DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control
and Prevention (CDC)

Memorandum

Date: January 7, 2011

From: WHO Collaborating Center for
Research, Training and Eradication of Dracunculiasis

Subject: GUINEA WORM WRAP-UP #202

To: Addressees

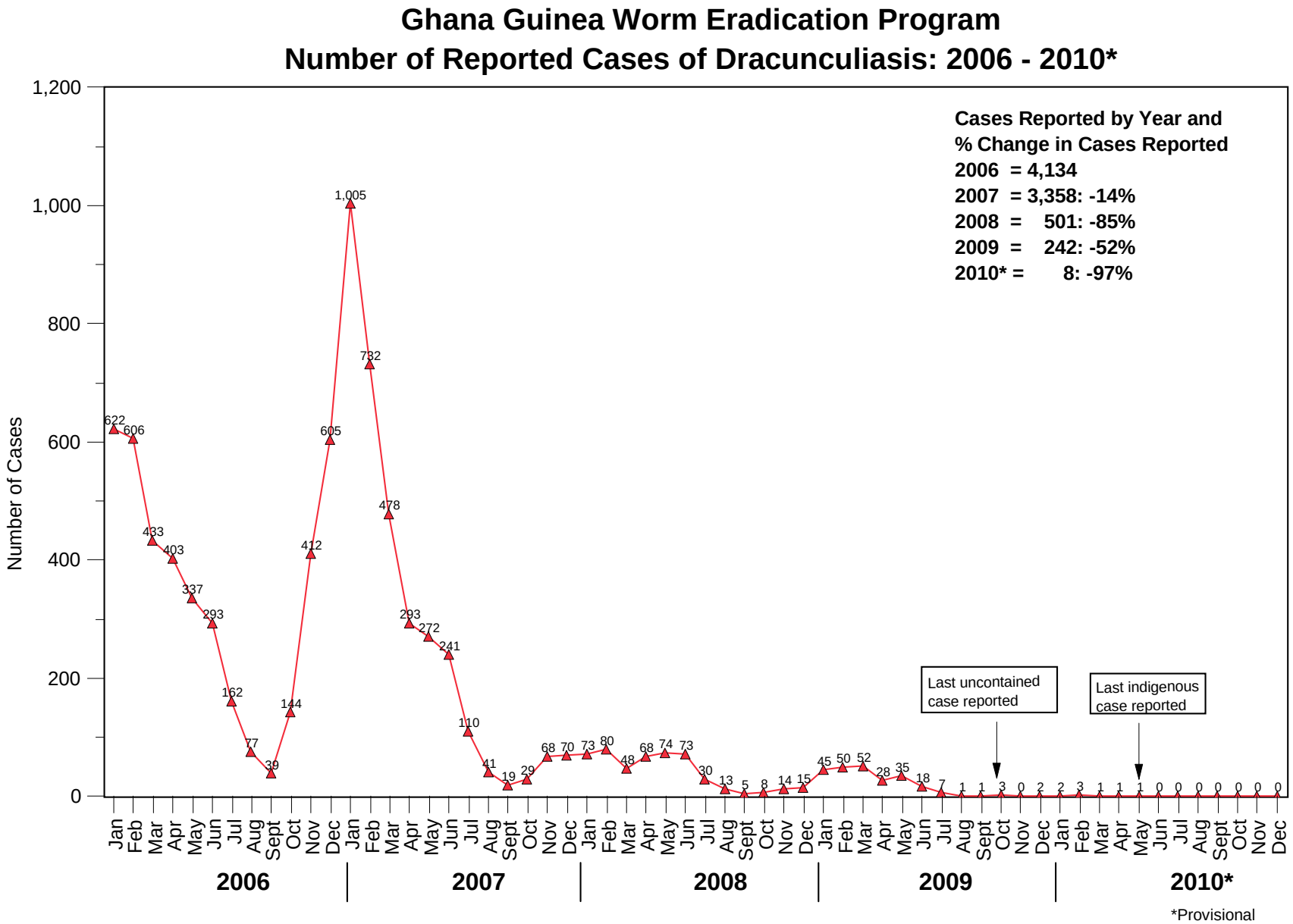
"Perseverance and spirit have done wonders in all ages." ***George Washington***

GHANA IS DONE

Sometimes the sight and sound of bat against ball or gloved fist against an opponent's head lets seasoned observers sense a homerun or knockout has occurred even before the ball leaves the park or the boxer hits the floor. We feel that way now about Guinea worm eradication in Ghana. With seven consecutive months of zero cases reported since May 2010 and fourteen months after reporting its last known uncontained case in October 2009, Ghana has finally conquered Guinea worm disease. (Figure 1) This early conclusion is unprecedented. Up to now the editors of *Guinea Worm Wrap-Up* have, with good reason, warned Ghana repeatedly about the perils of over-confidence or premature declarations of success. We have never before felt as assured about a national milestone of elimination before at least twelve consecutive months of indigenous cases have passed as we do now. And that this should occur in Ghana is especially wondrous, given that country's exceptionally tortuous and delayed arrival at this point in its campaign. The long hoped-for portents were there with the record-breaking 85% reduction in cases between 2007 (3,358 cases) and 2008 (501 cases), the 97% reduction in cases between 2009 (242 cases) and 2010 (8 cases), and the obsessive attention to detecting every case, containing every worm, and tracing every source that Ghana's Guinea Worm Eradication Program has manifest recently. A reward scheme is now operational in all recently endemic districts of Ghana that pays 50 Ghana cedis (~US$36) for reporting a case if the case is contained at a case containment center.

Over the years, Guinea worm disease has been entwined in Ghana's history, ethnology, geology, climatology, economy, traditional beliefs and modern politics. This disease once closed schools in Ghana by preventing so many young scholars from being able to walk. Soon after the program began, Ghana's "stunned" Secretary (minister) for Agriculture wrote the Secretary for Health to plead for help for the many farmers he had just seen suffering from Guinea worm disease during his visit up country to launch the annual maize-purchasing season. And a particularly outrageous outbreak struck hundreds of terrified preschoolers in 2007 less than five weeks before Ghana celebrated its 50th Anniversary of political independence. But after more than 500,000 cases since its inception; over four million cloth filters, more than one million pipe filters, 72,000 liters of ABATE®Larvicide; at least nine ministers of health and nine missed target dates, we are confident that Ghana's Guinea Worm Eradication Program has finally achieved the demise of the worm. However, vigilant surveillance is still required until no Guinea worms remain anywhere. CONGRATULATIONS GHANA; AND STAY ALERT!!

Figure 1


Ghana Guinea Worm Eradication Program
Number of Reported Cases of Dracunculiasis: 2006 - 2010*
Number of Cases
1,200
1,000
800
600
400
200
0
Cases Reported by Year and
% Change in Cases Reported
2006 = 4,134
2007 = 3,358: -14%
2008 = 501: -85%
2009 = 242: -52%
2010* = 8: -97%
Last uncontained case reported
Last indigenous case reported
2006
2007
2008
2009
2010*
*Provisional

Surveillance, Surveillance, Surveillance!

SUDAN: GUINEA WORM "PEACE DIVIDEND" GETTING CLOSER

Results presented at the Fifth Annual Program Review of the Southern Sudan Guinea Worm Eradication Program (SSGWEP) that was held in Juba on December 8-9, 2010 show continued progress in 2010 towards the goal of interrupting transmission of Guinea worm disease in Southern Sudan by the end of 2012. Between 2009 and January - November 2010, the number of cases was reduced by 38%, from 2,733 to a provisional total of 1,686 (Figure 2), and the number of endemic villages reporting indigenous cases was reduced by 61% from 584 in 2009 to 226 in 2010. During January-November 2010 a total of 726 villages reported one or more cases of GWD, and 500 of those villages reported only imported cases. Since 2006 the SSGWEP has reduced the number of cases by 92% and the number of endemic villages by 93%. Figure 3 shows the geographic distribution of endemic villages during 2009 and 2010.

