



Eye of the Eagle



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Beginning of a New Era IACO 2007 Highlights Status of Transmission

The Onchocerciasis Elimination Program of the Americas (OEPA) regional initiative is helping the six endemic countries in the Americas to eliminate river blindness in 13 endemic foci in the region by delivering Mectizan® (ivermectin, provided by Merck & Co., Inc.) treatments to reach the ultimate treatment goal—at least 85 percent coverage of eligible people in all endemic areas—twice per year. Provisional

2007 Mectizan treatment reports (through September) totaled 547,046 treatments in the 12 foci still undergoing treatment.

The theme of IACO 2007, “Beginning of a New Era,” highlighted the rapid progress made in 2007 toward declaring the interruption of onchocerciasis transmission and halting Mectizan treatments in several of the 13 endemic foci in the region. “New Era” refers to the challenge of careful post-treatment surveillance for re-infection for a period of at least three years, as required before elimination of onchocerciasis can be declared. The Ministries of Health of Colombia,

Guatemala, and Ecuador announced they would halt Mectizan treatment in 2008 in Lopez de Micay, Escuintla, and Rio Santiago. These are in addition to the Santa Rosa focus in Guatemala, which was the first to stop Mectizan treatments in 2007. The OEPA Program Coordinating Committee



Conference attendees included Lions (left to right) Sr. Carlos Samuel Arévalo, Guatemala; Sr. Margarita Peña, Ecuador; Dr. Libardo Bastidas Passos, Colombia; Kristen Eckert, U.S.A.; Dr. Florencio Cabrera Coello, Mexico; Dr. Moses Katarbarwa, U.S.A.; Dr. Ricardo Gurgel, Brazil.

also recommended that treatments in North Chiapas be stopped in 2008, and the Mexican Ministry of Health is *continued on page 2*

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Waging Peace. Fighting Disease. Building Hope.

Nigeria Program Review Focuses on Progress, Delivery, and Research

The Carter Center-supported health programs in Nigeria convened their program review Oct. 22-24, 2007, in Abuja, opening with a stirring speech about the eradication of Guinea worm disease and the exciting new integrated platform for neglected tropical disease con-

trol by former head of state General (Dr.) Yakubu Gowon. The outgoing Japanese ambassador to Nigeria, Akio Tanaka, also spoke on his government's strong support for the Guinea Worm Eradication Program. Over the course of the meeting, presentations were *continued on page 6*

River Blindness

IACO 2007

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considering the recommendation that they stop treatment in North Chiapas. The Colombian focus is particularly noteworthy since it is the only endemic focus in that country.

“This remarkable progress would not be possible without the dedicated health workers and volunteers working at the community level and the invaluable public-private partnership with Merck and the Mectizan Donation Program,” said former U.S. President Jimmy Carter. “Because of this vital collaboration... continued progress can be made to wipe this debilitating disease from the hemisphere.”

This year will be the second in which the remote southern Venezuela focus surpassed its 85 percent coverage goal, and Brazil and Venezuela agreed to redouble their efforts to approach the shared, difficult-to-reach Yanomami area along their border. The two nations have established a

commission to approach this binational problem in a unified way, as the Yanomami area poses the greatest threat to complete onchocerciasis elimination in the Americas.

An additional outcome from the conference was the need for a new resolution, since 2007 was declared as the year for all new onchocerciasis eye disease to be eliminated under a 1991 PAHO resolution. (Nine of the 13 foci have achieved this goal.) IACO 2007 and the country programs called for completion of elimination of all new onchocerciasis ocular morbidity as well as interruption of transmission throughout the Americas by 2012. OEPA will work with PAHO staff to submit these new goals as part of the PAHO 2008–2012 Regional Eye Health Plan and as a new draft resolution to be considered at the September 2008 meeting of the PAHO Directing Council.

IACO 2007, attended by 76 people, was convened by the Ministry of Health of Ecuador, the Carter

