responsibility and urgency for action. The strategic planning process has further strengthened ICTC as a vibrant and committed group. As an indication of its spreading appeal, the Coalition experiences a growing number of applications, both from the trachoma and the WASH sectors and governed by its new membership criteria.

In 2011 ICTC member organizations have supported the following SAFE activities:

ICTC MEMBERS (SAFE 2011)



ICTC International Coalition
for Trachoma Control

It is a remarkable expression of this growing “community of practice” that members actively collaborate to develop and disseminate cutting-edge work under the ICTC umbrella without demanding individual property rights. This is exemplified by the following ICTC-branded best-practices manuals availed to GET 2020 partners in hard copy and through the ICTC website (<http://www.trachomacoalition.org>):

1. 2020 INSight: a global roadmap to end blinding trachoma.

2. Global Scientific Meeting on Trachomatous Trichiasis: discussions, conclusions and recommendations for best practices.
3. Global Trachoma Mapping Project: training for mapping of trachoma.
4. Best Practices for Zithromax[®] MDA: a toolkit with recommendations for best practices (in preparation).

ICTC members' track records and the above developments have invigorated donor interest in working with ICTC as a recognized platform for coordinated trachoma work. This is exemplified by the DFID- funded Global Trachoma Mapping Project as well as Coalition preparations regarding support for SAFE implementation with DFID and the Queen Elizabeth Diamond Jubilee Trust, as well as other major donors such as the END Fund and USAID through the RTI ENVISION Project.

ICTC also currently develops operational indicators and collaborates with the Bill and Melinda Gates Foundation in developing milestones to monitor and evaluate progress in follow-up to the London Declaration on Neglected Tropical Diseases (Appendix I).

International Trachoma Initiative and Pfizer Inc update

Presented by Dr. Danny Haddad, International Trachoma Initiative

Introduction

The International Trachoma Initiative (ITI) is responsible for oversight of all of the Zithromax[®] donated by Pfizer Inc to national trachoma control programs world-wide. Trachoma control program activities are jointly reported to both ITI and WHO for the Global Elimination of Blinding Trachoma by 2020 (GET 2020) Alliance. The deadline this year for submission by the national trachoma task force is April 1st, 2013. ITI countries receive pre-populated forms.

Achievements

The number of districts known to be endemic worldwide has increased from 559 in 2010 to 726 and 732 in 2011 and 2012, respectively. Of these districts, 55-58% were approved and distributed Zithromax[®]. Treatments reached an estimated 89.7% of the targeted population in 2010 and an estimated 78.0% of the population in 2011. In 2012, 67 million people lived in districts distributing Zithromax[®] and 53.3 million treatments were shipped. The number of treatments distributed will be available later this year. Drug to treat 59.6 million people in 23 countries was approved for 2013. Three countries stopped treatment in 2011, four in 2012 and six are anticipated to stop in 2013. In addition, 149 districts are held in reserve, awaiting impact surveys, with 19.2 million people living in these areas. All decisions to implement treatment with donated drug are reviewed and approved by the TEC (Trachoma Expert Committee). Approval is now valid for the anticipated duration of MDA implementation, and these districts will not be discussed anymore every year, unless there is an issue with the country or district.

Path to elimination

Survey results determine the implementation of the SAFE strategy in a given sub-district, district or country. Where TF is greater than or equal to 30%, A, F, and E (antibiotics, facial cleanliness and environmental improvement) are implemented and the districts resurveyed after five years. Where TF is 10-29%, A, F, and E are implemented and the district resurveyed after three years. Where TF is less than 10%, prevalence is determined through sub-district surveys and the following implemented, based on the results:

- TF \geq 10%: A, F and E implemented and the sub-district resurveyed after three years
- TF 5-9.9%: targeted MDA and consider F and E; resurvey at the sub-district level
- TF<5%: UIG achieved, therefore no MDA needed and consider F and E

Mapping trachoma

Changes will be made this year to the TrachomaAtlas.org website to provide real time data, dynamic maps and a more user-controlled interface. The International Coalition for Trachoma Control (ICTC) website links with these maps and will provide overlays of trachoma prevalence with implementation.

Update from Sightsavers Trachoma Fast Track Initiative

Presented by Dr. Agatha Aboe, Sightsavers

Introduction

The Fast Track Initiative supports trachoma elimination efforts in 24 countries, 22 of which are located in Africa. The plan was written in response to the International Coalition for Trachoma Control (ICTC) Insight 2020 plan. It includes conducting surveys in 937 districts (now revised to 1,285 districts through the Department for International Development (DFID) Global Trachoma Mapping Project), operating one million trichiasis cases (one-third of the backlog in Sightsavers-supported countries), providing antibiotic treatments to 84 million people, supporting facial cleanliness so that 85-90% of children have clean faces, and advocating for 10,000 water points and 100,000 household latrines per year.

Surveys

Sightsavers is involved in conducting a variety of surveys. We play an active role as the coordinating organization for the DFID Global Trachoma Mapping Project and conducted three impact assessment surveys in Tanzania. Knowledge, Attitude and Practice surveys (KAPs) were done in Cameroon and Nigeria. Finally, surveillance has been conducted in all 29 post-endemic mass drug administration (MDA) districts, all 37 districts of The Gambia and eight out of nine districts in the Koulikoro region of Mali.

SAFE implementation

In the area of surgical provision, Sightsavers noted a slow rate of reducing the trichiasis backlog as a challenge. We address this challenge by training on the campaign approach using systematic case search and provision of quality surgery. The training was conducted with Sightsavers staff in October 2012 and will be conducted with the Ministries of Health and other partners in August/September 2013. These trainings will be covered by intense supportive supervision and monitoring.

Sightsavers has also been actively working in antibiotic distribution and health education. The number of people reached with antibiotic treatment has increased significantly each year between 2010 and 2012. Sightsavers is working in partnership with the Johns Hopkins Bloomberg School of Public Health Center for Communication Programs to develop an F & E toolkit. This toolkit will include an electronic toolkit development, a physical toolkit development and formative research to be conducted to feed into improving the toolkits.

Sightsavers is in partnership with other organizations at the country level for the provision of safe water and improved sanitation. Sightsavers participates in continued advocacy for the inclusion of WASH partners in the Task Force and promotes community led total sanitation for improved sanitation in all of their supported programs. Unfortunately, many country programs are unable to provide the actual numbers of safe water points and household latrines provided each year and Sightsavers has plans to work with partners on how best to collect this vital information.

Next Steps

Sightsavers will continue to support all 24 countries of our trachoma Fast Track Initiative, with particular emphasis on expanding their work in Malawi, Nigeria, South Sudan, Uganda and Zambia. Sightsavers will expand support to the Central African Republic (CAR) and Chad, including training for community drug distributors, health workers, teachers, trichiasis surgeons, surgery provision and antibiotic distribution. Finally, we will accelerate their work in the DFID Global Trachoma Mapping to meet the targets. SAFE

implementation will be improved through an additional emphasis on the quantity and improved quality of trichiasis surgery, strategic partnerships and increased technical support through ensuring there is staff in place to provide needed support.

Partnerships include Ministries of Health, ICTC, Fred Hollows Foundation, The Carter Center, Organisation pour la Prévention de la Cécité (OPC), the Conrad N. Hilton Foundation, Pfizer/ITI/The Task Force for Global Health, DFID and RTI/USAID.

Current and future collaboration with Swiss Tropical and Public Health Institute

Presented by Dr. Jürg Utzinger, Professor at the University of Basel, Switzerland

The principles of The Carter Center are not dissimilar from that of the Swiss Tropical and Public Health Institute (Swiss TPH), an associate institute of the University of Basel. The Carter Center, based on careful research and analyses, aims to take action to address difficult problems to alleviate suffering and improve health of all people. A guiding principle of Swiss TPH is to seek solutions to challenges faced by international public health priorities through innovation, validation and application. Swiss TPH was founded in 1943 by Professor Rudolf Geigy who held the belief that findings of laboratory research of tropical infections must be extended to the field – and *vice versa* – so that a detailed exchange of information could be applied to prevention and control of tropical diseases. This wisdom is encapsulated in a quote by Geigy in 1970: “[...] the scientific laboratory cannot do without or should not do without even today: the ‘field’. That place where the natural scientist should seek new inspiration again and again, and where now, more than ever, urgent [...] tasks await him”.