Seventy-four percent (74%) of the cases reported so far in 2010 were contained, and 30% of all cases were contained in a case containment center, compared to 8% contained in a case containment center in 2009. The monthly reporting rate and percentages of endemic villages with health education and complete cloth filter coverage was near 100% for 2009 and 2010, while the percentage of endemic villages with pipe filters increased from 47% to 60%. ABATE® Larvicide coverage increased from 45% to 60% and safe water coverage increased from 16% to 22% of endemic villages. The Ministry of Water Resources and Irrigation (MWRI) and UNICEF completed 85 of 100 new water points targeted for 2010. These new water points were completed in 69 villages that reported 547 cases of Guinea worm disease in 2009 (20% of all cases that year) and 130 cases in 2010 (8% of 1,686 cases in 2010). MWRI and UNICEF expect to begin drilling by six contractors in mid-January 2011. Repair of several boreholes in endemic communities in the Greater Kapoeta focus has languished, however.

Southern Sudan now contains 95% of all cases in the world. 91% of all Southern Sudan's cases in 2010 occurred in only 6 of Southern Sudan's 80 counties: Tonj North, East and South in Warrap State, Kapoeta East and North in Eastern Equatoria State, and Awerial in Lakes State. The same six counties contain 87% of all cases remaining in the world. The Greater Kapoeta focus is an especially complex mix of transmission in villages, gardens (farming areas), and cattle camps, with frequent migration among the different sites and resistance to bandaging. It also is the site of earliest transmission in the calendar year (Figure 4). SSGWEP operations were disrupted by 20 insecurity incidents in 2010, compared to 32 such incidents in 2009. There is some concern about thousands of displaced persons now returning to high-risk areas, especially in Warrap State.

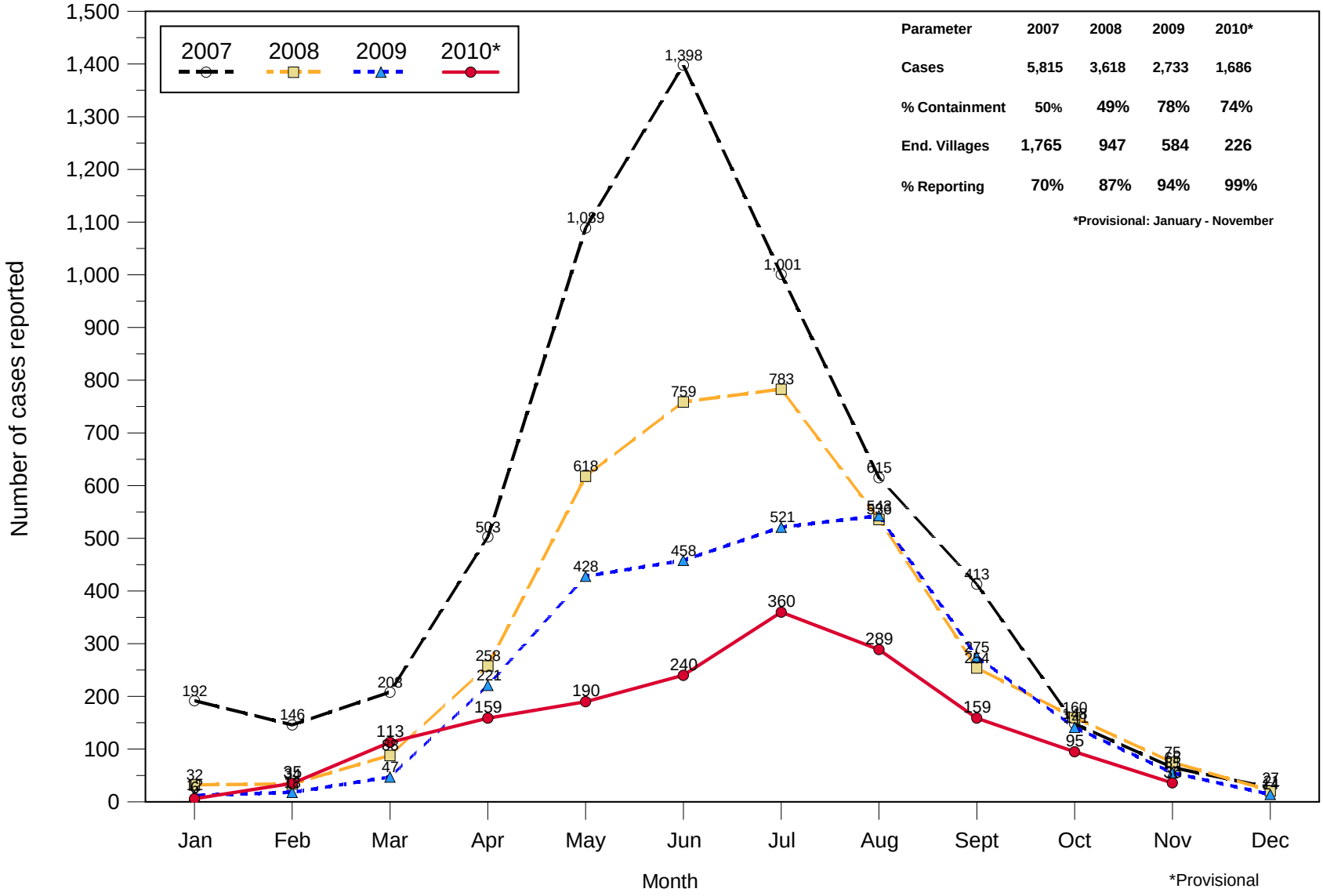
The Integrated Disease Surveillance and Response (IDSR) system being assisted by the World Health Organization (WHO) and the United States Agency for International Development (USAID) as the main means to detect cases in GW-free areas has improved; an average of 57 (71%) of all counties reported in weeks 37-45 of 2010, but needs to improve even more in order to detect any imported cases of GWD in GW-free areas quickly. Of Southern Sudan's 80 counties, 18 still have indigenous transmission of GWD and 62 are considered GW-free. Still urgently needed is a written Plan of Action for implementation, supervision, monitoring and evaluation of surveillance in GW-free areas including standardized protocol and case investigation and cross-notification forms, as well as standard operating procedures for reporting and investigating rumors. The Recommendations from the Program Review are listed below.

The Review, which was attended by about 100 participants, was opened by the Acting Minister of Health, Her Excellency Agnes K. Lasuba, and the Minister of Water Resources and Irrigation, His Excellency Paul Mayoum Akec. Three County Commissioners from Tonj South, Tonj East and Terekeka also attended, as did representatives from WHO, UNICEF and The Carter Center.

