DEPARTMENT OF HEALTH & HUMAN SERVICES

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

Memorandum

Date: November 17, 2009

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

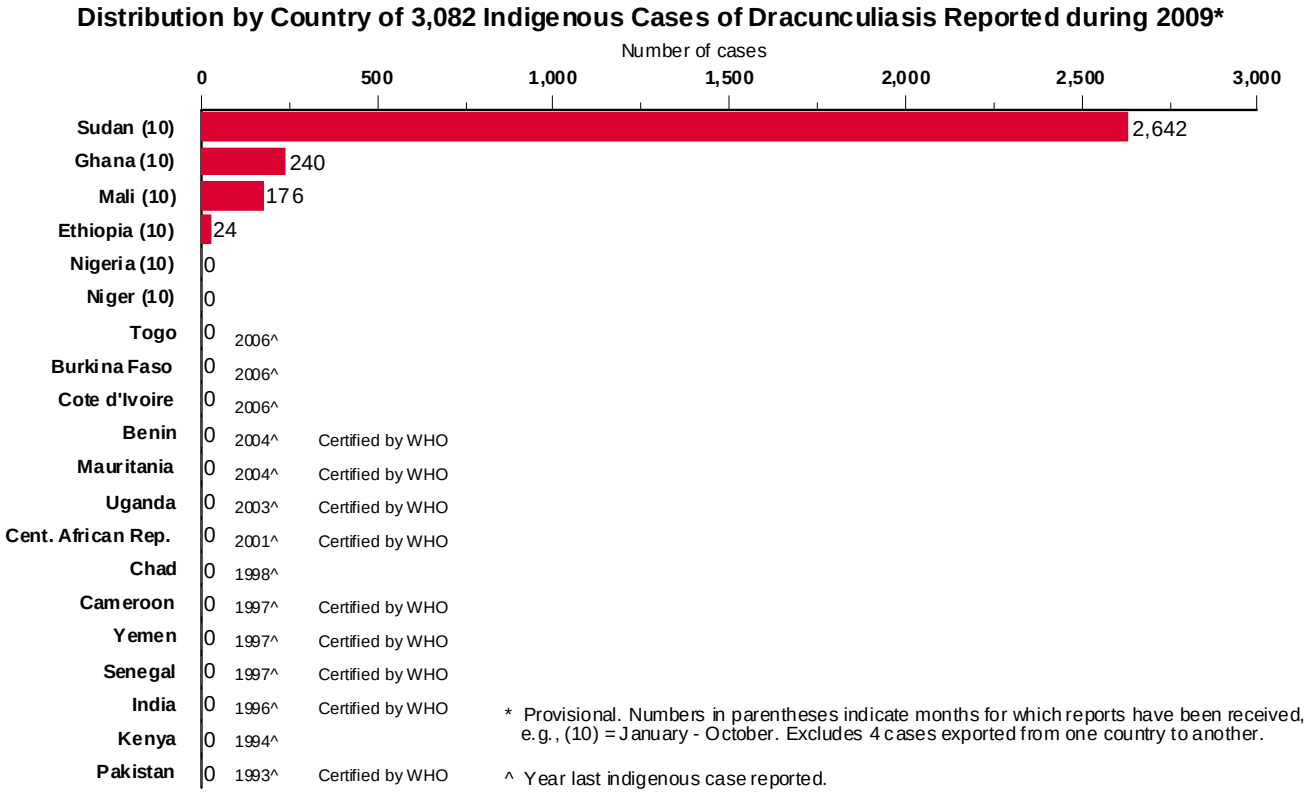
Subject: GUINEA WORM WRAP-UP #193

To: Addressees

3,086 PROVISIONAL CASES REPORTED; STATUS OF REPORTING, RUMORS REPORTED AND REWARDS OFFERED IN FORMER AND CURRENT GUINEA WORM ENDEMIC COUNTRIES.

During January – October the remaining 6 endemic countries (Sudan, Ghana, Mali, Ethiopia, Niger, and Nigeria) reported 3,086 cases of dracunculiasis, including 4 cases imported from one country to another (see Figures 1, 2, and 4, and Table 2). Both Niger and Nigeria reported zero indigenous cases of dracunculiasis during 2009, so far. The status of reporting, rumors reported and rewards offered in former and current Guinea worm endemic countries is shown in Table 3.

