

SUMMARY PROCEEDINGS

ELEVENTH ANNUAL TRACHOMA CONTROL PROGRAM REVIEW

**PLANNING FOR TRACHOMA ELIMINATION, DISTRICT
BY DISTRICT**

THE
CARTER CENTER



Waging Peace. Fighting Disease. Building Hope.

**Atlanta, Georgia
March 29-31, 2010**

**Supported by:
Conrad N. Hilton Foundation
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“Planning for Trachoma Elimination, District by District”

The Eleventh Annual Trachoma Control Program Review



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ACRONYMS

AMREF	African Medical and Research Foundation	OLS	Operation Lifeline Sudan
BoC	Board of Councilors	ORDA	Organization for Rehabilitation and Development in Amhara
BLTR	Bilamellar Tarsal Rotation	PCR	Polymerase Chain Reaction
cbm	Christoffel Blindenmission	PCT	Preventative Chemotherapy
CDC	U.S. Centers for Disease Control and Prevention	PDB	Prevention of Blindness and Deafness
CEO	Chief Executive Officer	PNLC(C)	Programme National de Lutte contre la Cecité
CLTS	Community Led Total Sanitation	RTI	Research Triangle Institute International
CNHF	Conrad N. Hilton Foundation	SAFE	Surgery, Antibiotics, Facial Cleanliness & Environmental Improvement
CRS	Cluster Random Sampling	Sanplat	Modified Mozambique Sanitation Platforms
DANIDA	Danish International Development Agency	SSI	SightSaver's International
DFID	UK Department of International Development	STH	Soil Transmitted Helminths
FINIDA	Finnish International Development Agency	STTEM	Survey Toolkit for Trachoma Elimination Monitoring
FMOH	Federal Ministry of Health	TANA	Trachoma Amelioration in Northern Amhara
GET2020	Alliance for the Global Elimination of Blinding Trachoma by 2020	TEC	Trachoma Expert Committee
GOS	Government of Sudan	TRA	Trachoma Rapid Assessment
GOSS	Government of Southern Sudan	TF	Trachomatous Inflammation-Follicular
GTM	Garbet Tehadisso Mahber (Ethiopian NGO)	TI	Trachomatous Inflammation Intense
HEW	Health Extension Worker	TT	Trachomatous Trichiasis
HKI	Helen Keller International	TTT	Treatment of Trachomatous Trichiasis
HPD	Health Programs Development	UIG/UTG	Ultimate Intervention/Treatment Goal
IDP	Internally Displaced Persons	UNICEF	United Nations Children's Education Fund
IMRF	International Medical Relief Fund	USAID	United States Agency for International Development
IQR	Inter-quartile Range	WHO	World Health Organization
IRB	Institutional Review Board		
ITI	International Trachoma Initiative		
JAMAL	Arabic equivalent of SAFE		
KAP	Knowledge, Attitudes, and Practices		
LCIF	Lions Clubs International Foundation		
LF	Lymphatic Filariasis		
LGA	Local Government Area (specific to Nigeria, analogous to a district)		
LSHTM	London School of Hygiene and Tropical Medicine		
MALTRA	Malaria and Trachoma Program		
MDA	Mass Drug Administration		
MDG	Millennium Development Goal		
MOH	Ministry of Health		
NGO	Non-Governmental Organization		
NPPB	National Program for the Prevention of Blindness		
NTD	Neglected Tropical Disease		

EXECUTIVE SUMMARY

Planning for Trachoma Elimination, District by District

The Eleventh Annual Program Review of trachoma control programs was held at The Carter Center, March 29-31, 2010. In addition to the six Carter Center-assisted programs, we were joined by our donors and partners from the World Health Organization, U.S. Centers for Disease Control and Prevention, International Trachoma Initiative, Helen Keller International, London School of Hygiene and Tropical Medicine, University of California San Francisco, Conrad N. Hilton Foundation, Pfizer Inc, Arthur M. Blank Foundation, Bill & Melinda Gates Foundation, Research Triangle Institute, the Task Force for Child Survival and Development, Sight Savers International, and the Lions Clubs International Foundation. In keeping with the theme of “**Planning for Elimination, District by District,**” presentations focused on program progress towards elimination goals to engender a shared vision in which every trachoma-endemic district has access to the SAFE strategy by 2015. All endemic districts must be actively controlling trachoma by 2015 to meet the target of Elimination by 2020!

As in previous years, the primary objectives of the program review were to assess the status of the national trachoma control programs, identify challenges encountered in planning and implementing those programs, discuss solutions and shared experience, and to promote sharing and standardization of information. Discussions during the program review meetings are country-specific, but the impact is global. The achievements, challenges, solutions and lessons learned continue to guide the evolution of the GET 2020 Alliance.

These proceedings reflect the thoughts, discussions and proposals made during the Eleventh Annual Program Review of trachoma control programs. Program review meetings offer a unique forum for trachoma control program managers, Carter Center staff, and partners to work face-to-face to review accomplishments and plan for the future. This year there was a tangible urgency from planners, partners and practitioners to move from the phase of control to elimination and to develop plans to eliminate blinding trachoma from each district. The group was inspired by the coordinator from Sudan who presented trachoma prevalence data for every district in Northern Sudan – a huge area requiring almost 100 separate surveys and taking three years to complete. It is now possible to plan to eliminate trachoma from the Northern States of Sudan (except for Darfur where insecurity and population instability have prevented survey work).

Special session highlights from this year’s review included presentations from the collaborative operational research programs in Ethiopia with the London School of Hygiene and Tropical Medicine and the Francis I. Proctor Foundation, University of California San Francisco (UCSF). The work with the London School is identifying best practices for the management of trichiasis cases. The collaboration with UCSF will determine the most rational use of antibiotic in trachoma control programs. Together, these two collaborative research projects are likely to refine the delivery of the global trachoma program, enabling us to do more, faster and better, for those suffering with trachoma and at risk from the vicious cycle of disease, dependence and poverty it leaves in its wake.

The review highlighted the partnership between the Lions Clubs International Foundation and the Conrad N. Hilton Foundation with The Carter Center. Particular focus was again on the Lions Clubs of Ethiopia and the Regional Health Bureau in Amhara. Sometime in 2010, this partnership will deliver their 50 millionth dose of azithromycin, operate the 200 thousandth patient and exceed 1.5 million household latrines. In Mali and Niger, a broad coalition of support to the national programs has them both on track for elimination by 2015. These partnerships are clear demonstrations to all involved in trachoma control that elimination is a real possibility and there is no reason to be daunted by scale or harsh terrain. If planning for the elimination of blinding trachoma for each district in Northern Sudan; Amhara, Ethiopia; Mali; and Niger can be done, and strong programs can be implemented, then surely we can defeat trachoma anywhere.

Ethiopia Trachoma Control Program

Presented by Dr. Asrat Genet Amnie, Head, Amhara Regional Health Bureau, Ethiopia

Background

In 2006, the Federal Ministry of Health of Ethiopia conducted a national blindness and low vision survey supported by The Carter Center, the International Trachoma Initiative, cbm, and other partners. The findings of this survey showed that the prevalence of blindness in Ethiopia, estimated at 1.6%, is among the highest in the world. Blindness from trachoma was attributed to 12% of all blindness nationally, second only to cataract. The national prevalence of trachoma (clinical grade TF) among children ages 1-9 years was estimated at 26.2% and trichiasis among adults 15 years and older was 3.1%. The second most populous country in Africa, Ethiopia is among the most severely affected trachoma-endemic countries worldwide. Although the prevalence of TF and TT vary by region, there are approximately 67 million people at risk for trachoma among a national population of approximately 75 million, and nearly 1.2 million people blind as a result of trichiasis. Table 1 shows the distribution of TF and TT by region.

Table 1 2006 Prevalence Data, by Region

Region	TF Children % (1-9 years)	TT Adults % (15 years and older)
Afar	1.9	1.0
Addis Ababa	0.5	0.9
Amhara	39.1	5.2
B-Gumuz	0.9	0.1
Dire Dawa	0.5	0.7
Gambella	14.6	2.5
Harari	2.6	1.2
Oromiya	24.5	2.8
Somali	16.7	4.2
SNNP	26.4	2.0
Tigray	20.8	2.3

The Amhara Regional State of Ethiopia is the most trachoma-endemic among all ten regional states. Home to almost 18 million people, the 2006 survey showed the regional prevalence of TF in children was 39.1% and TT in adults was 5.2%.

Timeline of Events

In October 2000, the Amhara Regional Health Bureau selected four *woredas* (districts) in South Gondar zone to launch trachoma control activities with support and funding from the Lions-Carter Center SightFirst Initiative: Dera, Ebinate, Estie, and Simada. The activities in these districts reached 155 *kebeles* (communities), with a total population exceeding one million persons. After trachoma control activities began, the Amhara Regional Health Bureau, the Prevention of Blindness Team of the Federal Ministry of Health, and The Carter Center conducted a community-based trachoma prevalence survey in the four *woredas* in December 2000. Survey results were consistent with anecdotal evidence of extremely high prevalence of both active and blinding trachoma (TF in children aged 1-9 years 49-90%; TT in adults 3.2-5.4%). A knowledge, attitudes and practices (KAP) survey including focus group discussions, informal interviews and a household survey was conducted in the same four districts one month later. The

findings from the KAP survey were used to create health education materials including posters, flipcharts, pamphlets, a primary school health education curriculum, and a community health worker training manual.

In 2005, the first national strategic plan for trachoma control was developed for the period 2006-2010. In the five-year plan, the FMOH set 2015 as the target date for the elimination of blinding trachoma as a public health problem.

In Ethiopia, the effort to eliminate trachoma is strengthened by the highly active participation of local Lions Clubs. Their leadership has made Amhara's trachoma control program one of the most productive in the world.

Regional Activities

With support from partners, the regional health bureaus implement trachoma control activities and coordinate SAFE strategy interventions, through a process decentralized from the Federal Ministry of Health.

Table 2 List of Regions and Supporting Partners

Region	2009 Population	Partner
Afar	4,532,8756	AMREF
Amhara	17,812,960	The Carter Center, cbm, Lions Clubs of Ethiopia, Menschen fur Menschen
Oromiya	28,756,503	cbm, GTM, World Vision
SNNP	15,927,649	ORBIS International
Somali	4,672,984	cbm, Light for the World
Tigray	4,532,875	cbm, Lions Clubs of Ethiopia

Trachoma Control in Amhara Regional State

In partnership with the Lions Clubs of Ethiopia and The Carter Center, the Amhara Regional Health Bureau has expanded trachoma control efforts from the original four *woredas* to reach all 151 *woredas* with the SAFE strategy. In 2007, trachoma control activities were integrated into malaria control, resulting in the "MalTra" project ("Mal" for malaria, "Tra" for trachoma). At the start of the MalTra project, a baseline survey was conducted to determine the zonal-level prevalence of trachoma (see Table 3). Under MalTra, trachoma and malaria control activities are integrated through routine health education and semi-annual MalTra weeks, where antibiotics are offered to the whole population and there is active malaria case detection and treatment.

The historic first MalTra week, held in November 2008, facilitated the distribution of more than five million doses of antibiotics in one week. Since then, three other MalTra weeks have been conducted. The MalTra week strategy has enabled the delivery of over 26 million antibiotic treatments in the Amhara region since 2008.

Table 3 Prevalence of TF and TT by zone in Amhara Region (Data from MalTra baseline survey, 2006-2007)

Domain	TF (ages 1-9 years)	TT (aged 0-14 years)	TT (aged 15 and above)
	Prevalence (%)	Prevalence (%)	Prevalence (%)
Amhara Region	32.7	0.3	6.2
Zones			
North Gondar	34.7	0.0	4.3
Waghemira	60.1	0.5	6.3
South Gondar	28.9	0.1	3.8
North Wollo	51.9	0.8	9.4
West Gojjam	33.1	0.4	10.0
Awi	38.9	0.1	5.4
East Gojjam	48.3	0.3	7.1
South Wollo	12.6	0.3	3.2
Oromia	28.7	0.1	2.4
North Shewa	23.2	0.3	9.0

Program Achievements in 2009

The national program made considerable progress towards its SAFE strategy Ultimate Intervention Goals (UIG). A summary of the targets and achievements is presented in Table 4. Although the program did not meet all its targets, the output achieved ranks Ethiopia as one of the most productive trachoma control programs in the world. In 2009, Ethiopia celebrated the construction of its one millionth household latrine.

Table 4 Program Achievements in 2009

Indicator	National Program Targets	National Program Output	Carter Center Targets (Amhara)	Carter Center Output (Amhara)
Persons operated on for trichiasis	207,480	72,123	100,400	35,681
Trichiasis surgeons trained	177	82	192	82
Doses of azithromycin distributed	25,100,000	15,695,222	14,718,780	13,395,792
Doses of tetracycline distributed	512,000	403,099	340,295	324,881
Villages reached through health education	*	*	3,465	3,432
Household latrines constructed	*	*	439,915	544,205

*Not presented

Trichiasis Surgery (S)

In Ethiopia, trichiasis surgery is offered free of charge through routine health service provision and surgical outreach campaigns. Partners working with the regional health bureaus provide support for the provision of surgical sets, consumables and other supplies. Trichiasis surgeons are trained to perform the Trabut procedure and are certified using World Health Organization (WHO) guidelines. Upon successful completion of training, surgeons are provided surgical sets to use during their routine health service tasks, in addition to participation in campaigns. Some surgeons seek patients through individual visits to communities where they operate in the *kebele*, others work through large-scale campaigns that attract hundreds of patients via radio and other

forms of mobilization. In 2009, 446 trichiasis surgery campaigns were conducted in the Amhara region, during which 33,230 people were operated on. An additional 2,451 people received surgery during routine health service provision. The program estimates that 64% of those operated on in 2009 were women. The Ethiopian Lions Clubs played a key role in the advocacy for trichiasis campaigns.

With support from Lions-Carter Center SightFirst Initiative in Amhara, 82 new TT surgeons were trained in 2009. The program reported a cumulative total of 671 surgeons as certified, of whom 467 are still active. Although there are no national data available on the number of active surgeons, the national program works with cbm, ORBIS and the Lions Clubs of Ethiopia to build capacity in comprehensive eye care.

The current UIG for surgery in the Amhara region is estimated at 473,824 people; this UIG is calculated using the 2007 zonal survey data and accounts for surgical productivity through 2009. Based on the 2006 survey, the national estimate for the TT surgical backlog is 1.2 million persons.

Antibiotic Distribution (A)

In Ethiopia, antibiotic distribution takes place using the existing health infrastructure, including the *woreda* supervisors and the *kebele* Health Extension Workers (HEWs). The *woreda* level supervisor has overall responsibility and oversees all field supervisors. Field supervisors are staff from health centers who each supervise three to four teams. Antibiotic distribution is directly observed and recorded in both *kebele* log books and tally sheets. A distribution campaign may last for ten days and is initially conducted at pre-specified convenient points within the *kebele* before teams trace missing families house-to-house.

In the Amhara region, antibiotic treatment is delivered through an integrated approach via MalTra Weeks. In 2009, a total of 134 *woredas* (out of 151) were reached with antibiotics in Amhara, with a reported coverage rate of 77% of the population at risk. The regional health bureaus assist in micro-planning, allocate staff to the campaigns, pay salaries during the campaign period, and provide transportation where possible. Since the Ethiopia trachoma control program began administering antibiotic, a cumulative total of almost 50 million doses have been distributed, of which 36 million have been distributed in the Amhara region.

Facial Cleanliness and Health Education (F)

Health education is an ongoing activity through the HEW program. HEWs use their health promotion schedule to encourage households to build latrines, practice good hygiene and keep their children's faces clean. During surgery and antibiotic campaigns, HEWs play a key role in social mobilization to advocate about the benefits of treatment with those at risk of trachoma infection or blindness from trichiasis.

In Amhara, 3,432 *kebeles* received ongoing health education in 2009 with Carter Center support. Trachoma messages include information on the source and cause of trachoma, the mode of transmission, trachoma treatment and prevention, a demonstration of face washing, home water management and latrine construction. The UIG for Amhara is to reach all endemic *kebeles* with health education and to reach the entire population with regional radio.

Environmental Improvement (E)

The Ethiopian Federal Ministry of Health has identified household sanitation as a priority intervention through the HEW program and, in 2009, adopted a form of Community-Led Total Sanitation (CLTS). The Amhara Regional Health Bureau also has adopted the CLTS approach, with a target to exceed Millennium Development Goal 7 by reducing the proportion of households without access to sanitation by 100% (MDG 7 calls for a 50% reduction).

In the Amhara region, traditional pit latrines are promoted. These latrines require only locally available materials for the pit and superstructure. HEWs serve as trainers for their communities, enlisting other community members to assist as volunteers. The program empowers heads of households to build individual household pit latrines in all project areas, with no specific training of masons or artisans.

The Amhara trachoma control program has estimated its regional UIG for latrine construction to be 1,189,166 household latrines. Support for sanitation promotion is provided through training of HEWs and community members to construct household latrines. The Amhara Regional Health Bureau works with The Carter Center, DANIDA, FINIDA, and the African Development Bank to support latrine construction.

Safe water provision is actively promoted by the Water Ministry and other NGO partners, including UNICEF, the World Bank, Plan International, World Vision, Millennium Water Alliance, and Save the Children. In Amhara, access to safe water among rural households is estimated at 56%. In 2006, a total of 119 small-scale water schemes in Lions-Carter Center supported trachoma-endemic areas were built through a partnership with the Lions Clubs of Ethiopia, cbm, ORDA, and The Carter Center. Approximately 10,613 households in 57 *kebeles*, around 38,098 people, benefited from this project.

Targets for 2010

Surgery (S)

- Operate on 235,374 persons for TT (79,284 in the Amhara region with Lions-Carter Center support);
- Train 187 TT surgeons (141 in the Amhara region with Lions-Carter Center support);

Antibiotics (A)

- Distribute azithromycin to 27,270,000 persons (15,890,435 in Amhara with Lions-Carter Center support);
- Distribute tetracycline to 556,000 persons (432,385 in Amhara with Lions-Carter Center support);

Health Education and Facial Cleanliness (F)

- Conduct health education in 3,465 trachoma-endemic villages (Amhara region only with Lions-Carter Center support);

Environmental Improvement (E)

- Facilitate the construction of 903,911 household latrines (Amhara region only with Lions-Carter Center support).

Table 5 Lions-Carter Center SightFirst Assisted Achievements from 2001 – 2009 in the Amhara Region, Ethiopia

Indicator	2001	2002	2003	2004	2005	2006	2007	2008	2009	% UIG Achieved
Persons operated on for trichiasis	815	4,019	6,840	23,676	22,097	7,283	28,425	31,561	35,681	27.0%
Trichiasis surgeons trained	8	11	19	67	75	27	193	185	82	N/A
Doses of azithromycin distributed	0	0	100,256	625,422	1,680,394	2,925,569	5,195,937	12,631,132	13,395,792	75.7%*
Doses of tetracycline distributed	1,042	7,964	35,106	125,208	256,048	261,733	343,963	352,152	324,881	N/A
Villages reached through health education	N/A	138	155	654	654	654	1,447	2,898	3,432	100.0%
Household latrines constructed	N/A	1,333	2,151	89,096	144,750	75,621	41,228	373,677	544,205	47.1%

*Antibiotic UIGs are based on number of doses of azithromycin plus tetracycline distributed; this percentage reflects doses of azithromycin plus tetracycline distributed.

Mali Trachoma Control Program

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

Background

The first national Malian trachoma prevalence survey, conducted in 1996-1997, found that trachoma was endemic in every region of Mali. At that time, the overall prevalence of active trachoma (TF and/or TI) in children under 10 years of age was 35% and the prevalence of trichiasis among women over 15 years of age was 2.5%. With these results, the National Prevention of Blindness Program (PNLC) was established. In October 1999, the Mali Trachoma Control Program was launched in Koulikoro in an official ceremony with former U.S. President Jimmy Carter, then former head of state General Amadou Toumani Touré (currently President of Mali) and former Lions Clubs International President, Jim Ervin.

The PNLC conducted knowledge, attitudes, and practice (KAP) surveys in Koulikoro region in 1996 and 2000 to gather baseline sociological data for the development of health education strategies. A survey found that in 2001, 23% of households nationally did not have a latrine (30% in rural areas). In 2003, the Mali National Division of Hygiene and the Trachoma Control Program began household latrine promotion in Kayes and Ségou regions with assistance from the International Trachoma Initiative (ITI) and The Carter Center. The Carter Center historically assisted the national program by supporting F&E interventions in Ségou and Mopti regions. In late 2008, Carter Center involvement in trachoma control was expanded to include support of the full SAFE strategy in Mali with renewed support from the Conrad N. Hilton Foundation in partnership with Helen Keller International (HKI).

In 2009, the Mali Trachoma Control Program implemented district-level trachoma prevalence surveys in Kayes, Kidal and Koulikoro regions. Mapping of Ségou and Sikasso regions was completed in early 2010.

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 the Neglected Tropical Disease Program
- 2008: The Carter Center and Helen Keller International expand support to help implement the full SAFE strategy
- 2015: Target date for elimination of blinding trachoma in Mali

Program Achievements in 2009

Table 1 Program Achievements in 2009

Indicator	National Program Targets	National Program Output	Carter Center Targets	Carter Center Output
Persons operated on for trichiasis	17,100	11,196	4,200	5,481
Trichiasis surgeons trained	25	0	25	0
Doses of azithromycin distributed	7,245,423	6,290,754	0	0
Doses of tetracycline distributed*	147,866	125,883	147,866	0
Villages reached through health education	9,000	10,491	1,834	1,722
Household latrines constructed	16,000	23,701	15,000	12,828

*The Carter Center purchases TEO for the national program but does not cover the cost of distribution.

Surgery (S)

Trichiasis surgery is available through the routine health service throughout Mali. However, since trichiasis surgery output from health facilities is low, the national program also supports outreach campaigns to increase the accessibility of trichiasis surgery among the target population. These campaigns are organized either by a single trichiasis surgeon traveling from community to community by motorcycle or through large-scale campaigns with teams of surgeons supported by vehicles. In 2009, a total of 11,196 surgeries were conducted, of which 503 were conducted through the routine health service. A total of 3,312 surgeries were conducted during motorcycle campaigns and another 7,381 were conducted via the large scale campaign approach. The current UIG for surgery estimates that 46,629 people need to be operated to meet the UIG (does not account for 2009 productivity).

Currently, none of the 158 trained TT surgeons have been certified using the WHO certification manual, as it is currently unavailable in French. The program estimates there are a total of 100 complete TT sets in country available for use. Rates of surgeon attrition and trichiasis recurrence are unknown.

Antibiotic Distribution (A)

Antibiotic distribution is community directed and takes place both door-to-door and in public gathering places. Mass distribution of antibiotics is supported by the Neglected Tropical Disease Initiative funded by USAID, with HKI serving as the implementing partner. The Carter Center provides tetracycline eye ointment to meet the needs of the national program. In 2009, a total of 6,290,754 doses of azithromycin and 125,883 doses of tetracycline eye ointment were distributed in the Kidal, Gao, Tombouctou, Ségou, Sikasso and Mopti regions, in addition to a few districts in Koulikoro and Kayes. The program estimates reaching 88.6% of the total population of the intervention areas in 2009 (excluding urban populations).

Facial Cleanliness and Health Education (F)

Health education activities are conducted through a multi-channel approach. Community radio stations are contracted to broadcast trachoma control messages and support mobilization for surgery and antibiotic distribution campaigns. The program currently reaches 10,491 villages with some form of health education. Training of community health workers, called *relais*, is supported by The Carter Center in Mopti, Ségou and Sikasso regions. The program also

supports the training of women's groups. The Ministry of Education is currently working with the Ministry of Health to include trachoma control in the primary school health education curriculum.

Environmental Improvement (E)

The national program promotes the construction of household latrines with Modified Mozambique Sanitation Platforms (Sanplat slabs). Masons are trained in Sanplat slab construction over two days and receive approximately \$1 from the household for their work. The cost of each latrine is estimated at \$50 including cement, iron bar and a contribution from the household for labor, sand and superstructure costs.

Water provision is supported by partners such as World Vision, Water Aid, UNICEF, and the Malian government.

Targets for 2010

Surgery (S)

- Operate on 12,910 persons with trichiasis (6,240 with Carter Center support);
- Certify active trichiasis surgeons according to the WHO guidelines;

Antibiotics (A)

- Distribute 3,764,289 doses of azithromycin;
- Distribute 70,847 doses of tetracycline;

Facial Cleanliness and Health Education (F)

- Reach 12,000 villages with health education (1,700 with Carter Center support);

Environmental Improvement (E)

- Build 25,000 household latrines (12,000 with Carter Center support).



A trichiasis surgeon examines a patient for trichiasis in Mali.

Table 2 National SAFE Productivity in Mali as Presented at The Carter Center Program Reviews, 1999-2009

Indicator	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% UIG Achieved
Persons operated on for trichiasis	1,500	2,500	2,500	4,150	4,500	2,758	5,872	5,272	2,890	4,180	11,196	55.2%
Trichiasis surgeons trained	N/A	22	N/A	N/A	N/A	20	N/A	N/A	0	35	0	N/A
Doses of azithromycin distributed	N/A	200,000	300,000	750,000	1,150,000	2,688,061	3,575,000	3,935,247	1,767,877	5,445,392	6,290,754	98.5%
Doses of tetracycline distributed	N/A	25,000	300,000	30,000	N/A	N/A	75,000	0	0	98,232	125,883	N/A
Villages reached through health education	N/A	N/A	N/A	383	581	277	548	809	4,371	8,487	10,491	87.4%
Household latrines constructed	N/A	N/A	N/A	0	1,577	3,327	12,199	14,557	11,891	13,410	23,701	46.2%

*Antibiotic UIGs are based on number of doses of azithromycin plus tetracycline distributed; this percentage reflects doses of azithromycin plus tetracycline distributed.

