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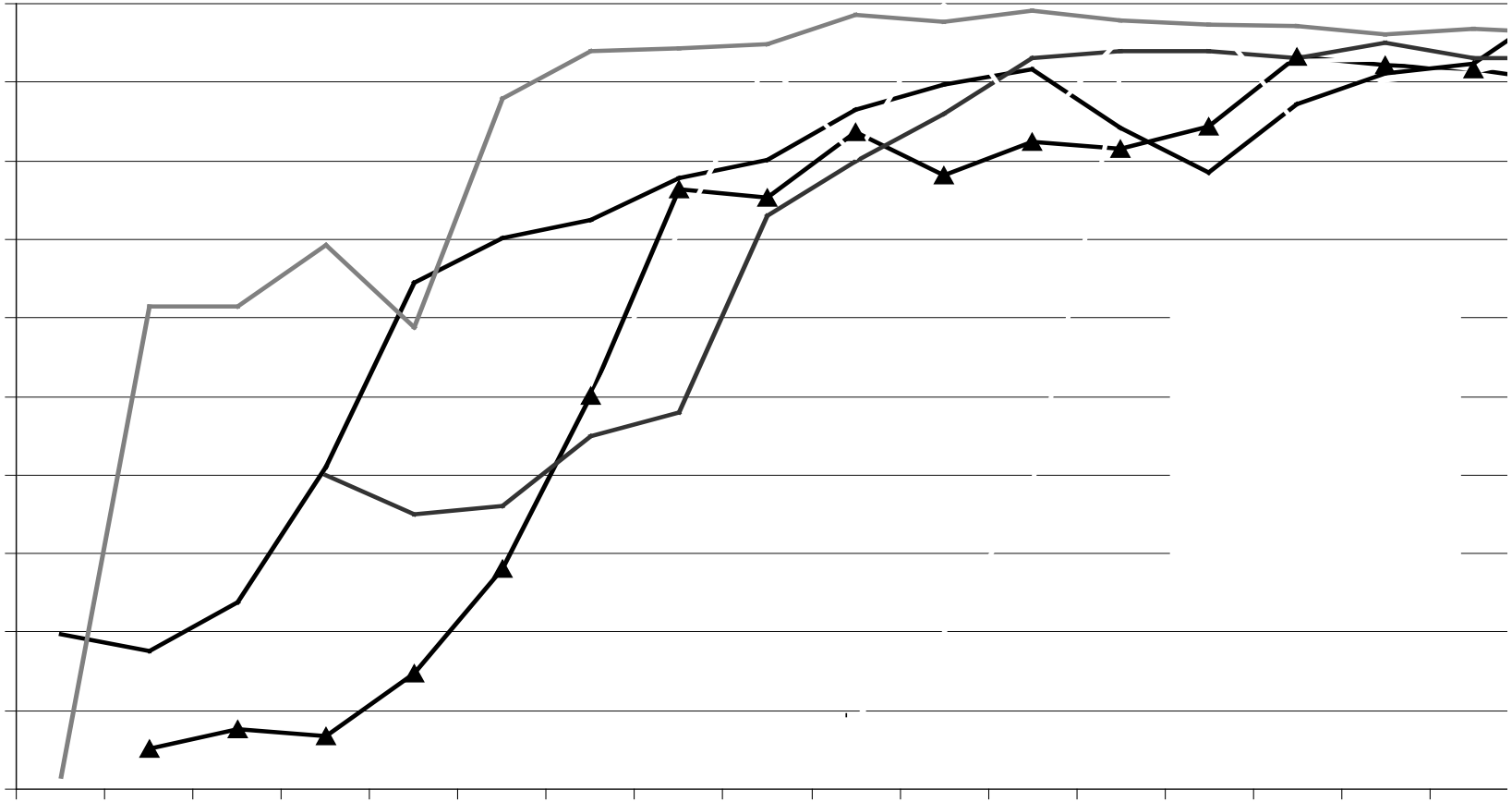
Bryan Beck
Annamae Beyette
Barry Bryant
Centra Industries, Inc.
Chevron Nigeria, Ltd.
Clarke Mosquito Control
Community Presbyterian Church of Mount Prospect
Stanley and Wendy Drezek
Enterprise Middle School
Bill & Melinda Gates Foundation
GlaxoSmithKline PLC
Global Institute USA
William and Mary Ann Hardman
Hellgate High School
The John P. Hussman Foundation, Inc.
Izumi Foundation
Mavis James
Michael Just
Jill Keogh
Lavelle Fund for the Blind
A.G. Leventis Foundation
Lions Clubs International Foundation
Arthur Lipson and Rochelle Kaplan
The Lumpkin Family Foundation
Peter Matushek
Carol McIlwaine
Michael and Rhonda McCarthy
Merck & Co., Inc.
Mid-Continent University
John Moores
Carl Pedersen
Steve Perez
Robert Potter
David and Sheila Quint
Julia Suddath-Ranne
and Micheal Ranne
Mark and Maureen Sanders
The Kingdom of Saudi Arabia
Robert and Pearl Seymour
Walter Schier
Southminster Presbyterian Church
Tinsley Foundation
Daniel Wolf
Merck KGaA (E-Merck)/ World Health Organization
Wyeth
Vance Zavela and Jean Schiro-Zavela
Beryl Zerwer

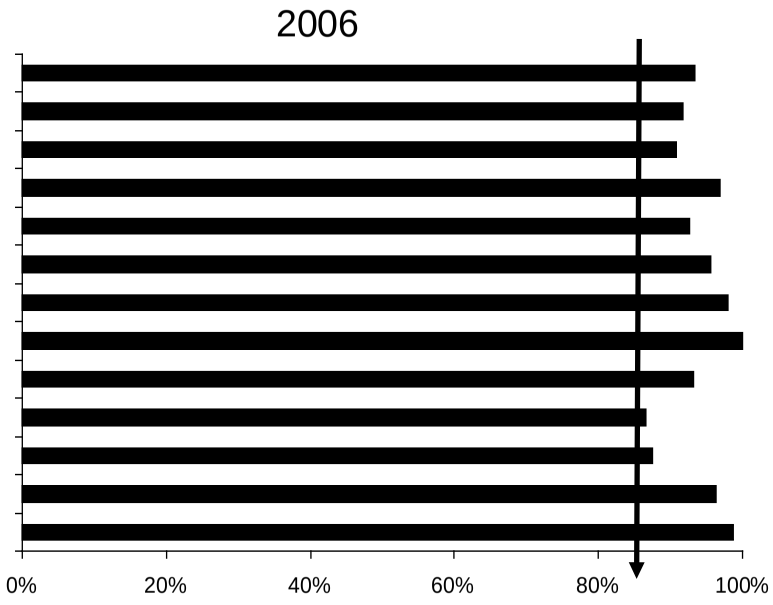
And to many others, our sincere gratitude