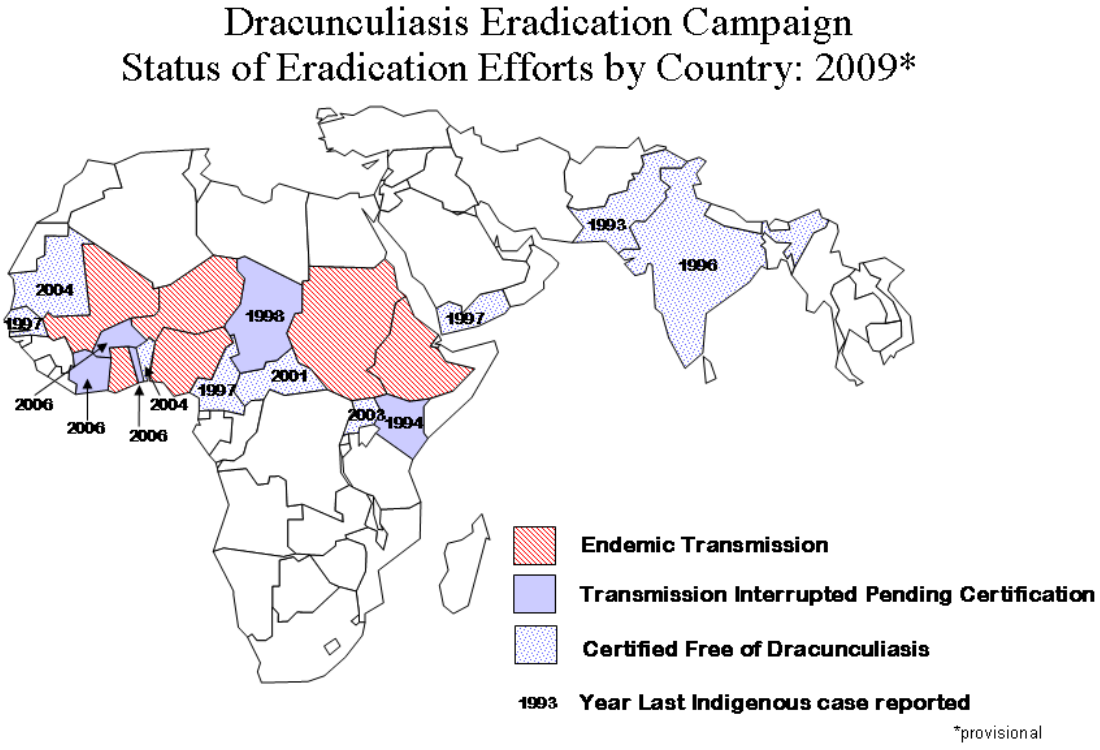
Figure 1



INTERNATIONAL COMMISSION RECOMMENDS CERTIFICATION OF BENIN, MAURITANIA, UGANDA AND FOUR OTHER COUNTRIES

The commission chairman, former Minister of Health of Kuwait Dr. Abdul R. Al-Awadi chaired the Seventh Meeting of the International Commission for the Certification of Dracunculiasis Eradication (ICCDE), which was convened at World Health Organization (WHO) headquarters in Geneva, Switzerland on October 21-23, 2009. After discussing the detailed reports submitted by the national certification committees, as well as the reports by the respective International Certification Team (ICT) that visited each country to verify whether transmission of the disease had indeed been interrupted, the commission members recommended to the director general of WHO that the formerly endemic countries of Benin, Mauritania and Uganda be certified as free of dracunculiasis (Guinea worm disease). The commission decided that the surveillance data and documentation provided by Chad were insufficient, and the findings of the ICT that visited that country to be such that it could not recommend Chad for certification at this time. As stated by commission member Dr. Joel Breman regarding the responsibility of the ICCDE in weighing evidence from all countries, "The absence of evidence is not evidence of absence [of Guinea worm disease]". This meeting of the ICCDE also recommended certification of Cambodia, the Republic of Guinea, the Marshall Islands and Palau, thus bringing the total number of nations and territories that have been certified so far to 187, including nine formerly endemic countries (Benin, Cameroon, Central African Republic, India, Mauritania, Pakistan, Senegal, Uganda, Yemen) (Figures 1 and 2).

Figure 2



"Detect & Report Every Case, Contain Every Worm"

Members of the ICCDE expressed grave concern about three recent incidents, according to which at least one case of dracunculiasis that was exported to Algeria from Mali was treated in at least three public and private medical clinics in Ghardaiia, Algeria in October and November 2008 and not reported to WHO, that four cases imported from Mali were seen at a clinic in Illizi, Algeria in 2007 and a report submitted to a medical journal for publication in November 2007 but no report was made to WHO, and that an alleged case of dracunculiasis was apparently treated at a clinic in Littoral Region of Cameroon early in 2009 and also was not reported to WHO. Both Algeria and Cameroon have been officially certified by WHO as free of dracunculiasis.

In communicating its decisions to the director general of WHO, the ICCDE also drew attention to the continued progress of the global initiative to eradicate dracunculiasis, to the challenge of civil unrest in Southern Sudan, and to the need for WHO to urge all countries that have already been certified as Guinea worm-free to maintain surveillance, investigate suspect cases promptly and report any confirmed cases to WHO immediately.

The members of the Commission also recommended that WHO provide a report and a draft resolution to the World Health Assembly(WHA) in 2010 that summarizes what was achieved following the WHA resolution and the Geneva Declaration on this subject in 2004, which set the goal of interrupting transmission in all (then 12) remaining endemic countries by the end of 2009, and that WHO should convene a meeting of the ministers of health of Ethiopia, Ghana, Mali, and Sudan, with the WHO regional directors for Africa and Eastern Mediterranean during the WHA in May 2010. These latter recommendations of the ICCDE will be considered for decision at the next meeting of WHO's Executive Board in January 2010 (Mauritania, Niger and Uganda are currently represented on the Executive Board).