Within both institutions there is mutual commitment to human rights, emphasis on taking action based on generated knowledge and obtaining results which ultimately lead to less disease and improved health of populations. Swiss TPH has more than 600 staff, which include MSc, MD, and PhD students from over 60 nations and current contracted operational research projects with some 100 collaborators abroad in 30+ countries. Current applied projects relevant to the prevention, control or elimination of neglected tropical diseases (NTDs), include, but are not limited to the discovery, development and validation of new diagnostics, drugs and vaccines, impact of demographic and environmental transformations on helminth infections, applied mathematical modeling of NTDs, including cost-effectiveness of elimination investment cases, high-resolution predictive mapping of helminth infections, and electronic data capture for field research.

The recent collaboration between The Carter Center and Swiss TPH aimed to address current, pressing issues within the global program to eliminate blinding trachoma. Specifically, national ministries of health implementing the SAFE strategy need to know how best to determine whether the interventions are working and what further actions are required. Swiss TPH provided technical assistance to ongoing Carter Center-supported activities in Ethiopia to investigate novel approaches to evaluate the SAFE strategy. The experience of Swiss TPH in the epidemiology, diagnosis and control of intestinal parasite infections allowed the investigation of an integrated approach to the assessment of both trachoma and intestinal parasitic infections in Amhara National Regional State. Given that part of the SAFE package of interventions involves improvements in hygiene, water and sanitation, the potential benefits of the strategy were explored beyond trachoma. These foundations of public health clearly prevent other NTDs, but the documentation of ancillary benefits beyond trachoma has not been demonstrated in the context of the SAFE strategy. The results of the operational research will strengthening the ability of Ministries of Health to measure the full impact of interventions and identify areas to improve disease control efforts. Swiss TPH welcomes continued collaboration with The Carter Center realizing the direct value of utilizing the programs as platforms for operational research which is directly relevant to NTD control.

MalTra IX post-campaign coverage survey: A rapid assessment

Presented by Dr. Zeribun Tadesse, The Carter Center Ethiopia

The Carter Center, in partnership with the Ethiopia Ministry of Health, Amhara Regional Health Bureau, Lions Clubs International Foundation, International Trachoma Initiative (ITI) and Pfizer Inc, conducted the MalTra IX campaign in 62 woredas of the five zones of West Amhara from November 3rd to November 10th, 2012. Preliminary reports showed that a total of 7,184,735 (95%) of the total population of 7,523,046 persons had received treatment with antibiotic and a total of 24,086 febrile cases were screened by rapid diagnostic test (RDT).

In the past we have reported the ‘administrative coverage’—the number of doses reported to have been distributed divided by the reported ‘de jure’ population (the de jure population is that which is recognized as the ‘official’ population and does not include new in-comers and does not exclude normal residents who are away during the mass drug administration (MDA)). We wished to get closer to the true coverage by determining, from a random sample of people targeted, the number of people who report that they themselves took Zithromax[®] divided by the ‘de facto’ population. (The de facto population includes those who were present at the time of MDA, regardless of their normal residence, and the official population estimate).

The survey was conducted in five districts of West Amhara. The districts selected for the survey were Fagita Lekoma (Awi), Awabel (East Gojjam), Takusa (North Gondar), Dera (South Gondar), and South Achefer (West Gojjam). A total of 1,050 households residing in kebeles pertaining to these were included in the survey.

Accordingly, in the post-MalTra IX campaign validation survey, the “30 x 7” sampling approach was used to conduct the survey. Thirty villages are selected from each district (i.e. 30 first stage units) and seven households were selected within each of the selected villages (i.e. seven second stage units), yielding a sample size of 210 households.

The questionnaire was administered to 1,050 household heads or members. Of the respondents, 71.8% were female and 27.2% were male. Major findings of the rapid assessment are discussed below.

Out of the people who were asked whether they had received treatment with Zithromax[®], 85.2% confirmed receiving the treatment (Table 1), which is less than the reported coverage. The proportion of people who received the treatment varies across districts. The highest proportion is reported from Fagita Lekoma district of Awi zone (92.2%) and the lowest in Dera district of South Gondar (79.5%). Among people who took Zithromax[®], only 8% reported that they experienced side effects. Dera district reported the highest proportion of persons who experienced side effects (18.5%).

Table 1: MDA coverage and side effects in the selected districts, MalTra IX

District/Zone	Received Treatment/ Zithromax® (%)	Experienced side effects (%)
Fagita Lekoma/Awi	92.2	4.6
Awabel/East Gojjam	82.3	7.2
Takusa/North Gondar	83.6	9.5
Dera/South Gondar	79.5	18.5
South Achefer/West Gojjam	89.5	2.8
Total	85.2	8.1

The table below shows the comparison of the reported MDA coverage by Woreda Health Officials (WoHOs) and coverage obtained from the survey for each of the surveyed woredas. In all of the woredas, the reported coverage is greater than the coverage obtained from the rapid assessment. The variation ranges from 14% in Dera woreda of South Gondar to 3% in Fagita Lekoma of Awi (Table 2).

Table 2: Comparison of the reported MDA coverage by WoHOs and coverage obtained from the survey

District/Zone	MDA coverage as reported by the woreda (%)	Coverage obtained from the survey (%)	Variation between reported and assessment findings (%)
Fagita Lekoma/Awi	95.2	92.2	3.0
Awabel/East Gojjam	95.2	82.3	12.9
Takusa/North Gondar	96.8	83.6	13.2
Dera/South Gondar	93.6	79.5	14.1
South Achefer/West Gojjam	96.9	89.5	7.4

Update on Carter Center-UCSF collaborations in Ethiopia and Niger

Presented by Dr. Jeremy Keenan, Francis I. Proctor Foundation, University of California San Francisco

The Carter Center is collaborating with the Francis I. Proctor Foundation at the University of California San Francisco on an ongoing NIH-funded study in Ethiopia (TANA 2/TIRET) and on an upcoming Bill & Melinda Gates Foundation-funded study in Niger (MORDOR).

Ethiopia

TANA 2 is the continuation trial of the TANA (Trachoma Amelioration in Northern Amhara) trial. In TANA, 72 sub-kebeles (demographic administrative units) in the Amhara region of Ethiopia were randomized to 6 different treatment arms. Two of these treatment arms are being followed in the TANA 2 trial: annual mass azithromycin to the entire community, and twice yearly mass azithromycin to the entire community. TANA was conducted from 2006 to 2009. At the conclusion of TANA, several smaller demographic units (state teams) from each of the sub-kebeles in the annual TANA treatment arm were randomized to one of four strategies: (1) cessation of mass azithromycin, (2) continued annual mass azithromycin, (3) azithromycin treatments targeted to children five years old or younger, and (4) azithromycin treatments targeted to children with clinically active trachoma. Similarly, state teams from each of the sub-kebeles in the twice yearly TANA treatment arm were randomized to (5) cessation of mass azithromycin or (6) continued twice yearly mass azithromycin treatments.

We have been performing annual monitoring visits for TANA 2 since 2010 and the final monitoring visit will occur in the fall of 2013. During monitoring visits, a random sample of children aged zero to nine years are examined for trachoma and have conjunctival swabbing performed for ocular *chlamydia*. The primary outcome for the study is the prevalence of ocular *chlamydia* in zero to nine year-old children. We will make three primary comparisons: (A) ocular *chlamydia* at the final visit vs. initial visit in the arms with cessation of treatment, (B) ocular *chlamydia* in the continued annual treatment communities vs. continued twice yearly treatment communities, and (C) ocular *chlamydia* in the children-targeted communities vs. the active trachoma-targeted communities.