Niger Trachoma Control Program

*Presented by Dr. Kadri Boubacar, Deputy Director, National Prevention of Blindness Program,
Ministry of Health of Niger*

Background

Niger's National Prevention of Blindness Program (PNLCC) was established in 1987. The Ministries of Health, Education, and Water and Social Development formed a National Trachoma Task Force in 1999. Implementation of the full SAFE strategy began in the Zinder region in 2002 and the first national strategic plan for trachoma control was adopted in 2004. Representatives of partner health organizations including The Carter Center, local Lions Clubs, Helen Keller International, cbm, the Niger Association for the Blind, the African Muslim Agency, and the World Health Organization are also Task Force members.

A national trachoma prevalence survey was conducted in 1997-1999, with financial assistance from the European Union and The Carter Center. The results showed that 44% of children ages 1-9 years had active trachoma (TF or TI) and 1.7% of women over 15 years old had trichiasis. The baseline assessment showed approximately 50% of households had access to clean water within one kilometer, and approximately 4% of households had access to a latrine, and the prevalence of clean faces in children aged 1-10 years was 52%. The national survey was used to plan country-level interventions, with the eastern regions of Diffa, Maradi and Zinder given priority due to high rates of active trachoma. Subsequent district-level prevalence surveys have provided the national program an opportunity to refine its ultimate intervention goals (UIGs) with more robust estimates of trachoma prevalence. In 2006, the Niger program became a recipient of the USAID Integrated Neglected Tropical Disease (NTD) grant.

Traditionally focused on F and E promotion, Carter Center support was expanded to include the full SAFE strategy in select areas of Niger through renewed funding from the Conrad N. Hilton Foundation in 2008. The Carter Center works with HKI and other partners to support the national program to deliver SAFE throughout the country.

In 2009, the national program began implementing trachoma prevalence surveys to update district-level data. Six districts were surveyed with support from The Carter Center: Gaya; Loga; Maine Soroa; N'guigmi; Matameye; Magaria; Tessaoua; and Maradi Commune. The national program plans to implement additional surveys in Tahoua, Tillaberi and Dosso regions in 2010.

Timeline of Events

- 1997-2001: Baseline trachoma prevalence surveys conducted
- 2002: Program launched five-year strategic plan
- 2005: Impact surveys in two districts of Zinder region
- 2006: Impact surveys in four districts of Zinder region
- 2007: Launch of the Neglected Tropical Disease Program
- 2008: The Carter Center and Helen Keller International expand support to help implement the full SAFE strategy
- 2015: Target date for elimination of blinding trachoma in Niger

Program Achievements in 2009

Table 1 Program Achievements in 2009

Indicator	National Program Targets	National Program Output	Carter Center Targets	Carter Center Output
Persons operated on for trichiasis	15,650	6,743	3,000	3,252
Trichiasis surgeons trained	35	42	N/A	4
Doses of azithromycin distributed	9,491,097	7,341,878	1,017,847	753,147
Doses of tetracycline distributed	194,164	184,198	21,241	17,969
Villages reached through health education	*	571	450	571
Household latrines constructed	15,000	18,979	15,000	12,099

*Not presented

Surgery (S)

The Niger Trachoma Control Program supports trichiasis surgery through both health center-based care and outreach strategies. In 2009, 38 surgery campaigns were conducted with 6,743 people operated on. Data on routine service provision is unavailable. A total of 42 new trichiasis surgeons were trained. Challenges to the delivery of surgical activities include the demands of cost-recovery for health clinic activities, competing, non-trachoma related activities, as well as the irregular supervision of the trichiasis surgeons. Currently active TT surgeons have not yet been certified using the WHO certification methodology, as the manual is not yet available in French. According to the most recent district-level survey data, the current UIG requires 58,518 persons to be operated to reach a prevalence of trichiasis less than one per 1,000 people.

Antibiotics (A)

Distribution of azithromycin in Niger is community-based and is carried out door-to-door in the villages by community distributors. The USAID-supported Neglected Tropical Disease Initiative supported the distribution of azithromycin in 26 districts. The Carter Center supported the distribution of azithromycin and tetracycline eye ointment in Zinder Commune and Mirriah district. In 2009, 7,341,878 doses of azithromycin were reported as distributed, along with 184,198 doses of tetracycline.

Facial Cleanliness and Health Education (F)

A total of 571 villages in three target regions (Zinder, Maradi and Diffa) received regular health education sessions for trachoma prevention in 2009 with Carter Center support. The program uses mass media to broadcast messages on all four components of the SAFE strategy for trachoma control. Community health agents are trained with support from The Carter Center to conduct health education sessions; women are trained in the production of soap using locally available materials; local community leaders and religious leaders are trained to promote participation in trachoma program activities; and teachers are trained to conduct health education in schools.

To broaden the reach of the program's educational campaign throughout Niger, health education messages are produced and broadcast in local languages on community radio stations. To reach persons without access to radio, artists and health educators performed theatrical dramas in large villages and weekly markets. The program is unable to estimate the number of persons reached with health education via radio.

Environmental Improvement (E)

Latrine promotion began in 2002 with the aim of reducing the population of eye-seeking *Musca sorbens* flies in trachoma-endemic villages and to improve general hygiene. The national program promotes Sanplat latrines. In 2009, partners assisted the program to build 18,979 household latrines. Of these, The Carter Center supported the construction of 12,099 latrines in the Diffa, Zinder and Maradi regions. To reach the Millennium Development Goal 7 of halving the proportion of households without access to sanitation by 2015, the program will need to build over 920,000 latrines. This goal is unachievable at current rates of construction. For latrine promotion, community masons are trained to construct latrines, with 367 trained in 2009.

UNICEF and the Ministry of Water support the construction and rehabilitation of water points in Niger. The national program reported that 270 improved water points were constructed in 2009.

Targets for 2010

Surgery (S)

- Operate on 13,900 persons with trichiasis (6,000 planned with Carter Center support);

Antibiotics (A)

- Distribute 3,724,747 doses of azithromycin (1,466,468 with Carter Center support);
- Distribute 76,015 doses of tetracycline (29,928 with Carter Center support);

Facial Cleanliness and Health Education (F)

- Reach 571 villages with health education (571 with Carter Center support);

Environmental Improvement (E)

- Build 15,000 household latrines (15,000 with Carter Center support).



Health education session in Gueni, Niger.

Table 2 National SAFE Productivity in Niger as Presented at The Carter Center Program Reviews, 1999-2009

Indicator	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% UIG Achieved
Persons operated on for trichiasis	704	4,172	5,739	4,592	4,858	5,286	6,500	4,500	2,804	2,500	6,743	74.8%
Trichiasis surgeons trained	40	117	110	N/A	44	10	10	44	6	0	42	N/A
Doses of azithromycin distributed	N/A	N/A	N/A	95,000	710,230	1,915,456	2,429,500	2,532,047	5,958,174	5,750,612	7,341,878	56.6%*
Doses of tetracycline distributed	N/A	N/A	N/A	N/A	68,606	48,886	60,781	61,504	120,000	146,843	184,198	N/A
Villages reached through health education	95	226	276	276	1,122	4,438	4,512	4,512	4,512	4,500	571	45.1%
Household latrines constructed	N/A	N/A	N/A	1,282	1,303	5,355	7,940	6,777	10,725	11,636	18,979	7.0%

*Antibiotic UIGs are based on number of doses of azithromycin plus tetracycline distributed; this percentage reflects doses of azithromycin plus tetracycline distributed.

Nigeria Trachoma Control Program

Presented by Dr. Onwusoro M.I., National Coordinator, National Program for Prevention of Blindness, Nigeria

Background

Nigeria is the most populous country in Africa, with a population of approximately 140 million people, according to the 2006 census. The northern states, bordering the Republic of Niger, are suspected to be endemic for trachoma, although prevalence mapping of these areas is not yet complete. Trachoma control in Nigeria is led by the National Program for the Prevention of Blindness at the Federal Ministry of Health.

Trachoma prevalence surveys and rapid assessments have been conducted since 2000 across nine states. Surveys have been supported by The Carter Center, Sight Savers International, and Helen Keller International. Based on the current data, the national program estimates that 75 million people are at risk of trachoma (of which 28 million reside in the 11 states known to be endemic). The unit of intervention is the Local Government Area (LGA), which is equivalent to a district.

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: Nigeria approved to receive the Zithromax[®] donation from Pfizer Inc
- 2015: Target date for the elimination of blinding trachoma in Nigeria

Epidemiology of Trachoma in Nigeria

Prevalence surveys conducted in Yobe, Borno and Sokoto states indicate the prevalence of trachoma among children ages 1-9 years exceeds the 10% TF threshold for intervention. The prevalence of TT among persons ages 15 years and older was found to be as high as 23% in one district of Borno state. Surveys carried out in Plateau and Nasarawa states in 2007 found the LGA prevalence of TF among children ages 1-9 years varied from 2-15%. A prevalence survey in Kano state and an evaluation of the trachoma program in Kebbi and Zamfara states were both conducted in 2009 (results are not yet available).

Program Achievements in 2009

Table 1 Program Achievements in 2009

Indicator	National Program Targets	National Program Output	Carter Center Targets	Carter Center Output
Persons operated on for trichiasis	8,000	13,500	N/A	N/A
Trichiasis surgeons trained	15	50	N/A	N/A
Doses of azithromycin distributed	1,435,800	0	N/A	N/A
Doses of tetracycline distributed	40,000	15,000	N/A	N/A
Villages reached with health education	13,240	9,200	823	823
Household latrines constructed	10,500	7,500	7,500	5,032

Surgery (S)

In Nigeria, trichiasis surgery is available through the routine health service and community outreach campaigns. In 2009, a total of 6 campaigns were organized in 6 endemic states, each lasting one week in duration and comprised of teams of 50 surgeons. The national program reported operating on 13,500 people through these campaigns. Partners supporting surgery by the Government of Nigeria in 2009 include: Sight Savers International, cbm, Helen Keller International and the Federal Ministry of Health.

The national program reported 50 surgeons are currently active and each has passed the WHO certification process. Community health workers are trained to identify trichiasis cases and conduct health education activities promoting surgery. Until other prevalence surveys are conducted, the program cannot estimate a realistic backlog for surgery in Nigeria.

Antibiotics (A)

From 2004-2006, Sight Savers International purchased azithromycin for distribution in two communities of Sabon Birni LGA in Sokoto state. Although Nigeria was approved for the donation of Zithromax[®] in 2007, the first mass drug distribution is scheduled for 2010. In 2009, mass distribution of antibiotics was limited to tetracycline and was only done in select communities. A total of 15,000 doses of tetracycline were distributed.

Facial Cleanliness and Health Education (F)

Health education activities are conducted through school-based programs, and mobilization for trachoma control is performed in communities, market places, churches and mosques. The national program uses television and radio as its mass media approach. In 2009, a total of 9,200 villages were reported to benefit from ongoing health education out of the current UIG of 13,240 villages (total number of villages in the 11 endemic states).

In Plateau and Nasarawa states, health education is conducted by trained community-based health workers supported by The Carter Center including: State Integrated Health Team members, LGA Integrated Health team members, village volunteers, and Community Directed Drug Distributors. In an effort to economize time and resources,

the trachoma program is implemented in the context of an integrated NTD program, which communicates multiple health messages.

Environmental Improvement (E)

Nigeria promotes Sanplat latrines using a modified slab design to reduce the amount of cement required. This lower-cost option has been promoted in Plateau and Nasarawa states. The program currently trains community masons in latrine construction and partner NGOs provide and transport cement to communities. The Nigerian program estimates the UIG for latrine construction to be 962,600 household latrines in current intervention areas.

In Nigeria, water provision is a collaboration among ministries and partnerships with stakeholders. In particular the Tulsì Chanrai Foundation has rehabilitated 690 boreholes and 30 villages have benefited from new water points.

Targets for 2010

The national program plans to conduct the following trachoma prevalence surveys:

- Niger state
- Adamawa state

Trichiasis Surgery (S)

- Operate on 10,000 people for trichiasis;
- Train 20 new trichiasis surgeons;

Antibiotic (A)

- Distribute 1,247,332 doses of azithromycin (763,038 in Carter Center intervention zones in Plateau and Nasarawa states);
- Distribute tetracycline eye ointment to 40,000 people (15,260 in Carter Center supported areas);

Facial Cleanliness and Health Education (F)

- Target 13,240 accessible villages for health education to promote personal hygiene and latrine construction (853 with Carter Center support);

Environmental Improvement (E)

- Promote construction of 10,500 household latrines in endemic villages (3,500 in Carter Center supported areas).

Table 2 National SAFE Productivity in Nigeria as Presented at The Carter Center Program Reviews, 2003-2009

Indicator	2003	2004	2005	2006	2007	2008	2009	% UIG Achieved
Persons operated on for trichiasis	75	3,830	6,096	5,572	19,610	9,672	13,500	11.7%
Trichiasis surgeons trained	N/A	30	34	4	8	0	50	N/A
Doses of azithromycin distributed*	N/A							
Doses of tetracycline distributed	5,971	45,582	25,102	25,102	5,201	10,782	15,000	0.5%**
Villages reached with health education	108	172	8,449	446	1,117	6,425	9,200	8.9%
Household latrines constructed	420	1,871	5,958	4,986	6,458	6,121	7,500	1.9%

*Although Nigeria was approved for the Pfizer Inc Zithromax[®] donation in 2007, its first shipment and distribution will take place in 2010.

**Antibiotic UIGs are based on number of doses of azithromycin plus tetracycline distributed; however, as Nigeria has not yet received azithromycin to distribute, this percentage is based on tetracycline only.

Sudan Trachoma Control Program: Government of Sudan

*Presented by Dr. Awad Hassan, National Coordinator, Trachoma Control Program
Federal Ministry of Health, Government of Sudan*

Background

Under the terms of the Comprehensive Peace Agreement signed in 2005, Sudan is one country under two government administrative systems: the Government of Sudan (GOS) governs the 15 northern states; the Government of South Sudan (GOSS) governs the 10 southern states. Both GOS and GOSS are part of the Government of National Unity. GOS areas have an estimated population of more than 20 million, including four million internally displaced persons (IDP).

The Prevention of Blindness Administration was established under the auspices of the Federal Ministry of Health (FMOH) in 1962. Control efforts were scaled back in the late 1970s as trachoma was no longer considered a public health problem. However, anecdotal evidence suggested a resurgence of trachoma, but little data were available until May 1999. At that time, the Sudanese FMOH completed the first population-based trachoma prevalence surveys with Carter Center assistance. A survey conducted in Wadi Halfa confirmed that trachoma was a cause of severe disability and significant blindness.

Pfizer Inc began to donate Zithromax[®] to Sudan through the International Trachoma Initiative in August 2000. In March 2005, the Federal Minister of Health signed a decree stating that the Trachoma Control Program had officially joined the National Program for Prevention of Blindness (NPPB). Carter Center-supported activities in GOS areas continue to be coordinated and monitored from Khartoum. In 2005, the program started to decentralize the implementation of program activities to the state ministries of health and localities. Sudan's first Lions Club was inaugurated in Khartoum in June 2005 with the help of the Carter Center Khartoum, benefiting from previous work by the Lions-Carter Center SightFirst Initiative in Sudan.

In 2006, Sudan's Trachoma Control Program began implementing prevalence surveys to map trachoma at the locality (district) level with Carter Center assistance. Surveys were launched in Dongola locality of Northern state, Kassala locality of Kassala state and Khartoum IDP camps. By March 2010, all localities of all states will be mapped with the exception of the three Darfur states which are inaccessible due to insecurity.

The completion of the trachoma prevalence map in GOS areas will enable the national program to set evidence-based targets to reach the elimination of blinding trachoma by 2015. The national program has identified two districts, El Galabat East and Gaissan, with TF greater than 10% in children ages 1-9 years and 20 districts where the prevalence of TT is greater than 1% among adults ages 15 years and older.

Timeline of Events

- 2000: Zithromax[®] donation began
- 2005: National trachoma program moved to the FMOH
- April 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 WHO simplified grading system for trachoma; survey protocol developed
- 2010: Prevalence survey mapping to be completed (except three Darfur states)
- 2015: Target for elimination of blinding trachoma in Government of Sudan

Program Achievements in 2009

Table 1 Program Achievements in 2009

Indicator	National Program Targets	National Program Output	Carter Center Targets	Carter Center Output
Persons operated on for TT	3,000	1,974	2,000	399
Trichiasis surgeons trained	8	12	8	12
Doses of azithromycin distributed	292,164	284,783	292,164	284,783
Doses of tetracycline distributed	5,743	5,510	5,743	5,510
Villages reached with health education	239	239	239	239

Surgery (S)

In GOS program areas, routine trichiasis surgery is performed by ophthalmologists and trained ophthalmic medical assistants at central and state hospitals. Trichiasis surgical outreach campaigns also are often integrated with cataract surgery outreach and other comprehensive eye care interventions. Payment is levied on a sliding scale for TT surgery in the hospitals but is provided free in eye camps.

A total of 20 surgical campaigns were conducted in 2009 and 210 people were reported to have received surgery for trichiasis during these campaigns. Through routine health service provision, a total of 1,365 people were reported to have been operated on in 2009. An additional 399 people were operated during surgeon training exercises. The national program receives support from many organizations to conduct trichiasis surgeries, including The Carter Center, Al Basr Foundation, The National Health Insurance and Help Age International, the Sudanese Islamic Medical Association, UNICEF, and Zakat Chamber.

The surgical output per operator and the recurrence of trichiasis are unknown. There are currently 72 medical assistants trained to perform TT surgery according to WHO certification guidelines, although attrition of trained surgeons was not reported.

The national program plans to encourage coordination among partners to increase the productivity of trichiasis surgery campaigns and to ensure all surgery data are captured in the reporting system. There is a need to analyze the trachoma prevalence data to determine age or sex-specific groups that are disproportionately affected by trichiasis to aid in the development of health education and mobilization strategies to increase presentation for surgery among the population.

Antibiotic Distribution (A)

Antibiotic distribution in GOS areas is decentralized and implemented by the state ministries of health, assisted by the national program. Local supervisors and village-based health workers organize and conduct drug distribution house-to-house, which is preceded by community mobilization and health education. Endemic communities establish distribution dates, select the volunteers and supervisors, and are involved in raising awareness of the campaign.

In 2009, distribution of antibiotics took place in Dongola locality (Northern state) and in Baw locality (Blue Nile state). These localities have received three and two years of mass distribution of antibiotics, respectively. A total of 284,783 doses of azithromycin and 5,510 doses of tetracycline eye ointment were distributed in 2009.

Facial Cleanliness and Health Education (F)

The national trachoma control program continues to support ongoing health education activities in Dongola and Baw localities. In 2009, 239 villages benefitted from support for health education from The Carter Center, reaching approximately 380,930 people. In these areas, health education is conducted in primary schools, via community radio programs and through health education sessions at the community level. In 2009, a total of 35 teachers were trained for health education. Primary eye care modules were incorporated into the basic school curriculum and trachoma modules will be included in the new Health Extension Worker program.

During mass antibiotic distribution, radio messages were broadcast; 2,500 posters were distributed; 660 JAMAL T-shirts were given out; and 660 volunteers were educated about trachoma. In addition, the trachoma training manual was revised; the Rabbit Hasson Booklet was printed for distribution to primary school students; and new flipcharts, posters and stickers were distributed.

Environmental Improvement (E)

The GOS trachoma control program does not yet promote household latrines in its intervention areas. The program has been represented in the UNICEF Water and Environmental Sanitation task force since 2005. The national program continues to advocate to UNICEF for water provision in Baw and Gaissan localities (Blue Nile state) and East Al Galabat locality (Al Gedarif state).

Targets for 2010

Surgery (S)

- Operate on 3,000 people for trichiasis (2,000 with Carter Center support);
- Train 20 surgeons to conduct trichiasis surgery (20 with Carter Center support);

Antibiotic Therapy (A)

- Distribute 300,327 doses of azithromycin in Gaissan and El Galabat East localities (300,327 with Carter Center support);
- Distribute 6,000 doses of tetracycline in Gaissan and El Galabat East localities (6,000 with Carter Center support);

Facial Cleanliness (F)

- Develop a national communication and behavior change strategy to promote the elimination of blinding trachoma;
- Conduct health education in 477 communities (293 with Carter Center support);

Environmental Change (E)

- Continue to work with local partners and the Ministry of Water and Environmental Sanitation to promote household latrine construction and use.

Table 2 National SAFE Productivity in Government of Sudan as Presented at The Carter Center Program Reviews, 1999-2009

Indicator	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% UIG Achieved
Persons operated for trichiasis	N/A	115	122	729	338	276	1,949	1,183	2,059	1,380	1,974	9.2%
Trichiasis surgeons trained	N/A	N/A	N/A	43	0	83	43	12	8	10	12	N/A
Doses of azithromycin distributed	N/A	12,671	85,674	157,502	186,246	266,630	132,755	29,962	179,698	248,559	284,783	16.1%**
Doses of tetracycline distributed	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,056	4,072	5,510	N/A
Villages reached through health education	N/A	N/A	73	N/A	664	N/A	N/A	27	120	239	239	N/A
Household latrines constructed	N/A	N/A	N/A	617	1,933	70	1156	N/A	N/A	N/A	N/A	N/A

*Antibiotic UIGs are based on number of doses of azithromycin plus tetracycline distributed; this percentage reflects doses of azithromycin plus tetracycline distributed.

**The GOS trachoma control program does not yet promote household latrines in its intervention areas.

N.B. After the signing of the Comprehensive Peace Agreement in January 2005, the Government of Sudan was no longer responsible for program implementation in the south.

Sudan Trachoma Control Program: Government of Southern Sudan

Presented by Dr. Lucia Kur, National Coordinator, Southern Sudan Trachoma Control Program, Ministry of Health, Government of Southern Sudan

Background

Between 1989 and 2005, trachoma control program activities in Southern Sudan were delivered via Operation Lifeline Sudan (OLS), a consortium of United Nations agencies and more than 40 non-governmental organizations with the objective of providing coordinated humanitarian aid during a time of conflict.

On January 9th, 2005, a peace agreement ended the 21-year civil war with the Sudan Peoples' Liberation Army in the south, which had been the longest war in Africa. Under the terms of the Comprehensive Peace Agreement, Sudan is one country under two government administrative systems: the Government of Sudan (GOS) governs the 15 northern states; the Government of Southern Sudan (GOSS) governs the 10 southern states.

In 2000, The Carter Center began collaborating with non-governmental organizations to implement the SAFE strategy in some OLS-supported areas, and the International Trachoma Initiative included Sudan as a beneficiary of the Zithromax[®] donation from Pfizer Inc. Activities were coordinated by The Carter Center from Nairobi with assistance from partner NGOs and humanitarian agencies in Southern Sudan. Trachoma prevalence surveys were conducted in four *payams* (sub-districts) in 2001 and an additional three *payams* in 2002. The Carter Center office relocated from Nairobi, Kenya, to Juba, Sudan, in 2005 after the signing of the comprehensive peace agreement.

The Carter Center in Southern Sudan supports the full SAFE strategy in Eastern Equatoria and Jonglei states with funding from the Lions Clubs International Foundation (LCIF), the Conrad N. Hilton Foundation and Dr. and Mrs. John and Terri Hussman.

Timeline of Events

- 2001: Trachoma control activities began
- January 2005: Comprehensive Peace Agreement signed
- 2006: Ministry of Health, Government of Southern Sudan established
- 2007: MOH GOSS Trachoma Control Program established
- 2008: First Annual Trachoma Control Program Review was held; trachoma task force established
- 2009: Second Annual Trachoma Control Program Review held
- 2020: Target date for the elimination of blinding trachoma in Government of Southern Sudan

Epidemiology of Trachoma in Southern Sudan

Using the 2008 census data, the national program now estimates more than 3 million individuals are at-risk of trachoma in Southern Sudan. The GOSS Trachoma Control Program operates in areas with extremely high prevalence of blinding trachoma, where trichiasis is found even in children under five years old. It is sometimes difficult for the program to gain access to those most at risk because of insecurity and seasonably impassable roads. This situation is complicated by a poor health infrastructure, minimal

physical infrastructure, and strong cultural beliefs and practices that inhibit behavior change. There are many nomadic populations and a large number of internally displaced persons.

Prevalence surveys conducted in Upper Nile, Jonglei, Unity, Eastern and Central Equatoria states indicate prevalence of active trachoma among children aged 1-9 years ranges from 33.2-80.1%. The prevalence of TT among children aged less than 15 years ranges from 0.1-5.2% and among persons aged 15 years and above ranges from 1.3-17.0%.

In 2009, Malaria Consortium supported trachoma rapid assessments (TRAs) in Unity and Northern Bahr El Ghazal states. The data suggest that trachoma is of public health importance in Unity state but that there is evidence that trachoma prevalence does not exceed 5% in children 1-9 years (grade TF) in Northern Bahr El Ghazal.