As of December 15, 2010, The Carter Center's former deputy Resident Technical Advisor, Mr. David Stobbelaar, replaced the former Resident Technical Advisor, Mr. Alex Jones, who resigned after two

Figure 2

Southern Sudan Guinea Worm Eradication Program
Number of Reported Cases of Dracunculiasis: 2006 - 2010*



Parameter	2007	2008	2009	2010*
Cases	5,815	3,618	2,733	1,686
% Containment	50%	49%	78%	74%
End. Villages	1,765	947	584	226
% Reporting	70%	87%	94%	99%

*Provisional: January - November

Figure 3

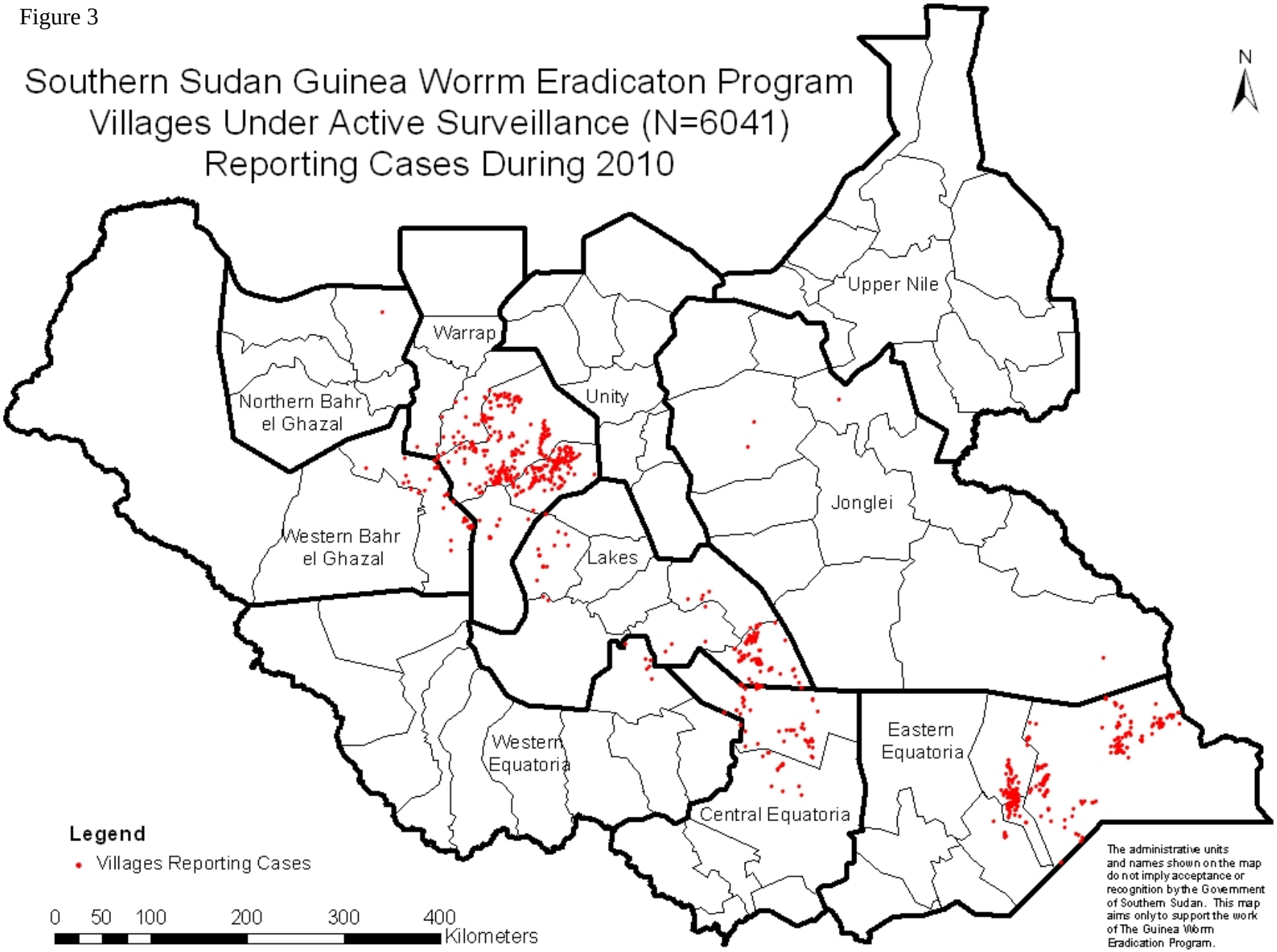
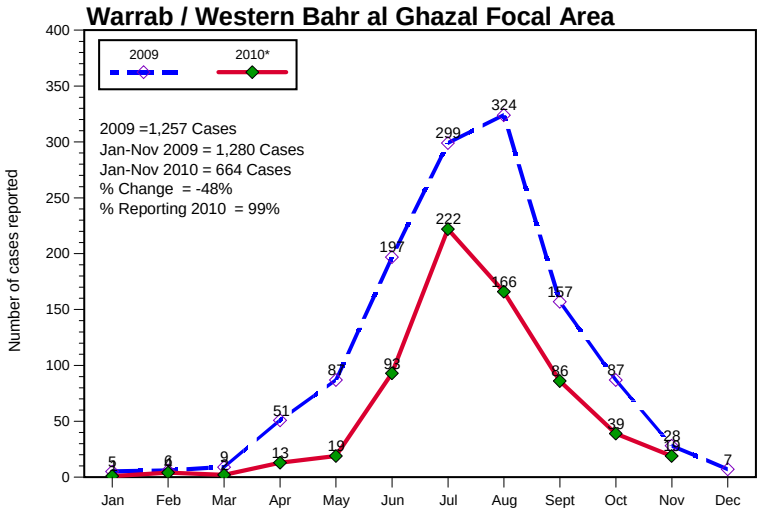
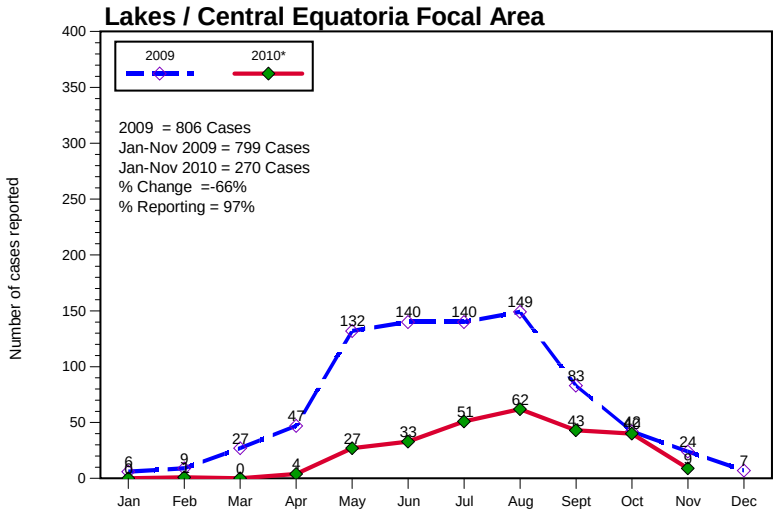
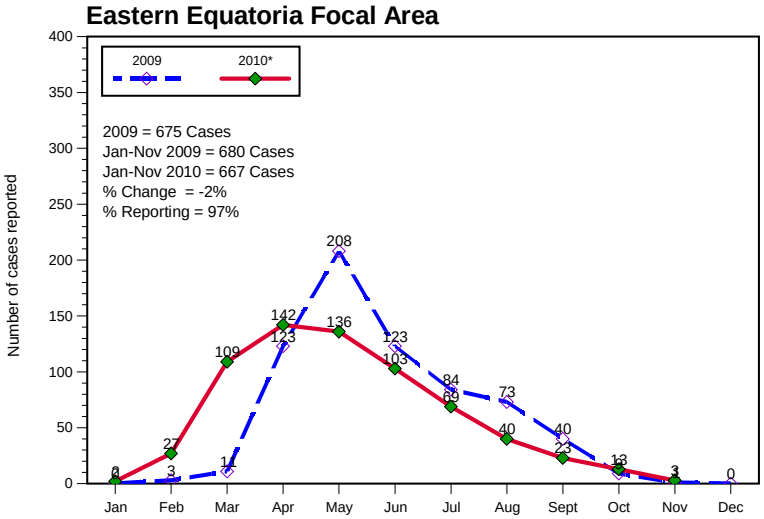

Southern Sudan Guinea Worrm Eradicaton Program
Villages Under Active Surveillance (N=6041)
Reporting Cases During 2010
N
Upper Nile
Warrap
Northern Bahr el Ghazal
Unity
Jonglei
Western Bahr el Ghazal
Lakes
Western Equatoria
Eastern Equatoria
Central Equatoria
Legend
Villages Reporting Cases
0 50 100 200 300 400
Kilometers
The administrative units and names shown on the map do not imply acceptance or recognition by the Government of Southern Sudan. This map aims only to support the work of The Guinea Worm Eradication Program.