Several experienced former Guinea Worm Warriors participated in different International Certification Teams whose reports were considered at this meeting. Dr. Issa Degoga of Mali was a member of the ICT that visited Guinea, Dr. L. Theodore Kangoye of Burkina Faso was an ICT member for Benin and Mauritania, Dr. Dama Mana of Cameroon was an ICT member in Benin, Mr. Sadi Moussa of Niger led the ICT in Benin and was a member of the ICT in Uganda, Mr. Georges Ndiaye of Senegal was on the ICTs for Guinea and Mauritania, and Mr. Joshua Ologe of Nigeria was a member of the ICT that visited Uganda.

Months since last indigenous case of dracunculiasis (as of October 2009):
Niger, 12 months; Nigeria, 11 months; Ethiopia, 2 months.

Number of uncontained cases in 2009 (as of October)
Sudan, 471; Ghana, 16; Mali, 49; Niger, 3; Ethiopia, 1; and Nigeria, 0.

NIGER REPORTS ZERO INDIGENOUS CASES DURING LAST 12 MONTHS

October 2009 marked Niger's 12th consecutive month of zero indigenous case reports, signaling interruption of transmission of GWD nationwide. Of course, this achievement remains to be verified by an independent assessment team. Verification of this claim is of particular importance given that four cases were imported into Niger in 2009, so far: 3 from Mali, 1 from Ghana (Table 1 and Figure 3). The case imported from Ghana (an 18 year old female) was detected in urban Niamey and although not contained, no contamination of unsafe

Table 1

NIGER GUINEA WORM ERADICATION PROGRAM
LINE LISTING OF CASES OF DRACUNCULIASIS IN 2009

Case No.	Age	Gender	Ethnic Group	Occupation	Nationality	Origin	Locality case detected	Date Guinea worm emerged	Date case detected	Case Contained	Contaminated sources of water?	Date ABATE applied	Comments
1.1	18	Female	Peulh	Housewife	Niger	Fulfulso Junction, East Gonja District, Ghana	Niamey	10-Mar-09	17-Mar-09	No	No	Not applied	Arrived in Niger in August 2008, after spending 2 years in Ghana (resident in Techiman and Fulfulso Junction, East Gonja District. Married to a Ghanaian. Detected in Niamey by MOH staff, but reported late to the GWEP. Patient did not contaminate sources of drinking water.
2.1	7	Male	Bellah	Koranic student, farmer	Mali	Kamgala, Abanguir, Ansongo District, Mali	Dai Beri, Tillaberi Region	1-Sep-09	7-Sep-09	No	Yes	9 Sept 2009; 6 Oct 2009; and 3 Nov 2009	Arrived in Niger in December 2008. Detected one week after Guinea worm emerged near a pond used for bathing. Admitted having had GWD in 2008 along with other persons in his village, including his mother. Two ponds treated with ABATE
3.1	48	Male	Bellah	Farmer, herder	Mali	Mali	Tezerene (Tintihoune), Tillaberi District	9/22/2009 A Guinea worm emerged while at the Ayerou Health Center.	9/1/2009 suspected of having GWD and hospitalized in Ayerou Health Center	Yes	No	Preventive treatments conducted in August, September and October 2009	According to his tribal chief and other residents of Tintihoune this person travels to Mali on a monthly basis but never reveals exactly where he goes. Patient was uncooperative with GWEP staff trying to obtain a travel history. His immediate family is resident in Mali. Multiple ponds in Tinhoune were treated with ABATE in August, September and October 2009.
4.1	8	Male	Bellah	Koranic student, farmer	Mali	Kamgala, Abanguir, Ansongo District, Mali	Say District, Tillaberi Region	2-Oct-09	16-Oct-09	No	Yes	Not applied to a lake and irrigation canal	Arrived in Niger in December 2008 accompanied by 5 other koranic students. Patient is a laborer in rice fields adjacent to the Niger River. Rice farmers there indicate water from rice fields is not used for drinking, but ricer farmers do use water from the main irrigation canal he contaminated for drinking. The volume of water in this irrigation canal is large and running and could not be treated with ABATE

sources of drinking water was confirmed. Two cases (not contained) imported from Mali were 7 and 8 year old Malian male koranic students, one of whom contaminated running sources of drinking water in a large rice field in Say District that could not be treated with ABATE; while the other also contaminated a source of water in Dai Beri locality in Tillaberi District, but it was treated with ABATE within 14 days. The fourth imported case, a 48 year old male of Malian nationality was detected in Tintihoune Village, Tillabery District and contained, but the origin of his infection remains to be fully ascertained. This person's travel, according to family members, takes him frequently and widely into Mali and back into Niger. He professes to be a farmer and herder, but specifics about his travels during 2008 and 2009 remain a mystery, as he refuses to disclose these details. His base village and family are in Mali, but he also has relatives and other acquaintances in Tintihoune Village, Tillaberi District, of Niger who confirmed his transientness. The last ndigenous case of GWD reported from Niger in October 2008 was also from Tintihoune village and the contaminated sources of water then were promptly treated with ABATE. Whether this person was present in Tintihoune in October 2008 remains to be ascertained as is the likelihood that he would have been the only person infected if the sources were contaminated in 2008. Interviews of the family of this patient in Mali may reveal information regarding the extent of his travels within Mali during 2008-2009.