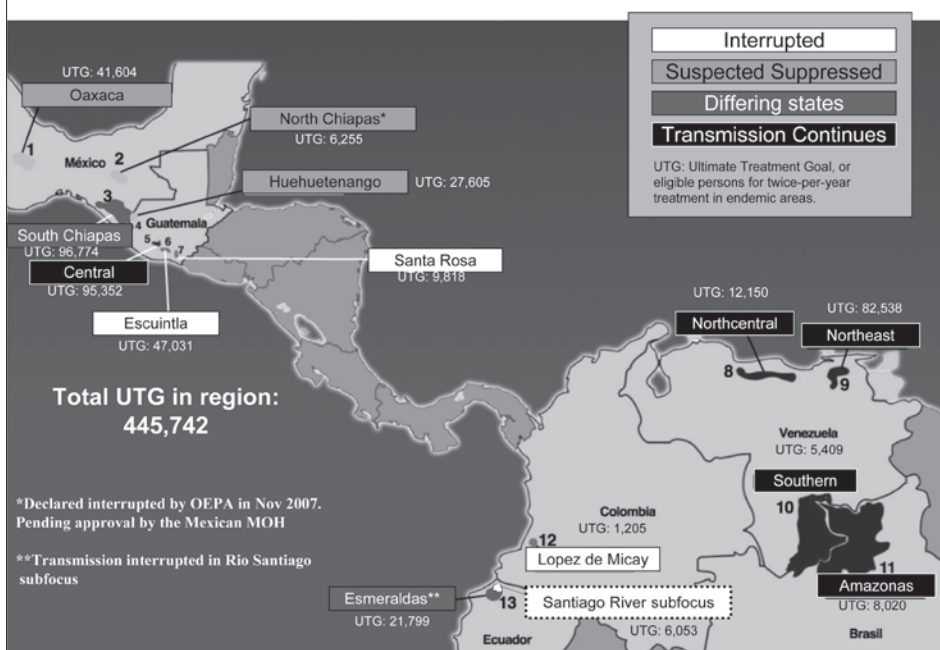
Center’s Onchocerciasis Elimination Program for the Americas, and the Pan American Health Organization, with support from the Bill & Melinda Gates Foundation and Lions Clubs.

The 17th annual Inter-American Conference on Onchocerciasis was held in Quito, Ecuador, Nov. 15-17, 2007. Dr. Ricardo Cañizare, undersecretary, Ministry of Health, Ecuador, opened the meeting, which was attended by more than 30 Ecuadorian field workers active in the national onchocerciasis elimination program.

The main table at the opening ceremony included Dr. Celia Riera, PAHO, Ecuador; Brenda Colatrella, Merck & Co.; Kristen Eckert, Lions Clubs SightFirst Program; Dr. Eddie Cupp, chair of the OEPA Program Coordinating Committee; Dr. Mark Eberhard, Centers for Disease Control and Prevention; Dr. Bjorn Thylefors, Mectizan Donation Program; Dr. Mauricio Sauerbrey, OEPA; and Dr. Donald Hopkins, The Carter Center.

Also represented at the meeting were the directors of the six national onchocerciasis elimination programs (Brazil, Colombia, Ecuador, Guatemala, Mexico, and Venezuela), members of Lions Clubs from all six countries, and PAHO Washington headquarters. Special guests included Dr. Achim Hoerauf from the University of Bonn, Drs. Tobin Dickerson and Judith Denery of Scripps Research Institute, Dr. Tom Unnasch of the University of Alabama–Birmingham, and Dr. Kevin Winthrop from Oregon Health and Science University.

Figure 1
Status of Transmission in the 13 onchocerciasis foci in the Americas



River Blindness

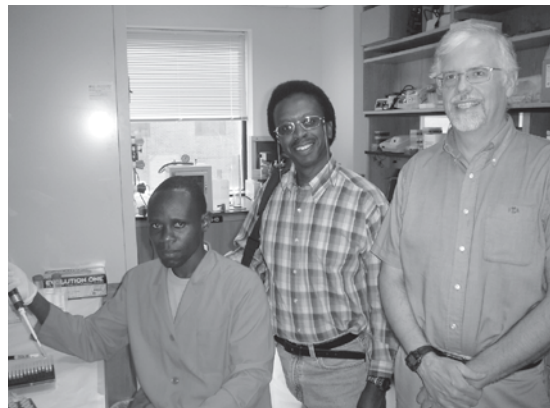
Uganda Program Builds Capacity

Thanks to Uganda's launch of the elimination approach for onchocerciasis (see article on page 4), the need for timely, objective, and accurate information on the prevalence and transmission of the disease in affected areas became a high priority. An elimination program must demonstrate that there is no longer a need for mass treatment with ivermectin and declare affected areas free of onchocerciasis. To address these needs, in 2007 The Carter Center and Sight Savers International partnered with the Ministry of Health of Uganda to create a functioning laboratory.

The Carter Center has equipped the new laboratory with cutting-edge science equipment for the molecular method of identifying the larval stages of the *Onchocerca volvulus* parasite in the *Simulium* black fly vector. This is known as the polymerase chain reaction (PCR) used by the World Health

Organization Onchocerciasis Control Programme in West Africa. This molecular method is the most efficient, specific, and sensitive tool for monitoring and evaluation of onchocerciasis control programs in foci where transmission levels are low.