Niger

MORDOR (Mortality Reduction after Oral Azithromycin) is a trial that will compare the rates of under-five mortality in communities receiving mass azithromycin vs. communities receiving mass placebo. The trial will also compare the rates of several conditions, including malaria and trachoma, in communities randomized to azithromycin vs. placebo. The trial will take place in three countries: Niger, Tanzania, and Malawi. The Carter Center is an important partner in the design of the trial and will be implementing the study site in Niger. The trial is scheduled to start in the fall of 2013.

Post-operative trichiasis assessment in Niger

Presented by Dr. Kadri Boubacar, Deputy National Coordinator, National Program for the Prevention of Blindness

Introduction

Between 1999 and 2012, the National Program for the Prevention of Blindness in Niger conducted nearly 72,000 trichiasis surgeries. A study carried out in 2006 by the National Program and partners revealed that 29% of cases resulted in post-operative trichiasis. The National Program carried out another study in 2011, which also looked at trichiasis recurrence and found a prevalence of over 30%. Due to these findings, the National Program has taken an interest in monitoring post-operative care with the goal of improving the quality of surgical services it offers. The specific objectives of the study include:

- Verification of distribution of tetracycline eye ointment, azithromycin, and acetaminophen to patients following surgery;
- Verification of post-surgical advice given to patients concerning the convalescent period, required follow-up visits, and indications to re-present in case of pain or complication;
- Evaluate patient satisfaction with the surgery;
- Identify recurrence and other post-operative complications.

Methods

The study reported here took place in April 2012 in the districts of Birni N’Konni and Madaoua (Tahoua region) and Magaria and Mirriah (Zinder region). It was determined that a sample size of 300 patients would be necessary. A list of all patients operated within the previous year was compiled by district and randomized. Patients were visited in the order on the randomized list and not replaced if absent at the time of the visit by the study team.

Results

A total of 268 patients were located and interviewed (27 in Birni N’Konni, 50 in Madaoua, 96 in Magaria, and 95 in Mirriah). The majority of patients were 40 years or older (50.4%), female (66.8%) and had been operated only once (87.3%).

The majority of patients, 62.7%, received all three medications (azithromycin, tetracycline eye ointment, and acetaminophen); however, this differed by district (Birni N’Konni, 66.7%; Madaoua, 24.0%; Magaria, 70.8%; Mirriah 73.7%). Of those who did not receive all three medications but received at least one, azithromycin varied the most. In Madaoua, only 26% received azithromycin, while in Mirriah, 76.8% did.

As for post-operative care and follow-up, 100% of patients in both Tahoua districts report being told to come back to the health center the day following surgery; however, 51.6% in Mirriah and only 10.4% in Magaria report being given this information. Contrarily, 94.8% of patients in Magaria and 89.5% in Mirriah report being told of indications, such as pain or complications, where they would need to return to the surgeon. In Birni N’Konni, 55.6% of patients reported being given this information and 84.0% in Madaoua reported this. The time delay patients were told to remove their bandages ranges from the same day as

surgery to five days post-surgery, with most patients reporting between one day (49.6%) or the same day (47.8%). Patients reported being told to come back to the health center between one and seven days to have their sutures removed; the majority, 84.7%, were told to come back after seven days.

Trichiasis recurrence occurred in 20.5% (95% CI: 15.9-25.9%) of patients, ranging from 13.7% in Mirriah to 28.1% in Magaria. Other surgical complications were uncommon. However, despite the recurrence prevalence, overall, 93.8% of patients reported satisfaction with their surgical experience; this ranged from 87.2% in Magaria to 100% in Birni N’Konni.

Conclusions/Recommendations

There is a high prevalence of post-operative trichiasis in patients and some inconsistencies in the post-operative care and counseling given to patients. These findings suggest that the National Program should consider post-operative care a priority, both to ensure that patients receive correct information, but also to detect recurrence and complications early and determine any corrective steps. The data from this assessment also presents an opportunity for the National Program to review and revise its training of surgeons, to ensure that they are aware of national policies and able to provide quality care for patients.

These data suggest that the changes made to the program after the Quality Improvement Study are having an effect. Post-operative TT at six months after the surgery appears to have declined from a little over 30% to just over 20%. There is still work to be done to reach the target of less than 10% post-operative trichiasis.

Risk of trichomatous scarring in children after multiple years of SAFE interventions in Ethiopia

Presented by Mr. Jonathan D. King, The Carter Center

In the pathology of visual impairment due to trachoma, repeated infections with *Chlamydia trachomatis* and inflammation lead to scarring in the upper eyelid. The progression of scarring induces the harmful anatomical changes resulting in entropion and trichiasis (TT). The presence of trichomatous scarring (TS) in the population indicates that there has been repeated trachoma infection in the community and that there is potential risk for incident trichiasis cases. Previous studies have assessed the impact of the SAFE strategy on trachoma transmission by monitoring infection and trichomatous inflammation among children. We aimed to determine whether any impact on TS was evident among children living in South Gondar zone (a hyper-endemic area) of Amhara, Ethiopia since the implementation of SAFE. The absence of TS among children born since the implementation of the SAFE strategy would not only indicate reduced transmission, but also potential blinding disease averted.

Data from four cross-sectional, population-based prevalence surveys conducted between 2000 and 2011 were analyzed to determine age-specific patterns of trichomatous scarring (TS) among children ages 1-10 years. We assessed impact by comparing the odds of TS among children having lived under the SAFE intervention with those assessed in surveys prior to this intervention in a multi-level logistic regression model, controlling for secular variation between survey years, various potential confounder variables, and random effects due to clustering at community and household levels.

We observed a decline in TS prevalence over time in each of the cross-sectional surveys and overall, the prevalence of TS has reduced from 24.9% in 2000 to 2.2% in 2011 among children ages 1-10 years. All children ages 1-10 years after five years implementation of the SAFE strategy were significantly less likely to have scarring (range of decreased odds; odd ratio=0.11 for children age five years, odds ratio=0.42 for children age 10 years). Interventions independently associated with reduced odds of TS were living in a household reporting frequent face washing and where round-trip water collection took less than 30 minutes.

The greatest impact (lowest odds ratio) has occurred among the children born the same year the interventions began, indicating a cumulative beneficial impact for children born after the implementation of SAFE in Amhara. The impact lessens (increasing odds ratio) for each year lived prior to the interventions and indicates that the development of scarring may be influenced by factors occurring during the first years of life. This is consistent with the understanding that repeated reinfection and inflammation leads to scarring and that infection and inflammation is experienced most frequently, for the longest duration and with the highest bacterial loads during the ages one to five years. The findings of the study are also consistent with findings from Tanzania indicating that scarring develops at young ages.

These results suggest that the SAFE strategy is preventing the risk of blinding trachoma. A secular decline in trachoma has been observed in other countries in the absence of interventions, but this has not been demonstrated in any area of Ethiopia. The significant decline of TS in South Gondar zone provides evidence that the SAFE interventions implemented by the Amhara Regional Health Bureau are reducing blinding disease and should continue according to WHO guidelines. Additionally, the study suggests that TS among children may be a valuable indicator on which the program may track progress towards eliminating blinding trachoma. Ideally, a TS prevalence of zero among children born since control interventions began would indicate that blinding trachoma has been mitigated.