Figure A

2009 River Blindness Program Review Participants

River Blindness Program: Annual coverage of eligible population by project: UTG or UTG(2)

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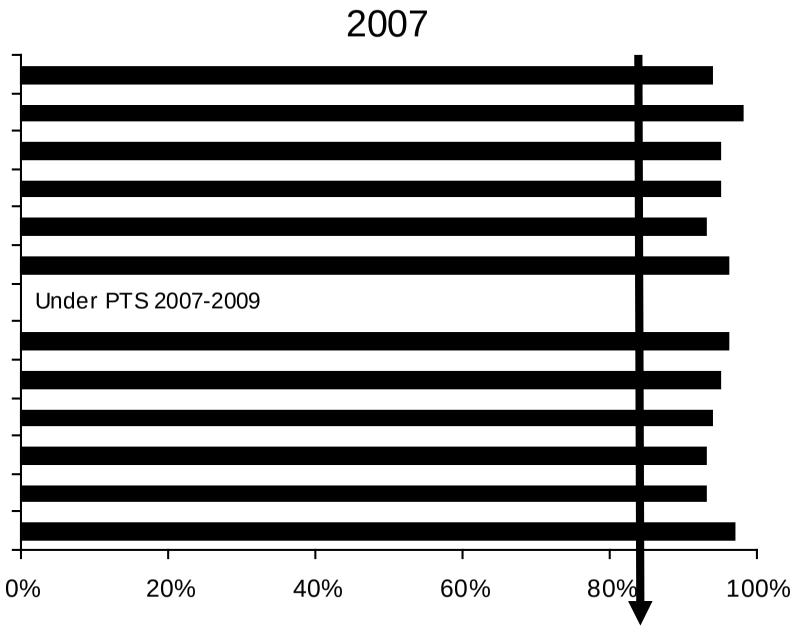
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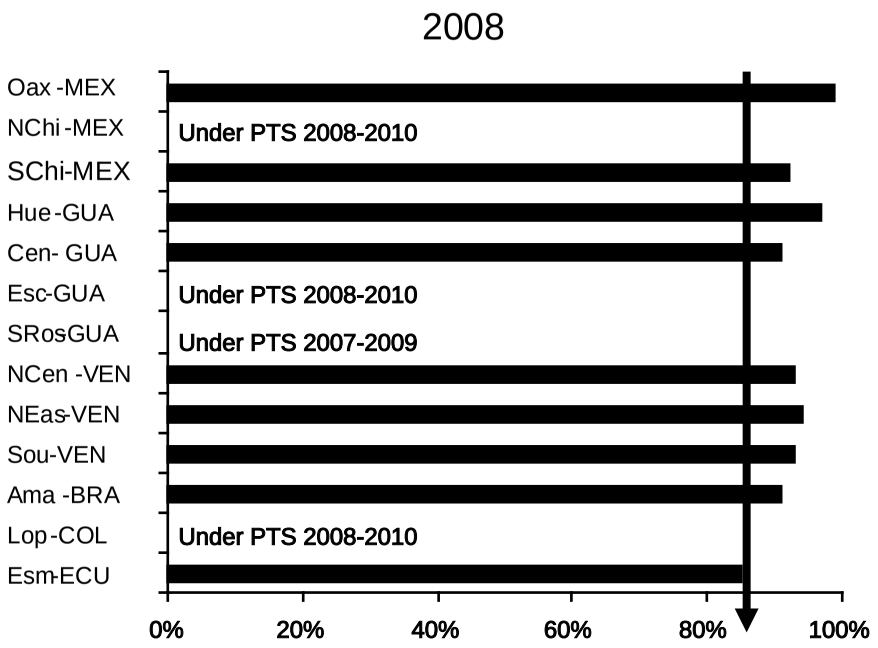
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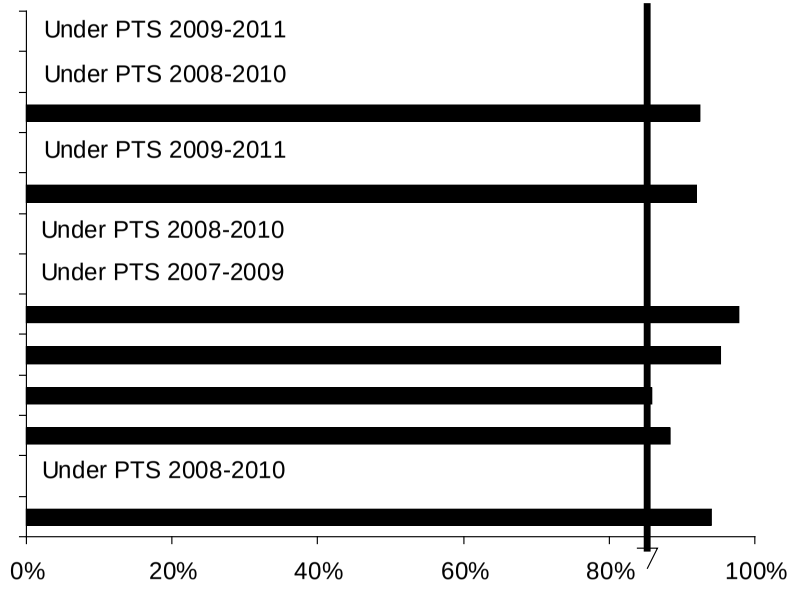
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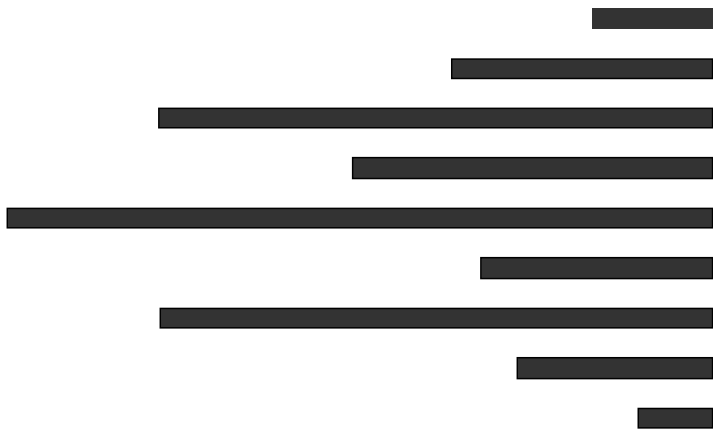
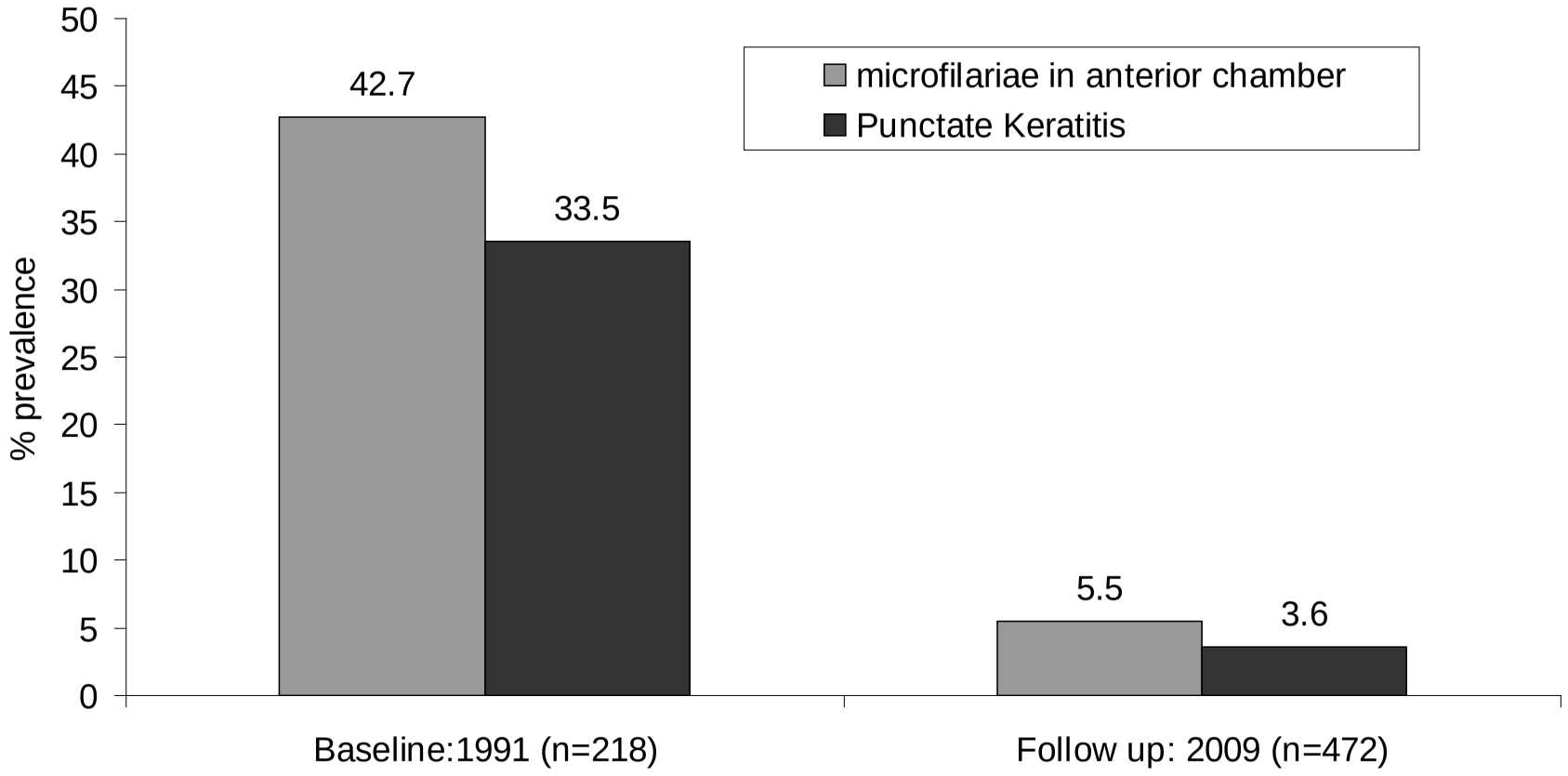


