DEPARTMENT OF HEALTH & HUMAN SERVICES

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

Memorandum

Date: August 30, 2010

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

Subject: GUINEA WORM WRAP-UP #199

To: Addressees

Detect Every Case! Contain all transmission! Explain every source!

43% REDUCTION IN GLOBAL CASES THROUGH JULY

Provisional data show a total of 1,129 cases reported from the four remaining endemic countries (Sudan, Ethiopia, Ghana, Mali) in January-July 2010, which is 43% fewer cases than the 1,994 cases that were reported during the same period of 2009. 75% of this year's cases have been contained so far, versus 78% of cases in January-July 2009. Figure 1 and Table 1 indicate the number of cases reported by country during January- July 2010. Sudan accounts for 98% of this year's reported cases, whereas Ghana, Mali and Ethiopia combined account for only 28 cases, a reduction of 90% from the 289 cases they reported during the same period in 2009 (Figure 2).

Figure 1

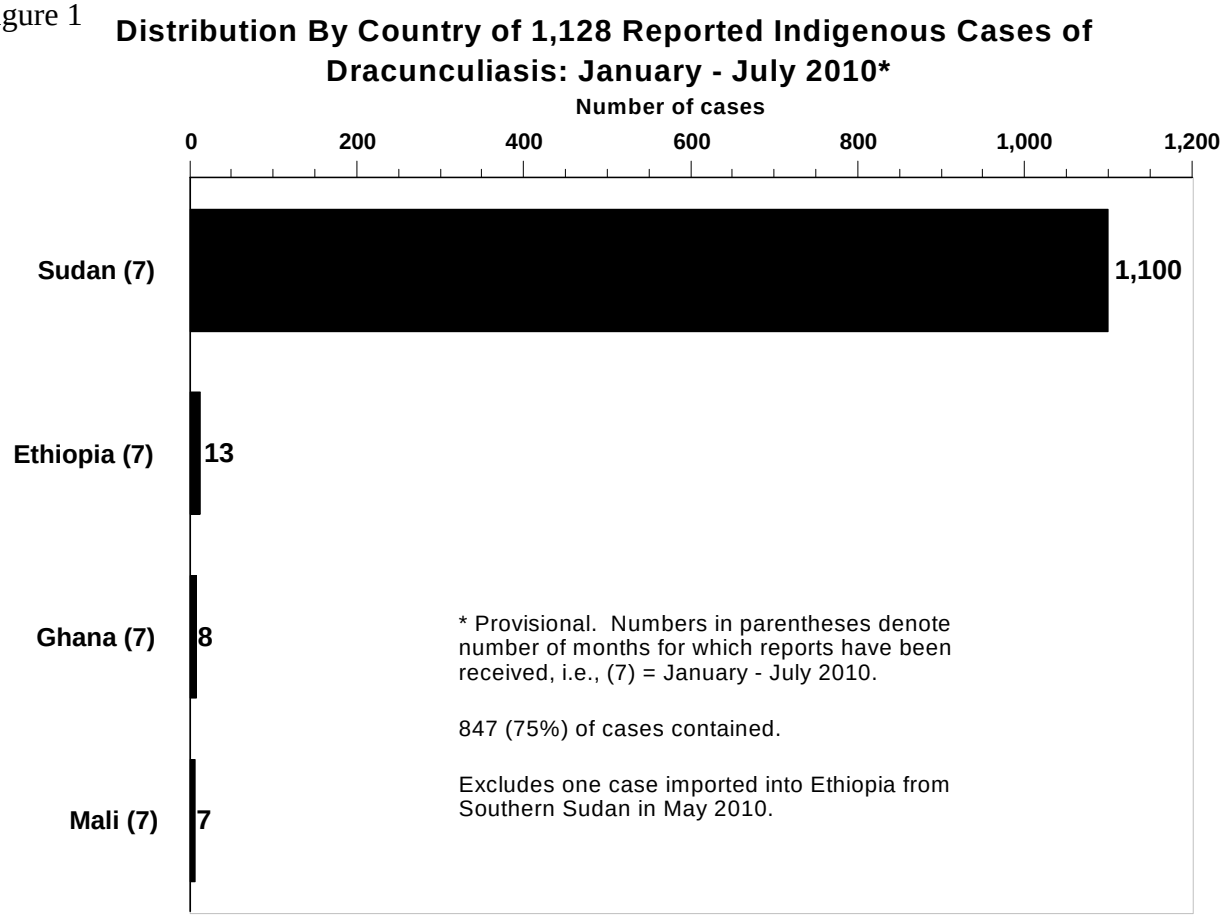


Table 1

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	6 / 7	22 / 34	79 / 102	119 / 161	148 / 200	177 / 242	271 / 354	/	/	/	/	/	822 / 1100	75
GHANA	2 / 2	3 / 3	1 / 1	1 / 1	1 / 1	0 / 0	0 / 0	/	/	/	/	/	8 / 8	100
MALI	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	4 / 6	/	/	/	/	/	5 / 7	71
ETHIOPIA	0 / 0	1 / 1	2 / 2	6 / 6	2 / 3	0 / 1	1 / 1	/	/	/	/	/	12 / 14	86
TOTAL*	8 / 9	26 / 38	82 / 105	126 / 168	152 / 205	177 / 243	276 / 361	/	/	/	/	/	847 / 1129	75
% CONTAINED	89	68	78	75	74	73	76						75	
% CONT. OUTSIDE SUDAN	100	100	100	100	80	0	71						86	

* 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 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	

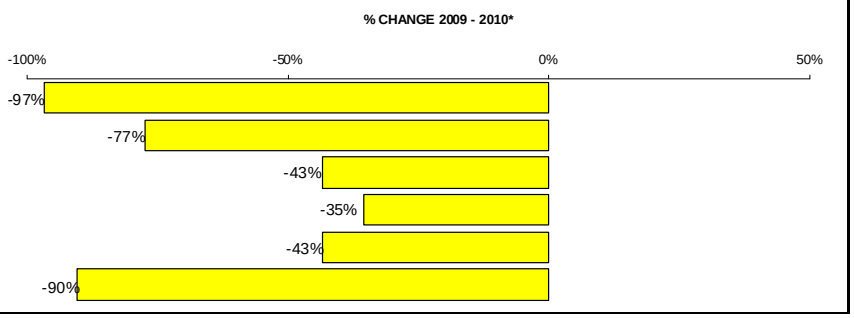
* provisional

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

Figure 2

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

Country	Indigenous Cases Reported	
	2009	2010*
Ghana (7)	235	8
Mali (7)	31	7
Ethiopia (7)	23	13
Sudan (7)	1705	1100
Total	1994	1128
All countries, excluding Sudan	289	28



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