Figure 4

Southern Sudan Guinea Worm Eradication Program
Number of Cases of Dracunculiasis Reported From Three Focal Areas During 2009 AND 2010*







* Provisional:January-November

years of intense and heroic efforts. THANK YOU, Alex and welcome to your new position, David! Ms. Jessica Flannery is the new deputy RTA in Juba. Welcome Jessica!

5th Annual SSGWEP Review Meeting Recommendations

1. The Task Force should meet every month, review the progress and plan for subsequent months. Start date of February 1, 2011.
2. The Ministry of Water Resources and Irrigation, with the assistance of the SSGWEP, should write letters to the State Governors of EEQ, Warrap, Lakes States, and the County Commissioners of Tonj North, Tonj East and Tonj South, Kapoeta East, Kapoeta North and Aweriel targeting the 84 highest priority EVs as of 2010 for safe water provision.
3. The Technical Advisors/Program Officers should analyze and investigate with the Field Officers the reasons for non-containment of cases of GWD during 2010 in order to improve containment rates during 2011.
4. The SSGWEP should consider using "Official Pond Protectors" in special locations such as where Abate can not be applied, large water sources, 5+ villages, villages with low filter uptake, and cattle camp populations.
5. The state and county surveillance officers and the SSGWEP at least on a monthly basis should exchange information on the rumors and confirmed guinea-worm disease cases, list of priority villages, villages with GW volunteers.

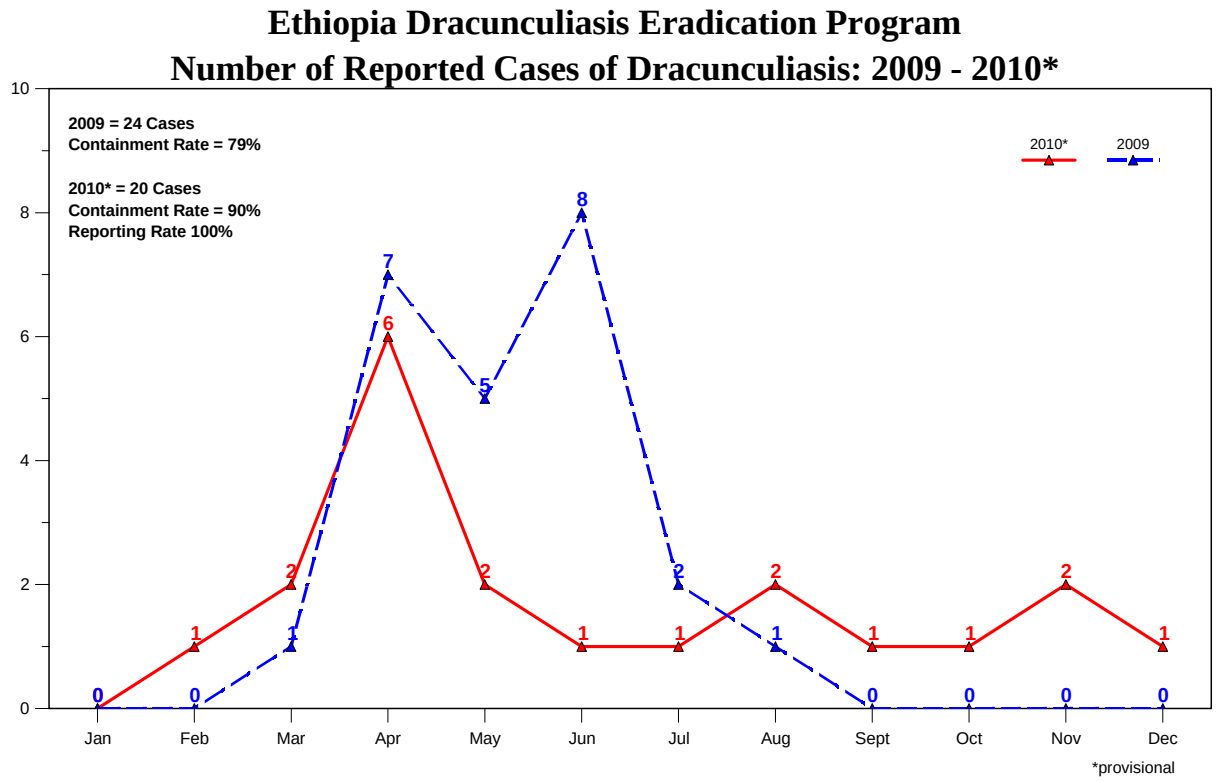
Detect Every Case! Contain Every Worm! Explain Every Source!

ETHIOPIA & MALI: ALMOST THERE

Ethiopia has reported 20 indigenous cases of dracunculiasis in 2010, plus one case imported from Southern Sudan, compared to 24 indigenous cases reported during 2009, for a reduction of 17%.(Figure 5) Cases were reported in eleven months of 2010 (February – December), compared to six months of 2009 (March-August), which suggests the program did not detect all cases of the disease in 2009. The line listing of cases in 2010 is given in Table 1. All 20 indigenous cases were reported from 9 villages in Gog w*oreda* (district) of Gambella Region, including 4 villages that only had cases imported from other communities in the district. (Figure 6: Map)

With 19 (90%) of the 21 cases contained, compared to 79% (19/24 cases) containment rate in 2009, the Ethiopian Dracunculiasis Eradication Program (EDEP) appears to have had tighter control measures as well as better surveillance in 2010. Eighteen of the cases in 2010 were contained in a case containment center. During 2010 the EDEP conducted active surveillance in all 69 villages of Gog District, and all of the endemic villages were covered by health education, cloth and pipe filters, and ABATE® Larvicide. Six of the 9 villages reporting cases had a least one source of safe water. UNICEF plans to help drill five new borehole wells early in 2011, to cover some or all of the five most vulnerable sites remaining: Chayanak, Wichini, and Utuyu villages, and the walking paths between Pugnido Refugee Camp (PRC) and Abawiri village and between PRC and Wichini village. The EDEP held its annual in-country Program Review at Gambella Town on December 30, 2010, and increased the cash reward for reporting a case to 1,000 birr (~US$63) effective January 1, 2011.

Figure 5



Mali has reported 57 cases of dracunculiasis (45 or 79% contained) in 2010, compared to 186 cases reported during 2009, for a reduction of 69%. The 57 cases occurred at 13 sites of indigenous transmission and 8 sites with only imported cases. 53 of the cases were admitted to a case containment center, and 45 of the 57 cases (79%) were contained in a case containment center. This was the third year that Mali has used case containment centers. Patients currently receive 2000 CFA (~US$4) per day to stay at the case containment center, and may also bring a family member (who also receives 2000 CFA per day) to help with chores at the center. ABATE coverage at the endemic sites was 93% and all households in endemic sites have cloth filters. Only 6 cases of GWD were reported from Kidal Region during 2010 (1 from Tessalit and 5 from Kidal Districts), three years after the onset of the outbreak in Kidal Region in 2007 and from where 266 cases were reported in 2008. Due to insecurity, staff from the national program was only able to visit the Kidal Region twice in 2010. So far Mali has had 12 known uncontained cases in 2010.