On Saturday, October 31, 2009 Mr. Sabo Hassane Adamou was decorated by the Governor of Tillaberi Region. Mr. Sabo received a "Temoinage de Satisfaction," for the excellent work and services rendered to the region's effort to eradicate Guinea worm disease. Congratulations!

Figure 3

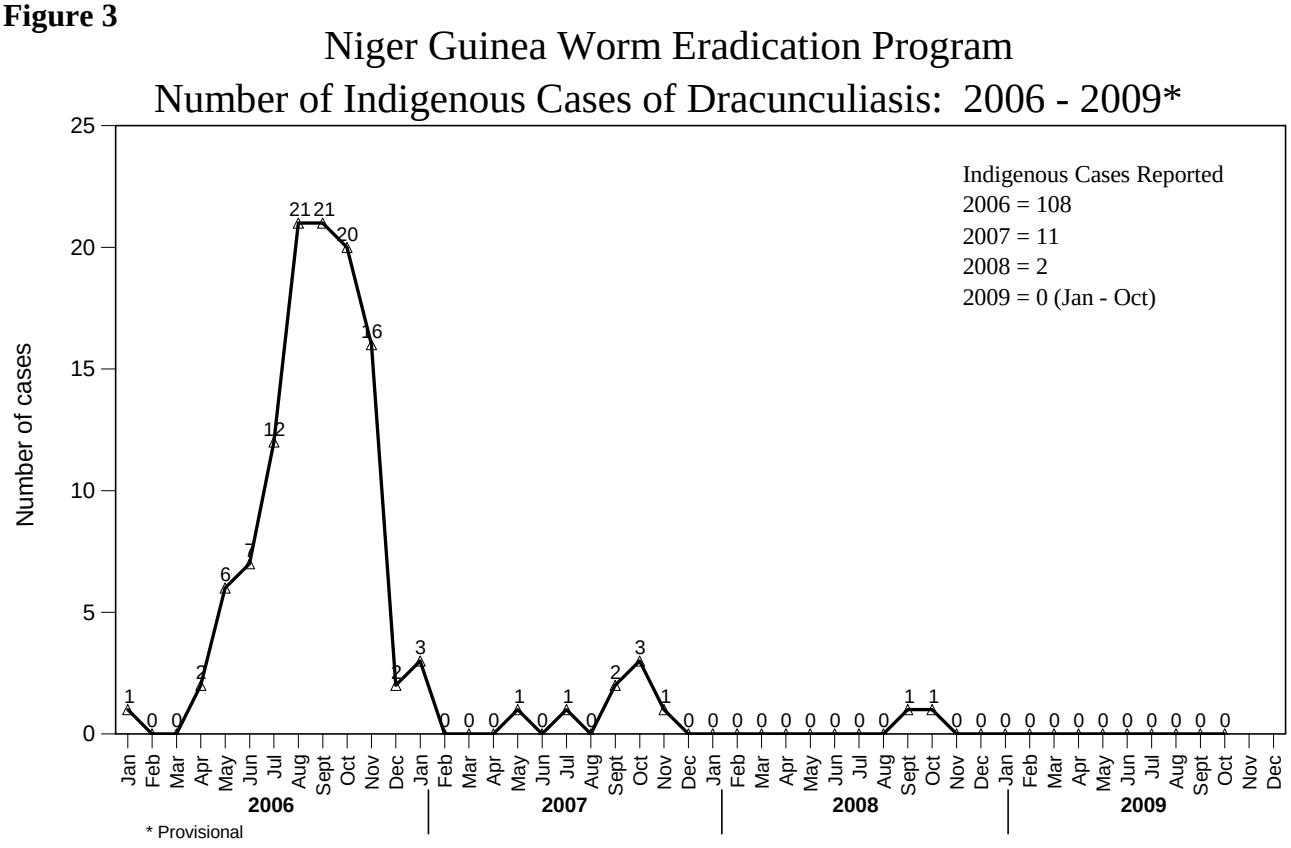


Table 2

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	37 / 47	172 / 224	297 / 434	427 / 464	457 / 524	473 / 549	223 / 273	69 / 97	/	/	2171 / 2642	82
GHANA	40 / 45	49 / 50	50 / 52	27 / 28	30 / 34	18 / 19	6 / 7	1 / 1	1 / 1	1 / 3	/	/	223 / 240	93
MALI	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	7 / 7	14 / 23	34 / 43	48 / 68	23 / 34	/	/	127 / 176	72
ETHIOPIA	0 / 0	0 / 0	1 / 1	7 / 7	5 / 5	7 / 8	2 / 2	1 / 1	0 / 0	0 / 0	/	/	23 / 24	96
NIGERIA	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 / 4	25
TOTAL*	44 / 57	61 / 68	88 / 101	206 / 259	333 / 474	459 / 498	479 / 556	509 / 594	273 / 344	93 / 135	0 / 0	0 / 0	2545 / 3086	82
% CONTAINED	77	90	87	80	70	92	86	86	79	69			82	
% CONT. OUTSIDE SUDAN	89	98	94	97	90	94	69	80	70	63			84	