Sudan has provisionally reported 1,100 cases so far this year, of which 75% have been contained. This is a reduction of 35% in cases from the same period of 2009. There have been 15 security incidents that disrupted Guinea worm activities in January-July this year, compared to 24 such incidents in the same period of 2009. So far this year, the Southern Sudan Ministry of Water and UNICEF have successfully provided safe sources of drinking water to villages that reported 17% of all cases in Southern Sudan in 2009. Dr. Ernesto Ruiz-Tiben of The Carter Center and Dr. Gautam Biswas of the World Health Organization made a supervisory visit to Southern Sudan during July 16-24, 2010.

Ethiopia has reported 13 indigenous cases in nine villages so far in 2010, a reduction of 43% from the 21 cases reported in January-July 2009. Twelve (86%) of this year's cases have been contained. An additional case was imported into South Omo, or SNNP Region, in July and is being investigated by the World Health Organization (WHO). Four new borehole wells have been drilled by Samaritan Purse, with support of the Spanish government, including in Abwiri and Weretew, which have reported six of this year's cases. All indigenous cases are in the "Guinea Worm Triangle":Abiwiri-Pugnido Refugee Camp-Wichini. All villages with cases have received health education, all have cloth filters in 100% of households, all are being treated with ABATE@Larvicide, and 6 villages (67%) have 1+ safe source of water. Pipe filter coverage is 62%. Both uncontained cases live in Wichini. Several ponds along walking paths between the villages are suspected sites of transmission. 71 villages are under active surveillance in Gog Woreda. President and Mrs. Jimmy Carter discussed the program with Ethiopian Minister of Health Dr. Tedros Adhanom Ghebreyesus during a brief visit to Addis Ababa on July 13, 2010. Dr. Ernesto Ruiz-Tiben made a supervisory visit to this program, including to Gog Woreda in Gambella Region, in June.
All 13 indigenous cases of GWD in 2010 have been detected in Gog Woreda and each has been monitored prospectively by program supervisors to ensure detection and immediate containment