Table 1 Prevalence of Trachoma in Southern Sudan

County (Payam)	Children aged 1-9 years			Children aged < 15 years	Adults aged 15 and above
	TF	TI	TF & TI	TT	TT
Ayod	80.1	60.7	88.3	5.2	14.6
Budi (Kimatong)	40.0	41.9	60.3	3.5	17.0
Juba (Katigiri)	45.5	24.5	50.0	0.2	1.3
Kapoeta East (Narus)	35.4	23.8	41.5	0.6	6.3
Kiech Kuon	63.0	51.9	80.2	2.2	14.7
Pibor (Boma)	53.1	39.4	60.3	3.0	12.3
South Bor (Padak)	65.2	63.6	76.5	0.1	10.0
South Bor (Paluer)	77.2	63.6	87.8	0.5	10.0
Terekeka (Tali)	64.7	35.3	72.6	0.3	4.1
Twic East (Kongor)	33.2	29.2	43.3	0.1	5.5

Program Achievements in 2009

Table 2 Program Achievements in 2009

Indicator	National Program Targets	National Program Output	Carter Center Target	Carter Center Output
Persons operated on for trichiasis	5,000	1,558	3,000	1,232
Trichiasis surgeons trained	12	11	11	7
Doses of azithromycin distributed	515,788	370,431	480,000	359,006
Doses of tetracycline distributed	20,730	15,799	20,000	15,099
Villages reached through health education	4,662	3,441	4,662	3,441

Surgery (S)

Mapping of trachoma in Southern Sudan has not yet been completed. In the 16 counties (in Western, Eastern, and Central Equatoria, Unity, Upper Nile, and Jonglei states) where prevalence data are available, a surgical UIG of 72,275 people has been calculated. Once additional surveys are conducted, the total surgical backlog likely will increase. Unlike many trachoma-endemic settings, where trichiasis is seen only among the elderly, children often present with the condition. In Ayod county in Jonglei state, the prevalence of pediatric TT exceeds 5%.

In Southern Sudan, trichiasis surgery is conducted through routine health service in large cities and towns. Surgery is also available through surgical outreach campaigns at the community level. Partners supporting surgery with the Government of Southern Sudan in 2009 include: The Carter Center, cbm, and the International Medical Relief Fund (IMRF). A total of 18 surgery camps were conducted in 2009, during which 714 persons were operated. In addition to those surgeries conducted during campaigns, 844 surgeries were conducted during routine health service provision. Currently, 26 surgeons have passed WHO certification and 20 are active in Jonglei and Eastern Equatoria states.

Antibiotics (A)

Mass drug administration (MDA) of antibiotics takes place at selected locations within the community. The distribution stations are chosen by trachoma control program field officers, community leadership, and local governments, with consideration for population movements towards animal grazing grounds and water points. Mobilization takes place at least five days in advance of the distribution and the distribution teams are composed of four to five trained community health workers, in addition to Carter Center field officers. The program will be unable to calculate an accurate ultimate intervention goal for antibiotic distribution until surveying is complete. In 2009, 16 counties have benefited from MDA activities for trachoma control. A total of 394,899 doses of antibiotics (azithromycin and tetracycline) were distributed over a target of 536,518 (73.6% of the target) in 2009. The national program began MDA in Upper Nile in Fashoda county and plans to expand to new counties in Upper Nile and Unity states in 2010.

Facial Cleanliness and Health Education (F)

Routine health education is conducted by trained community-based health workers, such as trachoma and Guinea worm field officers and village volunteers, primary school teachers, and hygiene promoters from NGO partners working in water and sanitation. During outreach activities such as surgery campaigns and MDA, field officers and technical advisors work with volunteers to screen videos in local language on trachoma and Guinea worm.

Hygiene education promotion through primary schools has expanded in 2009, with 28 schools participating. Community mobilization and health education was supported through the 197 cassettes entitled "Let's fight disease" distributed to health educators in Ayod, Fangak, Akobo and Bor counties. The program estimates reaching 3,441 villages with ongoing health education in 2009 in Jonglei and Eastern Equatoria states. The UIG for health education is to reach all of the 4,762 known endemic villages. The program hopes to encourage communities to identify their own indicators, set strategies and goals, and develop tools for program implementation.

Environmental Improvement (E)

In 2009, The Carter Center and the Ministry of Health piloted a Community-Led Total Sanitation (CLTS) project in Ayod county. The CLTS approach promotes the use of local materials to construct pit latrines, instead of expensive cement slab latrines. Cement slab latrines are not currently sustainable in Southern Sudan due to the high cost of transporting imported cement to the rural areas.

In Southern Sudan, water provision falls under the Ministry of Cooperative and Rural Development. This same ministry is responsible for the development of water provision guidelines and for rehabilitation and protection and rehabilitation of shallow hand dug wells and bore holes constructed by NGO partners. Due to the co-endemicity of Guinea worm disease and trachoma, the trachoma program has benefited from Guinea worm safe water interventions.

Targets for 2010

The national program plans to conduct trachoma prevalence surveys in the following areas:

- 8 counties in Unity;
- 5 counties in Northern Bahr El Ghazal;
- 8 counties in Lakes;

Trichiasis Surgery (S)

- Train 28 new trichiasis surgeons (6 with Carter Center support);
- Operate on 6,500 people with trichiasis (3,000 with Carter Center support);

Antibiotic (A)

- Distribute azithromycin to 803,000 people (645,000 in Carter Center intervention zones in Eastern Equatoria and Jonglei states);
- Distribute tetracycline eye ointment to 17,000 people (13,000 with Carter Center support);

Facial Cleanliness and Health Education (F)

- Target 4,762 accessible villages for health education on personal hygiene and latrine construction (4,662 with Carter Center support);

Environmental Improvement (E)

- Promote construction of 411 household latrines in endemic villages (382 with Carter Center support).



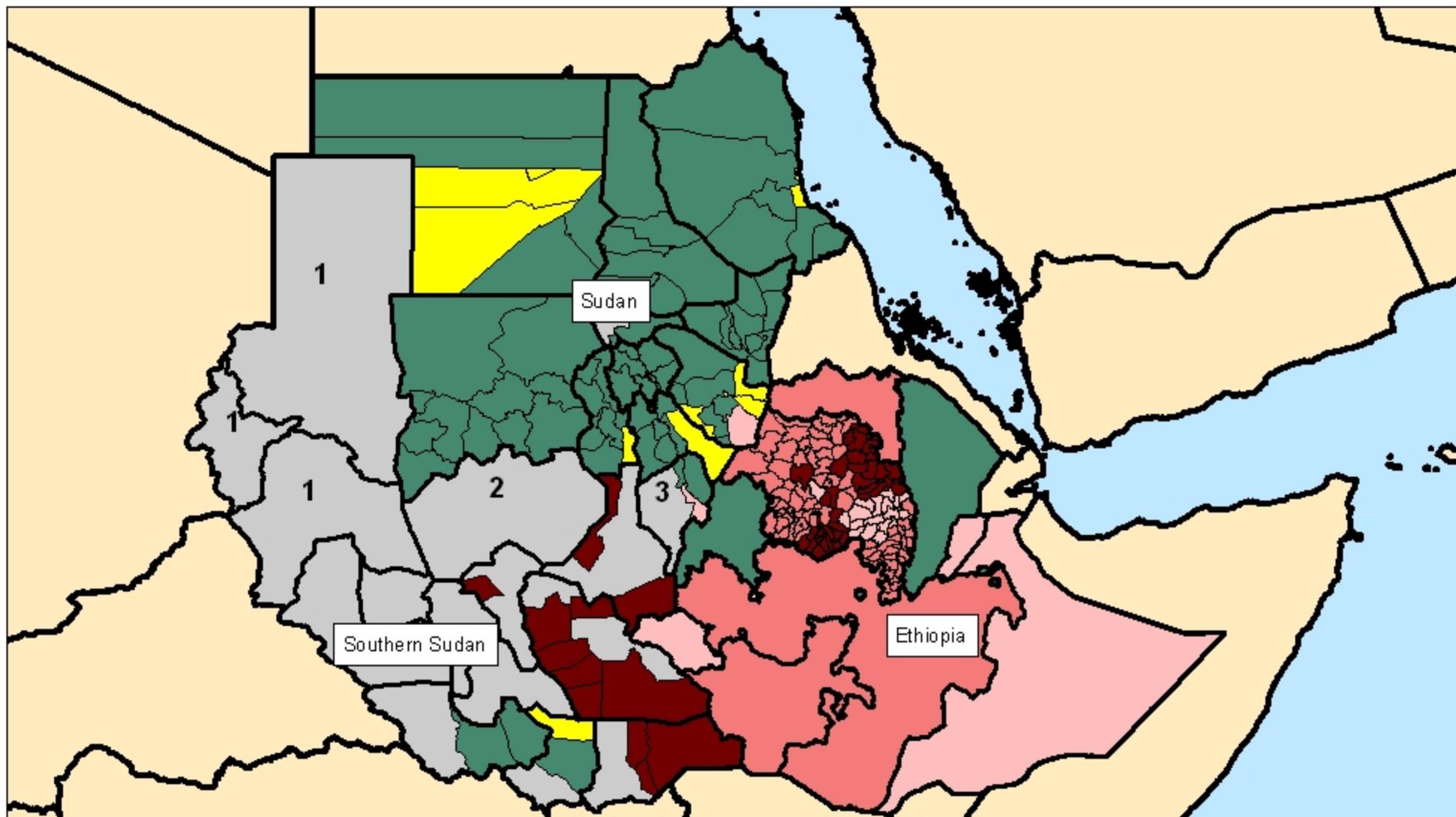
A distribution worker provides health education during trachoma MDA in Korfulus, Jonglei state.

Table 2 National SAFE Productivity in Government of Southern Sudan as Presented at The Carter Center Program Reviews, 1999- 2009

Indicator	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	% UIG Achieved
Persons operated on for trichiasis	N/A	153	966	1481	1,072	1,481	604	563	1,475	3,704	1,558	4.8%
Trichiasis surgeons trained	N/A	N/A	N/A	N/A	14	N/A	9	46	10	10	11	N/A
Doses of azithromycin distributed	N/A	40,000	30,161	31,731	117,317	180,317	84,096	109,405	275,382	464,974	370,431	10.8%*
Doses of tetracycline distributed	N/A	N/A	N/A	N/A	40,197	43,105	22,435	115,324	48,398	13,668	15,799	N/A
Villages reached through health education	N/A	N/A	406	405	424	1,346	429	901	1,371	4,662	3,441	N/A
Household latrines constructed	N/A	N/A	197	220	252	980	269	175	N/A	N/A	128	0.5%

*Antibiotic UIGs are based on number of doses of azithromycin plus tetracycline distributed; this percentage reflects doses of azithromycin plus tetracycline distributed.

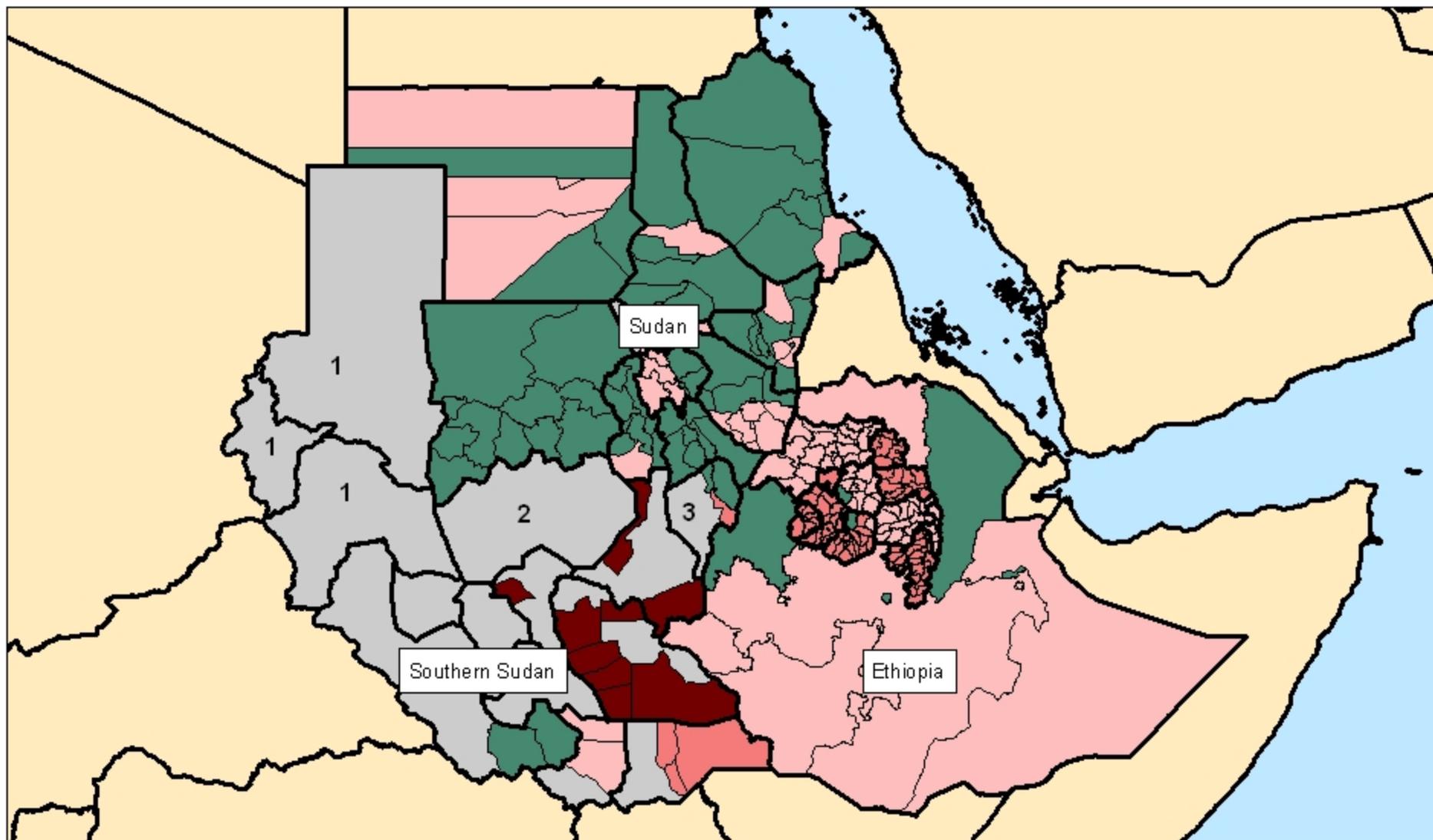
N.B. After the signing of the Comprehensive Peace Agreement in January 2005, the Government of Sudan was no longer responsible for program implementation in the south.



**Prevalence of TF Children 1-9 Years,
Sudan, Southern Sudan and Ethiopia**



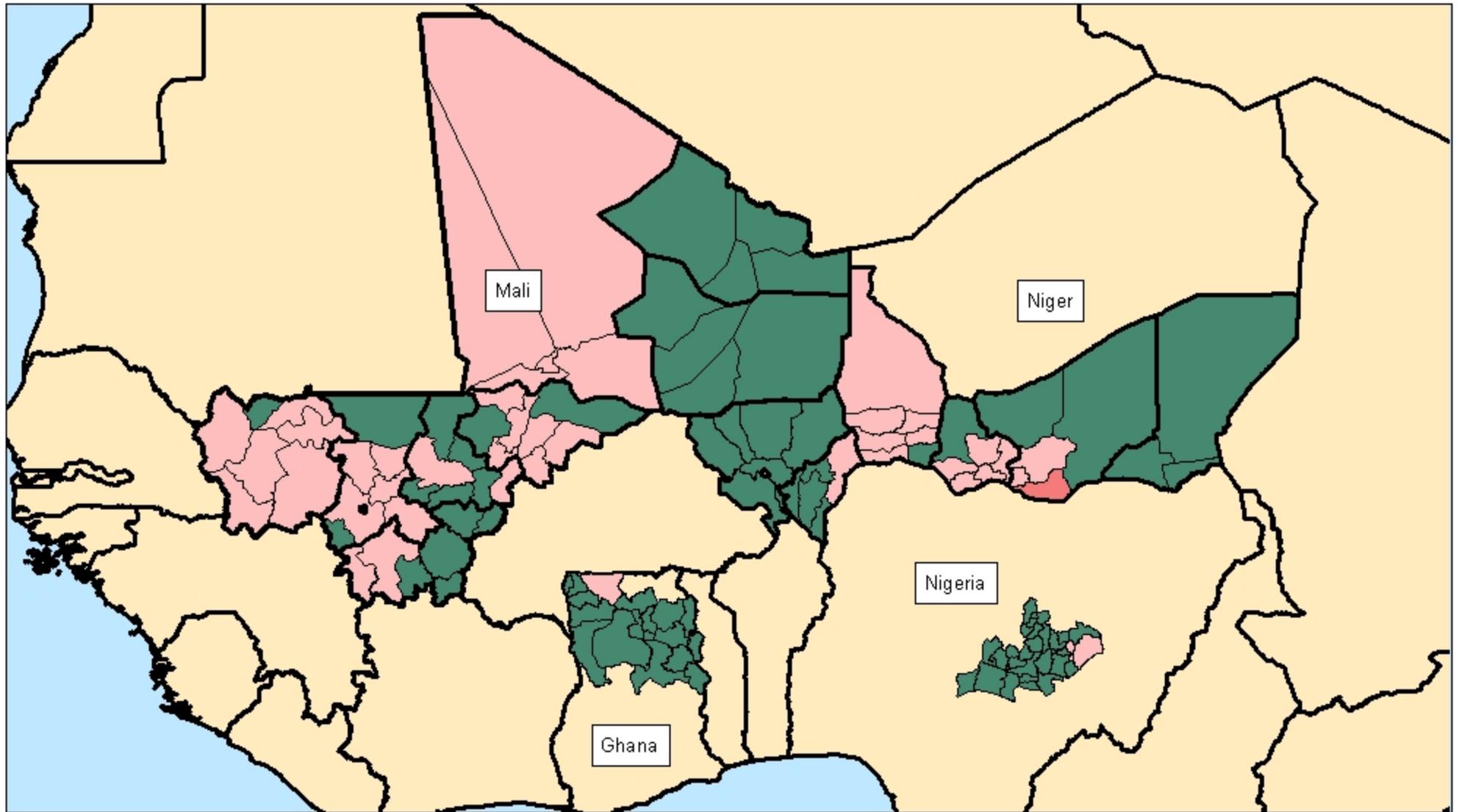
Note on Sudan data: Surveys have not yet taken place in the Darfur States due to insecurity (1). Data from South Kordofan (2) and Kurmuk Locality (3) are not yet available.



**Prevalence of TT Adults 15 Years and Older
Sudan, Southern Sudan & Ethiopia**

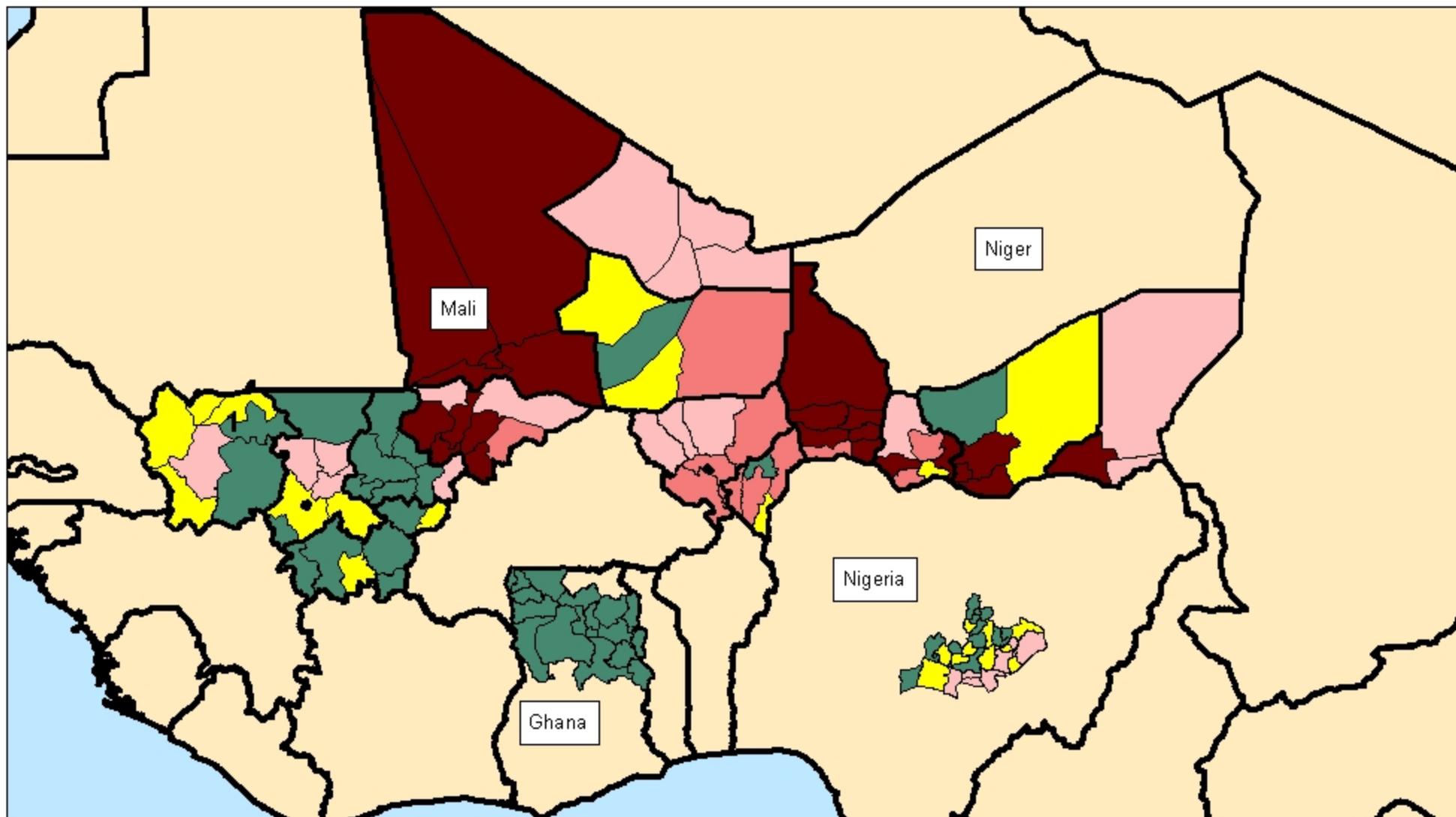


Note on Sudan data: Surveys have not yet taken place in the Darfur States due to insecurity (1). Data from South Kordofan (2) and Kurmuk Locality (3) are not yet available.



**Prevalence of TT Adults 15 Years and Older
Ghana, Mali, Niger & Nigeria**





**Prevalence of TF Children 1-9 Years
Ghana, Mali, Niger & Nigeria**



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

National Data as Reported for 2009 at the Eleventh Annual Program Review, Atlanta, Georgia, March 29-31, 2010

	Mali	Niger	Sudan		Ethiopia	Nigeria	Totals
			GOS**	GOSS***			
Surgery (S)							
Surgeries	11,196	6,743	1,974	1,558	72,123	13,500	107,094
2009 Target	17,100	15,650	3,000	5,000	207,480	8,000	256,230
Percent Coverage	65.5%	43.1%	65.8%	31.2%	34.8%	168.8%	41.8%
Antibiotics (A)							
<i>Azithromycin</i>							
Doses	6,290,754	7,341,878	284,783	370,431	15,695,222	0	29,983,068
2009 Target	7,245,423	9,491,097	292,164	515,788	25,100,000	14,358,000	57,002,472
Percent Coverage	86.8%	77.4%	97.5%	71.8%	62.5%	N/A	52.6%
<i>Tetracycline</i>							
Doses	125,883	184,198	5,510	15,799	403,099	15,000	749,489
2009 Target	147,866	194,164	5,743	20,730	512,000	40,000	920,503
Percent Coverage	85.1%	94.9%	95.9%	76.2%	78.7%	37.5%	81.4%
Facial Cleanliness and Health Education (F)							
Villages with health education	10,491	571	239	3,441	3,432	9,200	27,374
2009 Target	9,000	*	239	4,662	*	13,240	27,141
Percent Coverage	116.6%	N/A	100.0%	73.8%	N/A	69.5%	N/A
Environmental Improvements (E)							
Latrines	23,701	18,979	N/A	128	544,205	7,500	594,513
2009 Target	16,000	15,000	N/A	500	*	10,500	42,000
Percent Coverage	148.1%	126.5%	N/A	25.6%	N/A	71.4%	N/A

*National target not presented.

**GOS: Government of Sudan.

***GOSS: Government of Southern Sudan.

N.B. These are national level data from interventions supported by all partners, not exclusively supported by The Carter Center.

Table 2 National Trachoma Control Program Annual Targets 2010 (Carter Center-Assisted Countries)

Targets as Presented at the Eleventh Annual Program Review, Atlanta, Georgia, March 29-31, 2010

	Mali	Niger	Sudan		Ethiopia	Nigeria	Total
			GOS**	GOSS***			
Surgery							
Persons to operate on for trichiasis	12,910	13,900	3,000	6,500	235,374	10,000	281,684
Antibiotic							
Doses of azithromycin to distribute†	3,542,332	3,724,747	300,327	803,000	27,270,000	1,435,800	37,076,206
Doses of tetracycline ointment to distribute	70,847	76,015	6,000	17,000	556,000	40,000	765,862
Facial cleanliness							
Villages to reach through health education	12,000	571	477	4,762	*	13,240	31,050
Environmental change							
Household latrines to construct	25,000	15,000	*	411	*	10,500	50,911

*Target not presented.