The Carter Center also has supported the laboratory with OV16 capability to assess the prevalence



Drs. Moses Katarwa and Tom Unnasch observe as David Were Oguttu demonstrates a lab technique.

of onchocerciasis in human beings. Antibodies in the serum from patients with parasitological diagnosis of onchocerciasis react positively to OV16. It is a rapid mass-screening technique that the control program in Uganda will use to determine the prevalence of the disease in communities where other methods such as skin snipping are no longer sufficiently sensitive.

Working with Dr. Thomas Unnasch's laboratory at the University of Alabama–Birmingham (UAB), The Carter Center sponsored a newly recruited biomedical scientist at the new laboratory in Uganda, David Were Oguttu, to undergo practical molecular epidemiology training. The training covered a range of laboratory techniques related to PCR and OV-16. Mr. Oguttu is expected to train his colleagues back in Uganda.

Laboratory Added

In 2002, the need for space at Vector Control Division, the base for vector-borne disease control in Uganda's Ministry of Health, led The Carter Center and the United Kingdom's Department of International Development to support the construction of a building with office accommodation, training center, storage, and laboratory space. By the end of 2005, it had been completed and furnished with the exception of the laboratory space.

As the government of Uganda was contemplating the elimination of onchocerciasis policy, state-of-the-art skills and techniques for evidence-

based implementation were not available. The World Health Organization recommends that for an endemic area to be declared onchocerciasis-free, not more than one black fly should carry the parasite out of every 2,000 screened. The traditional method of dissecting black flies to isolate the infective stage of *Onchocerca volvulus*, the filarial parasite that causes onchocerciasis disease, is slow and requires many highly experienced technicians. The sensitivity of this method is questionable at times, especially in cases of low levels of transmission. Also, the larval stages of the animal *Onchocerca* are morphologically indistinguishable when using the dissection method.

Worse still, the traditional skin snipping method becomes insensitive at low levels of transmission or prevalence of onchocerciasis.

The molecular techniques now being put to use also may enable Uganda to assess the transmission of other vector-borne diseases such as malaria and lymphatic filariasis. In turn, The Carter Center appreciates the involvement of Dr. Thomas Unnasch of UAB and Nancy Cruz-Ortiz from the Centers for Disease Control and Prevention in Guatemala, who have agreed to provide specialized technical support to the new laboratory.

River Blindness

Uganda Energized by Renewed Fight

Although onchocerciasis levels in Uganda have been reduced considerably since 1996, the threat of recrudescence among at least 2 million people still remains. That possibility, coupled with a fear of donor fatigue, led the government to re-establish a policy for onchocerciasis elimination. In late January 2007, the president of Uganda, represented by his prime minister, launched this elimination policy at a celebration in Kampala. The program will use semi-annual treatment with ivermectin as in the Americas, plus targeted vector control and vector elimination where feasible with temphos (Abate®), a biodegradable organo-phosphorus compound. The use of temphos had been strengthened by the success of pilot trials in two small and isolated foci in western Uganda, where the vector is *Simulium neavei* spp. The experts believe that at least 70 percent of the current transmission in Uganda is

driven by *S. neavei* spp, which has a short flight range of maximum 5 kms, requires the presence of river crabs in its reproductive cycle, and prefers cool and shaded areas. All these factors made the species more vulnerable to elimination than *S. damnosum* spp.

The agreement of The Carter Center and Sight Savers International to assist the government in its pursuit of onchocerciasis elimination policy was a dream come true but came with uncertainty as to whether colleagues and officials at the district and national level would support that policy. Dr. Moses Katarbarwa, epidemiologist to the Carter Center onchocerciasis program and former country representative of the Uganda office of the Center, visited the office in June. He was amazed by the positive spirit he witnessed, which mirrored that which he saw among the people who had eliminated the Victoria Nile focus years ago. He was impressed by well-focused, vibrant, and

result-oriented meetings at national, district, and community levels.

The support secured from the Ministry of Health and district-level governments was automatic and tangible. For example, the Vector Control Division, which is at the forefront of the Ministry of Health onchocerciasis elimination effort, posted new positions for the national surveillance team and two key permanent laboratory positions. The ministry also contributed cash toward remodeling of the laboratory and helped in securing tax exemptions on all imported capital equipment. Most districts where elimination policy has been launched immediately recruited more personnel to take care of vector elimination and community mobilization.