Table 2

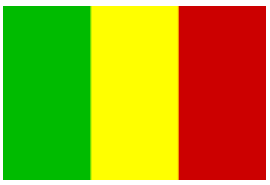
ETHIOPIAN DRACUNCULIASIS ERADICATION PROGRAM: PROSPECTIVE MONITORING OF CASES OF GWD DURING JANUARY - JULY 2010

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						16	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						10	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	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						7	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						4	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						7	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						6	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	18, 23, 27	8, 15, 21, 24, 31						8	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						6	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 24/7/2010						0	Multiple worms. Currently in CCC.	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						7	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							Daily visits by Health Extension Worker	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Wichini	June July	12.1 12.2	34 34	M M						17/6/2010	15/7/2010 23/7/2010 CCC Release						1	Multiple worms.	
Gambella	Agnuak	Gog	Pugnido	Wichini	July	13.1 13.2 13.3 13.4 13.5	60	F							12/7/2010 15/7/2010 22/7/2010 27/7/2010 29/7/2010						0	Multiple worms. Currently in CCC.	PENDING

Underlined dates, i.e., 17/3/2010 = date Guinea worm emerged.

1 - 31 in calendar cells indicate date of month visits took place

of any additional Guinea worms emerging subsequently. A total of 25 Guinea worms were extracted from the 13 patients with GWD (Table 3).



Mali has reported 7 cases, of which 5 (71%) were contained, in January-July this year, for a 77% reduction compared to 31 cases reported in January-July 2009. The 7 cases were reported from 5 villages: 3 cases from 2 villages in Kidal District, 1 case from 1 village in Tessalit District, and 3 cases from 2 villages in Gao District. Transmission from the two uncontained cases so far this year was prevented as all available water sources associated with these cases were treated with ABATE® larvicide soon after the worms emerged. The peak transmission season for dracunculiasis in Mali is June-October.

Ghana has reported 8 cases, all contained, in January-May 2010, and zero cases in June and July, for a reduction of 97% (!), compared to January-July 2009. At the program's mid-year review on July 27-28, Minister of Health Dr. Benjamin Kunbuor announced a cash reward of 30 Ghana cedis (~US$22) for reporting a case of dracunculiasis. The minister also announced formation of a 13 member National Certification Committee that will be chaired by former national program coordinator Dr. Sam Bugri. Available funding for this program in 2011 includes $350,000 by the Government of Ghana, $530,000 by WHO, and up to $1,200,000 by The Carter Center. Drs. Gautam Biswas and Alhousseini Maiga from WHO, and Mr. Craig Withers and Ms. Kelly Callahan from Carter Center headquarters attended the mid-year review in Accra. The number of cases reported by month from Ghana during January 2006- July 2010 is shown in Figure 4.

Table 3

STATUS OF SURVEILLANCE IN GUINEA WORM – FREE AREAS OF SUDAN, GHANA, MALI AND ETHIOPIA

Number of Districts[1] Free of Guinea Worm Disease (non-endemic), Percent of Districts Reporting Monthly, Number of Rumors Received, Percent of Rumors Investigated, Number Residents Sampled, and Percent of Residents Sampled with Knowledge About the Need to Report GWD

January - July 2010									
Country	Guinea Worm - Free Districts[1]		Rumors of Alleged Cases of GWD Received from Non-Endemic Districts			Knowledge Among Residents			
						About the Need to Report GWD		About Reward for Reporting GWD [2]	
	Number	% Reporting Monthly [4]	Number of Rumors Received	% of Rumors Investigated [5]	Number of Rumors Confirmed as GWD	Number of Residents Sampled.	% of Residents with Knowledge About the Need to Report GWD	Number of Residents Sampled.	% of Residents with Knowledge About a Reward for GWD
Sudan	29	89%	132	88%	11	NR	NR	NR	NR
Ghana	162	46%	20	100%	0	NR	NR	NR	NR
Mali	42	33%	5	100%	0	NR	NR	NR	NR
Ethiopia	733	100%	7	86%	0	19,768	100%	19,768	100%
Total	966	88%	164	90%	11	19,768		19,768	

[1] Districts (Ghana); Cercles (Mali); Woredas (Ethiopia); and Counties (Southern Sudan)

[2] Sudan has no reward system in place at this time. However, all remaining endemic countries need to track monthly the proportion of sampled residents from GW-free areas with knowledge about the need to report cases of GWD.