Figure F

Ocular Morbidity Impact: 1991 Baseline (6 communities) and 2009 Follow-up (8 communities) in the Vina Valley of North Cameroon



Ninety-nine Percent Reduction in Onchocercal Nodule Prevalence in Sentinel Villages of Plateau and Nasarawa States (Nigeria) under Mass Drug

Uganda: Plan for Onchocerciasis Elimination*

Eliminated

Implement elimination policy

Figure

Uganda: Foci where Onchocerciasis Elimination Policy is Being Implemented*

Maps,

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Recommendations 7
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Onchocerciasis E Tc -642ac1e3gendats..fdatsa(a)1d(fdc)-25(e-he-ABL)mchoceres ..... Recommendations .....

EXECUTIVE SUMMARY

The River Blindness Program (RBP) of The Carter Center assists the ministries of

of RB through their SightFirst I and Sightfirst II Initiatives. Through the Lions SightFirst I Initiative, LCIF and The Carter Center expanded their partnership to encompass controlling RB in 5 countries in Africa (Cameroon, Ethiopia, Nigeria, Sudan, and Uganda) and eliminating RB altogether in the 6 endemic countries of the Americas. The SightFirst II Initiative does not cover Nigeria, but provides generous support to all other countries we assist, including the more recent elimination efforts in Sudan and Uganda.