* provisional

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 2008* (Countries arranged in descending order of cases in 2007)

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	8 / 32	13 / 34	39 / 88	112 / 258	259 / 618	394 / 759	399 / 783	313 / 536	126 / 254	94 / 160	16 / 75	8 / 21	1781 / 3618	49
GHANA	66 / 73	62 / 80	38 / 48	61 / 68	70 / 74	57 / 73	26 / 30	12 / 13	4 / 5	8 / 8	12 / 14	12 / 15	428 / 501	85
MALI	1 / 1	0 / 0	0 / 0	1 / 1	16 / 16	59 / 60	111 / 120	50 / 60	48 / 72	44 / 56	20 / 27	4 / 4	354 / 417	85
NIGERIA	28 / 28	8 / 8	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	38 / 38	100
NIGER	0 / 0	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 1	0 / 0	0 / 0	2 / 3	67
ETHIOPIA**	0 / 0	0 / 0	6 / 10	21 / 23	2 / 2	2 / 3	0 / 0	0 / 2	0 / 0	1 / 1	0 / 0	0 / 0	32 / 41	78
BURKINA FASO	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	100
TOTAL*	103 / 134	84 / 123	84 / 147	196 / 351	347 / 710	512 / 895	536 / 933	375 / 611	179 / 332	147 / 226	49 / 117	24 / 40	2636 / 4619	57
% CONTAINED	77	68	57	56	49	57	57	61	54	65	42	60	57	
% CONT. OUTSIDE SUDAN	93	80	76	90	96	87	91	83	68	80	79	84	85	

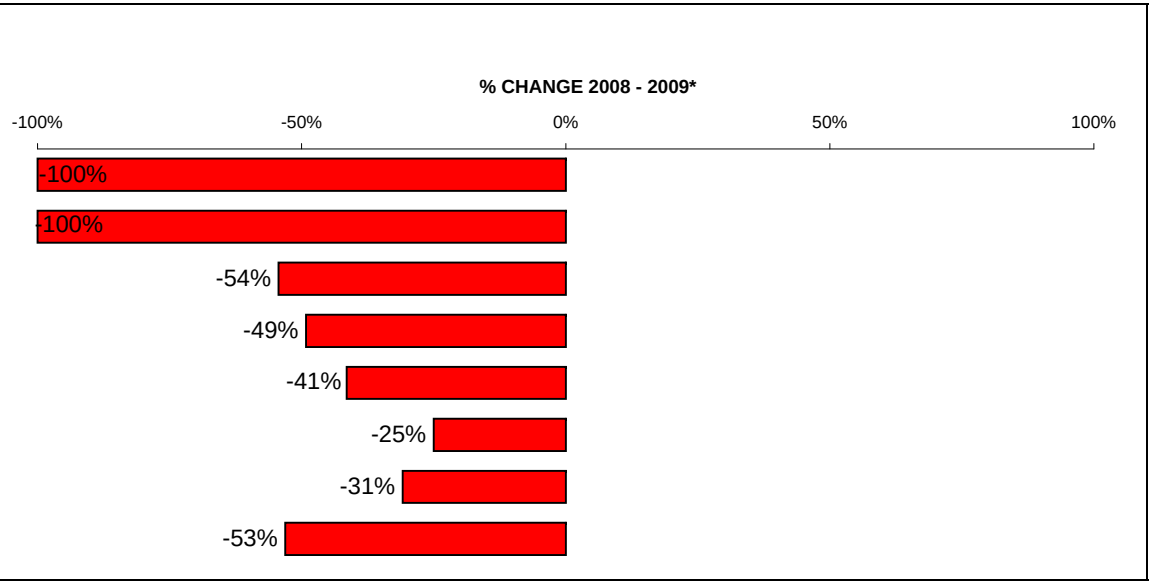
* Includes 6 cases of GWS exported from one country to another.

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

Figure 4

Number of Indigenous Cases Reported During the Specified Period in 2008 and 2009*, and Percent Change in Cases Reported

Country	Indigenous Cases Reported	
	2008	2009*
Nigeria (10)	37	0
Niger (10)	2	0
Mali (10)	386	176
Ghana (10)	472	240
Ethiopia (10)	41	24
Sudan (10)	3522	2642
Total	4460	3082
All countries, excluding Sudan	938	440