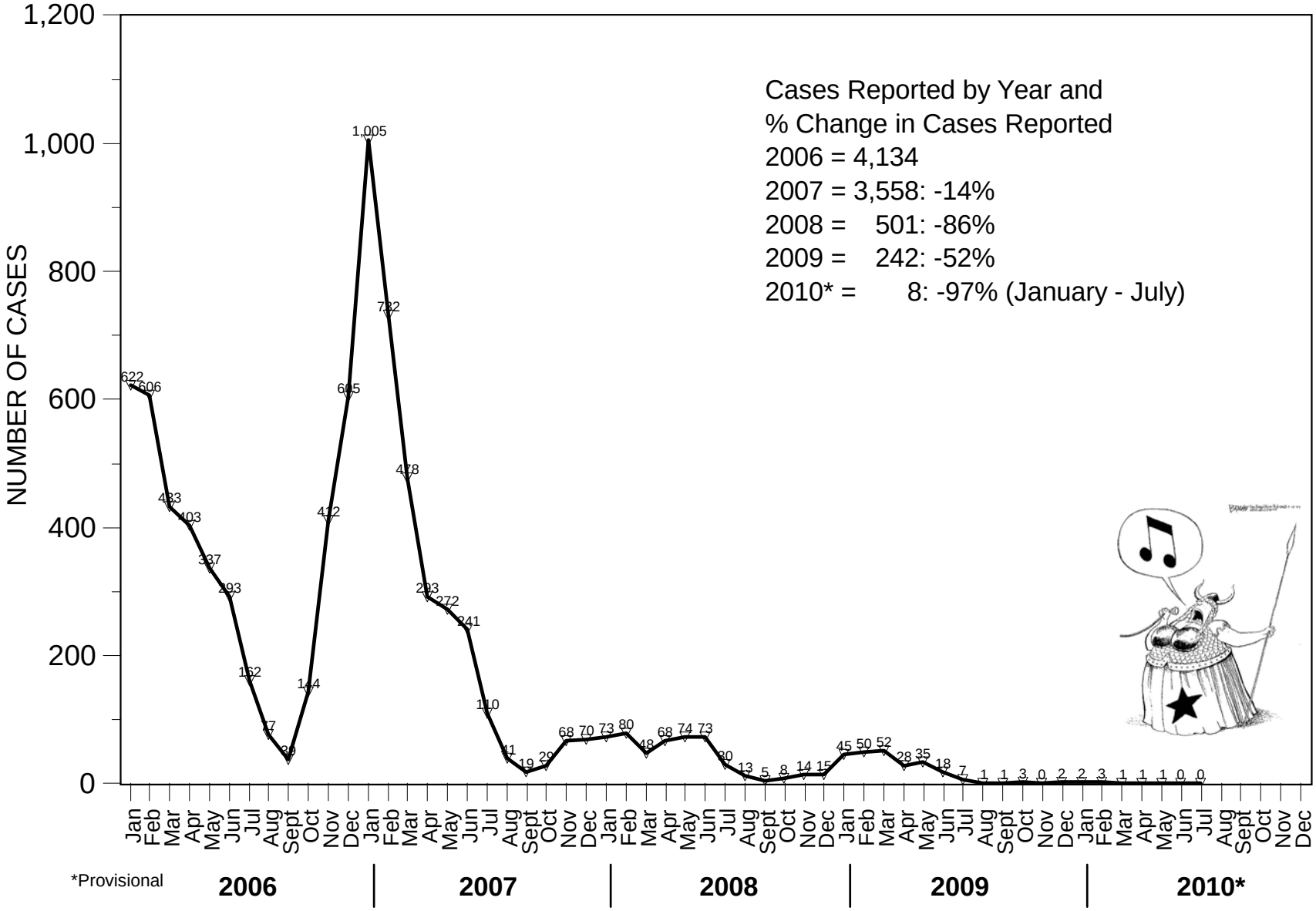
[3] Number of district reports received / expected number of district reports.