We note with concern that since 2008 Tominian, Markala, and or Macina Districts of Segou Region reported cases of GWD: 4 from Tominian, and one each from Markala and Macina in 2008; 1 case from Tominian in 2009; and 2 cases, again from Tominian in 2010. The annual recurrence of cases in Segou, presumably originating from Kona Hinberere locality, since 2008 requires attention, as does the uncertain origin of allegedly indigenous single cases of GWD reported from Mopti and Douentza Districts in 2010.

Mr. Jim Ting, who has been The Carter Center's resident technical advisor to the Mali GWEP since 2006 has resigned to accept a position with CDC. The former national coordinator of Niger's GWEP, Mr. Sadi Moussa, will replace him as of January 2011. Thank you, Jim and Welcome Sadi!

Table 1

Ethiopia Dracunculiasis Eradication Program - 2010 GWD Case Follow-Up Summary

Region	Zone	Woreda	Kebele	Village of Detection	Month	Case/ Worm Number	Age	Sex	Date of Guinea worm emergence, and dates patient was monitored for additional Guinea worms												Total Number of Follow-Up Visits	Outcomes/ Findings	Case Contained?
									Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
Gambella	Agnuak	Gog	Pugnido	Agenga	February	1.1	14	F		14/2/2010	4/3/2010 CCC Release 19, 23	2, 4, 21	18, 26	7, 15, 20, 26	2, 11, 16, 24, 30	11, 18, 23		11, 19, 27	3, 11, 17		25	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Agenga	March	2.1 2.2	18	M			8/3/2010 30/3/2010	6/4/2010 CCC Release		9, 16, 18, 24, 28, 31	7, 12, 20, 26	11, 18, 23		11, 19, 27	3, 11, 17, 22		20	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Abiwiri	March	3.1	35	F			17/3/2010	1/4/2010 CCC release 15, 19, 28	17, 24,	15, 19, 23	7, 14, 23	11, 21	10,20,26	1	1, 9, 15, 19, 27		22	Had GWD in 2009. No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Utuyu	April	4.1	60	F				7/4/2010	19/5/2010 CCC Release	18, 23, 27	8, 15, 21, 31	12, 26, 30	4,17,24	11, 19, 26	10, 18, 22		19	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Abiwiri	April	5.1	20	M				16/4/2010	25/5/2010 CCC Release	15, 19, 23	23	11, 21, 25, 31	10,20,26	1, 18, 29	9, 15, 19, 27		18	Often travels to Abobo. No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Agenga	April May	6.1 6.2	18	M				25/4/2010	8/5/2010	13/06/2010 CCC Release 17, 22, 29	3, 12, 20, 26	1, 8, 11, 21, 25, 31	10,20,26	1, 10, 18, 29	9, 15, 19, 27		24	No evidence of an additional worm. Currently in Abiwiri.	YES
Gambella	Agnuak	Gog	Pugnido	PRC Agnuak	April July July	7.1 7.2 7.3	30	M				27/4/2010	19/5/2010 CCC Release 22, 27, 31	10, 17, 28	7/7/2010 14/7/2010	16, 23	13,27	2, 9, 15, 21, 28	2, 8, 13, 23		19	Multiple worms. Readmitted to CCC-4/7/2010. Currently in CCC.	YES
Gambella	Agnuak	Gog	Pugnido	Utuyu	April	8.1	45	M				27/4/2010	11/5/2010 CCC Release	18, 23, 27	8, 15, 21, 24, 31	12, 26, 30	4,17	10, 18, 29	9, 15, 19, 27		20	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Chayanak	April	9.1	40	F				30/4/2010	15/52010 CCC Release	18, 23	9, 16, 22, 28	7, 13, 30	3,17,24	12, 20, 27	11, 18, 22		18	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Weretew	May June June July	10.1 10.2 10.3 10.4	30	F					20/5/2010	13/6/2010 16/6/2010	9/7/2010, 1st CCC Release 24/7/2010	11/8/2010 CCC Release, 17, 20, 23, 26, 31	10,15,23,30	8, 12, 15, 21, 26	9, 18, 23, 30		18	Multiple worms.	YES
Gambella	Agnuak	Gog	Pugnido	Wichini	May	11.1	30	M					7/5/2010	19/6/2010, CCC Release 22, 29	5, 10, 17, 23, 30	16, 21, 23, 26	10,14,17,27	8, 12, 15, 21, 26	9, 15, 23, 30		24	No evidence of an additional worm. Moved to Dimma immediately after discharge and plans to return September 2010.	NO
SNNPR	S. Omo	Nyangatom	Aipa	Lorenkacho	June	1.1	40	F						10/6/2010							Regularl visits by Health Extension Worker	No evidence of an additional worm.	YES

Table 1 (cont.)

EDEP-2010 GWD Case Follow-Up Summary Continued

Region	Zone	Woreda	Kebele	Village of Detection	Month	Case/ Worm Number	Age	Sex	Date of Guinea worm emergence, and dates patient was monitored for additional Guinea worms												Total Number of Follow-Up Visits	Outcomes/ Findings	Case Contained?
									Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
Gambella	Agnuak	Gog	Pugnido	Wichini	June	12.1	34	M						17/6/2010	15/7/2010 23/7/2010 CCC Release 30	16, 21, 23, 26	10,14,17,27	8, 12, 15, 21, 26	9, 16, 23, 29		17	Multiple worms. Currently monitoring a swelling on his leg.	NO
					July	12.2																	
Gambella	Agnuak	Gog	Pugnido	Wichini	July	13.1	60	F							12/7/2010		7/9/2010 CCC Release 10,11,13,14, 16,17,20,23, 24,26,27,29	8, 11, 15, 18, 21, 24, 26	6, 9, 16, 20, 26, 29		25	Multiple worms.	YES
						13.2									15/7/2010								
						13.3									22/7/2010								
						13.4									27/7/2010								
						13.5									29/7/2010								
Gambella	Agnuak	Gog	Pugnido	Abiwiri	August	14.1	35	F								1/8/2010	7/9/2010 CCC Release				0	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Gog Dipach	Wadmaro	August	15.1	40	F								1/8/2010, 8/26/2010 CCC Release	9,11,15,18,23,25	8, 12, 16, 24, 27	7, 10, 17, 25, 27		16	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	PRC Agnuak	September	16.1	38	F									9/27/2010		22/11/2010 Wounds Healed and Sent to Chieng 26, 29		2	Multiple worms. Currently monitoring a swelling on his leg.	YES
						16.2											9/30/2010						
					October	16.3												14/10/2010					
Gambella	Agnuak	Gog	Pugnido	Utuyu	October	17.1	35	F										4/10/2010	10/11/2010 CCC Release			No sign of additional worm	YES
Gambella	Agnuak	Gog	Thatha	Akek Terbuni	November	18.1	60	M											5/11/2010		Currently in CCC	Multiple worms.	YES
						18.2													10/11/2010				
						18.3													6/12/2010				
Gambella	Agnuak	Gog	Pugnido	PRC Agnuak	November	19.1	50	F											23/11/2010		Currently in CCC	Multiple worms.	YES
						19.2													23/11/2010				
						19.3													3/12/2010				
Gambella	Agnuak	Gog	Pugnido	PRC Agnuak	December	20.1	12	M												12/31/2010	Currently in CCC	No sign of additional worm	YES
						20.2																	

UPDATE ON GUINEA WORM OUTBREAK IN CHAD

Chad has reported a total of 10 cases of GWD to the World Health Organization in the outbreak that was discovered during a WHO mission to Chad in July 2010 as part of pre-certification activities. Chad had not reported any indigenous cases of the disease in over ten years. Guinea worms emerged in the current cases in April-November 2010 (Table 2). CDC has confirmed *Dracunculus medinensis* in 5 of the 7 specimens sent to CDC: 2 in August (worms extracted during July-August) and 3 in November (worms extracted during July-September); the other 2 worm specimens also received in November had deteriorated and could not be tested. The cases reside in 7 villages in 5 districts, range in age from 4-60 years old, and are evenly divided between males and females. None of the cases were contained, and they reportedly contaminated water sources in 6 villages in 2010. None of the cases has a known history of travel outside of Chad. The village of Matui, where the first two confirmed cases reportedly drank unsafe water during a funeral in 2009 has not yet reported a single case. The village of Katawa, which is considered the possible source where three other patients were infected last year, has also not reported a single indigenous case this year.