Recruitment took place at central and district levels while a recruitment freeze by the central government was still in place. The rules were waived in the spirit of eliminating the filarial worm. Where others had failed, the onchocerciasis program was succeeding. In one focus, Bushenyi district officials constructed a bridge that made formerly unreachable areas accessible. Repairing of roads through thick tropical forests opened up the areas and made vector breeding sites accessible to Abate treatment. The communities in the districts targeted for elimination agreed to receive their first Mectizan dose in April and the second in October every year. Also amazing and unprecedented was that more than 90 percent of communities achieved their ultimate treatment goals within a week in April 2007. By the end of the month, the Carter Center country office had reported more than 90 percent of the first round

History of Elimination Efforts in Uganda

Mectizan became available for annual distribution for onchocerciasis control in Uganda in early 1991. However, control programs using ivermectin were established in 1992 with funding from Sight Savers International and the River Blindness Foundation, which was later taken over by The Carter Center. Previously, government policy was to fight onchocerciasis through vector elimination. In fact, in the Victoria Nile focus, Uganda successfully eliminated the black fly vector, *Simulium damnosum* spp, and

consequently, onchocerciasis. The Victoria Nile focus had been the largest onchocerciasis focus, covering an area with more than 3 million people. This success resulted in the development of Jinja town, at the source of River Nile, as the main industrial center of Uganda. Other successes registered in one focus in eastern Uganda and two more foci in western Uganda where Arabica coffee, one of the main cash crops of Uganda, thrives. The African Programme for Onchocerciasis Control assisted in these efforts.

River Blindness

of treatments in foci targeted for semiannual treatment.

Dr. Katarbarwa also reported that central and district personnel were active on weekends during his visit, identifying, mapping, and dosing vector breeding sites. During one meeting with district officials, he was informed that security officials were suspicious of what the surveillance team members were doing in the forest. The team had to explain to security officials what onchocerciasis was and what its elimination entailed. At the end of the meeting, they were invited to work with the surveillance team in identifying, mapping, and dosing breeding sites, which they enthusiastically accepted. Although elimination of onchocerciasis is demanding and requires attention to detail, Peace Habomugisha, the current Carter Center country representative, agrees that it is worth doing. She says that it is even more exciting when



M. Katarbarwa

Uganda Ministry of Health surveillance team members James Katamanywa, Joseph Wamani, and Frank Mugisha measure the level and speed of water in a black fly-breeding stream to determine the amount of ABATE needed to kill the vector.

the people involved put aside trivial demands and distractions, work in a

systematic and timely fashion, and are passionate about finishing the job.

Grant Funds Further Management Training in Nigeria

The Carter Center has received a grant from the Bill & Melinda Gates Foundation to support integrated control of neglected tropical diseases in the two-state Plateau and Nasarawa area. Integrated programs—those that aim to bundle services to prevent up to six different illnesses (schistosomiasis, lymphatic filariasis, onchocerciasis, vitamin A deficiency, trachoma, and malaria)—are complex undertakings. Successful implementation requires development of innovative approaches to planning and help for national, state, and local program managers who face considerable logistical, analytical, reporting, and managerial challenges.

Such innovative managerial training has been a strength of the Center's collaborative work in central Nigeria. The Sustainable Management Training Center (SMTC), established in 1996 as a joint collaboration between The Carter Center, the Centers for Disease Control and Prevention, and Emory University's Rollins School of Public Health, has the goal of developing better management skills for project planning and implementation and has more than 500 graduates who reside all over Nigeria. Unfortunately, as a result of decreased funding, fewer management training workshops have been held in recent years. Now SMTC training will be revitalized and a new curriculum

established focused specifically on integrated mass drug administration and associated health education.

Priscillia Dogonyaro, who holds a B.S. degree in engineering and an M.B.A, has been hired in Nigeria to carry out management training. Dr. Josef Amann and Janna Brooks of the CDC management program traveled to Jos in late July 2007 to perform a needs assessment for the revitalization and redirection of the SMTC, which will be pivotal in training personnel who will be involved with integration activities. Dr. Amann, who is also an ophthalmologist expert in trachoma and onchocerciasis, will be the CDC liaison for this work.

Trachoma

Nigeria

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given by the national coordinators for the river blindness, lymphatic filariasis, and malaria programs, along with discussions that included trachoma and schistosomiasis control. These presentations were followed by informative discussions from the assembled experts that included representatives from The Carter Center, World Health Organization, Centers for Disease Control and Prevention, Bill & Melinda Gates Foundation, and other partners. Highlights included presentations on the last two endemic foci for Guinea worm in Nigeria and reports of 42 cases in 2007, down from more than 653,000 in 1989.

Progress was reported toward eliminating lymphatic filariasis in central Nigeria after five annual rounds of mass drug administration with ivermectin and albendazole. Follow-up in nine sentinel villages indicated no new infection in the sample of people tested by serology (antigenemia), a decline in microfilaremia to 0.5 percent, and a reduction in infected mosquitoes from 4.3 percent to 1.6 percent (where “infected” is the presence of any *Wuchereria* larvae in mosquitoes on dissection). Although serology suggests that the elimination of lymphatic filariasis is in sight, this is one of the few lymphatic filariasis programs looking at parasitological and entomological parameters, and from these, it can be interpreted that there is still potential for transmission. It was recommended that the program continue with mass drug administration pending further study and that the prospect of elimination would be enhanced by using long-lasting insecticidal nets in the area.