**GOS: Government of Sudan.

***GOSS: Government of Southern Sudan.

†Antibiotic targets do not reflect ITI-approved allocations of Zithromax®

Table 3 Carter Center-Assisted Implementation of SAFE*Summary of Interventions per Country, January - December 2009*

Indicators	Ghana	Mali	Niger	Sudan		Ethiopia	Nigeria	Total	
				GOS*	GOSS*				
S	Persons operated for trichiasis	N/A	5,481	3,252	399	1,232	35,681	N/A	46,045
	Target persons	N/A	4,200	3,000	2,000	3,000	100,400	N/A	112,600
	Percentage	N/A	130.5%	108.4%	20%	41.1%	35.5%	N/A	40.9%
	Trichiasis surgeons trained	N/A	0	10	12	7	82	N/A	111
A	Doses of azithromycin distributed	N/A	0	595,388	284,783	359,006	13,395,792	N/A	14,634,969
	Target population	N/A	N/A	848,860	292,164	480,000	14,718,780	N/A	16,339,804
	Percentage	N/A	N/A	70%	97.5%	74.8%	91.0%	N/A	89.2%
	Doses of tetracycline ointment distributed	N/A	0	17,577	5,510	15,099	324,881	N/A	363,067
F	Villages with ongoing health education	N/A	1,722	571	239	3,441	3,432	823	10,228
	Schools with ongoing health education	N/A	N/A	450	35	13	6,922	N/A	7,420
	Persons trained for health education	N/A	763	1,062	561	438	35,966	1,057	39,847
E	Household latrines constructed	502	12,828	12,116	N/A	128	544,205	5,032	574,811
	Target for latrines	N/A	15,000	15,000	N/A	500	439,915	7,500	477,415
	Percentage	N/A	85.5%	80.8%	N/A	25.6%	123.7%	67.1%	120.4%
	Masons trained	N/A	740	367	N/A	N/A	N/A	0	1,107

*GOS/GOSS: Government of Sudan/Government of Southern Sudan.

Table 4 Carter Center-Assisted Implementation of SAFE

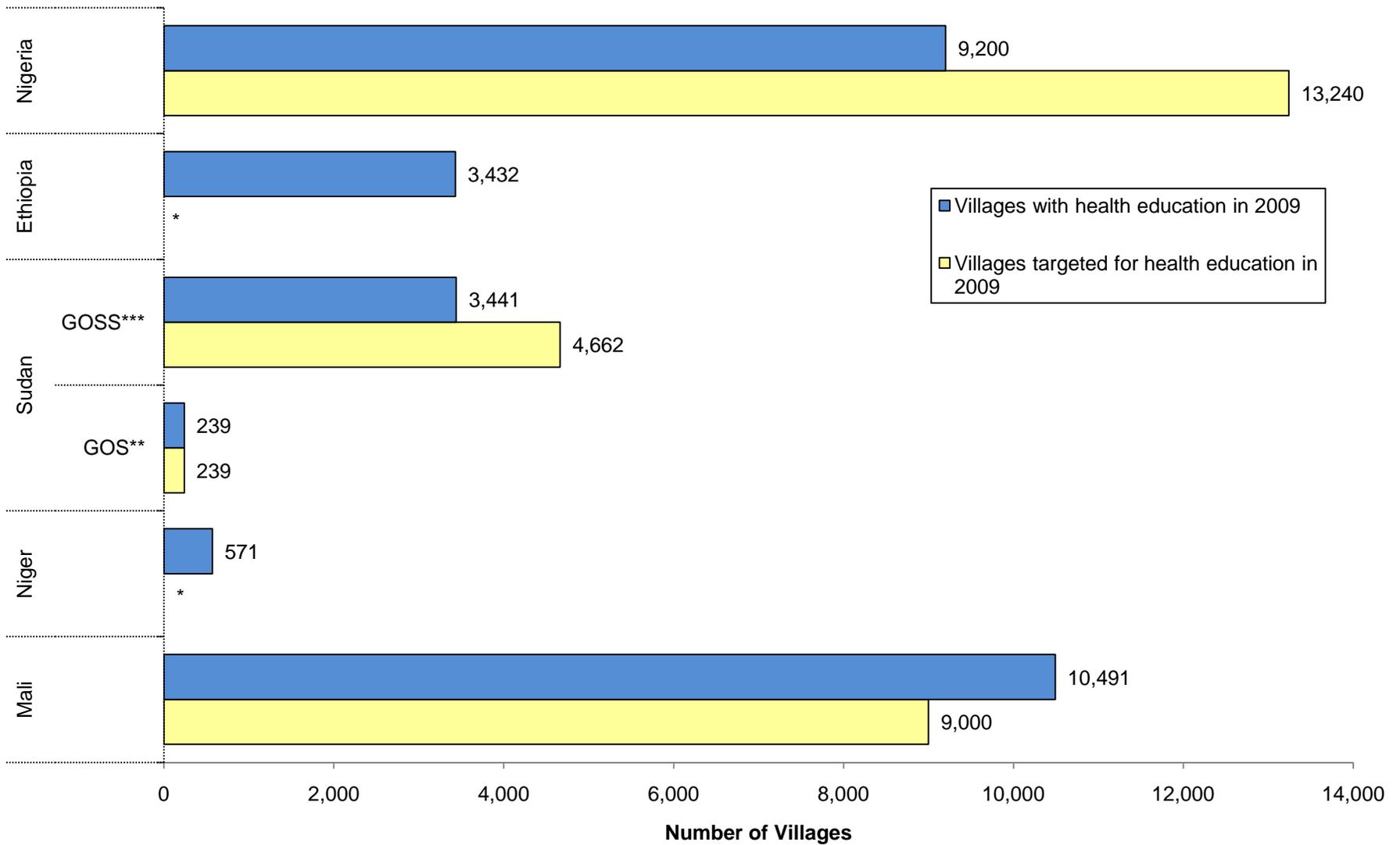
<i>Cumulative Interventions per Country, 1999-2009</i>									
Indicators	Ghana	Mali*	Niger*	Sudan		Ethiopia	Nigeria	Total	
				GOS**	GOSS**				
S	Persons operated for trichiasis	N/A	6,662	3,252	4,667	5,049	160,241	26	179,897
	Trichiasis surgeons trained	N/A	25	10	78	76	667	N/A	856
A	Doses of azithromycin distributed	N/A	N/A	595,388	1,584,853	1,653,195	36,149,083	N/A	39,982,519
	Doses of tetracycline ointment distributed	N/A	N/A	17,577	13,638	226,226	1,708,097	N/A	1,965,538
F	Villages with ongoing health education***	50	1,722	571	239	3,574	3,432	845	10,433
	Schools with ongoing health education***	49	138	450	84	93	6,922	0	7,736
	Persons trained for health education	8,079	16,578	5,198	2,215	20,508	97,490	4,098	154,166
E	Household latrines constructed	6,997	60,839	43,528	0	567	1,272,061	31,979	1,415,971
	Masons trained	N/A	3,636	1,303	0	N/A	N/A	1,910	6,849

*The Carter Center began supporting the full SAFE strategy in Niger and Mali in September 2008. Indirect support for implementation of all four SAFE components in terms of logistics and technical advice are offered to the national programs when requested.

**GOS/GOSS: Government of Sudan/Government of Southern Sudan.

***2009 Data Only.

Figure 1 Villages with Health Education, Carter Center-Assisted Countries
National program data as presented for January - December 2009

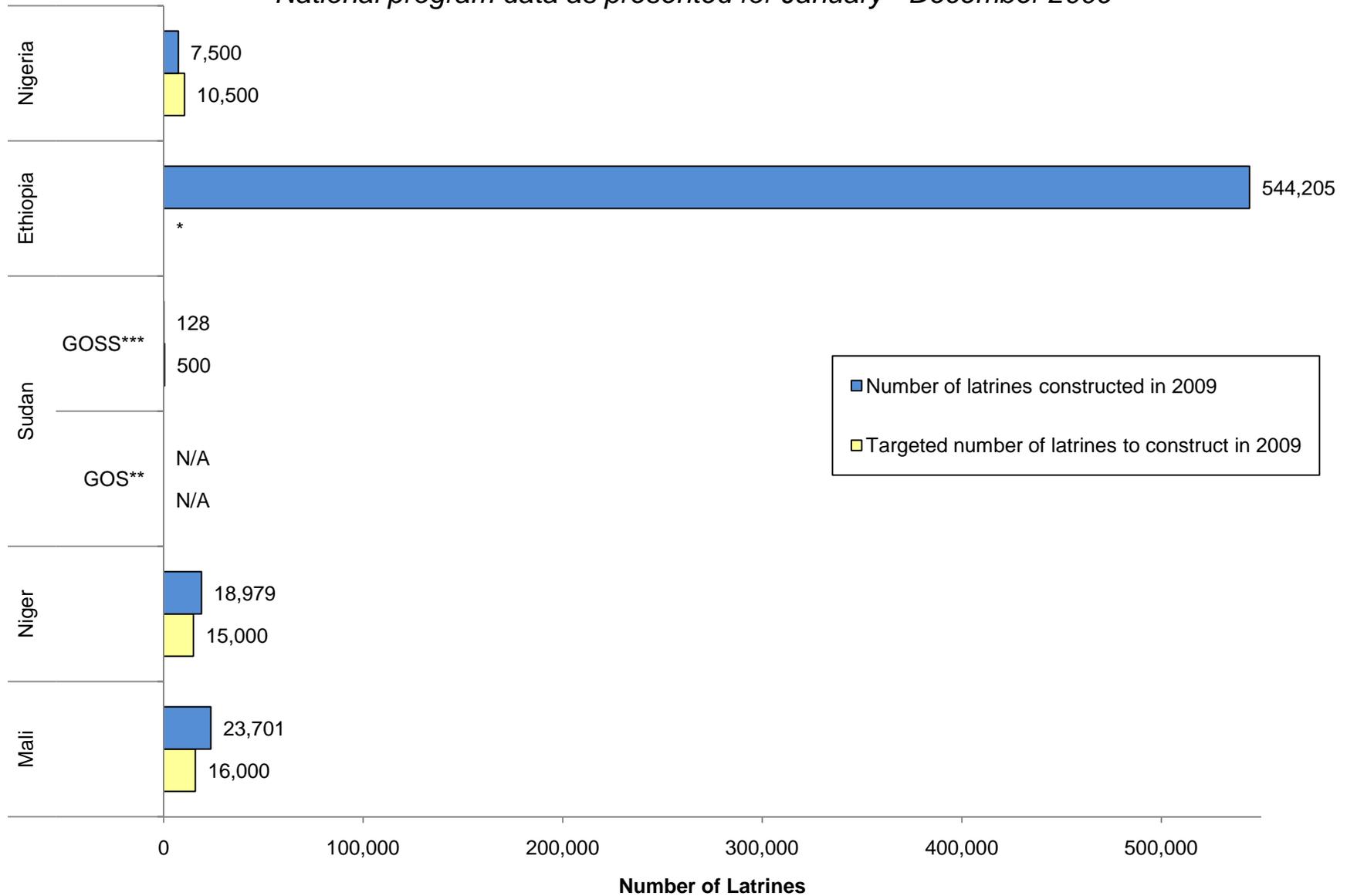


*Data not presented.

**GOS: Government of Sudan.

***GOSS: Government of Southern Sudan.

Figure 2 Household Latrines Constructed, Carter Center-Assisted Countries
National program data as presented for January - December 2009

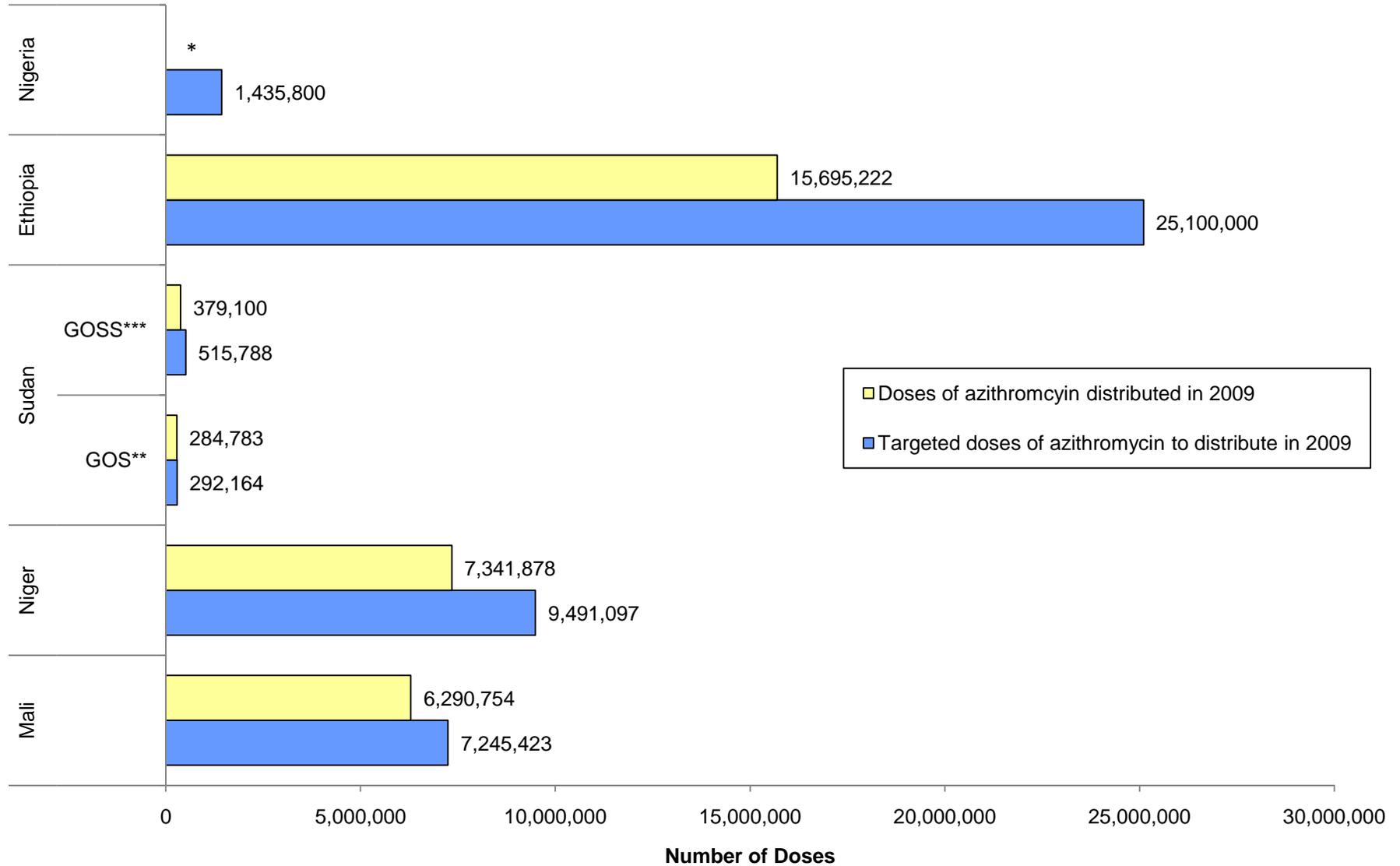


*Data not presented.

**GOS: Government of Sudan.

***GOSS: Government of Southern Sudan.

Figure 3 Azithromycin Distribution, Carter Center-Assisted Countries
National program data as presented for January - December 2009

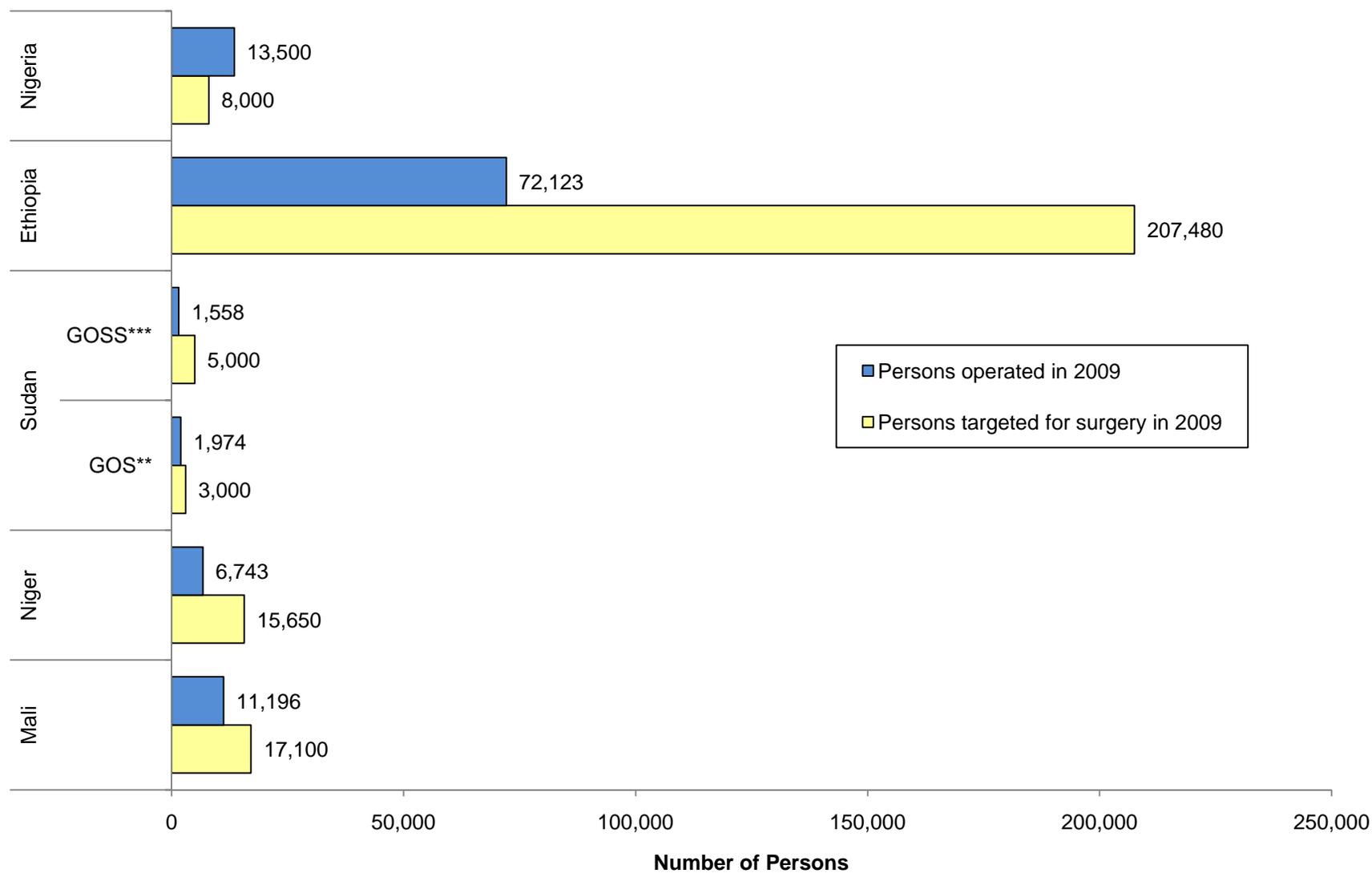


*Nigeria did not receive azithromycin in 2009.

**GOS: Government of Sudan.

***GOSS: Government of Southern Sudan.

Figure 4 Persons Operated for Trichiasis, Carter Center-Assisted Countries
National program data as presented for January - December 2009



*Data not presented.

**GOS: Government of Sudan.

***GOSS: Government of Southern Sudan.

Lions Clubs of Ethiopia: District 411A Update

As presented by the Honorable World Laureate Dr. Tebebe Y. Berhan, Lions Clubs of Ethiopia



Lions Clubs International
FOUNDATION

The Lions Clubs of Ethiopia celebrated many significant accomplishments in 2009. In addition to providing sight-saving services to the people of Ethiopia, the Ethiopian Lions also facilitated a number of high-profile advocacy events to raise awareness of blindness prevention.

With SightFirst Grant 1176, the Ethiopian Lions supported the training of ophthalmic nurses: 44 nurses completed the second phase of training; 26 completed the third phase; and another 26 are currently engaged in fourth round training exercises. Building on previous success in delivering cataract surgeries, the Ethiopian Lions supported 15,000 surgeries through SightFirst Grant 1297/411A in 2009.

In the fight against trachoma, the Ethiopian Lions supported 38,947 trichiasis surgeries in the Tigray region. In addition, a memorandum of understanding was signed between the Lions and cbm to construct safe water points in the Amhara Regional State. A total of \$546,000 was committed for this endeavor and the Lions will support safe water and hygiene interventions in the north-east area of Amhara.

The Ethiopian Lions marked the achievements of the Ethiopian trachoma control effort through planning the launching ceremonies for the MalTra week campaigns, advocacy for the Lions-Carter Center SightFirst partnership and promotion of the Ethiopian Lions among the international Lions Clubs community at the Mombasa All Africa Lions Convention. The Ethiopian Lions also played a key role in the visit of Pfizer Inc and the International Trachoma Initiative during the third MalTra week.

World Health Organization Update

As presented by Dr. Silvio Mariotti, World Health Organization

The Prevention of Blindness and Deafness (PBD) division at the World Health Organization (WHO) is currently working to develop a surveillance system to monitor the re-emergence of acute, inflammatory cases of trachoma, to ensure that incident cases of trichiasis are treated and to document control efforts required for certification. Member states require WHO to provide a set of guidelines for a system that is flexible, reliable, verifiable and affordable. The WHO plans to convene a technical working group in July 2010 to generate these guidelines.

As countries move towards the certification phase, it is important to note that certification refers to the elimination of blinding trachoma as a public health problem. Certification of disease elimination is a core function of the WHO and is regulated by WHO procedures.

The Global Alliance will hold its fourteenth annual meeting in Geneva, April 19-21, 2010. The theme, "Only Ten Years Left," was chosen to ensure a focus on the remaining obstacles to the elimination of blinding trachoma. Countries will review progress towards SAFE objectives and partners will present their activities. The focus of this year's Alliance will be set on country ownership.

In response to frequent requests for WHO support at the country level, the PBD division will strengthen its participation in the NTD framework to advocate for trachoma control. In addition, WHO will work to improve response to countries, establish certification procedures, and establish and maintain an expert roster and engage new donors.

The second version of the Trachoma Control Manager's Guide will be available in 2010, along with the publication of surgeon certification guidelines in French. The trachoma rapid assessment protocol will be available in French also. In 2010, WHO plans to expand school-based prevention materials to China, Brazil and Mexico and will support global mapping of trachoma prevalence and SAFE strategy activities.

Helen Keller International: Heading for 2020

As Presented by Mr. Chad MacArthur, Helen Keller International

Helen Keller International (HKI) has been working to prevent blinding trachoma since the 1950s. Today, over half a century later, with funding from multiple donors, HKI is a major partner in helping national programs work towards their trachoma elimination goals in Mali, Niger, Tanzania, Cameroon, Guinea, Burkina Faso, and Nepal. This presentation serves as an update on HKI's current trachoma elimination work in key countries and also underscores the importance of forming a strong partnership with the national programs in these countries.

For Mali, HKI receives funding from the Conrad N. Hilton Foundation (CNHF), the United States Agency for International Development (USAID) through Research Triangle Institute International (RTI), the Bill & Melinda Gates Foundation through the International Trachoma Initiative (ITI), the European Union, and Lions Clubs International Foundation. With funding from such a wide array of donors, HKI is able to support the surgery, antibiotic therapy and facial cleanliness components of the SAFE strategy. Specific activities include: surgical services in Kayes; nationwide distribution of azithromycin and tetracycline; radio broadcasts to promote behavior change in Kayes, Koulikoro, Mopti, Ségou, and Sikasso; studies to assess mass drug distribution coverage, trachoma prevalence after several rounds of treatment with antibiotics, the impact of radio messaging, and surgical results; and a primary-school trachoma curriculum.

HKI receives funding from the Conrad N. Hilton Foundation (CNHF) and the Bouamatou Foundation through ITI for its program in Niger. Most of this funding goes towards the following activities: surgeries in Tahoua, Dosso, and Zinder; the training of surgical operators in Tahoua and Dosso; the rehabilitation of 18 community radio stations; radio broadcasts to promote behavior change; a primary-school trachoma curriculum and teacher training in Dosso; dissemination of posters for health education; training of health workers and opinion leaders for social mobilization; and studies to assess the impact of radio broadcasts and surgical results.

For Tanzania, HKI is a recipient of funding from CNHF, the Heart to Heart Foundation, and the Sabin Vaccine Institute. These funds mainly support trachoma elimination efforts in the two southern regions of Mtwara and Lindi. Activities include the training of surgeons; surgeries; piloting a trachoma planning and budgeting tool; district-wide implementation of teacher training and a primary-school trachoma curriculum; radio broadcasts to promote behavior change; and mapping to identify key water and sanitation partners in each district.

The trachoma activities of HKI in Cameroon are just beginning through funding from USAID/RTI. Baseline mapping of 26 health districts is planned in the Far North region in 2010 and mapping of 13 districts in the North region will take place in 2011.

To reach elimination goals in all of these countries it is imperative to work closely with the national programs and partners in strategic planning and program implementation for all SAFE strategy components. HKI's work in Mali and Niger with the national programs and The Carter Center is a clear example of this collaborative approach. Our joint efforts have produced concrete national work plans for both 2009 and 2010, allowing us to move forward strategically as we head towards 2020 together.

Pfizer Inc Update

As presented by Ms. Lisa Foster, Pfizer Inc

Pfizer Inc is committed to working towards a healthier world through its mission to apply its scientific and global resources to improve health and well-being at every stage of life. Pfizer embraces its responsibility to serve the world's diverse health care needs and is setting even higher standards for the company through its relationships with health care providers, patients and consumers.