Chad is known to have had poor surveillance for GWD during its ten years in the pre-certification phase. This poor surveillance was noted during an external evaluation in February 2001 at the launch of its pre-certification phase, during a WHO evaluation in 2006, and during an International Certification Team (ICT) visit in December 2008. The sources of contamination in Chad (foci of transmission) in 2009 are unknown. So far there is no evidence of local transmission during 2001-2008, either. WHO issued a written update on this outbreak as of November 19, 2010, and procured excess filter material from Burkina Faso and ABATE from Nigeria in advance of larger supplies secured by The Carter Center for delivery to Chad in December 2010. CDC plans to send two epidemiologists to assist in the investigation of this outbreak from January 24 to February 22, 2011. Given the proximity of these cases in 2010 to the international border, Cameroon is advised to be especially alert to the possibility of imported cases from Chad.

PROGRESS TOWARDS ERADICATION

Six countries reported cases of dracunculiasis during 2010, including Niger with 3 cases imported from Mali, and Chad's 10 cases from an outbreak, the origin of which remains unknown. Sudan's December 2010 report is pending. So far, the provisional tally for 2010 stands at 1,785 cases of GWD reported, 1,329 (74%) contained (Table 3 and Figures 6 and 7). The 1,785 cases reported represent a 44% decrease, compared with 3,171 cases reported during the same period for each country in 2009 (Figure 8).

Table 2

Chad Guinea Worm Eradication Program
Reported Cases of Guinea Worm Disease: 2010*

Patient Number	CDC Specimen Accession Number	Village of Residence	Village Where Case Detected	District	Age	Gender	Date of Detection	Date of emergence of 1st Guinea worm (total worms emerged)	Date case confirmed	Date GW extracted	Contaminated Water	Contained	Travel History: Year, Village and District
1**	PDB10-10	Nanguigoto	Nanguigoto	Guelendeng	60	F	April 2010	04 2010 (2 worms)	April 2010	1-Apr-2010	Yes	No	2008:Mitau Village, Guelendeng District; and Bram Village, Massenia District
2**	PDB10-9	Nanguigoto	Nanguigoto	Guelendeng	27	F	18-Jun-10	18 June 2010 (1 worm)	19-Jun-2010	23-Jun-2010	Yes	No	2008:Mitau Village, Guelendeng District
3		Matassi	Matassi	Massenya	27	F	20-Aug-10	24-Aug-2010 (1 worm)	12-Sept-2010	24-Aug-2010	Yes	No	2005 and 2009:Matassi Village, Mandalia District
4	PDB10-16	Madjafa and Matassi	Abba Limane	Guelendeng	15	M	24-Aug-10	10-Aug-10 (1 worm) Sep 2010 (1 worms)	30-Aug-2010 and Sept 2010	2-Sept-2010 and Sept 2010	Yes	No	2010:Abba Limane Village, Guelendeng District
5**	PDB10-17	Abba Limane since June 2010	Madjafa	Dourbali	25	M	Aug-10	24-Aug-2010 (2 worms)	25-Aug-10	16-Sep-2010	Yes	No	2009:Raihoutou Village, Guelendeng District
6**	PDB10-15	Abourgoui	Abourgui	Dourbali	60	M	2-Sep-10	July-2010 (5 worms)	13-Sept-10	13-Sept-10	Yes	No	1950s ?:Aboukgai Village, Dourbali District
7**	PDB10-19	Moulkou	Moulkou	Guelendeng	4	F	17-Sep-10	17-Sept-2010 (1 worm)	17-Sept-10	23-Sep-2010	Yes	No	2009:Cigague Village, Bongor District
8	PDB10-18	Kakoua	Kakoua	Sarh	9	M	1-Oct-10	1-Oct-2010 (1 worms)	2-Oct-10	11-Oct-2010	Yes	No	
9		??	Sila	Melfi	10	F	1-Oct-10	1-Oct-10 (1 worm)	2-Oct-10	11-Oct-2010	Yes	No	
10		??	Sila	Melfi	42	F	15-Sep-10	15-Sept-10 (2worms)	15-Sep-10	22-Spt-10	Yes	No	

* Provisional

** Worm specimens obtained from these patients were confirmed to be *Dracunculus medinensis* by the Centers for Disease Control and Prevention in Atlanta.

Patients 1 and 4 dates (underlined) are puzzling.

PDB10-15, 17, 19 "preserved" in water

PDB10-16 no specimen in container. However there is an photograph of this patient with a GW emerging from his ankle.

PDB10-18 fixed in formalin

Table 3

Number of Cases Contained and Number Reported by Month during 2010* (Countries arranged in descending order of cases in 2009)

COUNTRIES REPORTING CASES	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													%
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	CONT.
SUDAN	5 / 6	21 / 35	78 / 113	119 / 160	144 / 190	173 / 241	273 / 361	226 / 290	118 / 159	71 / 95	27 / 36	/	1255 / 1686	74
GHANA	2 / 2	3 / 3	1 / 1	1 / 1	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	8 / 8	100
MALI	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	4 / 6	6 / 6	13 / 19	18 / 19	3 / 5	0 / 1	45 / 57	79
ETHIOPIA^	0 / 0	1 / 1	2 / 2	6 / 6	1 / 2	1 / 2	1 / 1	2 / 2	1 / 1	1 / 1	2 / 2	1 / 1	19 / 21	90
CHAD	0 / 0	0 / 0	0 / 0	0 / 1	0 / 0	0 / 1	0 / 1	0 / 3	0 / 1	0 / 1	0 / 2	/	0 / 10	0
NIGER^	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 2	0 / 1	0 / 0	2 / 3	67
TOTAL*	7 / 8	25 / 39	81 / 116	126 / 168	147 / 194	174 / 244	278 / 369	234 / 301	132 / 180	92 / 118	32 / 46	1 / 2	1329 / 1785	74
% CONTAINED	88	64	70	75	76	71	75	78	73	78	70	50	74	
% CONT. OUTSIDE SUDAN	100	100	100	88	75	33	63	73	67	91	50	50	75	

* provisional

^ Ethiiopia reported and imported case from Southern Sudan in June, and Niger reported three imported cases from Mali (2 in October and 1 in November).The origin of cases in Chad is uncertain.

Shaded cells denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were reported and contained that month.