F. Richards

Dr. Peter Eriki, World Health Organization representative/Nigeria; Dr. Ngozi Njepueme, director, Public Health Federal Ministry of Health; former head of state General Dr. Yakubu Gowon, chair of the session; Dr. Donald R. Hopkins, vice president, Health, The Carter Center; Akio Tanaka, Japanese ambassador to Nigeria; Dr. Yao Sadahlon, Mectizan Donation Program; and Dr. Michael Deming, Centers for Disease Control and Prevention, Atlanta are shown in Abuja.

The World Health Organization representative, Dr. Peter Eriki, announced the donation of 1.5 million tablets of praziquantel per year for schistosomiasis control in Plateau and Nasarawa states, which are endemic for both urinary and intestinal schistosomiasis. The medicine is being donated to the World Health Organization by Merck KGaA (E-Merck, Germany).

lymphatic filariasis, and schistosomiasis. With the announcement that Nigeria will receive Pfizer-donated azithromycin for trachoma control for the first time in 2008, it is likely that the programs in central Nigeria will continue to lead the global effort in neglected tropical diseases by distributing the first rounds of this treatment coordinated with other mass drug administration activities.

Trachoma and Guinea Worm Programs Integrate in Southern Sudan

In July 2007, the Trachoma Control Program began to integrate its operations and delivery of program interventions with the Guinea Worm Eradication Program in Eastern Equatoria and Jonglei states in Southern Sudan. Building upon previous experience with integration in Ethiopia and Nigeria, both programs are looking forward to sharing staff costs and resources.

Southern Sudan is affected severely by both trachoma and Guinea worm. The trichiasis burden in Eastern Equatoria and Jonglei is estimated to be as high as 200,000 people, and the prevalence of active disease in children exceeds the World Health Organization threshold for intervention fivefold.

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Trachoma

Series on the Human Face of Trachoma Control Woman Volunteers To Protect Water Source

In July 2006, the sub-kebele of Fek Ayil, situated in the highlands of the Amhara region of Ethiopia, began pulling water from its first protected water source. Living a two hours' walk from the nearest paved road, the 21 households in this small community had never before had access to a clean, regular, and protected water source.

Over the course of 2006, a total

of 113 protected water points were installed in Amhara with the support of The Carter Center, the Ethiopian Lions Club, and Christoffel-Blindenmission. The Organization for the Rehabilitation and Development of Amhara was tasked to locate communities, coordinate construction, and train local water management committees.

In June of 2007, The Carter



E. Cromwell

Simgen (center) collects water from the village's protected water source.

Center evaluated the sustainability and functionality of a random sample of 30 water points in four zones: East Gojjam, West Gojjam, South Gondar, and North Gondar. When the evaluation team visited Fek Ayil, they were impressed by the level of

organization and commitment shown by the community management committee and the volunteer guardian, Simegn Alem.

When asked why she was chosen to be the water point guard, she replied, "I live in the household nearest to the well, so it is no problem for me to open the gate when asked. I sometimes get discouraged by the responsibility, but I am willing to continue serving in this role because it is important.

"Without a guard, the pump could get damaged or water would be wasted," she added. The small community contributed all the labor for the water pump, including digging the well and carrying construction equipment by hand from the road to the village. The community selected five members to serve on a management committee. This group collects 1 birr per month from each household, which is deposited in a local savings account in the woreda capital. The community is able to use this savings to make loans and finance regular maintenance on the water pump as needed.

Before the water pump was installed, the inhabitants of Fek Ayil drank tala, a home-brewed beer, exclusively. "We use this water for all of our daily needs: cooking, washing, and drinking." According to Simegn, "Now our stomachs are clean and we drink safely without fear."

This is the sixth in a series of articles showing the human face of the Carter Center Trachoma Control Program. The comments of the individuals highlighted are not reproduced word for word but reflect the spirit of our conversations with people in the field. The authors try to be faithful to the context, content, and tone of the people depicted.

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In 2006 and 2007, The Carter Center in Southern Sudan has focused on expanding infrastructure to help better deliver program interventions. With this platform, the two health programs are better placed to respond to the needs of the Ministry of Health for the government of Southern Sudan, in addition to enhancing collaboration with other partners. The Guinea Worm Program staff have extensive local cultural knowledge, enabling them to deliver both programs at the same time.

G. Galban



A village volunteer distributes Guinea worm filters and administers tetracycline eye ointment to a Southern Sudanese family – integration in action.