The recent merger with the pharmaceutical firm Wyeth augments the Pfizer portfolio and establishes new disease areas and leading positions in cardiovascular disease, oncology, women's health and infectious disease. The merger also expands Pfizer's work to include vaccine research and biologics, along with animal health products. Pfizer supports independent scientific collaboration with the World Health Organization through access to its library of medicinal compounds, training of scientists from developing countries, and linking research to speed the discovery of new treatments for parasitic diseases.

Pfizer's corporate responsibility platform currently includes the International Trachoma Initiative, the Diflucan Partnership, the Sutent Patient Assistance Program, Mobilize Against Malaria, Connect HIV, Global Health Partnerships, Global Health Fellows, the Infectious Disease Institute and the Alliance for a Healthy Border. These programs use a variety of approaches to deliver health care for those in need.

In addition to providing the Zithromax[®] donation, Pfizer Inc is committed to the goal of eliminating blinding trachoma and works with USAID, the United Kingdom Department for International Development (DFID), the World Bank, CARE, WaterAid and UNICEF to advocate for increased commitments to the implementation of the SAFE strategy.

International Trachoma Initiative Update

As presented by Dr. Danny Haddad, International Trachoma Initiative

The International Trachoma Initiative (ITI) relocated to the Task Force for Global Health in April 2009. The Task Force was chosen to host the ITI due to its strategic relationship with other Neglected Tropical Disease (NTD) donation programs. The ITI remains a “partner among partners” in the global elimination of blinding trachoma by 2020 and is committed to supporting national programs in the implementation of the SAFE strategy by leveraging the Zithromax[®] donation in the context of S, F and E.

The ITI performs three key functions: supply chain management; leader in advocacy for the elimination of blinding trachoma at the global, regional and country level; and a key partner in the management of trachoma control program data. ITI ensures that Pfizer Inc-donated Zithromax[®] arrives in country in the correct quantities and supports forecasting exercises. ITI is uniquely placed to liaise with donors such as USAID, the World Bank and DFID to identify new funding sources for trachoma elimination. Finally, the ITI plans to manage trachoma prevalence data in a trachoma atlas to track progress towards the goals of GET 2020.

Through the Zithromax[®] donation, the ITI supports national programs through strengthening national task forces and other key partnerships. The ITI plans to scale up the number of treatments donated by Pfizer Inc to new countries and to expand the geographic scope in existing countries, where required. In the next few years, the ITI projects to include an additional 19 countries, growing from 39 million annual azithromycin treatments to 80 million. To accomplish these goals, the ITI reviews donation forecasts through an annual application process. The Trachoma Expert Committee (TEC) is composed of experts in the SAFE strategy and reviews all applications to determine and guide the Zithromax[®] allocation.

The ITI is also working to ensure that trachoma elimination programs take advantage of the opportunities presented by the NTD program and other possibilities to integrate. In Mali, the ITI is working to determine if Zithromax[®] can be co-administered with ivermectin and albendazole through a grant from the Bill & Melinda Gates Foundation.

RTI Update: NTD Control Program

As presented by Dr. Eric Ottesen, Research Triangle Institute International

RTI International received a five-year \$100 million grant from USAID to support the control of Neglected Tropical Diseases (NTDs) within the context of integration. The USAID grant targets five NTDs: lymphatic filariasis (LF), onchocerciasis, schistosomiasis, soil-transmitted helminths (STH), and trachoma. The promotion of NTD control was attractive to the US government because it offered an opportunity to fund low-cost programs that could reduce the burden of disease among high morbidity illnesses through the use of preventive chemotherapy (PCT).

The objectives of the USAID grant were to support the design and scale up of integrated PCT and demonstrate that integrated NTD control is cost-effective and more efficient than non-integrated programs. RTI International administers the grant on behalf of USAID and sub-contracts to partner organizations to implement PCT activities. The program used pilot projects in Burkina Faso, Ghana, Mali, Niger and Uganda to establish a plan to reach full scale implementation. Bangladesh, Haiti, Nepal, Sierra Leone and Southern Sudan were introduced in Year Two of the grant, with Cameroon and Togo added in Year Three.

In the first three years of the program grant, over 19 million people have been treated for trachoma with USAID support. RTI International has identified the need to support additional prevalence mapping and surveillance in areas scheduled to complete PCT activities.

Although the role of RTI International in future USAID grant management has yet to be determined, RTI plans to document best practices in the implementation of integrated programs in collaboration with national programs and the World Health Organization. There are also plans to support impact evaluations and surveillance strategies during the final year of the grant.

The Carter Center Development Approach

As presented by Ms. Nicole Kruse, The Carter Center Atlanta

Founded in 1982 by former U.S. President Jimmy Carter and former First Lady Rosalynn Carter, The Carter Center has worked to advance human rights and alleviate unnecessary human suffering in more than 70 countries around the world.

The Center is guided by a 19-member Board of Trustees, chaired by Mr. Kent “Oz” Nelson. The Center benefits from the distinguished and diverse experiences of its Trustees, who have backgrounds in the fields of business, finance, philanthropy, education, politics, film and media, among others.

Four Trustees emeriti were recognized for their service, including Mr. John Moores, who has been a generous benefactor and extraordinary advocate for the Center’s work to eliminate and control blinding diseases, particularly onchocerciasis and trachoma. Also recognized was the Center’s Board of Councilors (BoC), which was established in 1987 as a leadership advisory group to promote greater understanding of the Center. Mr. Ken Byers is the current Chairman of the BoC.

The roles of the Board of Trustees and the President and Chief Executive Officer (CEO) include the oversight, decision-making, and direction of the Center’s mission, programs, advocacy, fund raising, and financial stewardship. The Trustees are the final authorizing body for all new or expanded initiatives, including any new or expanded budgets for existing activities. The President and CEO, Dr. John Hardman, has authorization to approve any new or expanded Memoranda of Understanding. Any new or expanded field activities are subject to Emory University Institutional Review Board (IRB) approval. Approval for any new or expanded initiative is contingent upon the availability of funds.

The Center’s executive leadership is comprised of three vice presidents: Dr. John Stremlau, who leads five Peace Programs; Dr. Donald Hopkins, who leads ten Health Programs; and Mr. Phil Wise, who oversees several Operations units. The Health Programs Development (HPD) department, which is one of the Operations units, works closely with Dr. Donald Hopkins and the directors and staff of the ten Carter Center Health Programs.

The HPD department is a centralized unit of five staff members within The Carter Center, based at the Atlanta headquarters. The department, which focuses on Board-approved health programs, is primarily responsible for: 1) analyzing program objectives and financial needs of Carter Center Health Programs; 2) securing annual and long-term funding; 3) directing fund-raising efforts and developing funding partnerships; 4) managing grants; and 5) managing the coordination of fund-raising participation by the Center’s executive offices and program staff. The department also is responsible for negotiations with donors, proposal and contract development, grant agreements, and narrative and financial reports.

In any given year, the Center’s Health Programs require financial support in the range of \$45-60 million for ten health programs in 20 countries (Brazil, Mexico, Guatemala, Colombia, Ecuador, Haiti, Dominican Republic, Venezuela, Nigeria, Ethiopia, Sudan, Niger, Mali, Ghana, Uganda, Cameroon, South Africa, Romania, Liberia, and the United States). Annual in-kind support of \$75-\$150 million, mostly donations of medicine, also is raised.

In fiscal year 2009, The Carter Center received donations of approximately \$167 million from more than 116,000 donors. More than 90% of The Carter Center's fiscal year 2009 budget was used for its programs (79.7% of which were Health Program expenditures). The Carter Center gave special recognition to the trachoma and malaria donors in attendance, including representatives from the Conrad N. Hilton Foundation, Lions Clubs International Foundation, Pfizer Inc, Vestergaard Frandsen, Clarke Mosquito Control, John P. Hussman Foundation, and the Bill & Melinda Gates Foundation.

Trachoma Amelioration in Northern Amhara (TANA) Study Update

As presented by Dr. Jeremy Keenan, F. I. Proctor Foundation

The purpose of the TANA study is to investigate the role of antibiotics and latrine construction in trachoma control for hyperendemic areas, specifically in the Goncha Siso Enese district in the northern Amhara region of Ethiopia. This study is made possible through a partnership between The Carter Center, the Proctor Foundation at the University of California at San Francisco, and the Ethiopian Ministry of Health, including the Amhara Regional Health Bureau.

All ten research visits of the study have been completed, and nearly 25,000 participants have been enrolled.

Latrine efficacy

We studied how intensive promotion of latrine construction affects the rate at which ocular infection returns to a community after mass antibiotic distribution. Twenty-four randomly selected communities received a single community-wide mass azithromycin distribution at baseline. Twelve communities were further randomized to receive intensive latrine promotion.

In study year one, our project undertook intensive latrine construction activities, forming “latrine teams” in the latrine promotion arm. Eighteen Health Extension Workers (HEWs) received latrine construction training and together constructed a total of 2,193 new latrines. We performed a latrine survey at 12 and 24 months in randomly selected households. Latrine coverage was roughly 80% in the latrine promotion arm and 30% in the control arm at both time points. Recent latrine use was observed in nearly two-thirds of households in the latrine promotion arm, and in less than 25% of households in the control arm, at both time points.

This study was unable to show a difference in trachoma infection between the latrine arm and the non-latrine arm over two years. At baseline, infection in 0-9 year-old children was 43% in the arm without latrines and 46% in the latrine arm. At 24 months, after one antibiotic distribution and latrine construction efforts, infections levels had dropped in both arms – to 14.6% and 14.8% respectively.

Herd Protection

We investigated whether children form a core group for the transmission of trachoma, and specifically whether reducing infection among children would also reduce infection among untreated members of the community. In twelve randomly selected communities, only children aged 1-10 years were treated every three months for one year. In 12 other communities, no treatments were administered until the conclusion of the study (12 months after baseline).

Infection rates in children aged 1-10 years dropped from 48% at baseline to 4% at 12 months. In the delayed treatment (control) arm, infection in children was 45.6% at 12 months. Note that this high prevalence in the control communities provides evidence that there was no secular trend for a decline in trachoma prevalence in this area of Ethiopia.

As a result of treating only the children, infection in individuals older than 10 years was cut almost in half – from 15% at baseline to 8% at 12 months ($p=0.002$). This 8% prevalence of infection was lower than the 13% prevalence observed in individuals older than 10 years in the control group at 12 months ($p=0.04$). This provides evidence of herd protection for the untreated community members.

Annual vs. Biannual

We are investigating whether elimination of ocular chlamydia is feasible if repeated mass azithromycin treatments are administered, and whether the frequency of these treatments is

important. We randomized 12 communities to receive annual treatments for 4 years, and 12 other communities to receive biannual (every 6 months) treatments for 4 years. Data collection has been completed, and Polymerase Chain Reaction (PCR) testing of ocular swabs is currently being performed. Results should be available in the next few months.

Nasopharyngeal pneumococcal resistance

We investigated whether frequent mass azithromycin treatments selected for antibiotic resistance in nasopharyngeal pneumococci. We collected nasopharyngeal swabs on a random sample of children from the children treated group and the delayed treatment group. The prevalence of azithromycin resistance increased from 6% at baseline, to 62% at one year (after 3 mass azithromycin treatments to children), which was higher than the 12% resistance seen in the control communities at one year ($p=0.0001$). No penicillin resistance was observed in the treated communities, and only a single penicillin-resistant isolate was observed in the control communities. Given that macrolides are so infrequently used outside of trachoma programs, that no penicillin resistance was found, and that mortality actually decreased in the treatment groups (see below), the nasopharyngeal pneumococcal macrolide resistance likely has little clinical significance.

Mortality

We investigated whether childhood mortality was affected by mass azithromycin treatments. For the first year of the study, we compared childhood mortality in treated communities (made up of the annual, biannual, and children-only treated groups) with untreated communities (the delayed treatment arm). Mortality in 1-5 year old children was 12.1 per 1,000 person-years in the untreated group, and 5.7 per 1,000 person-years in the treated group ($RR=0.50$, $p=0.01$). As further evidence, mortality in those less than 1 year of age, none of whom received azithromycin, was not statistically significantly different in the 2 groups: 42.9 per 1,000 person-years in the untreated group versus 35.8 per 1,000 person-years in the treated group ($p=0.51$).



Collection of samples for PCR analysis in the Goncha Siso Enese district of Ethiopia.

The TTT Project: Barriers to Surgery and Training DVD

As presented by Dr. Saul Rajak, The London School of Hygiene and Tropical Medicine

Barriers to Surgery

Over eight million people worldwide are estimated to have trichiasis. Despite extensive efforts, surgical provision is inadequate to reach those currently living with un-operated TT. Even where trichiasis surgery is provided free of charge, uptake ranges from 18 to 60% of those living with trichiasis. During recruitment for the Treatment for Trachomatous Trichiasis (TTT) project, the investigators had an opportunity to ask patients why they had not presented for treatment during prior surgical campaigns.

In the TTT project, surgical campaigns are advertised and mobilized through markets, church services and schools. An Amharic interview questionnaire was administered to all study participants to identify demographic characteristics and establish each patient's history of trichiasis.

A total of 2,591 TT patients were interviewed over the course of this project. Seventy-two percent of the sample were women, with a median age of 50 years and high levels of illiteracy (93%). The patients interviewed identified several barriers to surgery, including lack of time, financial constraints, and lack of a care-taker to accompany them. In cases of minor trichiasis, patients did not present for surgery since they were not suffering from severe symptoms.

In order to increase surgical uptake among those living with TT, well-organized campaigns need to be organized closer to communities where TT patients live. This will reduce the logistical and financial constraints associated with traveling for surgery.

TT surgery training DVD

A trichiasis surgical training DVD was presented. The filming is complete and the DVD should be released in late 2010. The training video features training exercises that will provide the novice surgeon with practice exercises to improve surgical technique, narrated surgical instruction for both the Trabut and Bilamellar Tarsal Rotation (BLTR) procedure, and guidance on patient intake, evaluation and follow-up care. The video will be released in English, with additional translations to be made available.

International Trachoma Initiative: Trachoma Atlas Overview

As presented by Ms. PJ Hooper, International Trachoma Initiative

The International Trachoma Initiative has an operational research grant from the Bill & Melinda Gates Foundation entitled "Increasing the Sustainability and Scalability of NTD Control Programs through Country and Global Level Integration." The grant began in 2006 and will end in September 2012. Some of the grant's activities include:

- Studying the safety of co-administration of Zithromax[®], Mectizan[®] and albendazole for trachoma and lymphatic filariasis (LF);
- Integrated hygiene behavior change subcontracted to HKI for implementation in Mali;
- Integrated mapping, integrated surveillance, integrated impact assessments to identify and test a new epidemiological "trigger" for the Zithromax[®] donation (subcontracted to CDC);
- Evaluating the impact of water, sanitation and hygiene on NTDs and to determine how to advocate for collaboration between water and sanitation organizations and the NTD programs.

The goal of the Trachoma Atlas activity is to develop an open-access, global resource of information on the current distribution of trachoma disease and trachoma control activities. The London School of Hygiene and Tropical Medicine (LSHTM) has been subcontracted for this project from January 2010 to August 2011 and will work in collaboration with WHO. Mapping trachoma prevalence data will facilitate planning for national programs and will provide a tool for partners to identify current implementation needs, inform programmatic integration with other NTD programs, and facilitate advocacy for elimination of blinding trachoma at the global, regional, and national levels.

This Trachoma Atlas will capture disaggregated estimates of TF and TT at the village level and aggregate those estimates to the district level. This will enable detailed mapping of disease distribution and allow for future changes in administrative boundaries.

The initial focus will be to collect data from countries supported by the ITI/Pfizer Inc-donation and high-burden areas, and then expand to include the rest of the world. Survey data will be identified using electronic databases, grey literature and unpublished surveys collected from WHO, ITI, and LSHTM. Strict inclusion criteria will be employed so that only population-based prevalence studies with random or complete community samples will be included. Data will be entered into pre-formed linked databases to manage district and community-level data. Standardized procedures will be used to assign longitudinal and latitudinal coordinates to each survey location if actual coordinates are not available. Finally, summary district-level maps will be generated and placed on an open-access website.

Data requests will be emailed to programme managers, NGO partners and academic contacts to identify relevant information, including:

Empirical prevalence data

- **Location:** type of location, name of community, administrative area;

- **Survey details:** indicator used (TF, TF/TI, TT), survey method, selection of participants, diagnostic method, administrative level at which data is representative;
- **Population:** age group, gender;
- **Prevalence:** the numbers examined and the number of positives for active trachoma and trichiasis.

Intervention data: Year, SAFE components, coverage.

Additional survey data: Face washing, households with a latrine, access to water.

Integrated NTD Mapping

As presented by Dr. Eric Ottesen, Research Triangle Institute International

Mapping disease endemicity is the first step towards strategic planning and the initiation of each national Neglected Tropical Diseases (NTD) program. Integration of NTD mapping aims to gain efficiencies above single disease surveys and has been requested by the World Health Organization and international funding sources. Integrated mapping can be simply defined as creating a geographic action plan for control or elimination of NTDs by using shared resources efficiently and respecting disease-specific program objectives. An NTD mapping strategy should be able to capture the minimum information necessary for each disease to determine whether intervention is warranted. However, there are many challenges as each disease program has different target populations, sampling approaches, diagnostic techniques, skill sets and program implementation units.

Currently, there are ongoing efforts by agencies to develop and operationalize guidelines for integrated NTD mapping. Some examples of integrated mapping have been conducted by The Carter Center in Nigeria and Ethiopia and by organizations in other settings demonstrating that integrated mapping is feasible. However, more information is needed to determine if it is necessary and practical in all individualized settings. Each national program will need an individualized approach for integrated mapping based on a situation analysis and operationalize the mapping in an integrated fashion realizing that integration is an attitude, not a recipe.

Economic Analysis of Survey Costs

As presented by Ms. Chaoqun Chen, Georgia Institute of Technology

The Carter Center Trachoma Control Program supports ministries of health to conduct trachoma prevalence mapping using cluster random surveys. These surveys enable national trachoma control programs to determine the burden of disease at baseline and to calculate intervention targets required to meet the goals of eliminating blinding trachoma as a public health problem. Prevalence surveys are repeated to measure the impact of the SAFE strategy on trachoma and to update program targets.

The Carter Center has supported 167 district-level surveys in seven national trachoma control programs since 2006. As partners and national programs plan trachoma control interventions, the need for additional prevalence mapping has been discussed at a number of international meetings. The Carter Center decided to analyze the actual costs from past surveys to calculate an average cost per district and cluster. These results will enable partners to estimate future survey costs and will be used to estimate the cost of completing a trachoma map.

To collect cost data, The Carter Center developed a standard data collection tool to enable Carter Center field staff and national program representatives to quantify the cost of survey activities by categories such as personnel, transportation and supervision. Since this analysis is retrospective, the programs reported cost data based on groups of surveys (i.e., by region in which several district-level surveys were conducted at one time). In the analysis, each region was considered an independent observation. Reports from finance were used to verify the responses from the field. Costs were reported in local currency and converted to US dollars using a three-year average exchange rate.

The reported cost data is summarized in Table 1. The median cost per district was \$4,738 (Inter-quartile range (IQR): \$3,315-\$5,898). The median cost per cluster was \$291 (IQR: \$110-\$356). In the analysis, costs were further analyzed to determine the categories that represented the largest proportion of expenses. Overall, personnel (per diem) and transportation accounted for 65.5% and 25.7%, respectively.

This analysis did not include the cost of Carter Center Atlanta staff time or travel expenses. Since 2006, there have been a total of 14 trips from Carter Center staff members to support survey work. The average cost for airfare, per diem and hotel was \$2,783. Since support to the national programs from Carter Center Atlanta staff covers a variety of aspects of technical assistance to the entire implementation of the SAFE strategy, it was not considered an incremental cost that could be attributed to all surveys. Furthermore, these “headquarters” costs are dependent on Carter Center financial guidelines and are not generalizable to other organizations which may have different travel and per diem policies.

Table 1 Summary of Findings, by National Program

Program	Districts	Clusters	Distance Driven on Roads (km)	Total Costs	Average Cost per District
Ghana	18	720	5,472	\$72,249	\$4,014
Mali	36	660	47,489	\$75,899	\$2,108
Nigeria	13	260	16,841	\$23,942	\$1,842
GOS*	76	1,098	33,626	\$353,267	\$4,648
GOSS**	1	20	0	\$23,500	\$23,500
Niger	8	160	25,600	\$51,691	\$6,461
Ethiopia	15	250	-	\$47,132	\$3,142

*Government of Sudan

**Government of Southern Sudan

These data will be analyzed with other surveys planned for completion in 2010 to generate a multi-variable regression model of survey costs. This analysis will enable partners to model the cost of trachoma surveys under different operational conditions. In addition, a cost-benefit analysis will be performed to determine whether programs save time or money by conducting surveys before initiating program implementation.

Planning for Elimination of Blinding Trachoma in the Northern States of Sudan

As presented by Dr. Awad Hassan, Federal Ministry of Health-Sudan

Anecdotal evidence has long claimed that the northern states of Sudan are endemic for trachoma. In order to understand the current epidemiology of trachoma, rather than relying on anecdotal evidence, the National Prevention of Blindness Administration began mapping the prevalence of trachoma for each locality (district) in 2006. By surveying each locality, the national program is able to establish an evidence-based plan to eliminate blinding trachoma as a public health problem by 2015. The locality-level data also enables the national program to focus its limited resources on localities that warrant intervention.

From 2006-2010, a total of 87 localities in 12 states have been surveyed by the national program with support from The Carter Center. For each locality, 6 to 15 clusters were selected using probability proportional to size. Once the surveys were conducted, the “map and segment” method was employed to select 24-30 households, ensuring that all households had (as near as possible) an equal chance of selection. In selected households, all members were screened for signs of trachoma.

Over the course of the surveys’ implementation, 112,850 people were screened for trachoma. The findings show that only two localities, Gaissan and El Galabat East, have a prevalence of clinical grade TF that exceeds 10% in children 1-9 years of age. There are a total of 12 localities where the prevalence of TF is between 5-10%. In 20 localities, the prevalence of TT in adults ages 15 years and older exceeds 1%. The national program plans to complete trachoma prevalence mapping in the Al Kurmok locality of Blue Nile state in April 2010 now that the security situation has improved.

The national program has used the data from the surveys to calculate UIGs required to meet the elimination targets by 2015. The program currently estimates that over 50,000 people require surgery for trichiasis; district-wide implementation of antibiotic treatment is warranted for at least 300,000 people in two districts; a health education campaign should be developed to reach all states; and approximately 120,000 household latrines should be constructed in districts where TF exceeds 5% to meet Millennium Development Goal Seven.

The national program has also identified program needs to reach the elimination targets by 2015. These include improving the coordination of surgery partners to increase output; analysis of prevalence survey data to identify age and gender groups that may require more health education and surgical outreach; and complete trachoma mapping for the three Darfur states. Despite the gaps identified, the data from the surveys places Sudan in a strong position to plan program interventions to maximize the impact on blinding trachoma and reach elimination by 2015.

Prevalence of Trachoma in the Regions of Kayes and Koulikoro Four Years after Stopping Antibiotic Distribution

As presented by Dr. Sanoussi Bamani, Programme National de Lutte contre la Cécité du Mali

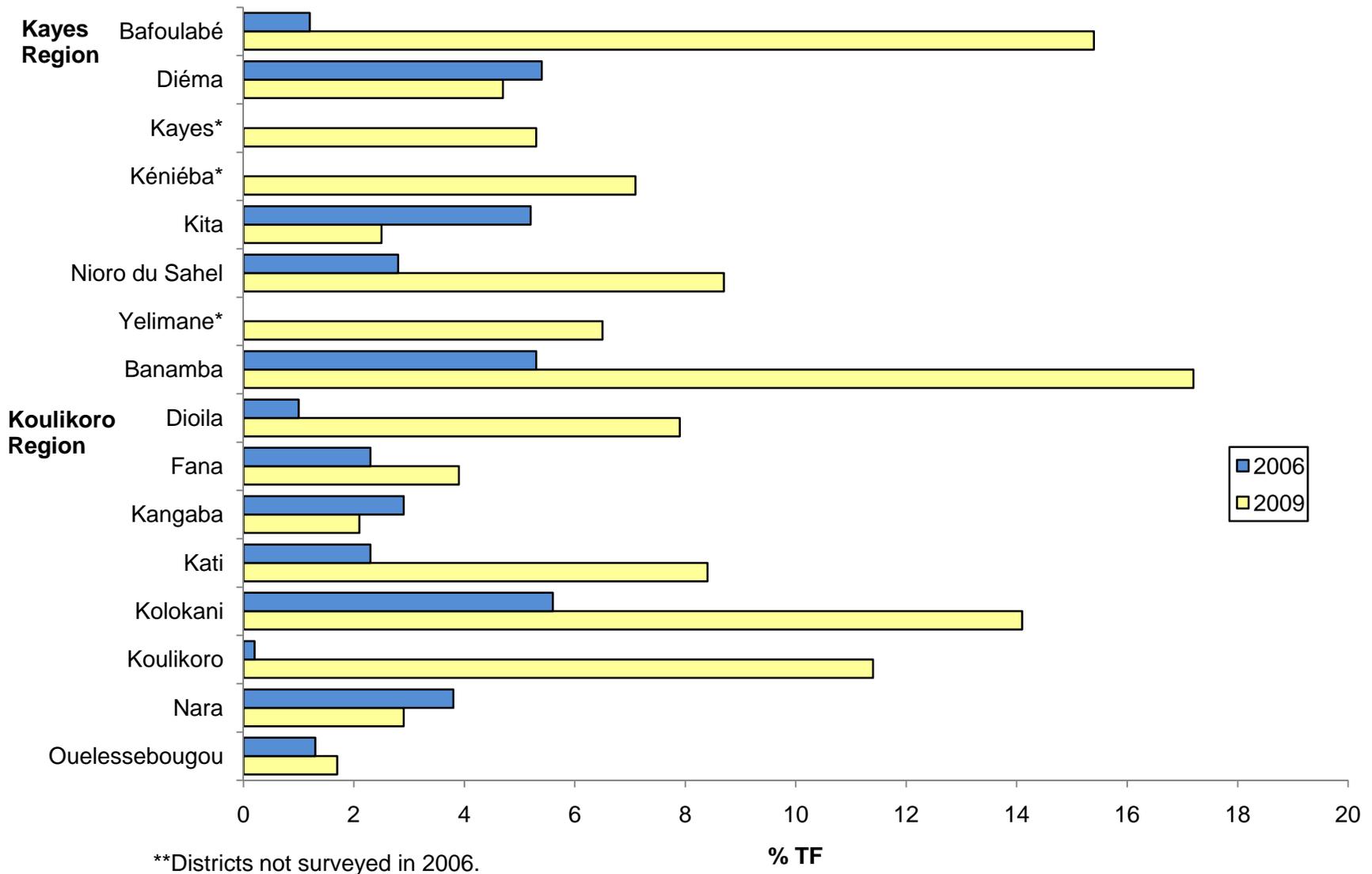
A national survey in 1997 demonstrated that trachoma was endemic to Mali. Interventions to control trachoma, including mass drug administration (MDA) with azithromycin, were launched in the regions of Kayes and Koulikoro in 2003. MDA was discontinued in all districts after three annual rounds in 2006, and an impact survey was conducted. We resurveyed all districts in Kayes and Koulikoro in 2009 to reassess trachoma prevalence and determine intervention objectives for the future.