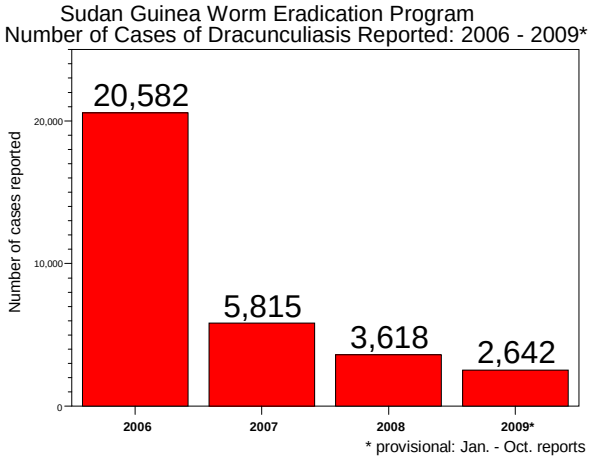


* Provisional: excludes cases exported from one country to another

(10) Indicates months for which reports were received, i.e., Jan. - Oct. 2009

IN BRIEF

Figure 5



Sudan The South Sudan Guinea Worm Eradicaton Program (SSGWEP) has reduced cases of the disease by -25% so far in 2009, to 2,642 cases reported in January-October, of which 82% were contained. The program has experienced 28 security incidents which caused Guinea worm workers to be confined to their homes or evacuated so far this year, including a base office that was burned down in August and another one looted in November. These affected areas reported 2,279 cases, or 63% of all GW cases reported from Southern Sudan in 2008, and 1,279 (50 %) of the 2,533 cases reported during January-September 2009.

Nigeria Former Nigerian Head of State General (Dr) Yakubu Gowon presided at the Opening Ceremony of the Review of Carter Center-assisted health programs in Nigeria (dracunculiasis, onchocerciasis, lymphatic filariasis, schistosomiasis, trachoma, malaria), which was held in Abuja on September 23-25. Participants included the chairman of Nigeria's National Certification Committee on Guinea Worm Disease Eradication (established May 2005), Prof. A.B.O.O. Oyediran and committee members Prof. O.O. Kale, Prof. E.I. Braide, and Prof. L. D. Edungbola, as well as International Task Force for Disease Eradication member Prof. Adetokunbo Lucas. National Program Coordinator Mrs. Ifeoma Anagbogu gave the update on dracunculiasis eradication in Nigeria, noting that Nigeria had by then gone 9 consecutive months with no indigenous case reported – a statistic that was received with much enthusiasm, albeit cautious.

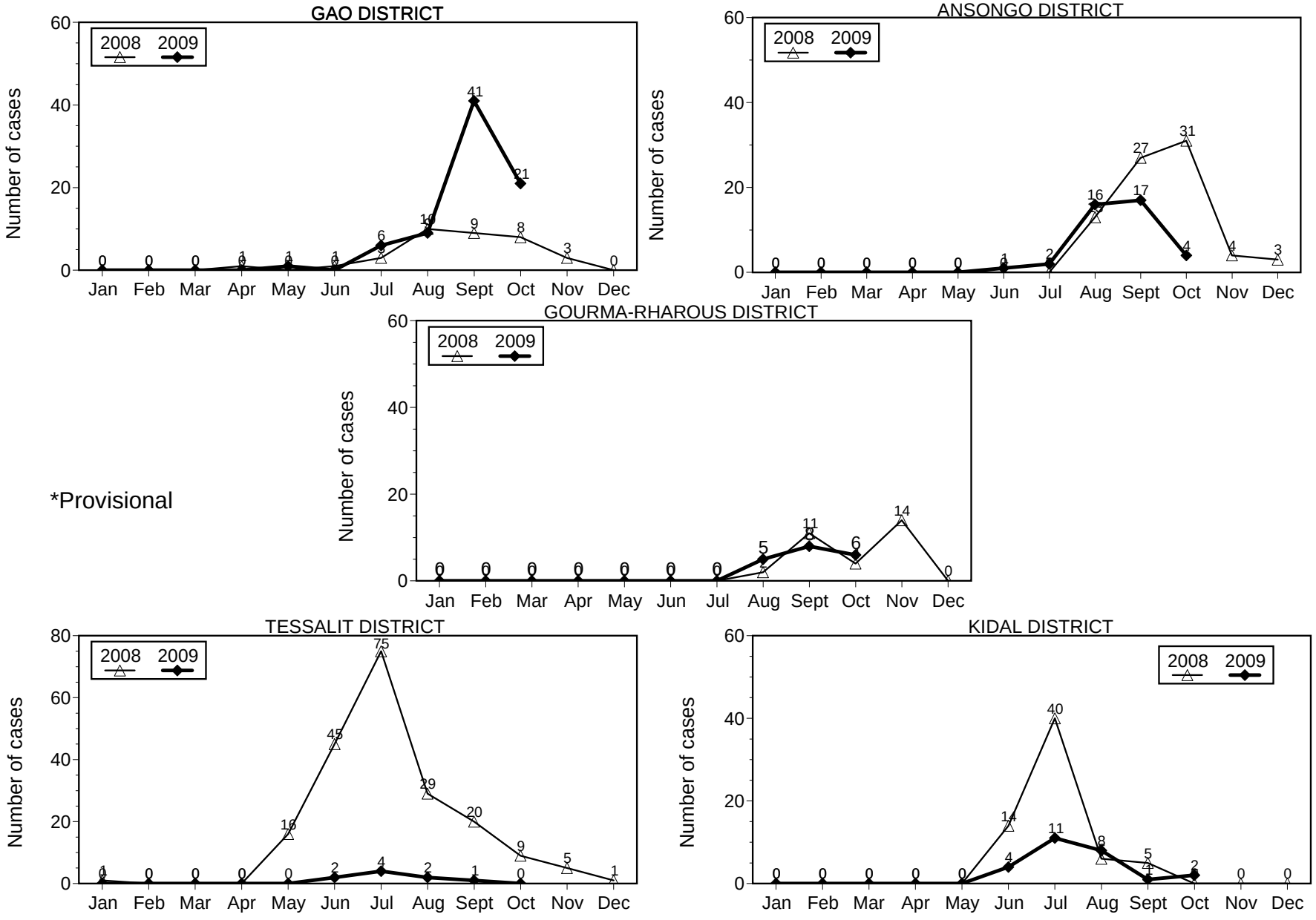
Ethiopia's Dracunculiasis Eradication Program held its annual review and planning meeting in Adama (Nazareth) town, Oromiya Region on October 16-17. The meeting was officially opened by the deputy director general of the Ethiopian Health and Nutrition Institute, Dr. Daddi Jimma. In his remarks, Carter Center country representative Mr. Teshome Gebre contrasted the progress of Uganda, which began its program with 126,000 cases counted in 1991-2 and which is now preparing for certification of elimination of the disease, and Ethiopia, which began with 1,252 cases in 1994, and is still struggling to interrupt transmission. All 24 cases reported so far in 2009 were admitted to one of five case containment centers that were operational in 2009 at Gambella health center, Abobo health center, Pugnido health center, Gog Janjor, And Gog Dipatch, and all but one were reportedly contained successfully.