In 2003, The Carter Center's RBP received its first support from the Bill & Melinda Gates Foundation (BMGF) for the Onchocerciasis Elimination Program for the Americas (OEPA) through a matching grant mechanism that drew additional funding from LCIF; Merck & Co., Inc.; and more th[(an)134 076(s)4(10(ann)10(at)2(i)16(nJ -0.002(94)2(he 9n0 Tw 1

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International, the Task Force for Global Health, Auburn University,

Summary of the Meeting

In 2009, The Carter Center assisted 14,115,910 Mectizan® (donated by Merck & Co., Inc.) treatments in 11 countries, reaching 97% of the 2009 UTG and exceeding 14 million treatments for the first time (Figures 1 and 2). Overall, 128,957,247 cumulative treatments have been provided since the RBP was launched in 1996 (Figure 3). Approximately 59% of the 2009 treatments were supported by Lions (Figure 4). Figure 5 shows that all RBP programs reached the 90% UTG goals in 2008 and 2009. About 40% of 2009 treatments took place in Nigeria. See Figure 6 for an illustration of treatments over the years by project. Approximately 225,000 CDDs working at the grass roots community level were trained during the year to accomplish these 14 million treatments. Areas where the goal is onchocerciasis control (characterized by annual Mectizan® treatments to prevent eye disease), accomplished about 11.7 million treatments in 2009. In areas where complete elimination of the disease is the goal (twice per year treatment to interrupt transmission), 2.4 m

mf infection rates in children were nonexistent, which suggested elimination of onchocerciasis transmission may have been achieved as a by-product of the LF effort. It is possible that combination therapy for LF elimination has had additional benefits in simultaneously interrupting onchocerciasis transmission. For the second year in a row, Nigeria exceeded 1 million praziquantel treatments in the 3 states that have a Schistosomiasis Control Program. Praziquantel has been donated to The Carter Center through WHO by Merck KGaA (E-Merck)-Germany starting in 2008. Along with support from Izumi and Hussman Foundations, this has allowed treatment figures to climb to 5 times their 2007 level. In addition, approximately 114,000 long-lasting insecticide treated bed nets (LLINs) were distributed in 4 states by Carter Center-assisted programs. Half of these were purchased with support by the BMGF and distributed in Imo and Ebonyi States in order to study whether use of LLINs can interrupt transmission of lymphatic filariasis in areas where co-endemicity of Loa loa prevents using MDA with Mectizan® and albendazole. The other half were provided in Plateau and Nasarawa States by the Federal Government of Nigeria and through a donation by Clarke Mosquito Control.

Ethiopia: The Lions-Carter Center partnership in Ethiopia assisted in treating 3,163,181 persons to prevent onchocerciasis in 2009, 95% of the UTG. The Carter Center-assisted malaria program continued integrated efforts with the RBP in 2009, as part of the 'MALONCHO' project, with CDDs there trained to monitor bed net use and provide behavior change communication (BCC) related to their use and care. During 2009, 40,532 CDDs were trained (10% female), reaching a ratio of 1 CDD: 98 persons. Thanks to GSK support, for the first time combined Mectizan®/albendazole treatments were provided for LF elimination in onchocerciasis endemic areas of Gambella Region. With this funding the Ethiopia RBP assisted in 77,442 combined treatments in 2009, 93% of the UTG of 83,191.