Population-based cluster surveys were conducted in each of the nine districts in Koulikoro in 2006 and 2009, whilst in Kayes, four of seven districts in 2006 and all seven districts in 2009 were surveyed. Household members present were examined for clinical signs of trachoma. Overall, 29,179 persons from 2,528 compounds, in 260 clusters were examined in 2006 and 32,918 from 7,533 households in 320 clusters in 2009.

Prevalence of active trachoma in 2006 was below baseline intervention thresholds in all surveyed districts and the national program stopped antibiotic distribution. The prevalence of trachomatous inflammation follicular (TF) in 2009 remained well below 1998 levels (Figure 1). However, in 8 of 13 districts compared, the prevalence of active trachoma was higher in 2009 than 2006. Three years of antibiotic intervention did not equate in all districts to a sustained reduction of TF three to four years after distribution had ceased. No surveillance activities were implemented after stopping interventions. Surgical interventions may have reduced the burden of blinding trachoma but there is an ongoing need for surgeries specifically targeting affected women. Data indicate that women are more likely than men to develop TT and less likely to have access to health services.

Using WHO guidelines for decision making, four districts, Bafoulabé in Kayes region; and Banamba, Kolokani and Koulikoro in Koulikoro region, still meet criteria for district-wide implementation of the full SAFE strategy as TF in children exceeds 10%. A community-by-community approach to trachoma control may now be required in the other twelve districts. The promotion of facial cleanliness and good hygiene behavior should be reintroduced. Since 1997, great progress has been observed in the fight against blinding trachoma; however, greater effort is required to meet the elimination target of 2015.

Figure 1 Prevalence of TF Among Children < 10 Years of Age, by District in Kayes and Koulikoro Regions, Mali, 2006 and 2009



Surgical Outreach in Mali

As presented by Mr. Yaya Kamissoko, The Carter Center Mali

The Mali National Program for the Prevention of Blindness (PNLC) has set 2015 as a target date for the elimination of blinding trachoma as a public health problem. The PNLC has conducted district-level trachoma prevalence surveys in the Kayes, Kidal, Koulikoro, Ségou and Sikasso regions; these data enable the program to identify districts that warrant intensive surgical outreach services. According to the most recent data on the prevalence of trichiasis, the program currently estimates that over 58,000 people suffer from un-operated trichiasis. Based on 2009 population data and surgical productivity, the national program estimates the UIG for surgery to be approximately 35,000 people. In order to reach the elimination goals, the prevalence of trichiasis must be reduced to less than one case per 1,000 persons in the total population and a system must be established to manage any subsequent incident cases.

In Mali, trichiasis surgery is performed by ophthalmic medical assistants and ophthalmic technicians trained in the Trabut procedure. The PNLC currently estimates that 158 surgeons are currently active nationwide. Since surgical productivity through the routine health services is low, the PNLC employs three types of surgical outreach campaigns to increase access to surgery: *auto* (team in a car), *moto* (individual operator on a motorcycle), and *campagne mixte* (team at a single location in a community followed by outreach by car or motorcycle).

The PNLC relies on health education through community radio, town criers, health agents, and women's groups to encourage the uptake of surgical services. *Auto* campaigns rely on the national program's staff to visit hard-to-reach communities using a vehicle to transport a team of four surgeons and their equipment on 12-day campaigns. In contrast, the *moto* strategy requires trichiasis surgeons to travel by motorcycle to reach communities in their home district. The surgeon travels to communities over a ten-day period each month, searching for cases to operate. In areas where trichiasis is known to be highly prevalent, the national program implements the *campagne mixte* approach where a team of surgeons offer service at a health center, school or other central location and rely on social mobilization to attract patients. This approach enables the surgeons to work together as a team to evaluate and treat patients over 2-4 days. Once the initial wave of patients is treated, the surgeons then travel to distant communities to conduct additional outreach.

All trichiasis patients are provided instructions on follow-up care at the time of operation. Their local health post doctor or head nurse is provided materials and support to remove sutures and provide follow-up care after the campaign has been completed. In some cases, suture removal is performed by the surgeon, depending on the location of the patients.

The PNLC currently had five partners supporting trichiasis surgery in 2009: The Carter Center (Kayes, Ségou, Sikasso and Mopti); Helen Keller International (Kayes); The International Trachoma Initiative (Ségou); Sight Savers International (Koulikoro); and the PNLC and the African Institute of Tropical Ophthalmology (IOTA) (Bamako).

Where Are They Now? A Study of TT Surgeon Productivity and Attrition in Ethiopia

As presented by Dr. Saul Rajak, The London School of Hygiene and Tropical Medicine

Over sixty-five million Ethiopians live in areas that are endemic for trachoma, and approximately 138,000 people are already blind from trichiasis. In the Amhara region alone, there are over 500,000 people currently living with trichiasis, with prevalence rates by zone ranging from 2.4 - 10.0% among adults fifteen years and older.

From 2001-2008, a total of 524 trichiasis surgeons have been trained with support from the Lions-Carter Center SightFirst Initiative and by the Amhara Regional Health Bureau. Trichiasis surgeons are recruited from a cadre of general health practitioners, including nurses and health officers. Over the course of their careers, relocation and re-assignment is common. In addition, many trichiasis surgeons are trained to work in remote areas where there are limited opportunities for direct supervision.

In order to evaluate the productivity of these surgeons, The Carter Center and the Amhara Regional Health Bureau traced all surgeons trained in South Gondar, North Gondar, East Gojjam and West Gojjam. Once located, a questionnaire was administered to each surgeon to determine whether or not the surgeon was still active. Active surgeons were asked to report the number of surgeries conducted, the quality of their surgical instruments, and to provide more information about their experiences as surgeons. Those surgeons found to be inactive were asked to report their reasons for leaving their health services, problems they encountered as TT surgeons, and other demographic characteristics.

This study is still ongoing. A total of 161 surgeon interviews have been analyzed thus far. The preliminary results suggest that surgeon attrition rates are as high as 50%; female operators are associated with lower attrition; health centers with more amenities are associated with lower attrition; and static surgery output is low, with multiple barriers to the provision of surgery identified.



Trichiasis surgeons in Amhara regional state, Ethiopia.

Survey Toolkit for Trachoma Elimination Monitoring (STTEM) project

As Presented by Dr. Jeremiah Ngondi, The Carter Center

Surveys of trachoma are essential for quantifying disease burden, establishing the need for intervention and informing program intervention goals. In addition, routine follow-up surveys are required for monitoring progress in programs and deciding when to stop interventions.

Proper surveys are essential if the objectives of the Alliance for the Global Elimination of Blinding Trachoma by the Year 2020 (GET2020 Alliance) are to be realized. The cluster random sampling (CRS) survey design is ideal and provides a population based survey method that is feasible, inexpensive and can be carried out routinely. Many national trachoma control programs have continued to demonstrate best practices by conducting routine surveys of trachoma. Trachoma surveys will continue to be essential beyond the year 2020. Therefore, there is a clear need for continued capacity building within national programs to conduct surveys routinely.

Over the years, The Carter Center, in collaboration with the national programs, has developed survey training materials, and supervision and data management routines. The Survey Toolkit for Trachoma Elimination Monitoring (STTEM) project aims to package these survey manuals into a single application that can be distributed to national programs and partners. The package will comprise documents in both English and French and will be distributed in a manner that is readily accessible to national programs via electronic media and the internet.

The STTEM demonstration version comprises a number of routines including: introduction to trachoma surveys; survey training manual; trachoma reliability studies; survey fieldwork manual; data management routine and sample size estimation.

One novel feature of the application is a reliability study routine that enables building a bank of standardized photographs with a varying range of trachoma signs. The routine will allow reliability studies to be undertaken by randomly sampling a set of photographs and showing the sampled slides in a random order. This feature will be important to ensure rigorous standardization of trachoma examiners, especially in settings where active trachoma signs are no longer a public health problem and such reliability studies cannot be undertaken in the field using subjects.

Further work on the STTEM package is underway to ensure consistent formatting and branding of documents, collation of a photo library for reliability study slides and development of a routine for calculating grade specific inter-observer agreement and kappa statistics.

Evaluating Coverage, Compliance & Determinants to Mass Antibiotic Treatments in Northern Ethiopia

As presented by Mr. Teshome Gebre, The Carter Center Ethiopia

This study aimed to determine the overall proportion of households that participated in the mass antibiotic treatment program and their compliance to successive annual treatment cycles. The study was also designed to determine the level of participation among various groups within the population and to identify any factors associated with compliance with treatment. The perceived benefits and harms of the mass treatment program were also explored.

The study employed a stratified cluster sampling design in which 340 households from five districts were sampled. Both quantitative and qualitative data collection methods were utilized. Structured household questionnaires were administered to female heads of household and in-depth interviews and focus group discussions were conducted with groups of men, women and Health Extension Workers.

In this study, it was found that the communities all had access to a community health post and primary school. Most of the respondents (70.0%) had good knowledge of trachoma disease. Nearly 93.8% of the surveyed households reported having taken part in at least one of the three annual mass treatment rounds in their respective communities. Multivariate regression analysis indicated that female heads of household older than 25 years of age, area of residence, trachoma knowledge and awareness of time and place of treatment were significantly associated with compliance to treatment. The perceived benefits of the mass antibiotic treatment program were very high.

The survey findings showed a huge disparity between participation reported during the survey as compared to the treatment coverage reported in health facility records. Health facility reports had an average treatment coverage of 80.0% for all three annual doses of antibiotics, while the survey findings showed the mean reported treatment coverage per round was 54.1%.

This evaluation demonstrates the need to design a method to accurately determine the population coverage of mass treatment. In addition, the findings show a need to increase the reliability of supervision to spot data management problems as they occur. It is also recommended that health education efforts are intensified to sustain community awareness. Further studies to investigate causes of reporting irregularities at various levels of the health management information system are highly recommended.

Review of Coverage Survey Methods

As presented by Ms. Elizabeth Cromwell, The Carter Center Atlanta

Where mass drug administration (MDA) or other mass distribution programs have been implemented, the challenges of achieving high population coverage at the population or community level are real. Where social mobilization is inadequate, logistic or organizational capacity weak and human resources limited, the uptake of interventions among the target population can be compromised. For public health programs, including NTD control and elimination, the proportion of the target population reached by mass interventions is a key component to routine monitoring. Population coverage estimates serve to verify commodity inventory management, track the performance of both government and non-governmental organizations in the implementation of services and provide important demographic information to local health services. Furthermore, without an accurate estimate of population coverage, it is difficult for program managers to ascribe reductions in disease prevalence to a given threshold of intervention.

In the case of trachoma control programs, coverage with antibiotic distribution is currently calculated using one of three methods: (1) estimating coverage from antibiotic distribution registers and population data (doses distributed divided by the total population); (2) reporting geographic coverage (number of districts reached/number of districts targeted); and (3) using responses from household interviews during impact evaluations. While the data from distribution records and survey responses are useful, they share a number of limitations, including a reliance on distribution logs and population data that may be incomplete, accidentally or deliberately inaccurate, or skewed by survey participant recall and response bias. However, there is no other standard method to assess population coverage with MDA for trachoma control programs.

The ideal approach to measuring population coverage would employ a survey method that would enable the national program to draw a large representative sample, with high power and precision, to generalize accurately to an intervention unit. Ideally, this approach would be simple and cost effective to implement, allowing multiple surveys to be conducted. Unfortunately, it is unlikely that such a method will be available for trachoma control programs.

Since there is a need to develop a coverage survey method for trachoma control, a literature review was conducted to identify current practices used by other public health programs that utilize a mass distribution approach. A list of these programs with a summary of their corresponding coverage survey methods is presented in the following table.

Table 1 Summary of Coverage Survey Methods

Programme	Method	Strengths	Limitations
Expanded Programme of Immunization	"30 x 7" Cluster Random Survey using random walk household selection	Simple to implement Comparable Generalizable Verifiable where immunization cards are present	Random walk method does not guarantee equal probability of selection for all households
Expanded Programme of Immunization	Lot Quality Assurance Sampling (LQAS)	Identify low and high-performing communities	Not a random sample Does not provide a prevalence estimate Risk of incorrectly classifying communities Complex
Lymphatic Filariasis Control and Elimination	Cluster random survey (random walk, map and segment, proximity to distribution site all recommended for household selection)	Generalizable Household questionnaire presents opportunity to collect more data on participants	No method for verification of responses Depending on household selection method, may introduce some bias
Onchocerciasis Control and Elimination	Purposive sampling, convenience sampling, audits of community distribution logbooks	Can identify high and low-performing areas	Not a random sample No method for verification of responses

After the methods for each program were identified, the peer-reviewed literature was searched to identify any studies that compared two or more methods in the same intervention unit. The findings of this comparison of methods demonstrated that despite different household selection methods, cluster random surveys generally produce similar results for population coverage. When compared with lot quality assurance sampling methods, cluster random surveys were found to be cheaper and faster to implement, in addition to providing a generalizable prevalence estimate.

APPENDIX I: The Disease

Trachoma is the world's leading cause of preventable blindness. The World Health Organization estimates that six million people are blind due to trachoma, most of whom are women, and another 540 million – almost 10 percent of the world's population – are at risk of blindness or severe visual impairment. 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, which may be passed to others on hands, towels and clothing, or by flies, which are attracted to ocular and nasal discharges. As a trachoma patient's eyelids are repeatedly infected with chlamydia, 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 (WHO) developed a simplified trachoma grading scale, which facilitated and standardized the diagnosis and identification of all stages of trachoma. In 1996, WHO established the GET2020 Alliance, which brings 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. The manufacturer of azithromycin, Pfizer Inc has pledged to support the global trachoma control effort with the needed product to complete the elimination program. Since the beginning of the donation in 1998, approximately 150 million doses of Zithromax[®] have been donated by Pfizer Inc. The donation is managed by the International Trachoma Initiative and currently serves 13 countries with plans to expand to an additional 19 countries in 2011/12. Pfizer Inc's donation of azithromycin is the largest donation of patented pharmaceuticals in history, and the existence of the donation program has served to invigorate trachoma programs.

APPENDIX II: Carter Center Trachoma Control Program Peer-Reviewed Articles 2009

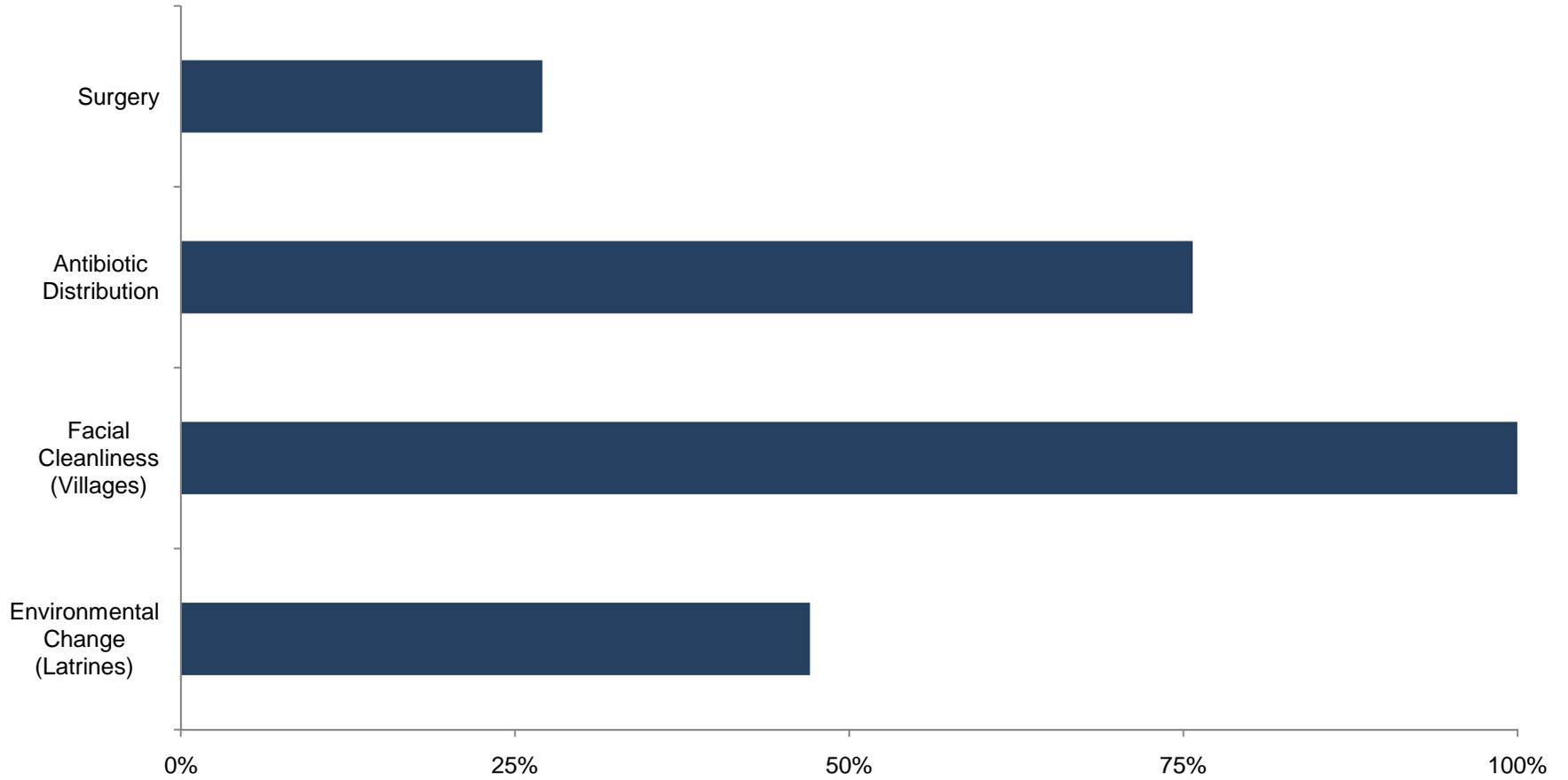
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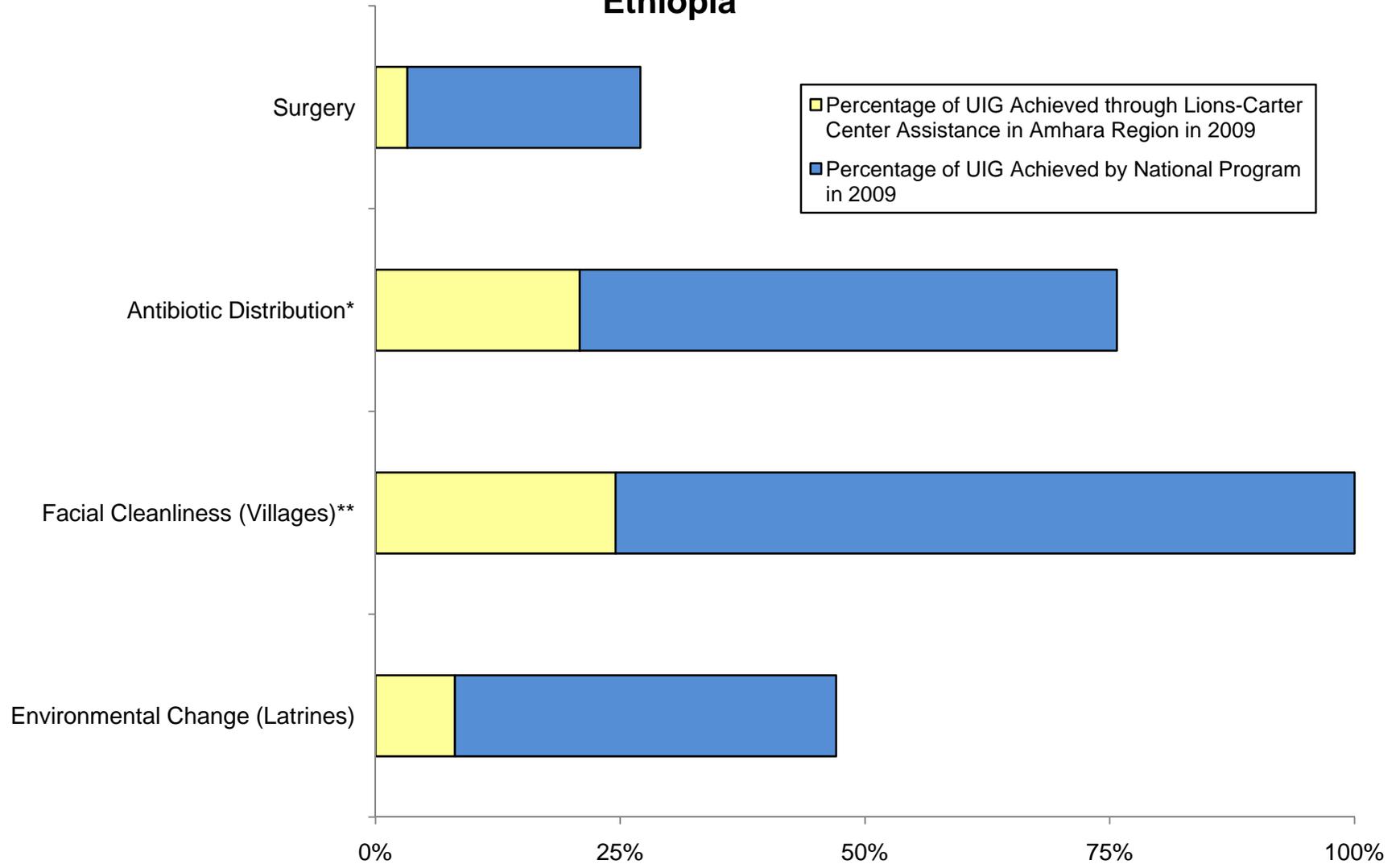
APPENDIX III: Ultimate Intervention Goal Achievements Figures and Tables

Figure 1 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Amhara Regional State, Ethiopia*



*Data as presented at Trachoma Control Program Reviews at The Carter Center.

Figure 2 2009 National and Lions-Carter Center Assisted SAFE Achievements as Percentage of Uitimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Amhara Regional State, Ethiopia



*The number of people treated with antibiotics is compared against the Annual Treatment Objective (ATO).