Trachoma

Trachoma Prevalence Surveys Determine Need in Nigeria

In March 2007, The Carter Center supported surveys to assess the burden of trachoma in 13 local government areas (LGAs) within Plateau and Nasarawa states, Nigeria. Prevalence



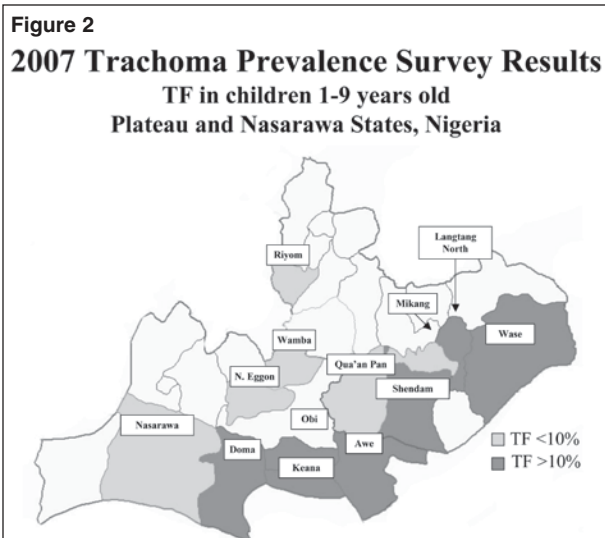
The Carter Center Nigeria Trachoma Control Program manager, Dr. Nimzing Jip, examines a boy for clinical signs of trachoma.

of clinical signs of trachoma (TF) in children 1-9 years of age exceeded 10 percent in three LGAs in Plateau and four LGAs in Nasarawa, indicating the need for LGA-wide implementation of the A, F and E components of the SAFE strategy. The survey was possible due to a generous grant from the Bill & Melinda Gates Foundation.

In the LGAs shown in Figure 2, the proportion of households with a latrine ranged from 10.2 percent to 40.8 percent. The prevalence of trichiasis (TT) exceeded 1.0 percent in two of the LGAs surveyed, and community-based efforts

are underway to identify cases and provide corrective lid surgery to prevent blindness. The components of SAFE, including azithromycin distribution, will be integrated with other ongoing community-based programs such as mass drug distribution for lymphatic filariasis, schistosomiasis, onchocerciasis, soil-transmitted helminths; and distribution of vitamin A and long-lasting insecticide-treated nets. All community outreach visits will be part of integrated disease activities.

The total estimated population to benefit from SAFE interventions in the seven LGAs is 779,000. Trachoma mapping is needed for the remaining 17 LGAs. Eight LGAs are currently undergoing an integrated assessment for trachoma, urinary schistosomiasis, and lymphatic filariasis. Mapping of the final nine LGAs will be integrated with an impact assessment of mass drug administration on lymphatic filariasis infection in late January 2008.



Carter Center-Supported Latrine Promotion in Ghana Analyzed

In response to a 2005 study that found an average of less than 10 percent sanitation coverage in northern Ghana, with many communities lacking even a single latrine, The Carter Center began to support health districts in a unique latrine promotion program. The approach focused on ensuring 100 percent household latrine coverage in each village, regardless of a household's wealth, status, or ability to provide labor. In December 2006, The Carter Center evaluated the latrine promotion program through a household survey in a random sample of supported villages in the Northern region.

Twelve communities that had participated in the Carter Center-supported latrine promotion program for at least 12 months were randomly selected from two districts. A total of 327 households were interviewed to determine demographics, access to a household latrine, perceptions of latrines, and construction costs. A visual inspection of all latrines also was conducted to determine latrine use and construction status.

Altogether, 88 percent of the households surveyed had a usable latrine, and 65 percent had latrines that were currently in use. The average cost to the households with a latrine was approximately five U.S. dollars. Twenty of the 327 households interviewed did not have a household latrine, and only three of the 20 had

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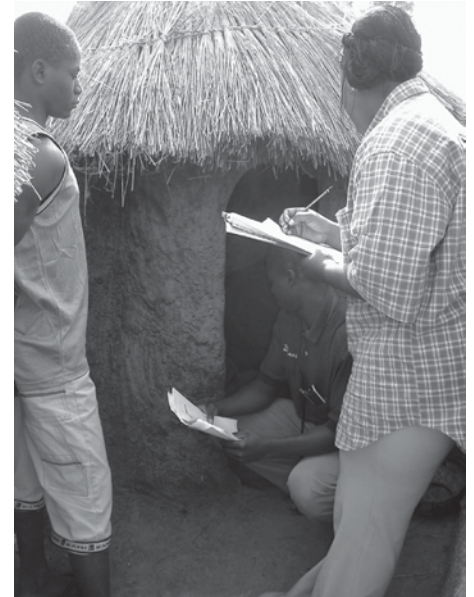
Trachoma

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been advised to build one. The major reasons given for not building a latrine were cost, lack of time, and inability to provide labor. Despite this, 100 percent of these households stated an intention to build a latrine in the future.