Mali During January-October 2009 Mali reported 176 cases of GWD, and 127 cases (72%) met the containment criteria, a -54% reduction in cases from the 386 cases reported during the same period in 2008. Transmission was contained from all 127 contained cases at a case containment center. Kidal Region reported 266 cases of GWD in 2008, but reported only 34 cases in 2009, so far, a reduction of -87%. Gao Region reported 118 cases in 2009, a 13% increase from the 104 reported during the same period in 2008. Figure 6 shows the cases reported by month by district during 2008 and 2009. The districts of Ansongo, Gourma Rharous, Tessalit, and Kidal combined reported 375 cases in 2008 versus 94 cases in 2009, a reduction of -75%. However, during 2009 Gao District reported 78 cases (a result of an unexpected outbreak in Doro Zone), an increase of 144%, compared to 32 cases reported during the same period in 2008.

Figure 6

Mali Guinea Worm Eradication Program

Reported cases of dracunculiasis by District by month: 2008 - 2009* (January - October)



*Provisional

Table 3

STATUS OF REPORTING, RUMORS*, AND REWARDS IN FORMER AND CURRENT GUINEA WORM-ENDEMIC COUNTRIES: OCTOBER 2009

COUNTRY	REPORTING	RUMORS	REWARDS	
	% of expected units/month	# of rumored GW cases/year	Amounts	% knowledge of GW rewards
Sudan	47 GW-free Counties (assuming 77 Counties)?	705 of 711 rumors reported during April-September were investigated in 14 GW-free Counties and two military areas; 26 of those rumors were confirmed as cases of GWD.	NYI	ND
Ghana[1]	Base = 177 districts in 10 regions: % of 164 districts 8 regions now free of GWD	84 rumors reported as of September 2009 from GW free areas;5 (6%) were confirmed as cases of GWD.	NYI	ND
Mali[2]	Base = 50 districts in 8 regions: % of 45 districts and 5 now free of GWD?	11 rumors investigated in 4 regions free of GWD during 2009. None were confirmed as cases of GWD.	5,000 CFA (~US$ 12) per confirmed case; 5,000 CFA for informant; 5,000 CFA for village volunteer; 2,000/day to patient (~US$ 5) if hospitalized.	ND. Messages about rewards disseminated via some local radio stations in all regions.
Ethiopia	Base = 810 Woredas: % of 809 woredas in regions free of GWD?	25 rumors investigated; 2 confirmed as GWD.	100 Birr (~US$8) per confirmed case in Gambella Region; 500 Birr (~US$ 42) per confirmed case elsewhere in Ethiopia.	ND. Messages about rewards disseminated via some local radio stations in Gambella Region, but mostly person to person..
Nigeria	* 84% reporting during January-July 2009 from 50 GW-free villages that had cases between 2005-2008. Base = % of 770 Local Government Areas?	480 rumors investigated in 2008; none confirmed as GWD. 192 rumors investigated during 2009 so far; none confirmed as GWD.	Naira 10,000 (~US$ 66) per confirmed case of GWD	51% of 2,076 randomly selected respondents from all endemic zones of Nigeria knew about the rewards announced through radio broadcasts; 83% aware through radio and other means (2006 data)
Niger	Base = 26 districts in 8 Regions: % of 26 GW-free districts?	162 rumors investigated during 2009 from 6 of 8 regions: one confirmed as GWD.	5,000 CFA per confirmed case; 2,000 CFA for informant; 2,000 CFA/day if hospitalized.	ND. Messages about rewards disseminated via 7 regional radio stations, national radio and TV, and 61 community radios in 7 Regions.
Benin	??	6 (avg. 2006-2008); zero rumors reported during 2009, so far.	10,000 CFA for confimed indigenous case; 1,000 CFA for confirmed imported case.	52% (Apr. 2008 ICT survey)
Burkina Faso		21 rumors investigated as of October 209; None were cofirmed as GWD	NYI	ND
Cameroon	92% (2008)	2 (2007)	Mayo Sava Divison: CFA 23,000 (~ US $54) per patient (confirmed indigenous case. No reward, if imported) ; 4,000 CFA for the informant; 10,000 CFA for the Health Center: 40,000 for the village reporting the case (if case is indigenous), 10,000 for the village (if case is imported). Elsewhere in Cameron: CFA 23,000 CFA per patient (confirmed indigenous case); 3,000 CFA if patient is an imported case; 4,000 CFA for the informant; 10,000 CFA for the Health Center: 40,000 for the village reporting the case (whether case is indigenous or imported).	ND
Chad	??	2 (avg.2004, 2006-2007); 2 rumors investigated during 2009, but none were confirmed as GWD.	10,000 CFA for confimed indigenous case in Salamat Prefecture only.	31% (Dec 2008 ICT survey)
Mauritania	60%	3.8 (avg.2002-2007)	50,000 Mauritanian Oguiya for confirmed case (~US$ 195).	8% (Feb 2009, ICT survey)
Uganda	100%	6.8 (avg. 2004-2008); 5 rumors investigated as of September 2009, but none were confirmed as GWD.	100,000 Ug. Shilling (~US$61) for confirmed indigenous case; 50,000 Ug.Shillings (~US$31) for confirmed imported case.	59% (Aug 2009 ICT survey)