Getting the target right: Systematic differences between school-attending and non-school-attending children in Ethiopia

Presented by Ms. Aisha Stewart, Rollins School of Public Health, Emory University

School-age children, ages 6-15 years, are often targeted by neglected tropical disease (NTD) programs. However, the group of school-age children is composed of both school-attending and non-school-attending children, and may not be homogeneous. Trachoma impact assessments conducted in two zones in the Amhara region of Ethiopia in 2010 and 2011 revealed disparities between school-attending and non-school-attending children. School-attending children were 61% less likely to present with trichomatous inflammation-follicular (TF) compared to their non-school-attending peers, adjusting for age, sex, and clustering (odds ratio [OR] = 0.39, 95% confidence interval [CI]: 0.35-0.43). Similar results were observed in impact assessments carried out in Mali and Niger. Such differences indicate school-attending and non-school-attending children may be systematically different in their trachoma risk, and NTD control and elimination programs may not be reaching all school-age children in communities.

To examine potential systematic differences between school-attending and non-school-attending children, a multi-stage, cluster-randomized survey was conducted in districts receiving at least five years of the SAFE strategy to control trachoma in Amhara region, Ethiopia. Potential individual and household differences between school-attending and non-school-attending children were recorded. Stool specimens were collected to investigate the presence of intestinal parasitic infections, and anthropometric measurements were taken.

A total of 2,711 school-age children were recruited of whom 2,468 (91.0%) from 106 communities in 20 districts provided assent to participate in the survey. Reported school attendance was 58.5% (95% CI: 54.5-62.4). School-attending children were older (OR=1.42, 95% CI: 1.33-1.51), more likely to be female (OR=1.42, 95% CI: 1.15-1.76), and more likely to live with their birth parents (OR=2.49, 95% CI: 1.30-4.77). As observed in previous impact assessments, school-attending children presented with less TF (OR=0.55, 95% CI: 0.37-0.81), and reported more frequent face washing, hand washing after defecation, and latrine use compared to non-school-attending children (OR=2.74, 95% CI: 1.76-4.25; OR=3.49, 95% CI: 2.16-5.64; OR=2.29, 95% CI: 1.80-2.92, respectively). School-attending children were more likely to reside in households with higher socio-economic status and latrines (OR=1.94, 95% CI: 1.46-2.56; OR=1.52, 95% CI: 1.20-2.00, respectively). Adjusting for age and sex, there were no significant differences in presentation of TF or intestinal parasitic infections between school-attending and non-school-attending children. Significant differences in mean height-for-age or weight-for-age Z-scores were not observed.

These findings indicate that systematic differences exist between school-attending and non-school-attending children. School-based trachoma control programs may be effective in reaching school-attending children, but in areas where school attendance is low, NTD control activities based in schools do not reach all school-age children. Control strategies for NTDs should uniquely target school-attending and non-school-attending children to maximize coverage to both groups.

Mass drug administration for trachoma control: Learning from the field in order to improve practice in the field

Presented by Dr. Paul Courtright, Kilimanjaro Centre for Community Ophthalmology

The overall objective of the International Trachoma Initiative (ITI)-supported Mass Drug Administration (MDA) Best Practices project was to learn from Zithromax® MDA programmes in order to develop and document Zithromax® MDA preferred practice guidelines to assist with the anticipated scale up of MDA over the coming years.

The project, started in 2011, consisted of a number of activities, including a thorough literature review, which would guide the development of questionnaires administered to national coordinators and assist in the design of the template for interviews for field-based case studies. After conducting the case studies (six at the time of this program review), data were compiled to identify some “best practices”. A meeting was held in Ethiopia to review MDA best practices in that country. A second meeting was held in Cape Town to review experiences from throughout Africa, which led to the development of a draft “tool box” of preferred practices. The Cape Town meeting also led to initiation with AFRO (WHO Africa Regional Office) to develop a WHO Best Practices guide, a list of research needs, a list of parameters for costing MDA, as well as a general outline for the proposed MDA preferred practices guidelines.

Some of the issues that arose from the project included:

- Often minimal national or local ownership
- Political support weakened by frequent changes of personnel
- Coordination needs
- Efficiency not a priority in most health systems
- Capacity to implement MDA in the field is often quite limited
- Demands for incentives increasing
- Planning skills at the district level often weak
- Supervision in the health system often weak
- Little experience with recording and reporting
- Need for a strong link between the health service and the community

The approach taken with the drafting of the preferred practices document was to address key issues, capturing practical experiences from the field and highlighting important activities. The drafting of the document was a team effort and we benefitted from having a working group to review and refine the material. After completion of two more case studies (which will focus on integrated MDA) the document will be finalized. Publication will be under the International Coalition for Trachoma Control (ICTC) banner.

Fred Hollows Foundation trachoma update 2013

Presented by Dr. Richard Le Mesurier, Fred Hollows Foundation

Introduction

The Fred Hollows Foundation is a global organization that is influencing strategies to end avoidable blindness and improve indigenous health. We focus on comprehensive management of cataract blindness, diabetic eye disease, trachoma, childhood blindness, and refractive error. The primary aim wherever we work is to build capacity at all levels, from village health centers to regional hospitals and national ophthalmic networks. We believe in working through partnerships with individuals, communities, other development organizations and governments.

2012 Position

The Fred Hollows Foundation (FHF) has ongoing work in Australia, Eritrea, Kenya, Vietnam, and Pakistan, with development discussions in Cambodia and Laos. We provide advocacy and support for Moshi workshops and are hosting the 2012 NTD NGDO Network meeting. FHF has a Strategic Partnership Agreement with Sightsavers in support of the Sightsavers Trachoma Fast Track Initiative. FHF also is collaborating with various organizations to develop the Pacific Elimination of Trachoma project. Recent discussions with a wide range of stakeholders, and with strong local advice, put FHF on the brink of a new, and much bigger, program involving trachoma mapping and elimination in Oromia Region of Ethiopia. We do not underestimate the challenge and understand that partnership building, local community involvement, and continued support from federal and regional government will be essential for the success of this major new initiative in Ethiopia.

Planning and development continue with other ICTC members for several new TT-focused resources, which will be available mid-2013. These include training tools for TT surgeons, a training-of-trainers' manual, the WHO trachoma yellow book updates, a planning module for national governments on tackling TT backlogs and advocacy to back that up and outreach best practices guidelines. A report on the outcomes of the TT best practices meeting in January 2012 has recently been published (ICTC).

2013/2014 Focus

Our primary activities in 2013 and 2014 will be the Ethiopia Trachoma Scale-Up Initiative, support for the Sightsavers Trachoma Fast Track Initiative and the Pacific Elimination of Trachoma Program. Additional activities will include development of advocacy tools and technical support.

The Ethiopia Trachoma Scale-Up Initiative

The Ethiopia Trachoma Scale-Up Initiative is a DFID-funded pilot project for trachoma mapping. Mapping methodology, training and resource packages for the mapping teams were finalized in November 2012 and the surgical planning and MDA preferred practice workshops were done in 2012. Oromia, with a population of 32 million people, will finish being mapped by April 2013 and FHF plans to start full SAFE implementation in 10 prioritized districts in 2013. Coordination and planning in three other Ethiopian regions is underway. FHF is developing partnerships with local NGOs who will implement F and E activities and planning for between four and six mobile trichiasis surgical teams, with a target of conducting 10,000 surgeries in Oromia in 2013. Finally, FHF was registered with the Ethiopian government, meaning that FHF can now open an Ethiopian office, appoint staff and fully implement all SAFE interventions.

The Pacific Elimination of Trachoma Project

The Pacific Elimination of Trachoma Project is a collaborative initiative with International Agency for the Prevention of Blindness, West Pacific Regional (APB WPR), World Health Organization, West Pacific Region Office (WHO WPRO), national governments and NGOs. The Solomon Islands, Fiji, Kiribati, Vanuatu, Papua New Guinea, Samoa and Tonga are in the process of being mapped. Fiji has an average TF prevalence of 15% among children one to nine years old and Kiribati has an average prevalence of 22%. The six Solomon Islands Provinces that have been mapped range between 12% and 29% TF among children ages one to nine. The last three provinces will be mapped soon. The mapping exercise presents a variety of challenges in the Pacific Islands. The prevalence of trichiasis varies a lot, but more disease than expected was seen in Fiji. Very small island communities in Kiribati, Tuvalu, and Tonga present a challenge and modified TRAs may be appropriate. Yaws in Vanuatu, Solomons, and Papua New Guinea is complicating MDA and more research is being planned by the Global Trachoma Mapping Project and WHO. Finally, Papua New Guinea is a major challenge due to its size, security, and low level of buy-in from the MOH.