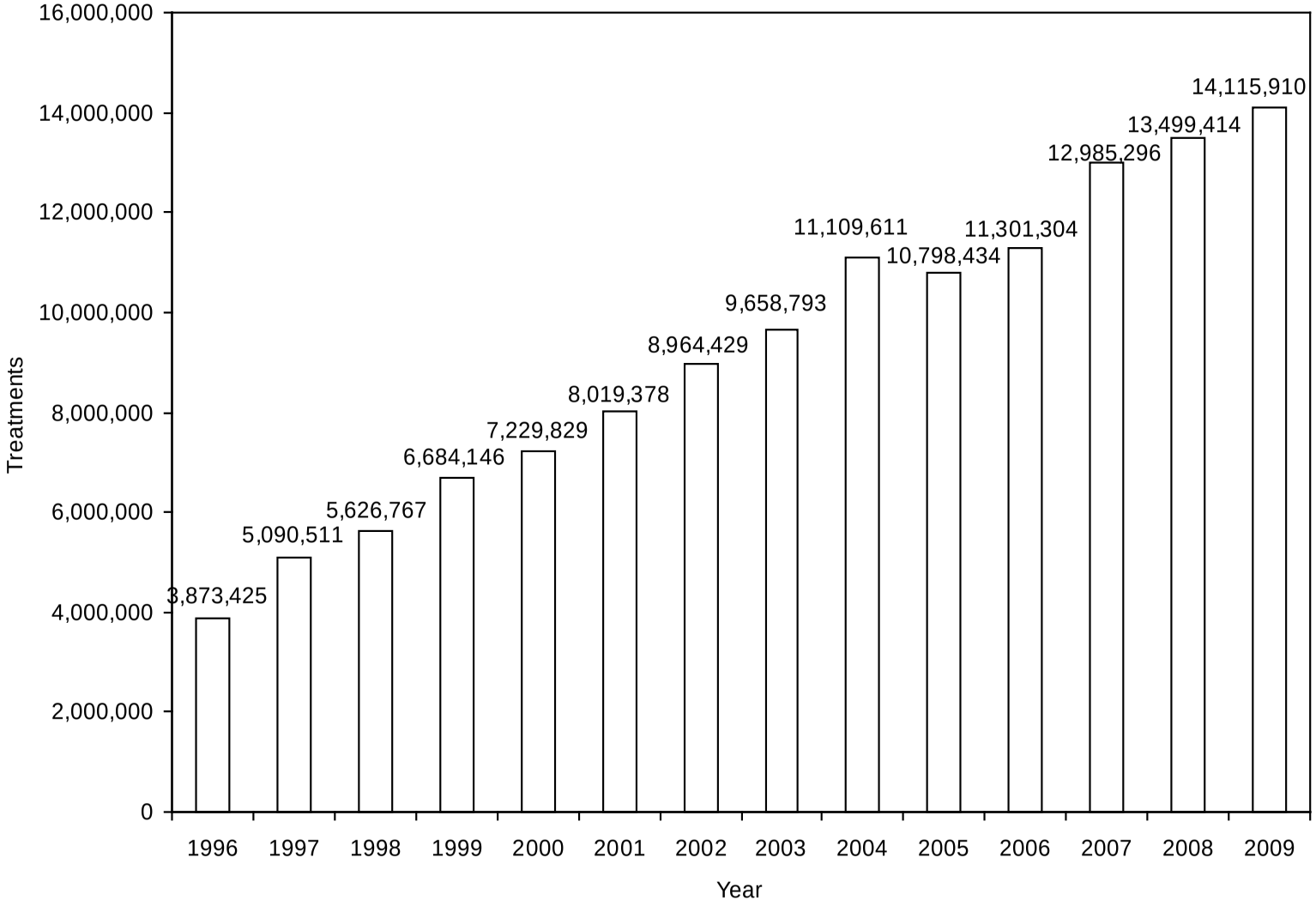
2010 GENERAL RECOMMENDATIONS FOR

Figure 1

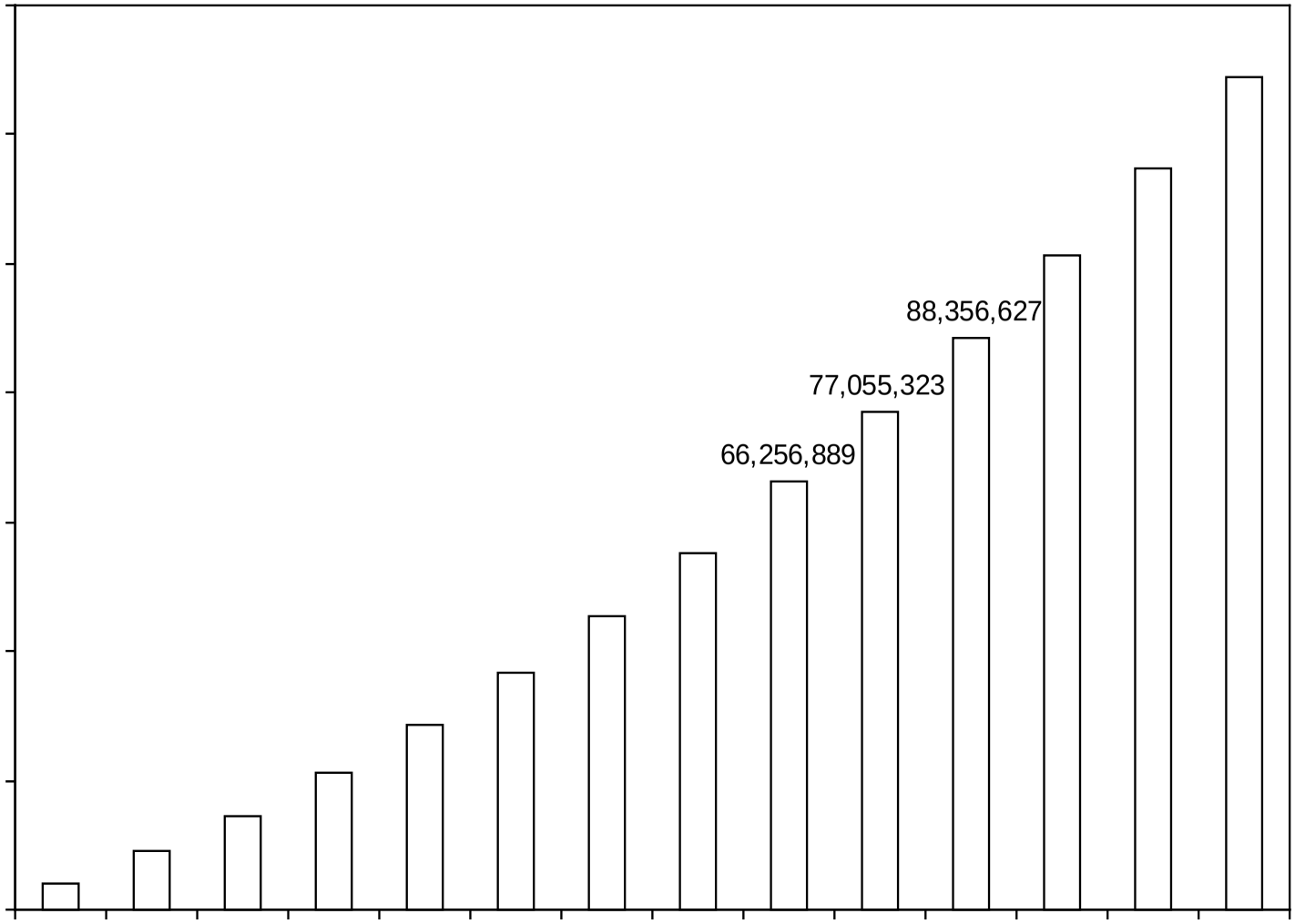
2009 Mectizan® Mass Treatment Figures for Carter Center River Blindness Program (RBP)-Assisted Areas in Nigeria, Uganda, Cameroon, Ethiopia, and Collaborative Programs in Latin America (OEPA) and Sudan