Number of Cases Contained and Number Reported by Month during 2009* (Countries arranged in descending order of cases in 2008)

COUNTRIES REPORTING CASES	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													%
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	CONT.
SUDAN	4 / 12	12 / 18	39 / 47	134 / 221	277 / 428	388 / 458	434 / 521	452 / 543	240 / 275	104 / 141	39 / 55	11 / 14	2134 / 2733	78
GHANA	40 / 45	49 / 50	50 / 52	27 / 28	30 / 34	18 / 19	6 / 7	1 / 1	1 / 1	2 / 3	0 / 0	1 / 2	225 / 242	93
MALI	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	7 / 7	14 / 23	34 / 43	48 / 68	23 / 34	5 / 7	3 / 3	135 / 186	73
ETHIOPIA	0 / 0	0 / 0	2 / 2	6 / 6	2 / 5	6 / 8	2 / 2	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	19 / 24	79
NIGERIA	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0
NIGER	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 2	0 / 1	1 / 1	0 / 0	2 / 5	40
TOTAL*	44 / 57	61 / 68	91 / 102	167 / 255	310 / 468	419 / 492	456 / 553	488 / 588	290 / 346	129 / 179	45 / 63	15 / 19	2515 / 3190	79
% CONTAINED	77	90	89	65	66	85	82	83	84	72	71	79	79	
% CONT. OUTSIDE SUDAN	89	98	95	97	83	91	69	80	70	66	75	80	83	

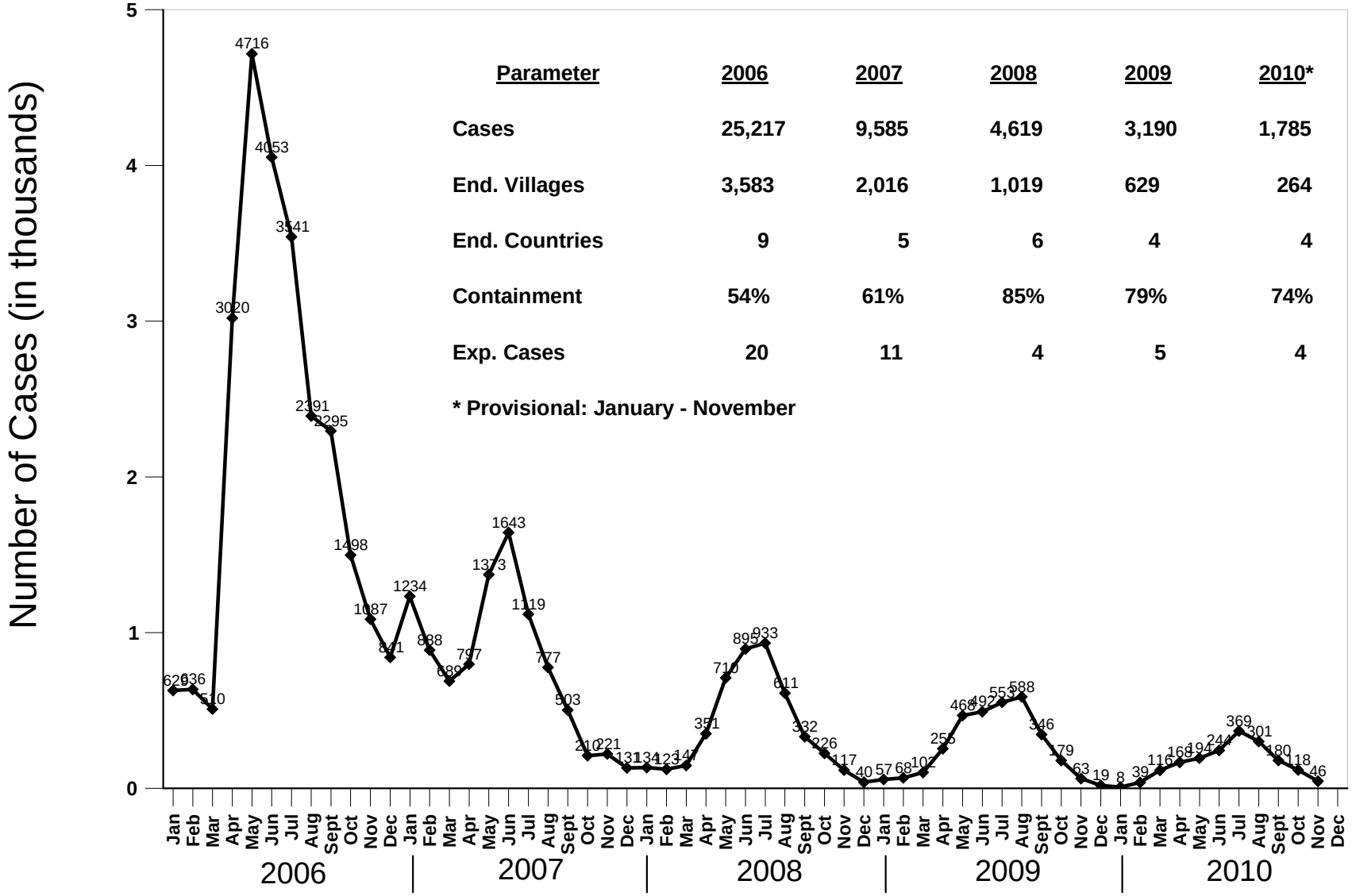
* provisional

^ Niger reported 5 imported cases: 1 from Ghana and 4 from Mali.

Shaded cells denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were reported and contained that month.

Figure 6

Global Number of Reported Cases of Dracunculiasis During 2006 -2010*



Parameter	2006	2007	2008	2009	2010*
Cases	25,217	9,585	4,619	3,190	1,785
End. Villages	3,583	2,016	1,019	629	264
End. Countries	9	5	6	4	4
Containment	54%	61%	85%	79%	74%
Exp. Cases	20	11	4	5	4

* Provisional: January - November

Figure 7

Distribution by Country of 1,781 Indigenous Cases of Dracunculiasis: 2010*

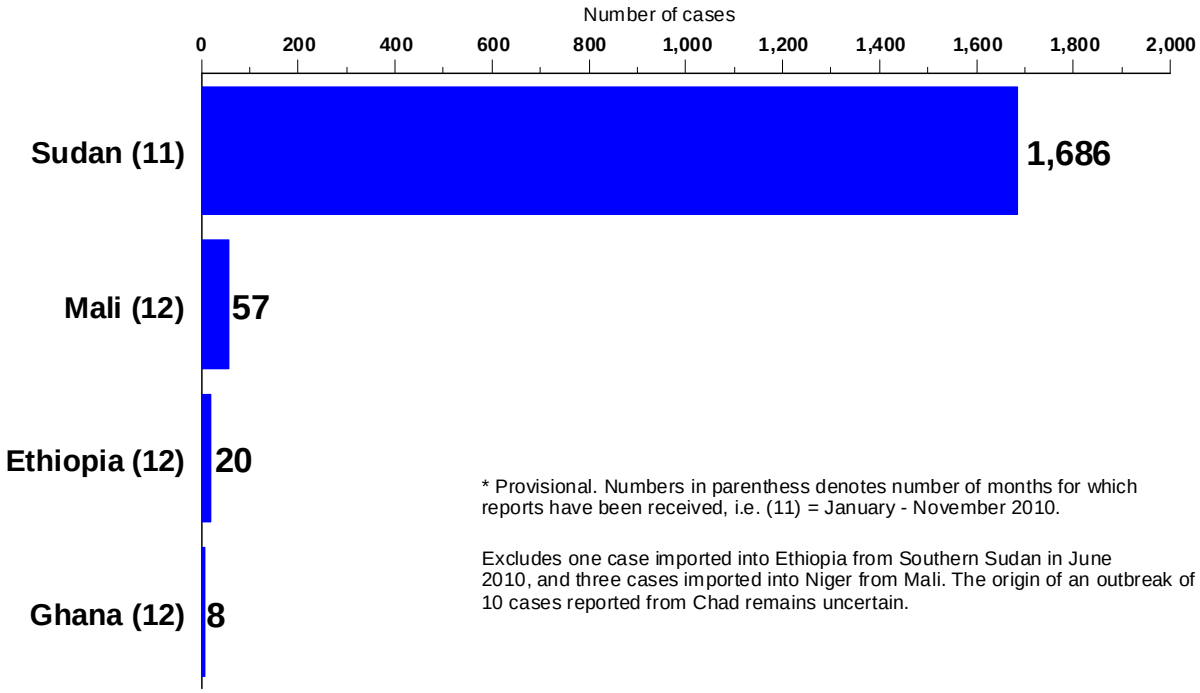
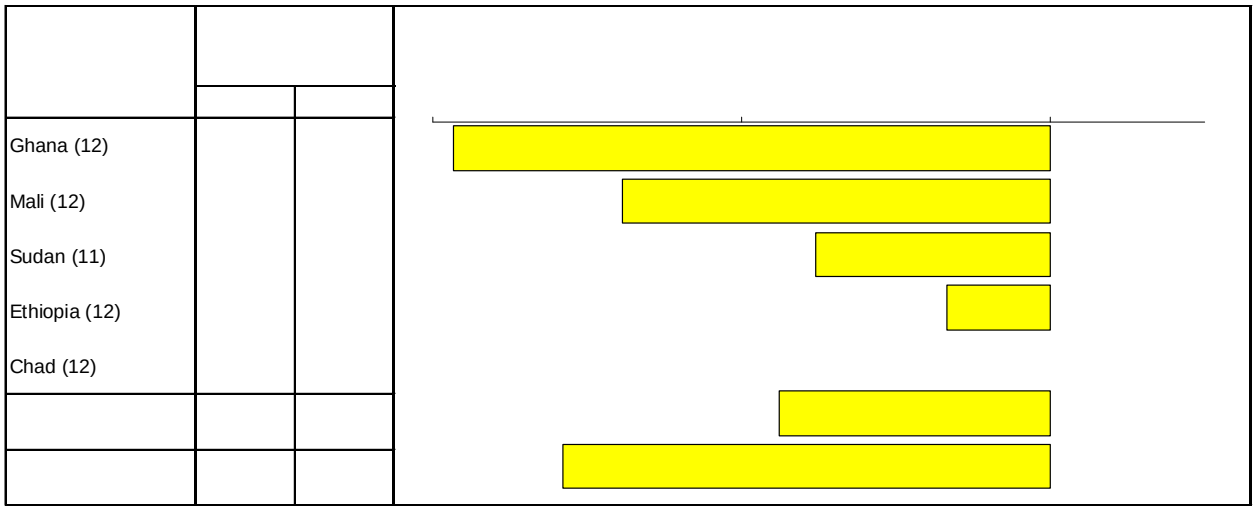