Conclusion

The Fred Hollows Foundation continues to be a key partner in the elimination of blinding trachoma and is in the process of scaling up their activities in Ethiopia and the Pacific Islands.

CBM trachoma update 2013

Presented by Dr. Martin Kollmann, CBM

Introduction

CBM is an international Christian development organization, committed to improving the quality of life of people with disabilities in the poorest communities of the world. In lower-income regions of the world, CBM strives to build the capacity of partner organizations. With more than 100 years of experience, CBM focuses on sustainable development in often-difficult environments, providing technical expertise, funding, equipment and consumables. Based on a comprehensive SAFE approach, CBM works with national trachoma programs supporting both governmental and non-governmental partners. Partners report CBM-supported trachoma activities directly to governments under their own name. The following reflect data from 2012 activities.

Surgery

CBM registered support for 26,702 surgeries in 2012 (incomplete data). CBM supports surgeries mainly in Africa, Asia and the Eastern Mediterranean Region. Our main countries include Ethiopia, Nigeria, Myanmar, and China.

Antibiotics

CBM supported the distribution of 1,515,034 treatments with azithromycin and 67,971 treatments with tetracycline eye ointment (TEO) for active trachoma, with the highest number in Africa, followed by Asia, Eastern Mediterranean Region and Latin America. Only TEO was distributed in Latin America. Main countries where CBM is supporting the implementation of MDA include Ethiopia, Nigeria, and Zambia.

Facial Cleanliness and Environmental Improvement

Out of a total of 2,276,403 persons trained with CBM support on water and sanitation under our NTD mandate, 835,685 persons were educated on face washing for trachoma prevention (700,324 community-based and 135,362 school-based). Our main countries include Burundi, Ethiopia, Chad, Myanmar, and Egypt. CBM supported the construction of 4,462 latrines, with the majority being built in trachoma-endemic countries in Africa. CBM also supported the construction of 1,009 clean water sources, 512 in Chad alone.

CBM supported the training of 70,201 people, including 2,312 community members and 321 health workers on F & E alone. Trichiasis surgeons are mainly trained as part of extensive medical eye care training programs for OCOs/AMOs and ophthalmic nurses.

Conclusion

Supporting a continuum of care and comprehensive SAFE approach, trachoma is addressed under CBM's medical eye care, NTD, and community-based rehabilitation mandates. We currently support the mapping of trachoma (alone or as part of coordinated NTD mapping) in Nigeria, Zambia, CAR, and Chad. Results from the Global Trachoma Mapping Project (GTMP) will necessitate expanded support from NGOs and other stakeholders to implement comprehensive SAFE activities. CBM currently supports comprehensive NTD work in Burundi and Nigeria, and is in the process of expanding this approach to other countries such as South Sudan and DRC.

Accelerated achievements in localities with TF prevalence of 5-9% among children ages one to nine

Presented by Ms. Zeinab Abdulla, The Carter Center Sudan

The WHO recommends the full SAFE strategy to eliminate blinding trachoma. Mass drug administration (MDA) is recommended for all districts with a baseline prevalence of TF among children ages one to nine years ($TF_{1-9y} \geq 10\%$) at the district and sub-district levels for three sequential years. In 2010, Sudan completed baseline trachoma prevalence surveys in 88 localities (districts). The prevalence of TF_{1-9y} was $\geq 10\%$ in three localities, 5-9% in 11 localities and $< 5\%$ in the remaining 74. The full SAFE strategy was implemented for the localities with $TF_{1-9y} \geq 10\%$, and also for two localities out of the 11 with TF_{1-9y} 5-9% (Dongola and Baw). After three rounds of MDA in Dongola and two rounds in Baw locality, these localities were resurveyed; TF_{1-9y} had decreased to less than 1% in both localities. These experiences suggest that reduction of TF_{1-9y} to $< 5\%$ can be achieved through high coverage MDA for the whole district in less time than the recommended multiple year distribution. This raised a question of “Is it possible to reduce TF prevalence in less than three years to below 5% for districts with baseline prevalence between 5-9%?”

In order to answer to this question, the remaining nine districts with TF_{1-9y} 5-9% were randomized to one of two groups. One group received district-wide MDA, followed by sub-district impact assessment after one year, in which MDA will continue for a second year if the district level is still above 5%. Two of these districts, Al Quraisha and Sawakin, received MDA; coverage for these districts was high: 83.8% and 91.0%, respectively. The other two districts, Abu Jebaiyha and El Jabalain, did not receive MDA. The other groups were first surveyed at the sub-district level; sub-districts found to have $TF \geq 10\%$ would receive three years of MDA. In all three sub-districts of Port Sudan in Red Sea State, $TF_{1-9y} \leq 10\%$; $TF \geq 10\%$ in all sub-districts of Al Rahad locality; and $TF \geq 10\%$ in two out of three sub-districts in each of Baladyat Al Gedarif, Al Fashaga in Gedarif state and Al Dinder locality in Sinnar state. All sub-districts with $TF_{1-9y} \geq 10\%$ were eligible for three rounds of MDA, requiring an estimated 2,563,265 doses of Zithromax®. Had we conducted a single district-wide MDA, it would have required an estimated 1,127,000 doses. In addition to accelerating trachoma elimination, there is the expectation that a single round of MDA may save time, money, and use less drug. Surveys were carried out using an Android-based platform designed specifically for prevalence surveys called *Swift Insights*. This software was then uploaded to Barnes and Noble ‘Nook’ e-Readers. This made data collection for these sub-district surveys easy and saved time and resources.

Sub-District Trachoma Prevalence (Eligible for three rounds of MDA if TF₁₋₉ >10%)

State	District	Baseline TF%	Sub-district	TF % (95% CI)	Weighted district, % (95% CI)
Red Sea	Port Sudan	5.4 (3.6-8.2)	Al Shargi	2.0 (1.2-3.2)	3.1 (2.1-4.4)
			Al Janobi	3.5 (2.1-5.9)	
			Al Awsate	3.0 (1.8-5.1)	
Gedarif	B. Al Gedarif	5.9 (4.1-8.4)	A	8.9 (5.3-14.4)	13.1 (8.3-20.0)
			B	18.0 (8.6-33.9)	
			C	11.8 (7.0-19.25)	
	Al Fashga	6.1 (4.3-8.6)	Al Shouak	3.4 (1.9-6.3)	17.1 (12.5-22.9)
			Al Loukadi	29.8 (25.8-34.1)	
			Basalam	18.3 (10.7-29.3)	
	Al Rahad	7.1 (5.4-9.2)	Al Hawata	26.7 (20.9-33.5)	27.5 (22.5-33.1)
			Al Mafaza	27.2 (15.6-43.1)	
			Wad Al Shaer	29.1 (22.5-36.7)	
Sinnar	Al Dinder	8.5 (6.4-11.1)	West Al Dinder	6.0 (2.9-11.9)	10.2 (7.0-14.8)
			East Al Dinder	10.1 (4.0-23.4)	
			Al Dinder City	13.7 (9.6-19.1)	

Trachoma prevalence in two states of Nigeria after two rounds of mass drug administration

Presented by Dr. Asrat Genet Amnie, William Foege Global Health Fellow, Rollins School of Public Health, Emory University

Impact assessments generate evidence for decision-making on further program implementation including continuation of the existing program, expansion of the existing program, modification of an existing program, stopping an existing program, or commencement of a new program. A cross-sectional survey was conducted in Plateau and Nasarawa States in Nigeria to determine trachoma prevalence after two years of mass drug administration. Each state was considered a separate domain. Twenty clusters, in this case census enumeration units, were randomly selected per domain. A total of 793 households, 1,530 children aged one to nine years old, 2,138 adults aged 15 years or older, and 3,990 study subjects were included.