Figure 2

Carter Center-Assisted Programs: Annual Mectizan® Treatments, 1996 – 2009



Carter Center-Assisted Programs: Cumulative Mectizan® Treatments, 1996 – 2009



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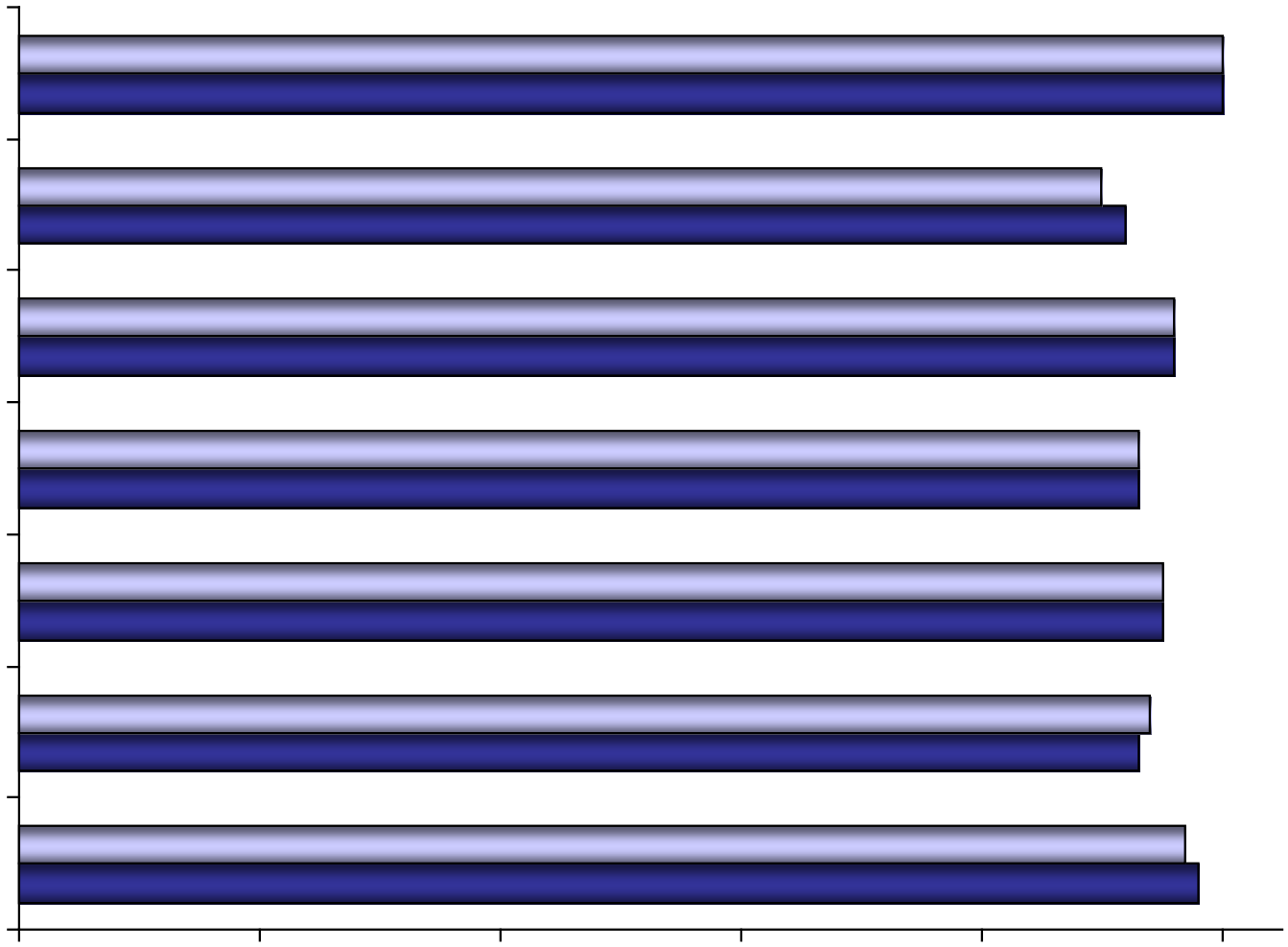

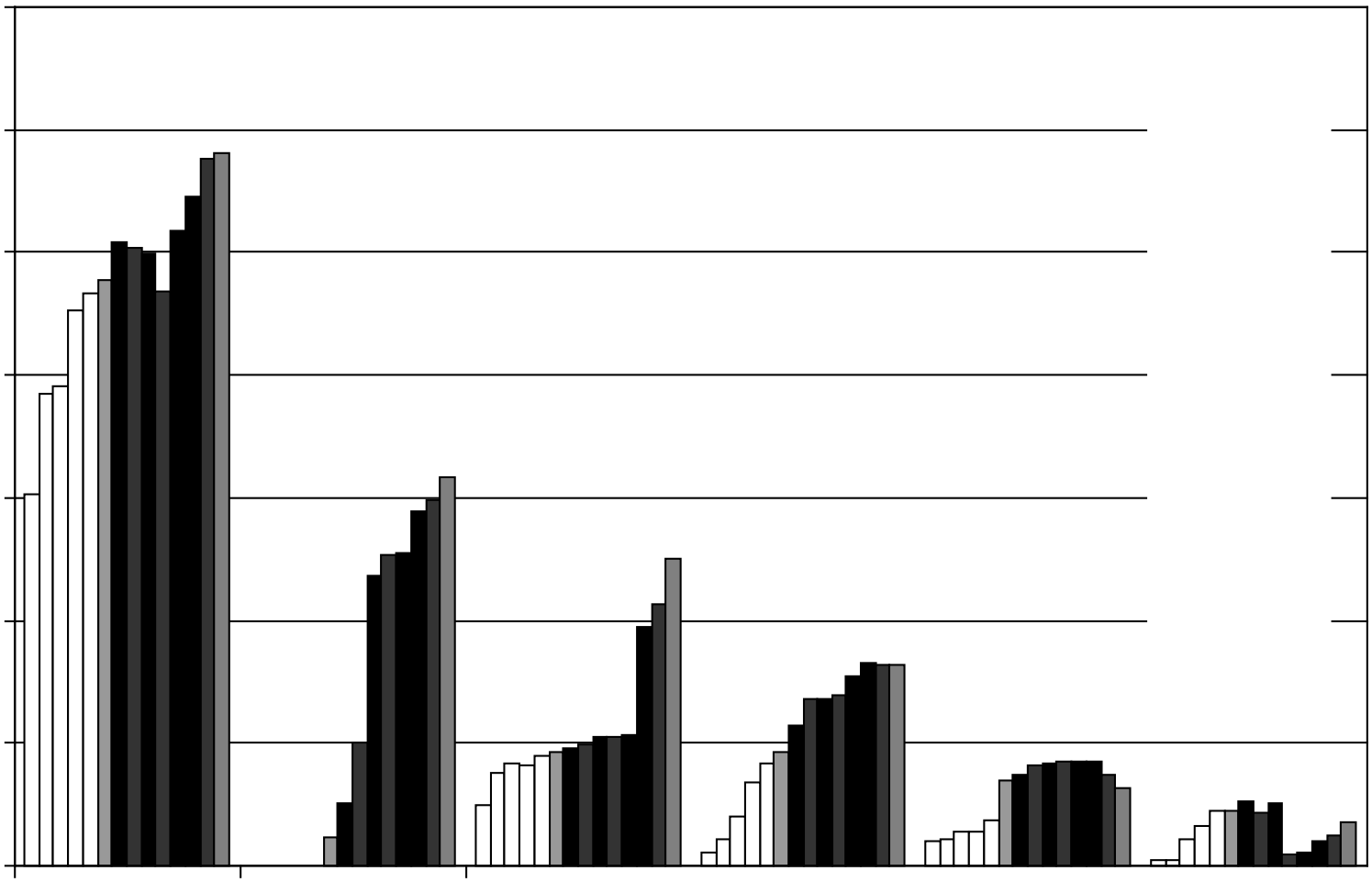
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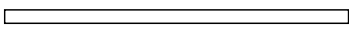

for individual foci. In sum, at the end of 2009, transmission had been interrupted in 2 of 6 countries and in 7 foci of the original 13 endemic foci in the region, 6 of which have started the 3-year period of PTS, with Ecuador beginning PTS in 2010. .