**Facial Cleanliness UIG is for the Amhara region only; data were not available for the entire country.

Table 1 Cumulative SAFE Achievements as Percentage of Uitimate Intervention Goals in Amhara Regional State, Ethiopia

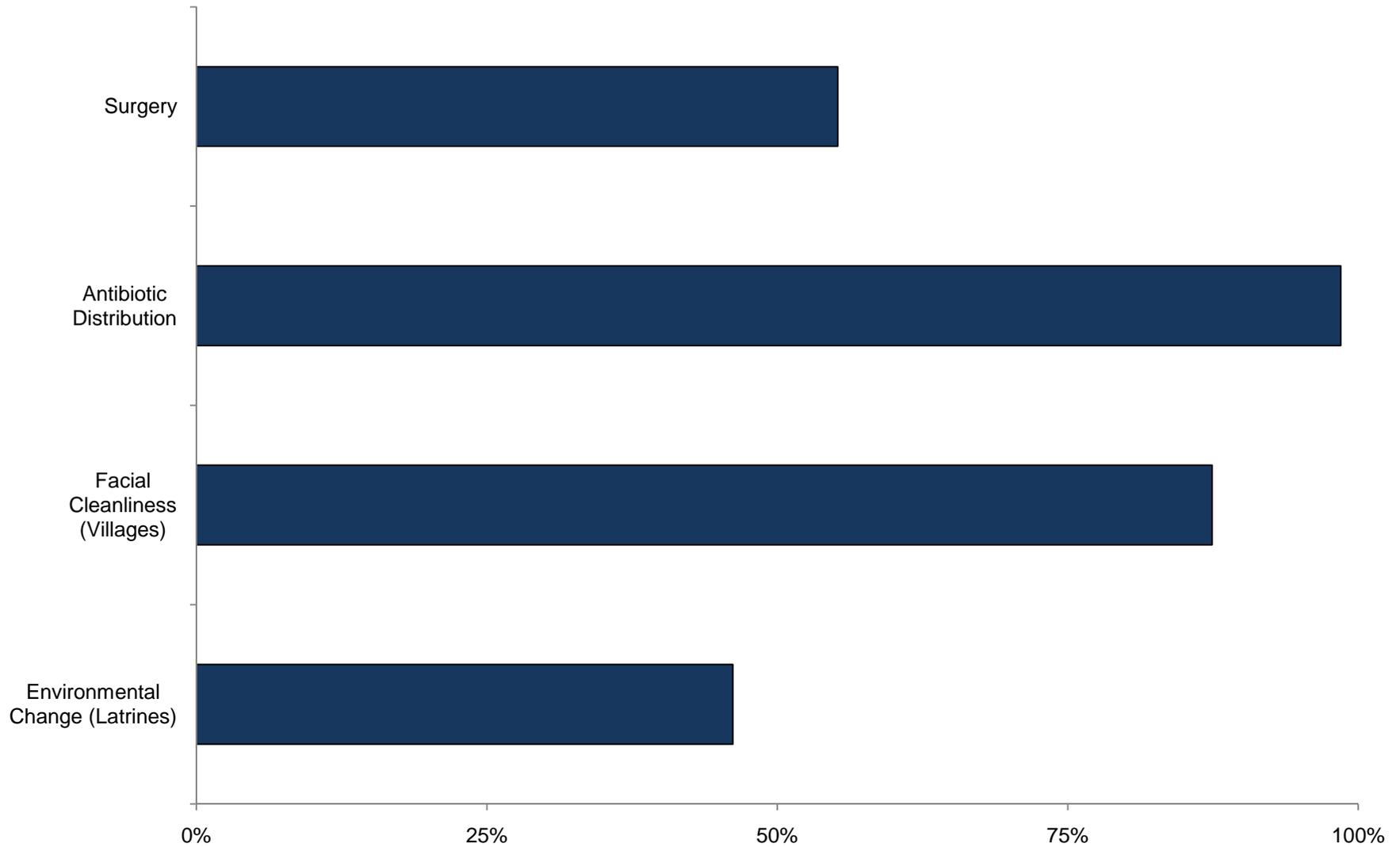
Intervention	Cumulative Lions-TCC Assisted Achievements	Amhara Regional State UIG	Percentage of UIG Achieved with Lions-TCC Assistance
Surgery	159,582	590,000	27.0%
Antibiotic Distribution	37,856,138	50,000,000	75.7%
Facial Cleanliness (Villages)	3,432	3,432	100.0%
Environmental Change (Latrines)	1,272,061	2,703,218	47.1%

Table 2 2009 National and Lions-Carter Center-Assisted SAFE Achievements as Percentage of Uitimate Intervention Goals in Ethiopia

Intervention	National Achievements	Lions-Carter Center Assisted Achievements	UIG	Percentage of UIG Achieved by National Program	Percentage of UIG Achieved with Lions-TCC Assistance
Surgery	72,123	35,681	1,100,000	6.6%	3.2%
Antibiotic Distribution	16,098,321	13,720,673	65,800,000	24.5%	20.9%
Facial Cleanliness (Villages)	3,432	3,432	14,000	24.5%	24.5%
Environmental Change (Latrines)	544,205	544,205	6,700,000	8.1%	8.1%

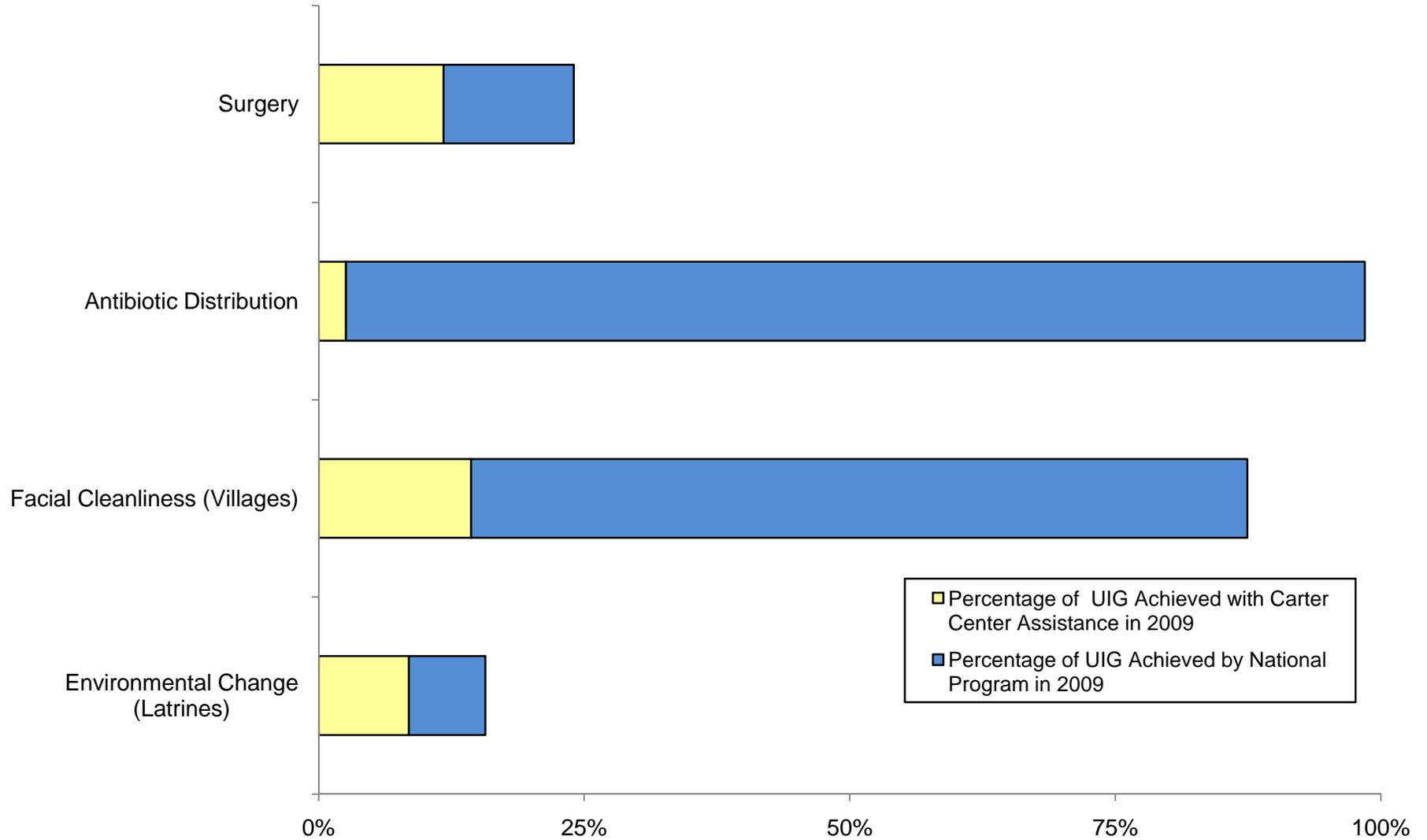
N.B. The data presented in Table 1 is the percentage UIG achieved against UIG targets in Amhara. The data presented in Table 2 is the percentage UIG achieved against national UIG targets.

Figure 3 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Mali*



*Data as presented at Trachoma Control Program Reviews at The Carter Center.

Figure 4 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Mali



The number of people treated with antibiotics is compared against the Annual Treatment Objective (ATO).

Table 3 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals in Mali

Intervention	National Achievements (2000-2009)	UIG	Percentage of UIG Achieved by National Program
Surgery*	47,318	85,700	55.2%
Antibiotic Distribution**	6,303,337	6,400,000	98.5%
Facial Cleanliness (Villages)	10,491	12,000	87.4%
Environmental Change (Latrines)	69,762	151,056	46.2%

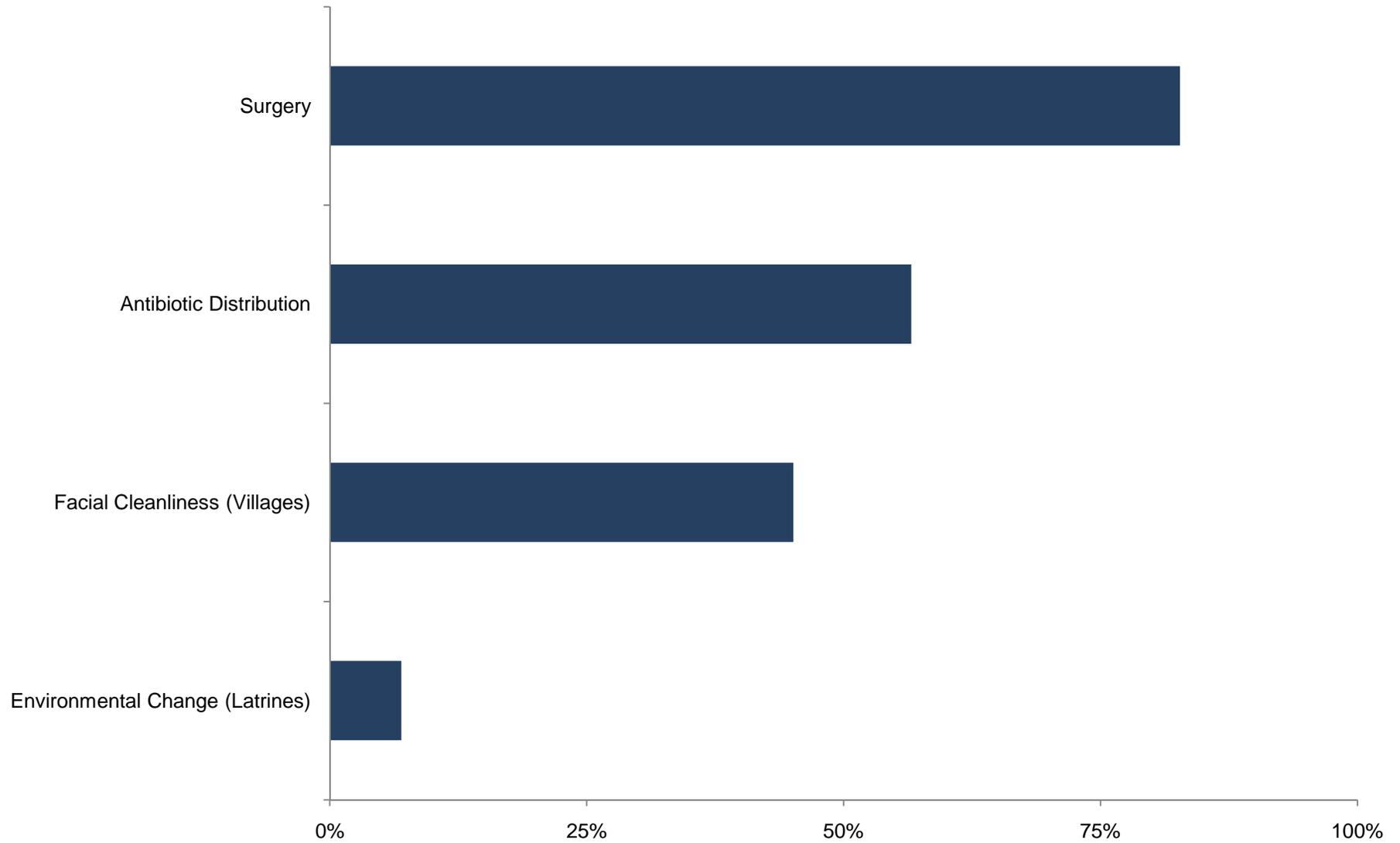
*Surgical UIG in 2000 was 85,700. Updated prevalence and population data suggest that the current UIG is 46,629 people to operate from 2009-2015.

**Achievements and UIG for Antibiotics are presented for 2009 only and are based on annual treatment objectives (ATO). Carter Center achievement is based on purchase of tetracycline eye ointment.

Table 4 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Uitimate Intervention Goals in Mali

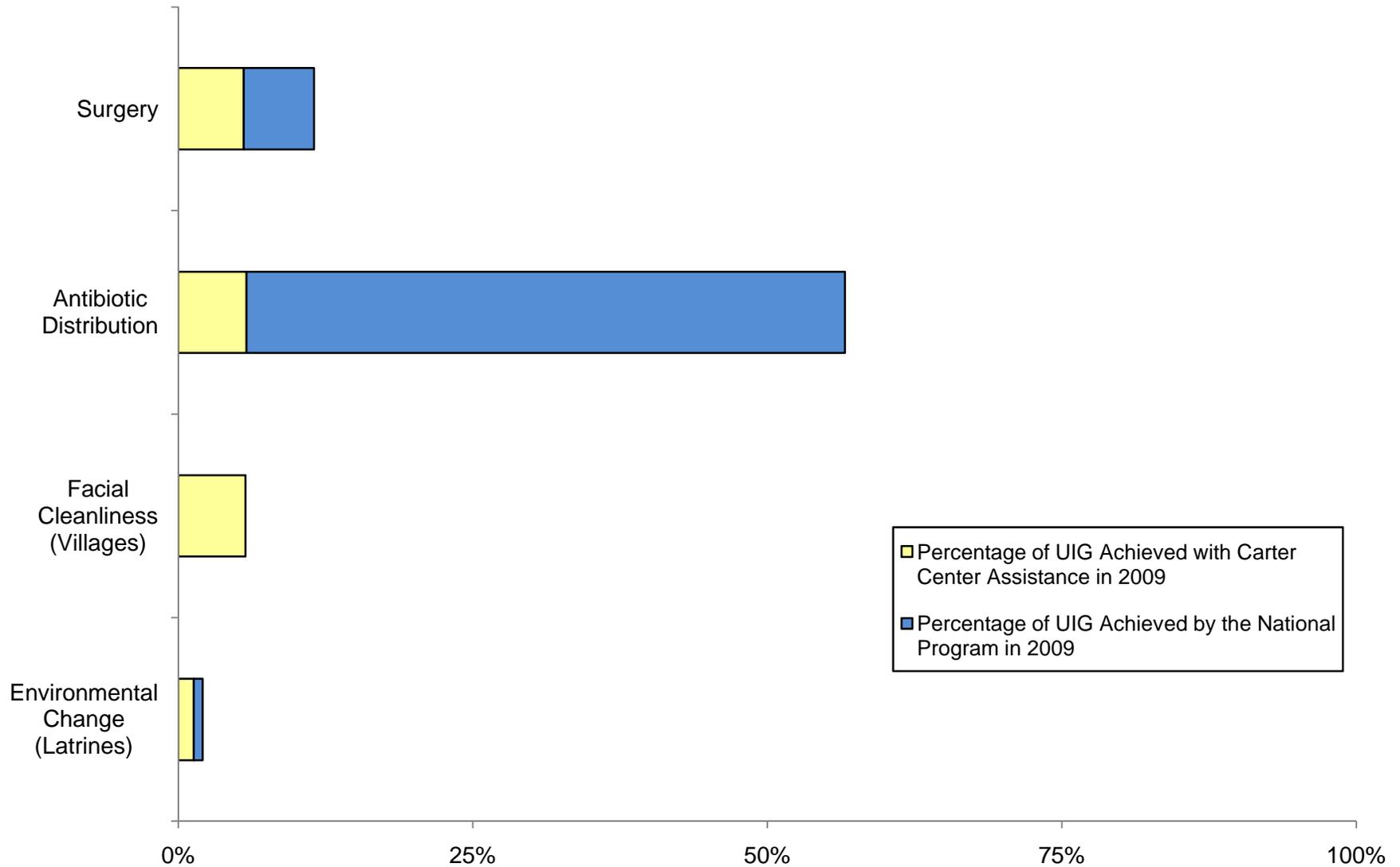
Intervention	National Achievements	TCC-Assisted Achievements	UIG	Percentage of UIG Achieved by National Program	Percentage of UIG Achieved with TCC Assistance
Surgery	11,196	5,481	46,629	24.0%	11.8%
Antibiotic Distribution**	6,303,337	164,842	6,400,000	98.5%	2.6%
Facial Cleanliness (Villages)	10,491	1,722	12,000	87.4%	14.4%
Environmental Change (Latrines)	23,701	12,828	151,056	15.7%	8.5%

Figure 5 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Niger*



*Data as presented at Trachoma Control Program Reviews at The Carter Center.

Figure 6 2009 National and Carter Center-Assisted Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Niger



The number of people treated with antibiotics is compared against the Annual Treatment Objective (ATO).

Table 5 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals in Niger

Intervention	National Achievements (2000-2009)	UIG	Percentage of UIG Achieved by National Program
Surgery*	48,398	64,680	74.8%
Antibiotic Distribution**	7,526,076	13,300,000	56.6%
Facial Cleanliness (Villages)	4,512	10,000	45.1%
Environmental Change (Latrines)†	63,997	920,028	7.0%

*Surgical UIG in 2000 was 64,680. Updated prevalence and population data suggest that the current UIG is 58,518 people to operate from 2009-2015.

**Achievements and UIG for Antibiotics are presented for 2009 only.

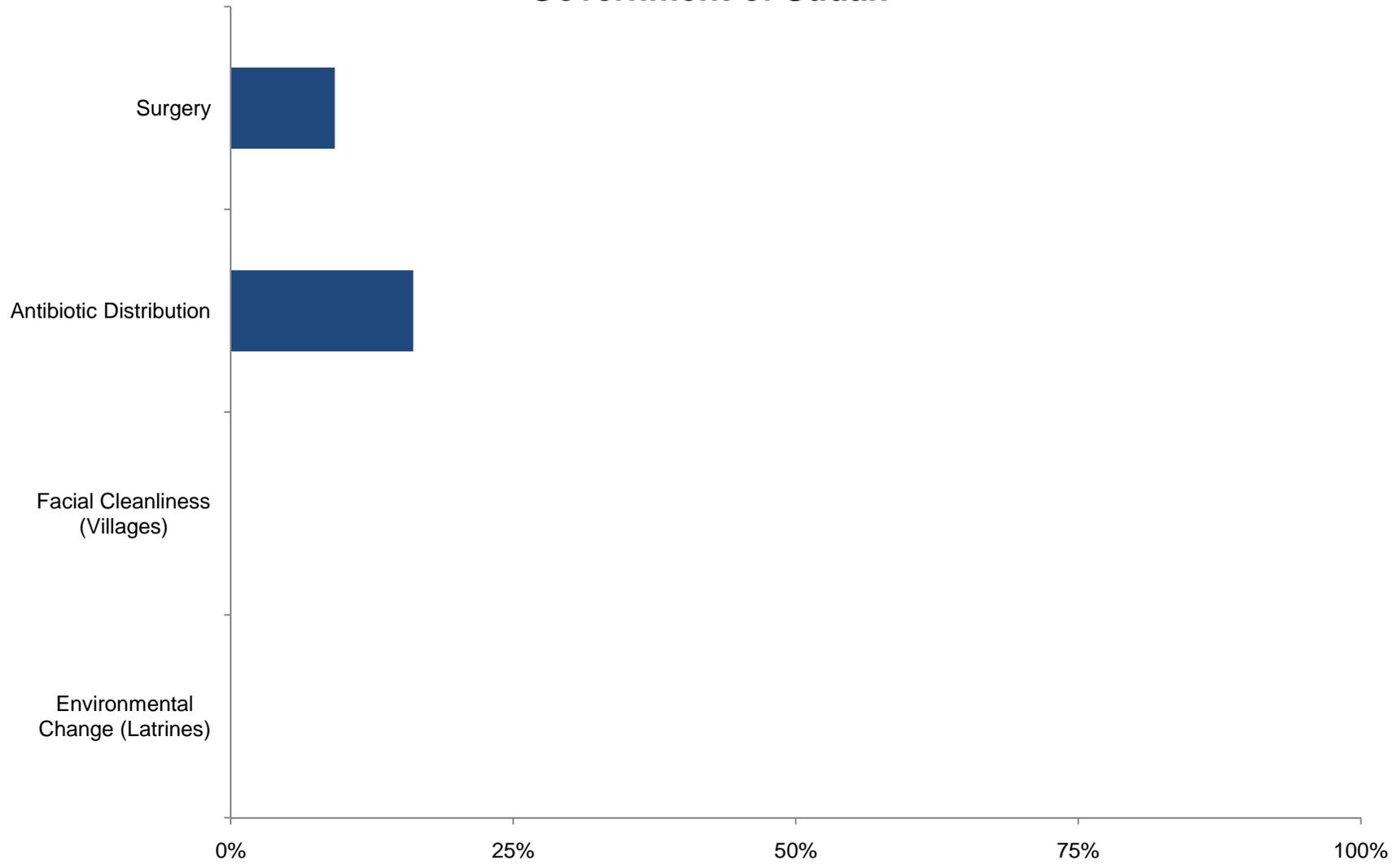
†Current data on latrine coverage not available. DHS Report 2006 national latrine coverage estimate is 7.0%.

Table 6 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Ultimate Intervention Goals in Niger

Intervention	National Achievements	TCC-Assisted Achievements	UIG*	Percentage of UIG Achieved by National Program	Percentage of UIG Achieved with TCC Support
Surgery	6,743	3,252	58,500	11.5%	5.6%
Antibiotic Distribution**	7,526,076	771,116	13,300,000	56.6%	5.8%
Facial Cleanliness (Villages)	571	571	10,000	5.7%	5.7%
Environmental Change (Latrines)	18,979	12,099	920,028	2.1%	1.3%

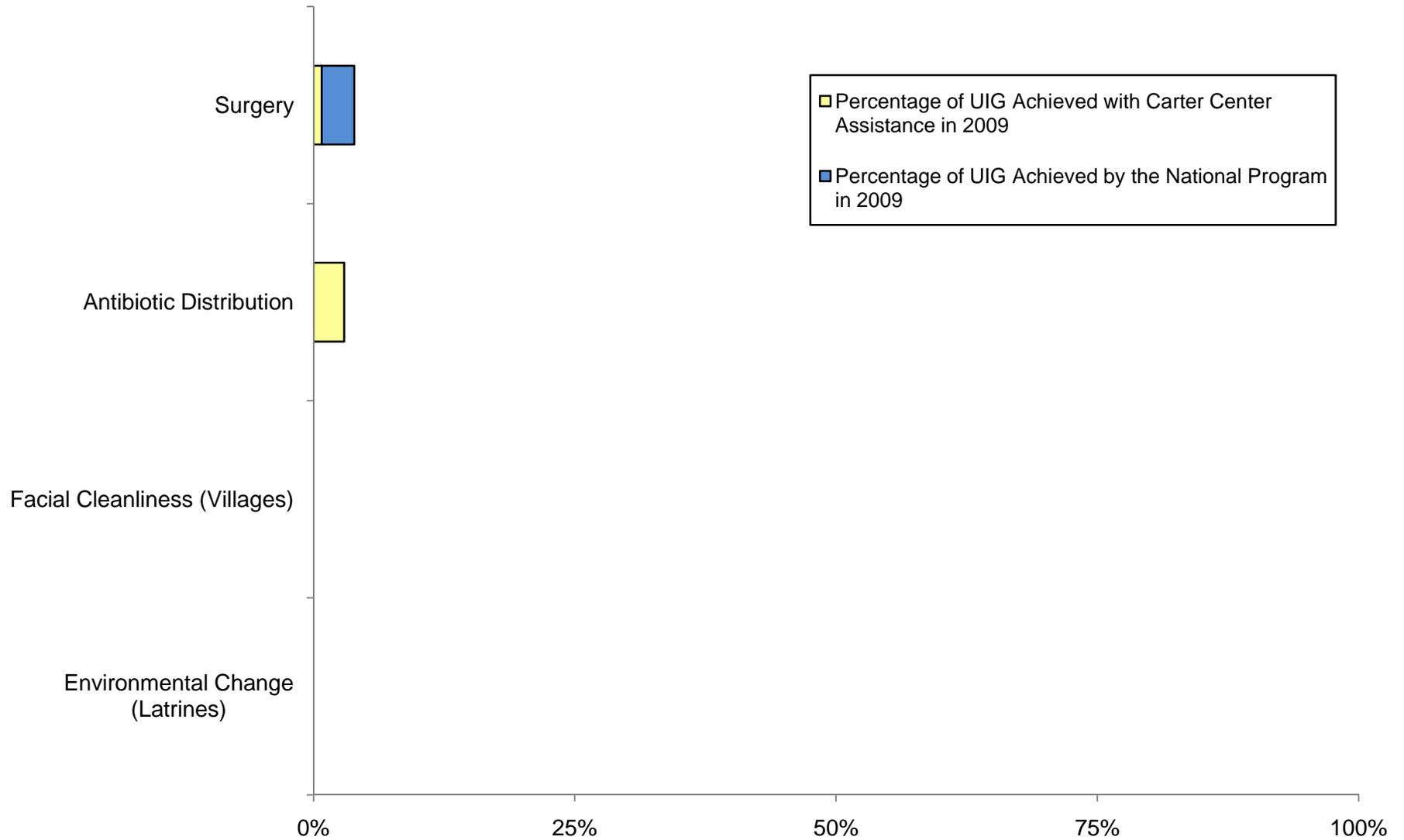
**Achievements and UIG for Antibiotics are presented for 2009 only.

Figure 7 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Government of Sudan*



*Data as presented at Trachoma Control Program Reviews at The Carter Center.

Figure 8 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Government of Sudan



The number of people treated with antibiotics is compared against the Annual Treatment Objective (ATO). National health education and sanitation progress towards UIGs were not presented.