Clinical signs of TF among children ages one to nine years old dropped from 13.9% to 4.9% in Plateau State between baseline and impact evaluation. Clinical TF signs dropped from 12.1% to 1.6% in Nasarawa between baseline and intervention. Clinical signs of trichiasis dropped from 1.2% to 0.4% among adults aged 15 and older in Plateau and decreased from 0.3% to 0.0% in Nasarawa. The baseline figures stated here compare an averaged prevalence from the three intervention local government areas (LGAs) in Plateau and the four intervention LGAs in Nasarawa.

The study also assessed antibiotic coverage during the previous MDA. The study results showed that 58.2% of respondents reported taking azithromycin or tetracycline eye ointment in Nasarawa and 31.1% reported taking the drugs in Plateau. This coverage shows a drop of 60.3% to 31.1% in Plateau from an earlier coverage assessment following the first round of MDA. However, it was later discovered that 16 of the 40 selected enumeration units were not on the state MDA list used for drug distribution.

Other findings included an overall latrine coverage of 18.2% and latrine use of 98.6% among those with latrines. The results show an increase of latrine coverage from 21% at baseline to 29.2% post-intervention in Plateau and a decrease from 21.8% at baseline to 15.2% in Nasarawa.

In conclusion, there has been a significant reduction in the prevalence of TF after two rounds of MDA in both Plateau and Nasarawa states. This interim assessment supports anecdotal evidence that the states may have reached their elimination targets of less than 5% TF among children ages one to nine years. A third round of MDA will take place in the spring of 2013, and formal sub-district impact assessments will be conducted six months after the third round of MDA. This study supports that two rounds of MDA may be effective in reducing TF prevalence where there is sustained implementation of F and E components of the SAFE strategy, although the coverage of MDA has been consistently below 80%. Findings should be replicated in more robust designs, such as a prospective longitudinal study.

The Nigeria trachoma control program should strengthen the distribution mechanism to ensure adequate coverage in the future; strengthen capacity to ensure local ownership and sustainability of trachoma control programs with equal focus on environmental measures; and help governments and partners reach more people, do better and go faster towards the goal of GET 2020 by implementing innovative strategies.

Best practices in health education

Presented by Ms. Lisa Dickman, The Carter Center

Health education is a vital component of each part of the SAFE strategy. Health education as part of the ‘S’ and ‘A’ components attempts to persuade a person to have surgery or take antibiotics. Health education as part of ‘F’ and ‘E’ attempts to change behavior related to hygiene and sanitation practices.

Last fall, The Carter Center began to investigate health education practices in countries we support. We set out to answer two questions: what are the best practices in trachoma health education, and what can be scaled-up? Communities and schools were purposively sampled to identify areas known to have best health education practices. To date, we have finished assessments in Ethiopia, Mali, and South Sudan and have started in Sudan.

Health education for children

The findings indicate that children can act as agents of change and should be targeted for health education both inside schools and out. Interventions targeting students include implementing a trachoma curriculum, promoting hygiene and sanitation practices in schools, establishing school health/trachoma clubs and engaging the community. Community engagement is especially important to reach children who do not attend school.

School clubs in Ethiopia and Sudan utilize songs, drama, speeches, and question-and-answer competitions to educate students and community members about trachoma. One innovative practice was giving hygiene bags to winners of the question-and-answer competitions. These clubs may be called a trachoma or environmental health or health club depending on their scope of work.

Examples of best practices in health education include school-led total sanitation, including peer assessment and age and gender specific latrines; a school-based MDA campaign launch ceremony; and community meetings that led to the building of 75 latrines.

Community-wide health education

Trachoma health education targets all members of the community during surgical campaigns, mass drug administration campaigns, soap-making microfinance schemes and when building latrines. Best practices identified in community health education include presenting flipcharts made of durable materials with text on the back of each page, showing culturally-appropriate videos during surgical campaigns, sharing testimonials from TT patients who have undergone surgery or taken azithromycin, broadcasting radio messages, and deploying community health workers. Community health workers are trusted individuals who deliver health education to their peers and exemplify healthy behaviors. Community health workers use a variety of venues to disseminate trachoma health education, including cultural ceremonies, house to house visits, religious gatherings and schools.

Recommendations

Recommended practices from the assessment thus far include identifying the various motivating messages that encourage people to change their behaviors. Once identified, this message should be interwoven into

posters, curricula, presentations and drama. For example, fear of blindness was a common motivator identified in Ethiopia.

Once the motivating message has been identified, programs should review what practices should be scaled up to either a regional, national or international level. Scale-up requires political support and prioritization by key stakeholders; money in the budget to fund materials, training and implementation; and adequate staff to develop materials, train health educators and supervise. Materials, whether posters or radio messages, should use local languages and show images that reflect the local lifestyle. They should be easy to use and durable. Finally, successful scale-up should build on pre-existing programs if possible and provide adequate training for educators.

Training should be based on adult learning principles that include hands-on, practical components and learning by doing. Trainings should foster creativity and participant input. One recommendation generated from this assessment is to start the training with the understanding that innovation is encouraged. Utilize cultural strengths such as cultural dramas in Mali. It helps to have clear expectations about what key points to include, but then allow students, health workers and other educators create the drama, songs and poems according to their traditional practices. Finally, educators should be taught to tailor their health messages to the community's needs.

Collaboration with partners that are also conducting health education can increase the number of people reached by health education messages. Successful collaborations include partnerships with UNESCO and UNICEF to integrate trachoma into their life skills manual and the use of trachoma flipcharts by PAHO and CARE hygiene promoters in South Sudan. Collaboration may include integration in a pre-existing system. During our health education projects, we identified impressive examples of collaboration and integration in the preexisting system. For example, in Ethiopia the trachoma control program partners with the government health extension workers to jointly intervene in schools and communities.

In order to eliminate blinding trachoma worldwide, we need to identify and replicate the health practices that work, including school health education, flipcharts, community health worker training and mass media. Successful health education interventions rely on identifying the messages that motivate behavior change, building off existing systems, creating and distributing materials and training health educators. This needs to be done more, better, faster in order to achieve the elimination goal.

LONDON DECLARATION ON NEGLECTED TROPICAL DISEASES

- *For decades, partners including pharmaceutical companies, donors, endemic countries and non-government organisations have contributed technical knowledge, drugs, research, funding and other resources to treat and prevent Neglected Tropical Diseases (NTDs) among the world's poorest populations. Great progress has been made, and we are committed to build on these efforts.*

*Inspired by the World Health Organization's 2020 Roadmap on NTDs, we believe there is a tremendous opportunity to control or eliminate at least 10 of these devastating diseases by the end of the decade. But no one company, organization or government can do it alone. With the right commitment, coordination and collaboration, the public and private sectors will work together to enable the more than a billion people suffering from NTDs to lead healthier and more productive lives – helping the world's poorest build self-sufficiency. As partners, with our varied skills and contributions, **we commit to doing our part to:***

- Sustain, expand and extend programmes that ensure the necessary supply of drugs and other interventions to help **eradicate** Guinea worm disease, and help **eliminate** by 2020 lymphatic filariasis, leprosy, sleeping sickness (human African trypanosomiasis) and blinding trachoma.
- Sustain, expand and extend drug access programmes to ensure the necessary supply of drugs and other interventions to help **control** by 2020 schistosomiasis, soil-transmitted helminthes, Chagas disease, visceral leishmaniasis and river blindness (onchocerciasis).
- Advance R&D through partnerships and provision of funding to find next-generation treatments and interventions for neglected diseases.
- Enhance collaboration and coordination on NTDs at national and international levels through public and private multilateral organisations to work more efficiently and effectively together.
- Enable adequate funding with endemic countries to implement NTD programmes necessary to achieve these goals, supported by strong and committed health systems at the national level.
- Provide technical support, tools and resources to support NTD-endemic countries to evaluate and monitor NTD programmes.
- Provide regular updates on the progress in reaching the 2020 goals and identify remaining gaps.