Treatments: As a result of the reductions in foci under treatment, overall regional ivermectin treatments are declining (Figure 10). In 2009, the 7 foci that remained under treatment reported a total of 626,146 treatments, a 27% drop since the peak treatments provided in 2005. The total number of people eligible for ivermectin treatment in the Americas region in 2009 was 336,183 (the ultimate treatment goal or UTG). The number of eligible people and percentage of the region's UTG by country in descending order for 2009 are: Guatemala 105,293 (31%), Venezuela 103,487 (31%), Mexico 102,310 (30%), Ecuador 16,113 (5%), Brazil 8,980 (3%) and Colombia 0 (0%). Since ivermectin treatment is provided twice a year, the treatment coverage denominator (called the UTG(2)) is twice the UTG, or 672,366 treatments. Treatment coverage for 2009, calculated as the total number of treatments delivered during the year divided by the UTG(2), was 93%. Frontispiece Figure C depicts UTG(2) achievement by focus over the last 4 years, as well as the reduction in the number of foci under treatment. Country-specific treatment activities are described individually below.

Country specific information:
Brazil's endemic population inhabits a single focus that extends through parts of Amazonas and Roraima states. This focus is continuous with Venezuela's South Focus, which together form what is known as the Yanomami Area. The entire bi-national transmission zone has an vast area of 90,000 km2 but a sparse population with a combined UTG(2) of only 27,469. Overall, the Yanomami Area reached 87 percent of its UTG(2) (31,502 treatments). Brazil provided 15,850 treatments in 2009, 88 percent of its UTG(2) of 17,960, and surpassed the 85 percent treatment coverage goal for the ninth consecutive year. The Venezuelan side of the Yanomami Area delivered 11,619 treatments (86 percent of its UTG(2) of 13,542) in 2009, and achieved its coverage goal for the fourth consecutive year.

Colombia has a single endemic focus (López de Micay, Cauca) where the Ministry of Social Protection (Ministry of Health) made the decision in 2007 to halt ivermectin MDA starting in 2008. The 3-year PTS period to detect transmission recrudescence began in 2008. If the PTS evaluation is favorable, Colombia would be the first country in the Americas to request certification of onchocerciasis elimination from PAHO/WHO in 2011.

Ecuador has a single endemic focus in Esmeraldas Province (the Esmeraldas–Pichincha focus). Results from the 2009 epidemiological evaluation in this focus were reviewed by the PCC during its meeting in November 2009. The MOH has provided MDA coverage since 1990: 25 MDA rounds achieved coverage exceeding 85%, and there has been good semiannual treatment coverage for 8 of the past 9 years (Figure 11). Entomological data (>30,000 flies examined) showed that vector infection rates were significantly lower than 1 infective fly in 2,000 flies. Transmission in the human population, as judged by testing for infection in 2,012 children younger than 8 years old,

was less than 0.1%. According to WHO's guidelines, these results show that transmission of the parasite has been interrupted. In addition, evaluations of sentinel

In addition to noting the great achievement in Ecuador, IACO 2009 recommended that programs in the Yanomami Area be strengthened. Cooperation agreements between Brazil and Venezuela that include provisions to improve health care for indigenous people along the shared border, offer the possibility of a breakthrough in new support that will improve access to overall health care infrastructure in the Yanomami Area. Additionally, the conference noted that a considerable body of published research has shown that a 6-week course of daily oral doxycycline is (unlike ivermectin) effective against adult O. volvulus worms. (Doxycycline kills endosymbiotic bacteria (Wolbachia) that reside inside the worms and provide important nutritional requirements; without the bacteria, the worms become sterile and slowly die). The conference recommended that national programs consider providing doxycycline treatment on a selective basis as an additional tool in the elimination effort. Doxycycline cannot be given to young children or pregnant women.

The Program Coordinating Committee: The PCC of OEPA met twice in 2009. Its most important deliberations pertained to its recommendation to the MOH of Ecuador that ivermectin MDA be suspended throughout that country starting in 2010. Entomological, parasitological and serological results were reviewed during both PCC meetings and at the IACO conferenceIAnC skihe

Submit Mectizan® applications at least 6 months in advance of desired date of shipment receipt. Treatments do not need to be complete to submit requests for the upcoming year.