Figure 8

Number of Indigenous Cases Reported During the Specified Period in 2009 and 2010*, and Percent Change in Cases Reported



* Provisional: excludes cases exported from one country to another
(11) Indicates months for which reports were received, i.e., Jan.-Nov..2010*

RECENT DONATIONS FOR GW ERADICATION

The Carter Center is pleased to announce three new pledges received for the Guinea Worm Eradication Program from the Conrad N. Hilton Foundation, Khalifa Bin Zayed Al Nahyan Foundation, and the OPEC Fund for International Development (OFID). These generous gifts will be matched by the Bill & Melinda Gates Foundation on a one-to-one basis as part of the $40 million challenge grant.

Conrad N. Hilton
FOUNDATION

The Conrad N. Hilton Foundation has been a partner to The Carter Center since 1991. The new grant will be used in Ghana and Mali, with residual funding available for Sudan. The Hilton Foundation seeks to alleviate the suffering of the world's most disadvantaged and vulnerable people. Founded in 1944 by hotel entrepreneur and business leader Conrad N. Hilton, the philanthropic organization currently supports strategic initiatives in five priority areas: providing safe water, ending chronic homelessness, preventing substance abuse, caring for vulnerable children, and extending Conrad Hilton's support for the work of Catholic Sisters.

KHALIFA BIN ZAYED AL NAHYAN FOUNDATION
مؤسسة خليفة بن زايد آل نهيان للأعمال الإنسانية

Established in 2007 by the President of the United Arab Emirates, His Highness Sheikh Khalifa bin Zayed Al Nahyan, the Khalifa Foundation is a philanthropic organization with a strategic focus on improving health and education. The Khalifa Foundation supports vocational education projects as well as initiatives addressing poor nutrition, child protection and care, and access to safe water in more than 35 countries worldwide.

OFID
THE OPEC FUND FOR INTERNATIONAL DEVELOPMENT

The OPEC Fund for International Development (OFID) is an intergovernmental development finance institution, established in 1976 by the then-13 member countries of the Organization of the Petroleum Exporting Countries (OPEC). OFID promotes cooperation between its member countries and other developing countries as an expression of south-south solidarity. In particular, it supports the social and economic advancement of low-income countries.

IMPORTANT DATES IN 2011

- January 9: Referendum on Southern Sudan independence
- January 17-25: meeting of WHO Executive Board, at WHO headquarters in Geneva (report and draft resolution on global GWEP)
- January 26: Press event in Accra to announce 2010 results of Ghana's GWEP
- February 15-18: Program Review for GW endemic countries and countries in pre-certification stage, at The Carter Center in Atlanta
- February 17: Carter Center Ceremony to honor interruption of GW transmission in Niger and Nigeria, in Atlanta
- May 16-24: World Health Assembly in Geneva (report, resolution, exhibit and meeting on global GWEP)

DEFINITION OF CASE CONTAINMENT

A case of Guinea worm disease is contained if all of the following conditions are met:

1. The patient is detected before or within 24 hours of worm emergence, **and**
2. The patient has not entered any water source since the worm emerged, **and**
3. The village volunteer has properly managed the case, by cleaning and bandaging until the worm is fully removed, and by giving health education to discourage the patient from contaminating any water source (if two or more emerging worms are present, the case is not contained until the last worm is pulled out), **and**
4. The containment process, including verification that it is a case of Guinea worm disease, is validated by a supervisor within 7 days of the emergence of the worm.

RECENT PUBLICATIONS

Eberhard ML, Ruiz-Tiben E, Korkor AS, Roy SL, Downs P, 2010. Case report: emergence of *Onchocerca volvulus* from skin mimicking *Dracunculus medinensis*. *Am J Trop Med Hyg* 83: 1348-1351.

Hopkins DR, 2010. Progress on neglected disease is most moot if we neglect to count. *Nature Medicine* 16(2): 1358.

Meyer C, 2010. Der Pracsident und der Wurm. *Der Spiegel* 50:118-122.

World Health Organization, 2010. Monthly report on dracunculiasis cases, January-September 2010. *Wkly Epidemiol Rec* 85:495-496.

OBITUARY

KARL KAPPUS, GUINEA WORM WARRIOR (1938-2010)

We report with great sadness and regret the passing of Dr. Karl Daniel Kappus of Atlanta on December 11. Dr. Kappus earned his doctoral degree at Ohio State University by conducting research on mosquitoes, and worked at the Centers for Disease Control and Prevention (CDC) for more than three decades. During his tenure at CDC and for several years after his retirement, he was a valiant warrior in the fight to eradicate Guinea worm disease, helping in particular to develop the strategies for vector control with ABATE®Larvicide, and for case containment. Working in cooperation with CDC and The Carter Center, he trained Guinea worm fighters in Pakistan, Uganda, Nigeria and Ghana, and helped develop the technical manual for use of ABATE in Guinea Worm Eradication Programs. He lived to see the end of Guinea worm disease in all of the countries where he worked, and almost the completion of the global campaign. We extend our condolences to his family.

Inclusion of information in the Guinea Worm Wrap-Up
does not constitute "publication" of that information.
In memory of BOB KAISER

For information about the GW Wrap-Up, contact the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis, CGH, Centers for Disease Control and Prevention, F-22, 4770 Buford Highway, NE, Atlanta, GA 30341-3724, U.S.A. FAX: 770-488-7761.

The GW Wrap-Up web location is http://www.cdc.gov/parasites/guineaworm/publications.html
Back issues are also available on the Carter Center web site English and French are located at
http://www.cartercenter.org/news/publications/health/guinea_worm_wrapup_english.html.
http://www.cartercenter.org/news/publications/health/guinea_worm_wrapup_francais.html

CDC is the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis.

World Health Organization