To achieve this ambitious 2020 vision, we call on all endemic countries and the international community to join us in the above commitments to provide the resources necessary across sectors to remove the primary risk factors for NTDs—poverty and exposure—by ensuring access to clean water and basic sanitation, improved living conditions, vector control, health education, and stronger health systems in endemic areas.

We believe that, working together, we can meet our goals by 2020 and chart a new course toward health and sustainability among the world's poorest communities to a stronger, healthier future.

Trachoma: The disease

Trachoma is the world's leading cause of infectious blindness. The World Health Organization (WHO) estimates that 1.2 million people are blind due to trachoma, most of whom are women, and another 325 million are at risk of blindness or severe visual impairment. Approximately 7.2 million are in the advanced stage of the disease, 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 World Health Organization 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 GET2020 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.

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®, recommitted to supporting the WHO GET2020 goal of eliminating blinding trachoma by the year 2020. Since the beginning of the donation in 1998, approximately 275 million doses of Zithromax® have been donated by Pfizer Inc and managed by the International Trachoma Initiative. The donation has reached 23 countries with plans to expand to an additional five countries in 2013. The existence of the donation program has served to invigorate national trachoma programs and global support for the elimination of blinding trachoma.

Progress towards Ulimite Intervention Goals (UIGs) 2012

Definitions Used

Surgery	$\frac{\text{Sum of surgeries to date}}{\text{Sum of surgeries to date} + \text{most recent backlog}}$
Antibiotics*	$\frac{\text{Annual sum of azithromycin and TEO distributed}}{\text{Total population where TF in children ages 1-9} > 10\%}$
Facial Cleanliness	$\frac{\text{Number of villages in which there is routine health education}}{\text{Total number of villages in districts where TF in children ages 1-9} > 10\% + \text{any villages where TF in children ages 1-9} > 10\% \text{ in non-endemic districts}}$
Environmental Improvement**	$\frac{\text{Sum of household latrine construction to date}}{\text{Total households without a latrine} \times 0.5}$

NB: Progress against UIGs was calculated for both Carter Center-assisted output and for national program output.

**The goal for antibiotic distribution is not strictly a UIG; it is the proportion of the Annual Treatment objective obtained.*

***The Millenium Development Goal 7c (MDG7c) calls to halve the proportion of the population without access to a latrine by 2015.*

Efficient program delivery: “Doing more, better, faster”
The Fourteenth Annual Trachoma Control Program Review
March 11-13, 2013

Monday, March 11 (“More”)

8:00	*Shuttle Pick-up at Hotel*	
8:30 – 9:00	<u>Breakfast</u>	
9:00 – 9:30	Welcome and Introductory Remarks Participant Introductions	Dr. Donald Hopkins
9:30 – 10:00	Opening Remarks	Dr. Paul Emerson
10:00 – 11:00	Ethiopia—Amhara Perspective	Sr. Zebideru Zewdie Abebe
11:00 – 11:30	<u>Coffee Break & Group Photo</u>	
11:30 – 12:30	Sudan	Dr. Nabil Aziz Awad Alla
12:30 – 12:45	Structure and Purpose of Operational Research Conducted / Hosted by The Carter Center in Support of the Global Program	Dr. Paul Emerson
12:45 – 1:45	<u>Lunch</u>	
1:45 – 2:00	<u>Announcements</u>	
2:00 – 2:30	“A Living Death”: A Qualitative Assessment of Quality of Life among Women with Trichiasis in Rural Niger	Ms. Stephanie Palmer
2:30 – 3:00	Progress in the Global Mapping of Trachoma	Mr. Simon Bush
3:00 – 3:30	Decisions, Decisions... Interpreting WHO Guidelines: Starting, Stopping and Initiating Surveillance in Trachoma Elimination Programs	Mr. Jonathan King
3:30 – 4:00	<u>Coffee Break</u>	
4:00 – 4:30	Getting 'More' for Trachoma Control: WASH/NTD Cross- sectoral Dialogue, Impact, and Implications for F and E"	Ms. Stephanie Ogden / Dr. Matthew Freeman
4:30 – 4:45	Update from the International Coalition for Trachoma Control	Dr. Martin Kollmann
4:45 – 5:00	Update from the International Trachoma Initiative/Pfizer Inc	Dr. Danny Haddad / Ms. Julie Jenson
5:00 – 5:15	Update from Sightsavers	Dr. Agatha Aboe
5:30	*Shuttle Departure for Sheraton Atlanta Hotel*	

Tuesday, March 12 (“Better”)

8:00	*Shuttle Pick-up at Hotel*	
8:30 – 9:00	<u>Breakfast</u>	
9:00 – 10:00	South Sudan	Dr. Lul Riek
10:00 – 11:00	Niger	Dr. Kadri Boubacar
11:00 – 11:30	<u>Coffee Break</u>	
11:30 – 12:00	Current and Future Collaboration with Swiss Tropical and Public Health Institute	Dr. Jürg Utzinger
12:00 – 12:30	30 x 7 Post – MalTra Coverage Surveys, a Reasonably Quick Way of Getting to the Truth	Dr. Zerihun Tadesse
12:30 – 12:45	Update from Collaboration with University of California, San Francisco	Dr. Jeremy Keenan
12:45 – 1:45	<u>Lunch</u>	
1:45 – 2:00	<u>Announcements</u>	
2:00 – 2:30	Post-Operative Follow-up of Trichiasis Patients	Dr. Kadri Boubacar
2:30 – 3:00	The Risk of Presenting TS after Multiple Years of Exposure to Safe	Mr. Jonathan King
3:00 – 3:30	<u>Coffee Break</u>	
3:30 – 4:00	Getting the Target Right: Systematic Differences between School Going and Non-School Going Children in Ethiopia	Ms. Aisha Stewart
4:00 – 4:30	Developing a Toolbox of Ideas on Best Practices in MDA	Dr. Paul Courtright
5:30	*Shuttle Departure for Sheraton Atlanta Hotel	
6:00 – 9:00	Reception at Sheraton Atlanta Hotel	

Wednesday, March 13 (“Faster”)

8:00	*Shuttle Pick-up at Hotel*	
8:30 – 9:00	<u>Breakfast</u>	
9:00 – 10:00	Nigeria	Dr. Benjamin Nwobi
10:00 – 11:00	Mali	Dr. Bamani Sanoussi
11:00 – 11:15	Update from Fred Hollows Foundation	Dr. Richard Le Mesurier
11:15 – 11:30	<u>Coffee Break</u>	
11:30 – 12:00	Tchad	Dr. Djore Dezoumbe
12:00 – 12:30	Development of a Standardized Grading System for Clean Face	Dr. Paul Emerson
12:30 – 12:45	Update from CBM	Dr. Martin Kollmann
12:45 – 1:45	<u>Lunch</u>	
1:45 – 2:00	<u>Announcements</u>	
2:00 – 2:30	Can We Save Two Years? Mass Drug Administration for One Year Versus Three Years of Targeted MDA for Districts with a Baseline Prevalence between Five and 9% TF	Ms. Zeinab Abdalla
2:30 – 3:00	Trachoma Prevalence in Nigeria after Two Rounds of MDA	Dr. Asrat Genet
3:00 – 3:30	Best Practices in Health Education	Ms. Lisa Dickman
3:30 – 4:00	<u>Coffee Break</u>	
4:00 – 5:00	Conclusions and Recommendations	
5:30	*Shuttle Departure for Sheraton Atlanta Hotel*	