ICT = International Certification Team ND = no data. NYI = not yet implemented

* A rumor is defined as information received by the national GWEP about person with alleged GWD; a suspect case of GWD is a person with a signs or sypmtoms suggestive of GWD; the person does not become a case of GWD until the emerged Guinea worm and associatec skin lesion are evident and confirmed by an experienced public health official.

[1] 2,566 suspected cases, some as result of rumors were investigated in Northern Region; 240 were confirmed as GWD

[2] 51 suspected cases, some as a result of rumors were investigated in GW endemic areas; 11 were confirmed as GWD.

Ghana Reported three cases in October, one contained, one pending containment, and one not contained, from Tidrope Village, Central Gonja District. Only 12 cases have been reported from Ghana during July-October 2009.

WHO SUPPORT FOR COLLABORATING CENTER AT CDC

WHO will provide $20,000 to the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis at the Centers for Disease Control and Prevention, to help support continued morphologic and molecular evaluation of specimens from suspected Guinea worm patients in endemic or formerly endemic areas, which are used to determine whether the material is *Dracunculus medinensis* or not. The funding will also allow continuation of work already underway on the genome of the parasite.

TRANSITIONS

The Carter Center staff at CDC will move to a new office facility near The Carter Center as of December 15, 2009. The new contact information is shown below.

New mail address: 453 Freedom Parkway, Atlanta, Georgia 30307

Office email and line telephone:

Ernesto Ruiz: email eruizti@emory.edu; Telephone: (404) 420-3892.

Renn Doyle: email rdoyle@emory.edu; Telephone: (404) 420-3890.

Office main fax line: (404) 420-3881

MEETINGS

The South Sudan Guinea Worm Eradication Program will hold its annual review on Dec. 8-9, 2009 in Juba, Sudan.

The next meeting of the Executive Board of the World Health Organization will be held at WHO headquarters in Geneva, Switzerland on January 18-23, 2010.

The 63rd World Health Assembly will meet in Geneva, Switzerland on May 17-22, 2010.

A Cross-Border Meeting between the GWEPs of Sudan, Ethiopia, Uganda and Kenya will be held in Juba, Southern Sudan during November 18-19, 2009.

RECENT PUBLICATIONS

Agbaegbu T, 2009. It's bye bye to Guinea worm. Newswatch Oct 12: 59.

Hopkins DR, Ruiz-Tiben E, Eberhard ML, Roy S, 2009. Progress toward global eradication of dracunculiasis, January 2008-June 2009. MMWR 58(40):1123-1125

Hopkins DR, 2009. Dracunculiasis. In: "American Academy of Pediatrics," Atlas of Pediatrics in the Tropics and Resource-limited Settings", Jonathan M. Spector and timothy E. Gibson, Eds Elk Grove Village: IL American Academy of Pediatrics, pp 87 – 92. An electronic version of this chapter is posted on the Carter Center website at http://www.cartercenter.org/resources/pdfs/news/health_publications/guinea_worm/AAP-dracunculiasis.pdf.

Lodge M, 2009. Chasing the worm: scientist's hope to chase guinea worm disease into the annals of history. British Med J 339:716-717.

World Health Organization, 2009. Monthly report on dracunculiasis cases, January-August 2009. Wkly Epidemiol Rec 84(44):466-467.

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, NCZVED, 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/ncidod/dpd/parasites/guineaworm/default.htm

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