Both households that owned a usable latrine and those that did not were knowledgeable about the advantages and disadvantages of owning a latrine. The most commonly stated advantages of owning a latrine were convenience, health benefits, lack of feces around the compound, and privacy. The disadvantages stated were latrine maintenance, a bad odor, the high cost, and a risk of collapse.

This evaluation found that in Carter Center-assisted communities in the Northern region of Ghana, household latrine coverage has increased from 0 percent to 88 percent of households having a usable latrine over a two-year period. In addition, feces were found in 71 percent of the latrines, showing that a majority of households in the communities have adapted their behavior. There is a need for heightened health education and behavior change activities that the program will continue to address. The latrine promotion program increased latrine access and use in all selected communities and should be encouraged as a model for other latrine programs in northern Ghana.



J. King

Ghana National Service volunteers inspect a latrine.

Mali Lions Support Women's Group Training



In collaboration with Mali's National Program for Blindness Prevention and local Lions Clubs in Mali, The Carter Center has undertaken the training of 800 women to strengthen health education in Ségou and Mopti regions. In 2007, the four

Lions Clubs in Bamako (Soukala, Malina, Yelé, and Sigui) made a joint award of 8 000 000 CFA francs (approximately \$17,777) to carry out training activities targeting active women community leaders. The award was of locally raised money, and by

April 2008, the program will train five women leaders from 160 already existing women's groups: 600 women from Ségou and 200 women from Mopti region.

With the knowledge that trachoma disproportionately affects women, the program initiated this important activity to focus on empowering women to educate their peers about the risks of trachoma. Key

community women were selected from each women's group to be trained as health educators, specializing in trachoma education targeting women and children. Their training focuses on trachoma prevention through the F and E components of the SAFE strategy for trachoma control as well as treatment of trachoma using antibiotics and surgery.

The trained women are responsible for monitoring hygiene and sanitation practices in their households and in their community after the training. Among the five women chosen per group, a minimum of two are literate to ensure they can fill out monitoring notebooks and use the health education materials after the training. The Carter Center Mali also has developed health education materials in local language for the women's use. The Carter Center assistance to the Mali Trachoma Program is supported by the Conrad N. Hilton Foundation.



Y. Kamissoko

Women in the Baroueli district are trained so they can teach others about trachoma.

Malaria Survey Shows Baselines

In early 2007, The Carter Center was invited to help distribute 3 million long-lasting insecticidal mosquito nets in three regions of Ethiopia as a contribution to the country's target of 20 million nets distributed before the new Ethiopian millennium, September 2007. Before doing so, the Center wanted to establish the baseline level of net ownership in the country as well as the extent to which people use their nets. It also wanted to know the prevalence (the proportion of people infected with malaria) at a point in time before the integrated malaria program of net delivery and promotion of net use started.

A household survey following internationally recognized best practices was quickly organized and conducted in 224 distinct sites in December 2006 and January 2007. The sites were randomly selected from malarious areas in Amhara, Oromia, and Southern Nations, Nationalities, and Peoples' regions. In each site, heads of 25 households were interviewed about net possession, net use, and other risk factors for malaria. In Amhara region,

trachoma infection rates also were assessed in an innovative integrated survey. People in a subsample of households were given blood tests for malaria. The survey teams traveled far and wide, sometimes on foot or mule, to reach the randomly selected households and obtain an unbiased picture of the malaria situation in the three largest regions in the country.

It was found that 37 percent of households had at least one net, but only 20 percent owned a long-lasting insecticidal net. Even though the average household size was five to six people, the average number of nets owned of any type was less than one per household. However, since several people sleep under one net, more than one quarter of people of all ages reported sleeping

under a net the previous night, and 15 percent slept under a long-lasting insecticidal net.

Malaria blood slides were examined from 11,601 people, of whom 4 percent were found to have malaria parasites. The highest prevalence of 5.4 percent was in the Southern

region, followed by Amhara at 4.6 percent, with lowest prevalence of 0.9 percent in Oromia. By species, 57 percent of infections were due to the most dangerous form of malaria, *P. falciparum*. There was little difference in malaria prevalence by age group, confirming that in Ethiopia, all ages are susceptible to infection and disease. Although malaria positivity dropped



Household surveys were conducted in malarious areas in three regions in Ethiopia.



Residents in a subsample of households were given blood tests for malaria.

at higher altitudes, more malaria than expected was found above 2,000-meters elevation.