Papers Published in 2012 by Carter Center Trachoma Program Staff

1. Keenan JD, See CW, Moncada J, Ayele B, Gebre T, et al. (2012) Diagnostic test characteristics of tests for ocular *Chlamydia* after mass azithromycin distributions. *Investigative Ophthalmology & Visual Science*. **53**: 235-240.
2. Keenan JD, Ayele B, Gebre T, Moncada J, Stoller NE, et al. (2012) Ribosomal RNA evidence of ocular *Chlamydia trachomatis* infection following 3 annual mass azithromycin distributions in communities with highly prevalent trachoma. *Clinical Infectious Diseases* **54**: 253-256. doi: 10.1093/cid/cir791.
3. Gouda H, Powles J, Emerson P, & Ngondi J. (2012) The burden of trachoma in South Sudan: assessing the health losses from a condition of graded severity. *PLoS Neglected Tropical Diseases* **6**: e1538. doi:10.1371/journal.pntd.001538.
4. Rajak SN, Habtamu E, Weiss H, Bedri A, Gebre T, et al. (2012) Epilation for trichomatous trichiasis and the risk of corneal opacification *Ophthalmology* **119**: 84-9.
5. Keenan JD, Moncada J, Gebre T, Ayele B, Chen MC, et al. (2012) Chlamydial infection during trachoma monitoring: are the most difficult-to-reach children more likely to be infected? *Tropical Medicine and International Health* **17**:392-6. doi: 10.1111/j.1365-3156.2011.02919.
6. Ayele B, Aemere A, Gebre T, Tadesse Z, Stoller NE, et al. (2012) Reliability of measurements performed by community-drawn anthropometrists from rural Ethiopia. *PLoS ONE* **7**: e30345. doi:10.1371/journal.pone.0030345.
7. Rajak SN, Habtamu E, Weiss HA, Bedri A, Zerihun M, et al. (2012) Why do people not attend for treatment for trichomatous trichiasis in Ethiopia? A study of barriers to surgery. *PLoS Neglected Tropical Diseases* **6**: e1766. doi:10.1371/journal.pntd.0001766.
8. Cromwell EA, Ngondi J, McFarland D, King JD, & Emerson PM. (2012) Methods for estimating population coverage of mass distribution programs: A review of practices in relation to trachoma control. *Transactions of the Royal Society of Tropical Medical and Hygiene* **106**:588-595.
9. Burton MJ, Rajak SN, Ramadhani A, Weiss HA, Habtamu E, et al. (2012) Post-operative recurrent trichomatous trichiasis is associated with increased conjunctival expression of *S100A7* (Psoriasin). *PLoS Negl Trop Dis* **6**: e1985. doi:10.1371/journal.pntd.0001985.
10. Gebre T, Ayele B, Zerihun M, Genet A, Stoller NE, et al. (2012) Comparison of annual versus twice-yearly mass azithromycin treatment for hyperendemic trachoma in Ethiopia: a cluster-randomised trial. *Lancet*. **379**:143-51.

Non Peer-Reviewed Papers Published by Carter Center Trachoma Program Staff 2012

1. Courtright P, Burton M, & Emerson, P (2012) Eliminating Trichiasis: the next steps forward. *Community Eye Health Journal*: **25**; 38.
2. Emerson P, Kollmann M, MacArthur C, Bush S, & Haddad D (2012) SAFE strategy for elimination of blinding trachoma addresses sanitation, the other half of MDG 7. *Lancet*: **380**; 27–28, doi:10.1016/S0140-6736(12)61122-2.
3. Solomon AW, Mabey DCW, Gilbert C, Griffiths U, Mills A, et al. (2012) Don't let misinformation derail the trachoma elimination programme. *BMJ*: **344**: e2579.

Program Review Participants

Chad

Dr. Djoré Dezoumbé (PNLC)

Ethiopia

Sr. Zebideru Zewudie Abebe (ARHB)
Dr. Zerihun Tadesse (The Carter Center)
Mr. Tesfaye Teferi (The Carter Center)
Mr. Mulat Zerihun (The Carter Center)

Mali

Dr. Bamani Sanoussi (PNLCC)
Mr. Sadi Moussa (The Carter Center)
Mr. Yaya Kamissoko (The Carter Center)

Niger

Dr. Kadri Boubacar (PNLC)
Mr. Mohamed Salissou Kané (The Carter Center)
Dr. Sabo Hassan Adamou (The Carter Center)

Nigeria

Dr. Bridget Okoeguale (FMOH)
Dr. Benjamin Nwobi (FMOH)
Dr. Emmanuel Miri (The Carter Center)
Dr. Nimzing Jip (The Carter Center)

South Sudan

Dr. Lul Riek (FMOH)
Mr. David Stobelaar (The Carter Center)
Ms. Angelia Sanders (The Carter Center)

Sudan

Dr. Nabil Aziz Awad Alla (The Carter Center)
Ms. Zeinab Addalla (The Carter Center)

CBM

Dr. K.H. Martin Kollmann

The U.S. Centers for Disease Control and Prevention

Dr. Christine Dubray
Dr. Manoj Gambhir
Dr. Diana Martin
Dr. Stephen Blount
Dr. Monique Petrovsky

Conrad N. Hilton Foundation

Mr. Gregory Anderson

Francis I. Proctor Foundation

Dr. Jeremy Keenan
Ms. Nicole Stoller

Fred Hollows Foundation

Dr. Richard Le Mesurier
Ms. Virginia Sarah

Helen Keller International

Ms. Emily Toubali

Humanity Press

Mr. John Caldwell
Ms. Jill Freeman

International Trachoma Initiative

Dr. Danny Haddad
Dr. Huub Gelderblom
Mr. Colin Beckwith
Mr. Noah Kafumbe
Ms. Chantal Veira
Ms. Birgit Bolton
Ms. Joanna Pritchard

Kilimanjaro Centre for Community Ophthalmology

Dr. Paul Courtright

Lions Clubs of Ethiopia

The Honorable World Laureate Dr. Tebebe Y. Berhan

Lions Clubs International Foundation

Ms. Rebecca Daou
Mr. Mohama Tchatagba

London School of Hygiene and Tropical Medicine

Dr. Matthew Burton
Dr. Tom Clasen

Pfizer Inc

Ms. Julie Jenson

The Queen Elizabeth Diamond Jubilee Trust

Dr. Astrid Bonfield

RTI International

Ms. Lisa Rotondo

Mr. Scott McPherson

Rollins School of Public Health

Dr. Christine Moe

Dr. Deb McFarland

Dr. Matthew Freeman

Dr. Asrat Genet

Ms. Aisha Stewart

Mr. Will Oswald

Ms. Kim Jensen

Ms. Caitlin Casey

Sightsavers

Mr. Simon Bush

Dr. Agatha Aboe

Dr. Tom Millar

Ms. Susan Walker

Swiss Tropical and Public Health Institute

Dr. Jürg Utzinger

Taskforce for Global Health

Dr. Mark Rosenberg

Dr. Adrian Hopkins

Ms. Stephanie Ogden

The Carter Center

Ms. Sarah Bartlett

Ms. Rebecca Brookshire

Ms. Kelly Callahan

Ms. Angela Daniels

Mr. Yohannes Dawd

Mr. Don Denard

Ms. Lisa Dickman

Dr. Paul Emerson

Mr. Walker Griffith

Dr. John Hardman

Ms. Madelle Hatch

Ms. Alicia Higginbotham

Dr. Donald Hopkins

Ms. Patsy Irvin

Ms. Nicole Kruse

Mr. Jonathan King

Ms. Martha Lucas

Ms. Renn McClintic-Doyle

Mr. Aryc Mosher

Mr. Kent 'Oz' Nelson

Ms. Yasmin Ogale

Ms. Stephanie Palmer

Dr. Amy Patterson

Ms. Lindsay Rakers

Dr. Frank Richards

Dr. Ernesto Ruiz-Tiben

Ms. Paige Rohe

Ms. Alethia Sanon

Mr. Randall Slaven

Ms. Shandal Sullivan

Mr. Craig Withers