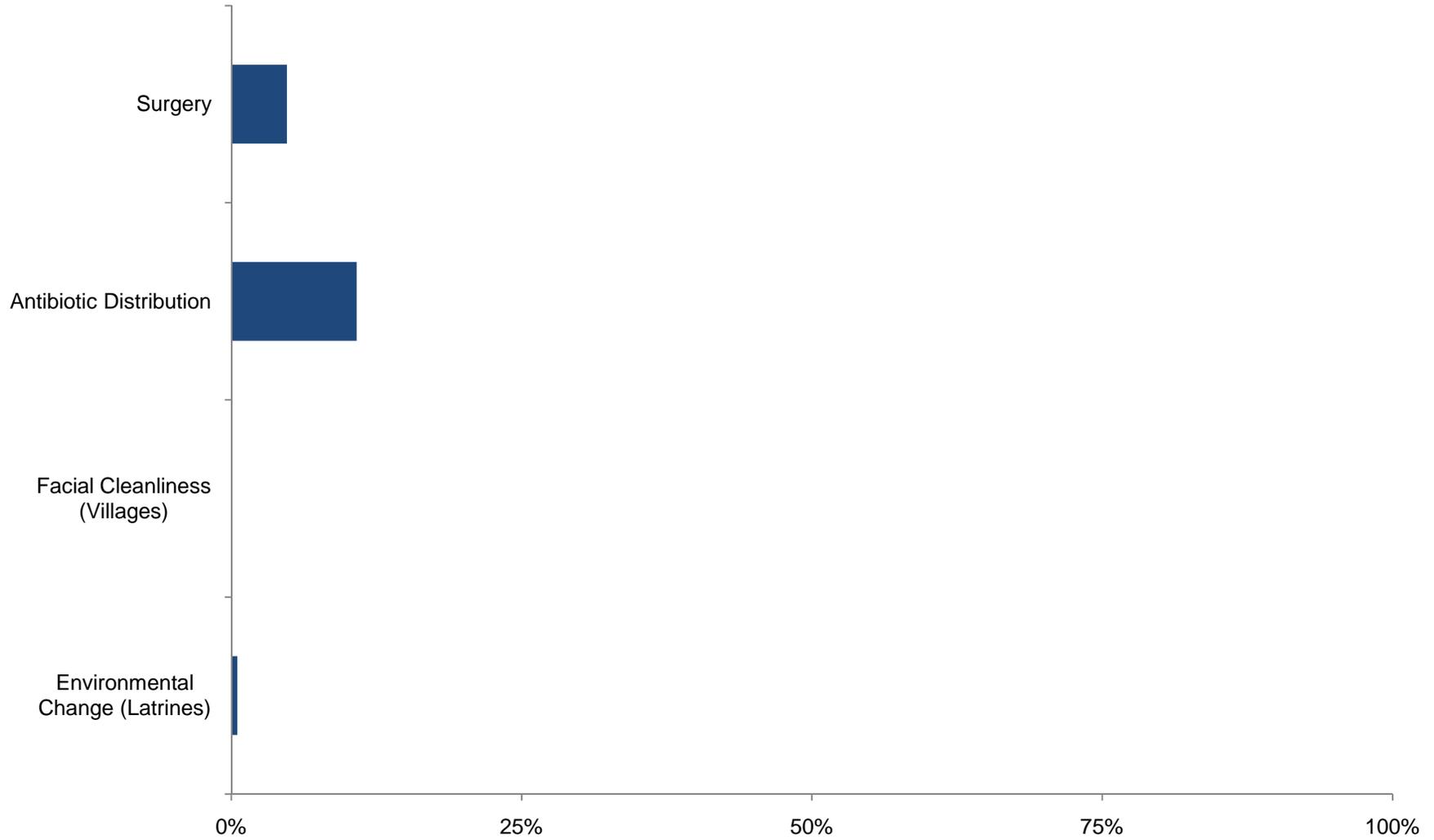
Table 7 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals in Government of Sudan

Intervention	National Achievements	UIG	Percentage of UIG Achieved by National Program
Surgery	4,667	50,707	9.2%
Antibiotic Distribution	1,598,118	9,900,000	16.1%
Facial Cleanliness (Villages)	239	N/A	N/A
Environmental Change (Latrines)	0	654,000	0.0%

Table 8 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Ultimate Intervention Goals in Government of Sudan

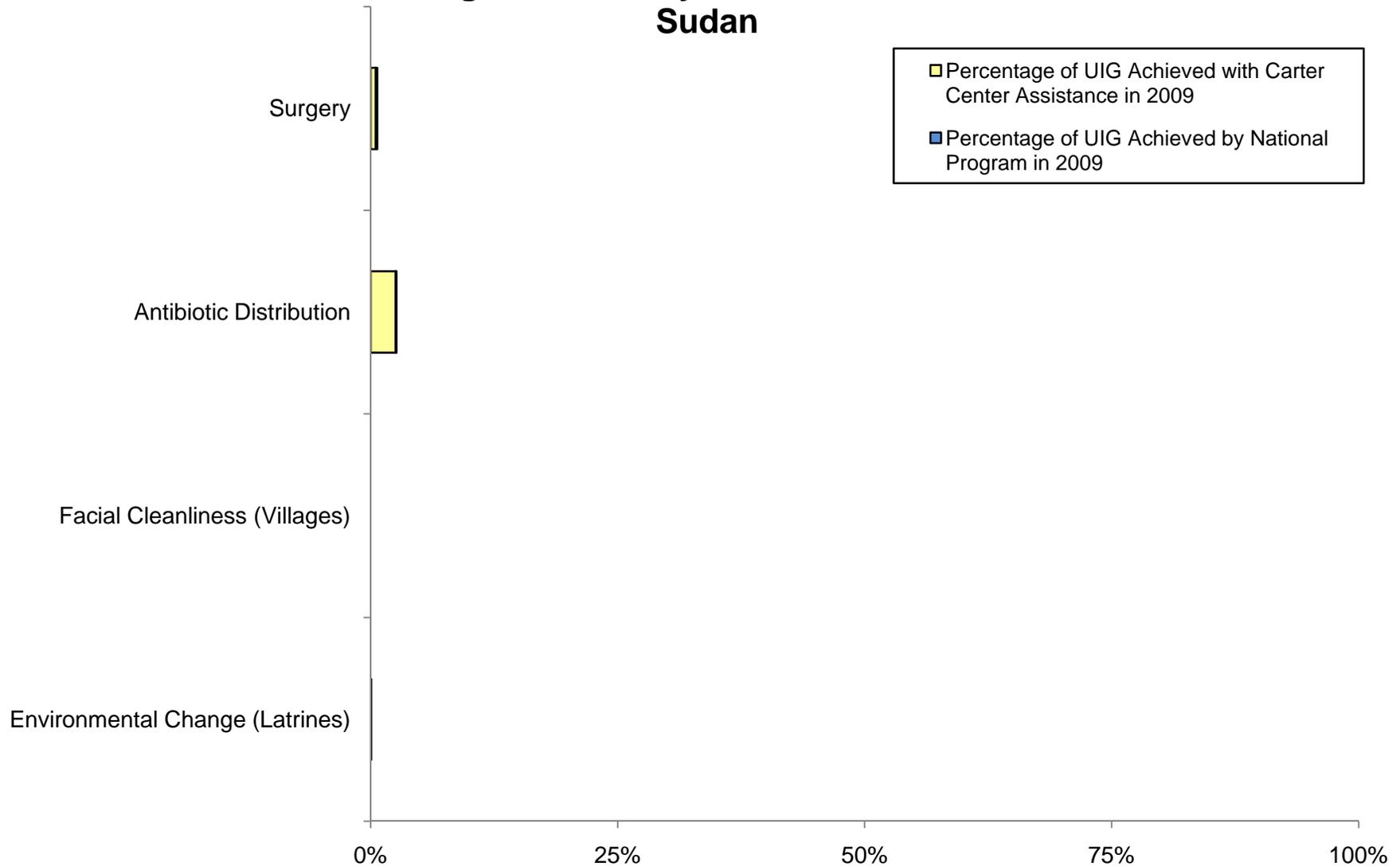
Intervention	National Achievements	TCC-Assisted Achievements	UIG	Percentage of UIG Achieved by National Program	Percentage of UIG Achieved with TCC Support
Surgery	1,974	399	50,707	3.9%	0.8%
Antibiotic Distribution	290,293	290,293	9,900,000	2.9%	2.9%
Facial Cleanliness (Villages)	239	239	N/A	N/A	N/A
Environmental Change (Latrines)	0	0	654,000	0.0%	0.0%

Figure 9 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2020 in Southern Sudan*



*Data as presented at Trachoma Control Program Reviews at The Carter Center.

Figure 10 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2020 in Government of Southern Sudan



The number of people treated with antibiotics is compared against the Annual Treatment Objective (ATO). UIGs are calculated based on available prevalence estimates.

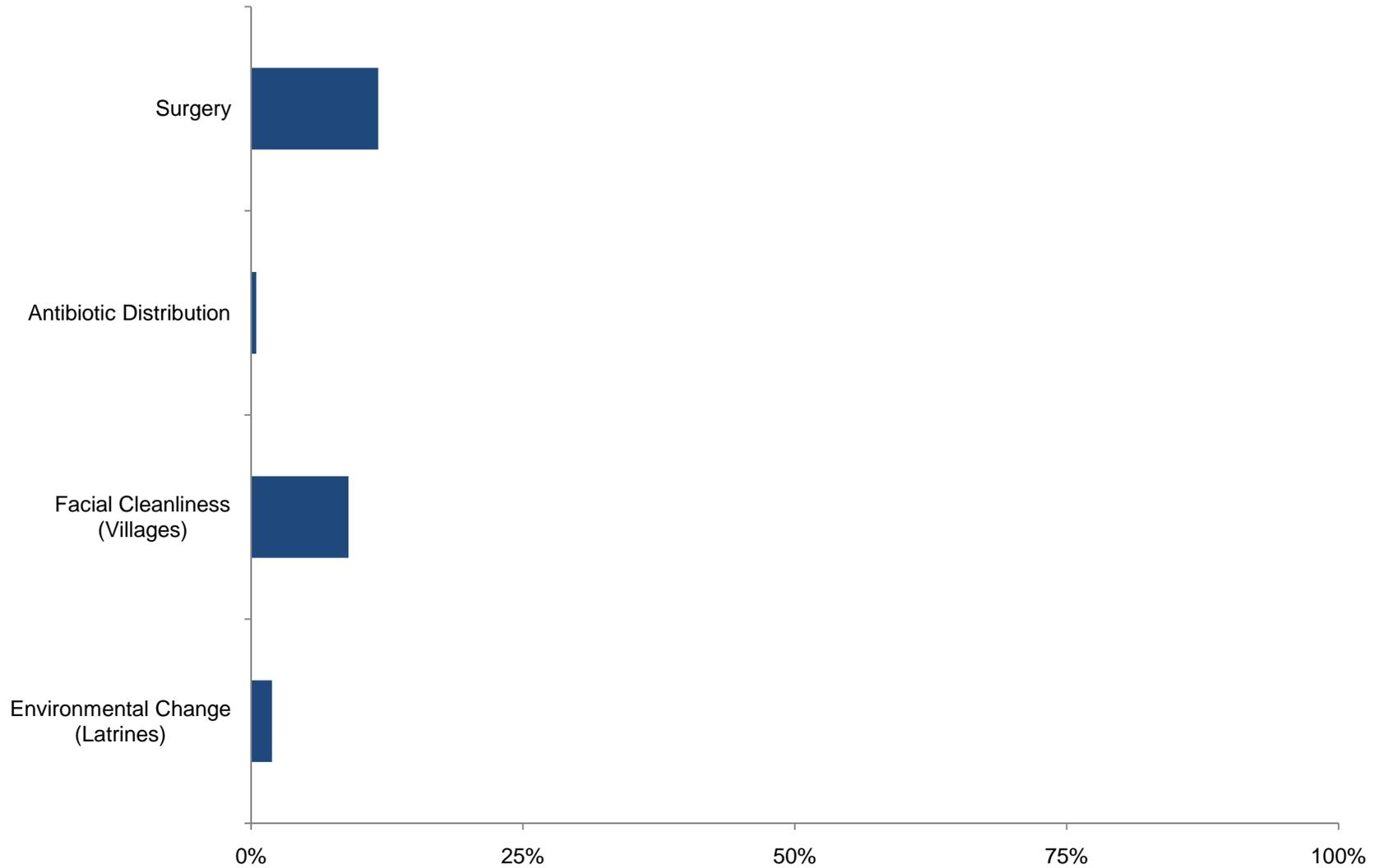
Table 9 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals in Government of Southern Sudan

Intervention	National Achievements	UIG	Percentage of UIG Achieved by National Program
Surgery	11,316	236,100	4.8%
Antibiotic Distribution	1,587,364	14,700,000	10.8%
Facial Cleanliness (Villages)	3,574	N/A	N/A
Environmental Change (Latrines)	5,046	980,000	0.5%

Table 10 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Uitimate Interventions in Government of Southern Sudan

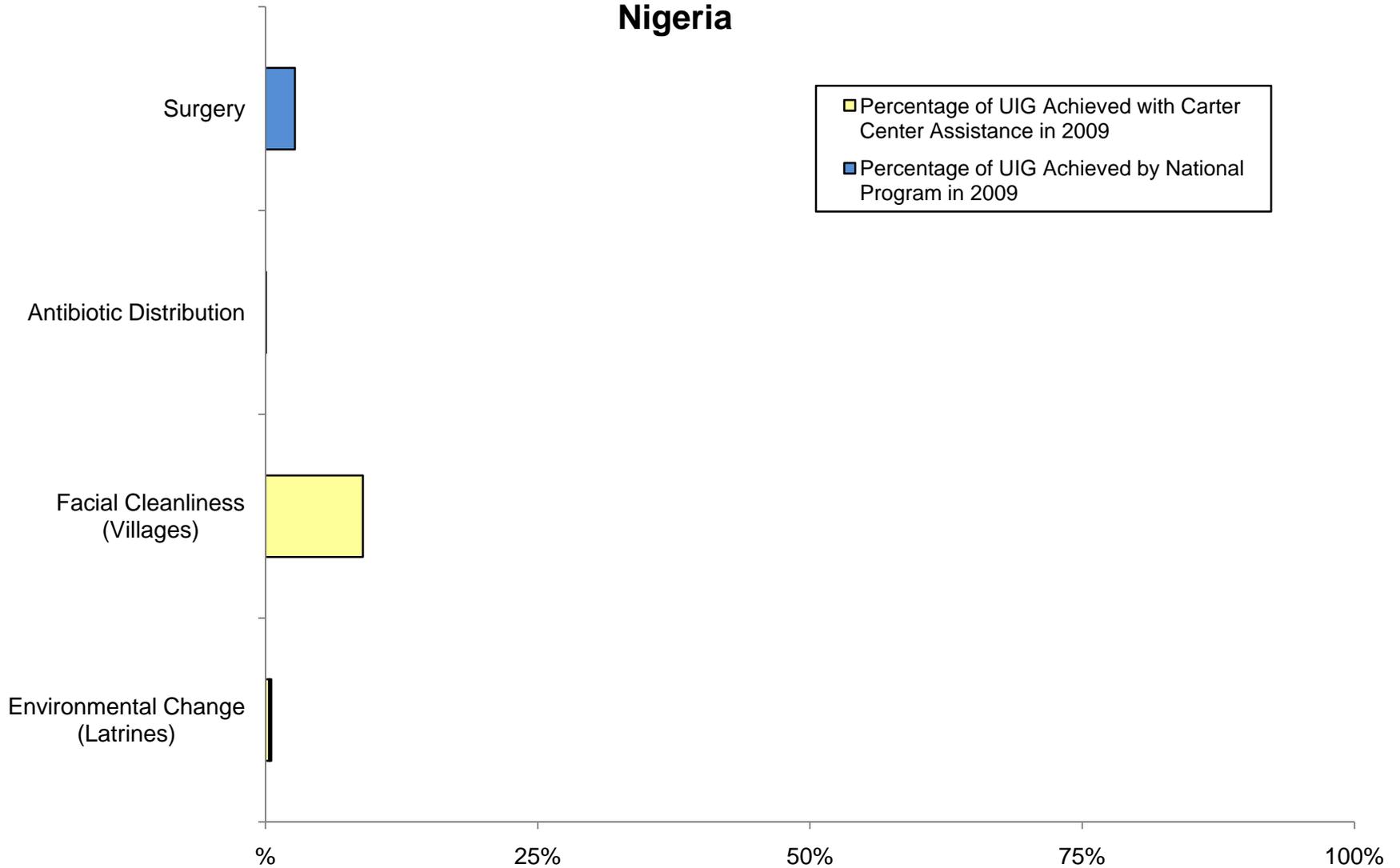
Intervention	National Achievements	TCC-Supported Achievements	UIG	Percentage of UIG Achieved by National Program	Percentage of UIG Achieved with TCC Support
Surgery	1,558	1,232	236,100	0.7%	0.5%
Antibiotic Distribution	386,230	374,105	14,700,000	2.6%	2.5%
Facial Cleanliness (Villages)	3,441	3,441	N/A	N/A	N/A
Environmental Change (Latrines)	128	128	980,000	0.0%	0.0%

Figure 11 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2015 in Plateau and Nasarawa States, Nigeria



*Data as presented at Trachoma Control Program Reviews at The Carter Center.

Figure 12 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Ultimate Intervention Goals to Eliminate Blinding Trachoma by 2020 in Plateau and Nasarawa States, Nigeria



The number of people treated with antibiotics is compared against the Annual Treatment Objective (ATO).

Table 11 Cumulative SAFE Achievements as Percentage of Ultimate Intervention Goals in Plateau and Nasarawa States, Nigeria

Intervention	National Achievements	UIG	Percentage of UIG Achieved by National Program
Surgery	58,328	499,000	11.7%
Antibiotic Distribution	138,642	28,000,000	0.5%
Facial Cleanliness (Villages)	823	9,200	8.9%
Environmental Change (Latrines)	26,956	1,400,000	1.9%

Table 12 2009 National and Carter Center-Assisted SAFE Achievements as Percentage of Ultimate Intervention Goals in Plateau and Nasarawa States, Nigeria

Intervention	National Achievements	TCC-Supported Achievements	UIG	Percentage of UIG Achieved by National Program	Percentage of UIG Achieved with TCC Support
Surgery	13,500	0	499,000	2.7%	0.0%
Antibiotic Distribution	15,000	0	28,000,000	0.1%	0.0%
Facial Cleanliness (Villages)	823	823	9,200	8.9%	8.9%
Environmental Change (Latrines)	7,500	5,032	1,400,000	0.5%	0.4%

APPENDIX III: AGENDA

“Planning for Trachoma Elimination, District by District”

The Eleventh Annual Trachoma Control Program Review

March 29-31, 2010

Monday, March 29

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 – 10:30	<u>Coffee Break & Group Photo</u>	
10:30 – 11:30	Ethiopia	Dr. Asrat Genet
11:30 – 12:30	Government of Sudan	Dr. Awad Hassan
12:30 – 1:45	<u>Lunch</u>	
1:45 – 2:00	<u>Announcements</u>	
2:00 – 2:30	WHO Update	Dr. Silvio Mariotti
2:30 – 2:45	HKI Update	Mr. Chad MacArthur
2:45 – 3:30	Pfizer Update / ITI Update	Ms. Lisa Foster Dr. Danny Haddad
3:30 – 4:00	<u>Coffee Break</u>	
4:00 – 4:30	RTI Update	Dr. Eric Otteson
4:30 – 5:00	The Carter Center Development Approach	Ms. Nicole Kruse
5:30	*Shuttle Departure for Hotel Indigo*	

APPENDIX III: AGENDA

“Planning for Trachoma Elimination, District by District”

The Eleventh Annual Trachoma Control Program Review

March 29-31, 2010

Tuesday, March 30

8:00	*Shuttle Pick-up at Hotel*	
8:30 – 9:00	<u>Breakfast</u>	
9:00 – 10:00	Mali	Dr. Bamani Sanoussi
10:00 – 11:00	Niger	Dr. Kadri Boubacar
11:00 – 11:30	<u>Coffee Break</u>	
11:30 – 12:00	TANA Study Update	Dr. Jeremy Keenan
12:00 – 12:30	TTT Project Update	Dr. Saul Rajak
12:30 – 1:45	<u>Lunch</u>	
1:45 – 2:00	<u>Announcements</u>	
2:00 – 2:30	Global Trachoma Mapping Project	Ms. PJ Hooper
2:30 – 3:00	Integrated NTD Mapping	Dr. Eric Otteson
3:00 – 3:30	Cost of Surveys	Ms. Chaoqun Chen
3:30 – 4:00	<u>Coffee Break</u>	
4:00 – 4:30	Planning for Elimination in the Northern States of Sudan	Dr. Awad Hassan
4:30 – 5:00	Kayes and Koulikoro Data	Dr. Bamani Sanoussi
5:30 – 7:00	Reception at The Carter Center Museum	
	*Shuttle Departure for Hotel Indigo	

APPENDIX III: AGENDA

“Planning for Trachoma Elimination, District by District”

The Eleventh Annual Trachoma Control Program Review

March 29-31, 2010

Wednesday, March 31

8:00	*Shuttle Pick-up at Hotel*	
8:30 – 9:00	<u>Breakfast</u>	
9:00 – 10:00	Government of Southern Sudan	Dr. Lucia Kur
10:00 – 11:00	Nigeria	Dr. Maduka Ihemelandu Onwusoro
11:00 – 11:30	<u>Coffee Break</u>	
11:30 – 12:00	Surgical Outreach in Mali	Mr. Yaya Kamissoko
12:00 – 12:30	Surgeon Audit and Recurrence	Dr. Saul Rajak
12:30 – 1:45	<u>Lunch</u>	
1:45 – 2:00	Program Announcements	
2:00 – 2:30	Prevalence Survey Toolbox	Dr. Jeremiah Ngondi
2:30 – 3:00	Coverage, Attitudes, and Uptake of Antibiotics	Mr. Teshome Gebre
3:00 – 3:30	Review of Coverage Survey Methods	Ms. Elizabeth Cromwell
3:30 – 4:00	<u>Coffee Break</u>	
4:00 – 5:00	Conclusions and Recommendations	
5:30	*Shuttle Departure for Hotel Indigo*	

APPENDIX IV: List of Participants

Ethiopia

Mr. Teshome Gebre (The Carter Center)
Dr. Asrat Genet
Dr. Zerihun Tadesse (The Carter Center)
Mr. Tesfaye Teferi (The Carter Center)
Mr. Mulat Zerihun (The Carter Center)

Government of Sudan

Ms. Zeinab Abdalla (The Carter Center)
Dr. Nabil Aziz Awad Alla (The Carter Center)
Dr. Kamal Hashim Osman
Dr. Awad Hassan

Government of South Sudan

Mr. Gideon Gatpan (The Carter Center)
Mr. Alex Jones (The Carter Center)
Dr. Lucia Kur

Mali

Mr. Yaya Kamissoko (The Carter Center)
Dr. Bamani Sanoussi
Mr. Jim Ting (The Carter Center)

Niger

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

Nigeria

Dr. Abel Eigege (The Carter Center)
Dr. Nimzing Jip (The Carter Center)
Dr. Emmanuel Miri (The Carter Center)
Dr. Maduka Onwusoro

AID Village Clinics, Inc.

Ms. Mary Alice Rice

Bill & Melinda Gates Foundation

Ms. Erin Shutes

The Centers for Disease Control and Prevention

Dr. Els Mathieu

Conrad N. Hilton Foundation

Mr. Gregory Anderson
Dr. Shaheen Kassim-Lakha

Francis I. Proctor Foundation

Dr. Jeremy Keenan
Ms. Nicole Stoller

Georgia Institute of Technology

Ms. Chaoqun Chen

Helen Keller International

Dr. Seydou Goita (HKI Mali)
Ms. Emily Heck
Mr. Chad MacArthur

International Trachoma Initiative

Dr. Danny Haddad
Ms. Lisa Rotondo
Ms. Vivian Singletary
Ms. Anyess Travers

Kilimanjaro Centre for Community Ophthalmology

Dr. Paul Courtright

Lions Clubs International Foundation

Mr. Karim Bengraine

Lions Clubs-Ethiopia

The Honorable World Laureate Dr. Tebebe Y. Berhan

London School of Hygiene and Tropical Medicine

Dr. Saul Rajak

Operation Eyesight Universal

Ms. Lynda Cherry
Mr. Todd Simpson

Pfizer Inc

Ms. Rekha Chalasani
Ms. Lisa Foster

Research Triangle International

Dr. Eric Otteson

Rollins School of Public Health

Dr. Christine Moe
Ms. Rachael Ross

Taskforce for Global Health

Ms. PJ Hooper
Dr. Mark Rosenberg

World Health Organization

Dr. Silvio Mariotti

APPENDIX IV: List of Participants

The Carter Center

Ms. Rebecca Brookshire
Ms. Kelly Callahan
Ms. Elizabeth Cromwell
Mr. Don Denard
Dr. Paul Emerson
Ms. Maureen Goodman
Dr. Patricia Graves
Dr. John Hardman
Ms. Madelle Hatch
Dr. Donald Hopkins
Ms. Nicole Kruse
Mr. Jonathan King
Mr. Aryc Mosher
Mr. Kent "Oz" Nelson
Dr. Jeremiah Ngondi
Ms. Stephanie Palmer
Dr. Frank Richards
Ms. Paige Rohe
Dr. Ernesto Ruiz-Tiben
Mr. Randy Slaven
Ms. Emily Staub
Mr. Craig Withers