Maintain CDC, University del Valle/Guatemala (Nancy Cruz-

Figure 8

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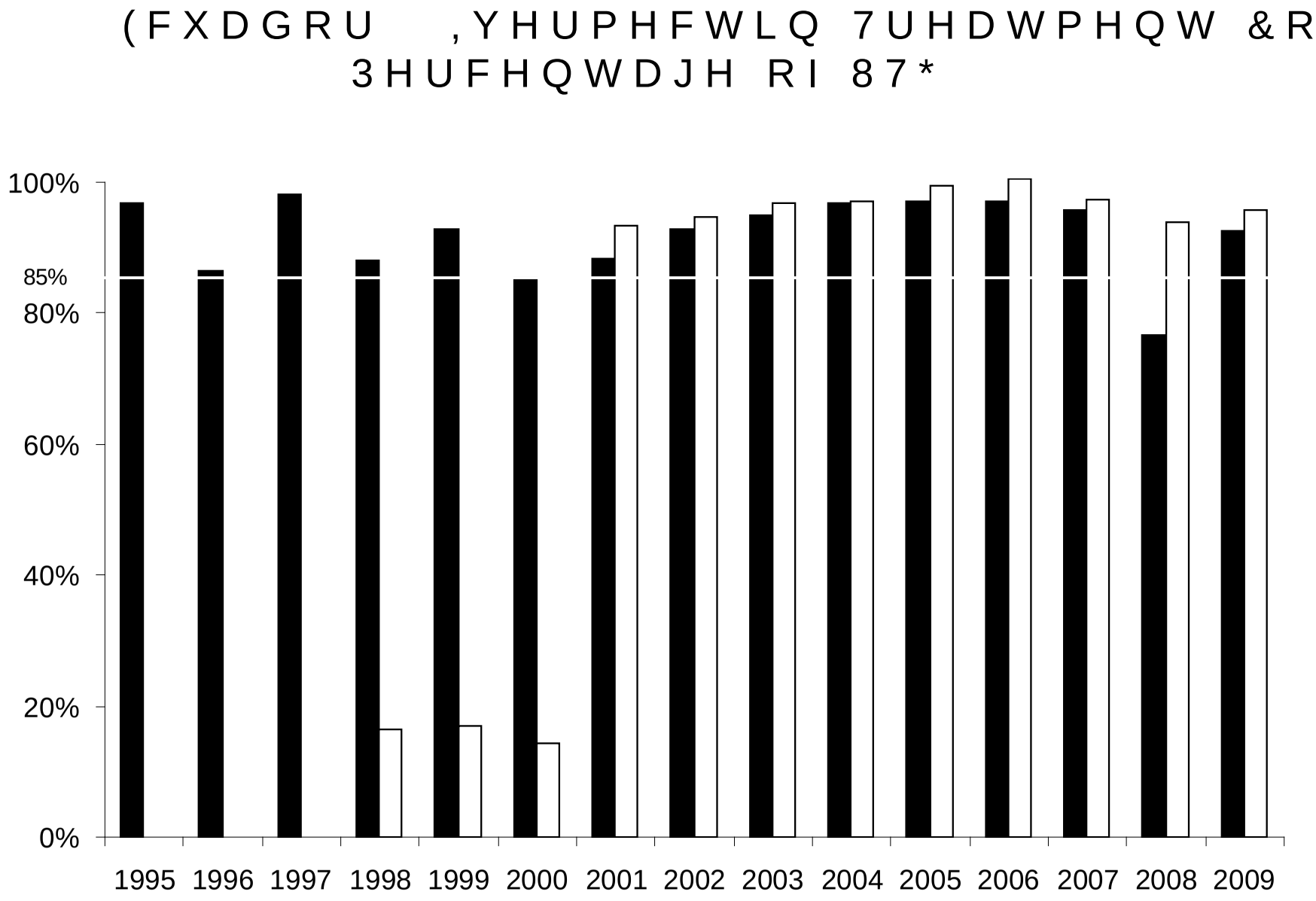
Figure 11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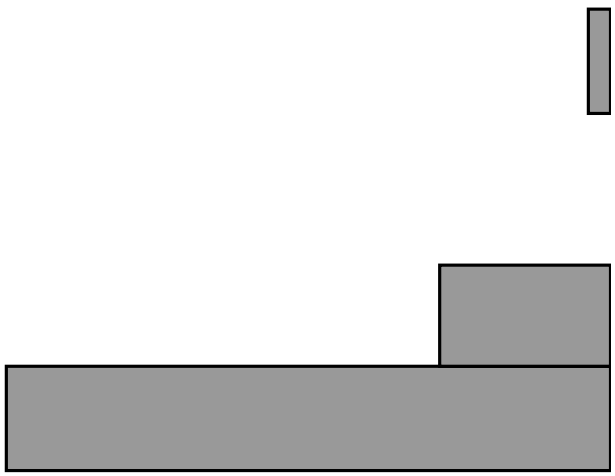

Figure 13

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Source	1991-2008	2009	Total	%
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Background: Onchocerciasis affects 29 of the 80 districts in Uganda. The Carter Center assists community-directed treatment with ivermectin (CDTI) in 23 (79%

Financial Contribution: Most financial support to Carter Center-assisted areas was provided by The Carter Center (See Figure 20 for APOC, Carter Center, and state, local and national financial contributions from 2001 to 2009). The Carter Center has increased its funding for Uganda as the result of the new elimination program. While all districts completed their 5 years of core APOC funding by the end of 2005, some APOC support continues to be provided, and 2009 saw increased funding from APOC for capital equipment purchases. The NGDO Coordination Group for Onchocerciasis Control (with funds from Merck & Co., Inc.) supported work in the Wadelai elimination focus. The national government's contribution has always been the payment of taxes on capital imports by The Carter Center, in addition to salary support for dedicated staff.

In 2009, some districts, health sub-districts, and sub-counties contributed a total of USD$ 9,301, about 50% less cash contributed towards CDTI activities than in 2008.

Sustainability and Integration: The community-directed intervention approach was adopted as national health policy in Uganda in 2001. Hence, political support for onchocerciasis control activities within the primary healthcare system is strong, although cash from the national government for CDTI activities has not been regular or sufficient to sustain CDTI activities without outside support..

The CDTI program actively promoted integration with lymphatic filariasis control in Adjumani and Moyo districts

Elimination Efforts for Onchocerciasis

The Carter Center should support the third UOEEAC meeting, to be held in Kampala in August 2010. Elimination guidelines should be formally finalized during this meeting, and reapplied to the foci (Mt. Elgon, Itwara, and Wadelai) where the UOEEAC in 2009 recommend

It was suggested that skin snips continue to be read microscopically as well as be evaluated by PCR. The costs and processing of PCR in skin snips needs to be reviewed: due to the high cost of reagents, PCR of skin snips might only need to be employed in the absence of OV-16, or to validate OV-16 serology in cases where discrepancies arise. A protocol for doing this should be developed.

Other Recommendations

Evaluate the costs of once versus twice-per-year treatment in Mt. Elgon and/or Bwindi.

Conduct a cost study in Hoima district, on classical vs. kinship-enhanced CDTI.

Maintain Lions involvement to help maintain program visibility and support.

Monitor government and APOC financial contributions to control and elimination efforts.

Conduct Carter Center monitoring protocol annually to assess and validate coverage, health education, community involvement and ownership.

Seek to increase training, supervision, involvement of kinship groups, and gender balance among CDDs and community supervisors as appropriate, especially in districts previously not under The Carter Center's assistance, and ensure that training is done in a cost-efficient fashion. CDD training (new and old) needs to be expressed in relation to annual training goals. Conduct research to measure costs and supervisory demands of conversion to the kinship strategy.

Expansion of Carter Center programs into other disease control efforts requires formal Carter Center Board of Trustees approval, adequate funding to participate, and possibly Emory IRB approval. If the government wants to support integration in areas where The Carter Center assists, we will not refuse to participate since these are government-owned programs. However, without Board approval, funding and IRB review, The

financial support for a second round of VAS. The Carter Center also cannot support distribution in areas where we are not already assisting Mectizan® distribution.

Treatment Objective for onchocerciasis for 2010: 2,897,533

Semiannual UTG(2):	**1,689,316 treatments**
Annual UTG:	**1,208,217 persons**

Training Objective for 2010:

CDDs:	**77,600 (19,392 new)**
Community supervisors:	**9,887 (2,745 new)**

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Figure 13

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Source	1991-2008	2009	Total	%
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