The target of the Ethiopia Malaria Control Program is to provide an average of two long-lasting insecticidal nets to all households in malarious areas to achieve lasting reduction in malaria mortality and morbidity in the country. Although large numbers of nets were distributed in 2005 and 2006, early in 2007 there was still a long way to go to reach this goal. By now, the 3 million Carter Center nets have been distributed, and a follow-up survey in November–December 2007 will assess the net coverage and determine whether any decrease in malaria parasite prevalence has occurred.

Target of Three Million Bed Nets for Ethiopia Close to Goal

Since Feb. 8, 2007, when the first Carter Center-sponsored long-lasting insecticide-treated net (LLIN) was distributed in Mana, a malarious endemic district in the region of Oromiya, Ethiopia, an additional 2,960,070 LLINs have been delivered to approximately 1,480,000 households. As a result, the Center has completed 98.7 percent of its commitment to distribute 3,000,000 LLINs across Amhara, Oromia, and Southern Nations, Nationalities and Peoples' regions.

Within the zones where the Trachoma Program (all 10 of the Amhara region) and River Blindness Program (Kaffa, Sheka, Bench-Maji, North Gondar, Illubabor, Jimma, Gambella, and Metekel zones) were already working, an estimated 4,940,000 people have been provided with protection against malaria through this collaborative effort with the Ministry of Health of Ethiopia.

Additionally, the Center is working with ministry officials to enhance health education efforts at the community level through the development of four key messages that emphasize the ministry's focus in malaria control:

1. Give priority for LLIN use to pregnant women and children less than 5 years old.
2. Sleep under an LLIN every night.
3. Properly hang and care for (wash and mend) an LLIN.
4. Take all people with fevers to local health clinics to get tested for malaria.



A. Mosher

A new insecticide-treated net, properly hung in a household in the zone of Jimma, Oromia region, Ethiopia.

These messages will be incorporated into training efforts of health extension workers in the Trachoma Program and community drug distributors in the River Blindness Program to take advantage of their existing access to communities, helping to ensure that malaria control messages reach households at the same time they receive other program-specific messages. Workers' movement through communities also will be utilized to give feedback to the program on the success—net usage, proper hanging of nets—of this initiative.

The Carter Center's involvement in malaria control in Ethiopia began in June 2006, four months after the Ethiopian Minister of Health, Dr. Tedros Adhanom Ghebreyesus, invited The Carter Center to join the national effort to provide protection to all 50 million Ethiopians at risk for malaria through the distribution of two LLINs per household by July 2007. The Center also has been asked to help in national efforts to monitor and evaluate the progress and success of the national control program itself.

Sankara Wins Shepard Award

The 2006 Trachoma Control Program graduate assistant, Dr. Dieudonné P. Sankara, received the Charles C. Shepard Award from the Rollins School of Public Health of Emory University for his master's thesis titled "Epidemiology of Blinding Trachoma in Internally Displaced Persons Camps in Khartoum State, Sudan."

Dr. Sankara studied at Emory as a Foege Fellow and, after his graduation in May 2007, accepted a position at Research Triangle Institute as senior

L. Rotondo



The Shepard Award presented to Dr. Sankara is given to the graduating student who is deemed by the faculty to have prepared the most scholarly research paper.

neglected tropical disease specialist. He is the former national program coordinator of Burkina Faso's Guinea Worm Eradication Program. Congratulations, Dr. Sankara!

Global Health News

Hopkins Receives 2007 Mectizan Award

Dr. Donald Hopkins, vice president of the Carter Center Health Programs, was chosen to receive the Mectizan Award, given each year by Merck and the Mectizan Donation Program to an outstanding contributor to the fight against onchocerciasis and/or lymphatic filariasis. Brenda Collatrella, senior director of Merck's Office of Contributions, presented the award to Dr. Hopkins, who was nominated by his colleagues.

Ms. Colatrella congratulated Dr. Hopkins for his unwavering

commitment to onchocerciasis and for taking those lessons learned into other arenas of public health. Dr. Hopkins acknowledged his Carter Center colleagues, President Carter, John and Rebecca Moores, and the Center's many partners and donors and commended Merck for its unprecedented large-scale, long-term commitment to improve the health of millions of people with donated Mectizan. He also congratulated OEPA for inspiring onchocerciasis elimination efforts in Africa and asserted his belief that

onchocerciasis will prove eradicable in Africa thanks to the work done in the Americas.



Louise Gubb

Carter Center program staff celebrate Dr. Hopkins' award, presented Nov. 14 at the IACO 2007 meeting in Quito, Ecuador. Left to right: Craig Withers, Dr. Frank Richards, Dr. Donald Hopkins, Lindsay Rakers, and Dr. Moses Katarbarwa.

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