[4] Include rumor investiagations completed. Update ongoing rumor investigations in the next report.

NR = No Report

Figure 3

GHANA GUINEA WORM ERADICATION PROGRAM
NUMBER OF REPORTED CASES OF DRACUNCULIASIS: 2006 - 2010*



WARNING!! TWO CASES OF DRACUNCULIASIS CONFIRMED IN CHAD!!

Neighboring countries (especially Cameroon and Nigeria) should take note: worms collected from two patients in western Chad have been confirmed as *Dracunculus medinensis* at the Centers for Disease Control and Prevention (CDC) in mid-August 2010 by microscopic examination performed by Dr. Mark Eberhard and by testing using the molecular probe performed by Mr. Andrey Perelygin. The patients are a 27 year-old woman and a 50 year-old woman, both of whom live in the village of Nanguigoto (population 10,920), in Guelendeng District of Mayo Kebi East Region. The women are related (the 50 year old woman is an aunt of the other), they do not live in the same household, both are housewives and farmers, both deny having entered a water source with their emerging worms, and both reported attending a funeral in Mitau a year before where they drank unsafe water because the borehole well was broken. The older patient's first worm had already emerged when she was seen at a health center on 22 April 2010, but a second worm was removed on 25 April. The younger patient's worm is said to have begun emerging in June 2010, exact date not known. She was seen with an emerging worm at the health center on 18 June. Both patients deny having traveled outside of Chad, but had visited Mitau and Milkou villages, which also are located in Guelendeng District. This area of Chad is about 100 miles (160 km) south of Ndjamena, and borders Extreme North Province of Cameroon. Information on the two suspected cases was obtained during a WHO mission to Chad on July 5-20, 2010. Assisted by the The World Health Organization, the Chadian Ministry of Health has trained staff to do case investigations, conducted a door to door active case search, mobilized the residents of Nanguigoto, Mitau, and Milkou to report cases of the disease, and initiated (August 19, 2010) an awareness campaign via two local FM radio stations and national radio to inform residents of Guelendeng District about cash rewards for reporting and confirmation of cases of GWD. Monetary rewards of $100 US (50,000 CFA) for reports leading to confirmation of indigenous cases of GWD and of $50 US (25,000 CFA) for reports leading to confirmation of imported cases of GWD were established in 1998. Although the ministry of health began, during the second quarter of 2009, to intensify publicity of the monetary rewards, it also plans to publicize the awards to those that initially informed about these two index cases. The outcomes of these activities and ongoing investigations will be announced in the near future. Areas of Guelendeng District have suffered episodes of insecurity and those are also a concern.

Whether these two cases represent an endemic focus of on-going transmission in Chad is not clear, and if it is an endemic focus, whether it has persisted over a decade or originated in an imported case that was not detected is also not clear. Although Chad claimed to have interrupted transmission in October 1998, an external evaluation team discovered 3 reports of indigenous cases (all contained) were reported in September 2000 from the village of Ouley, in Guera Region. No imported cases have been reported in Chad in recent years. An International Certification Team visited Chad in December 2008 and expressed concerns about inadequate surveillance. WHO has not certified Chad as free of dracunculiasis. This episode underscores again the importance of establishing effective surveillance for dracunculiasis in areas that are believed to be free of Guinea worm disease (see Table 4). According to WHO, 400 health staff and community volunteers in Chad were trained during 2009 on investigations of rumors about alleged cases of GWD, and reporting of cases, and GWD was included in the listing of diseases monitored by the national integrated disease surveillance and response system in Chad.

TRANSITIONS

As of August 2, 2010 Ms. Jessica Flannery is the new Assistant Director, Dracunculiasis Eradication, at The Carter Center. Ms. Flannery is a proven Guinea worm warrior with combat experience in the muddy fields of Southern Sudan, and also in Ethiopia. Her telephone is 404-420-3887 and her email is jlflann@emory.edu. Welcome Jessica!

ARAB FUND PLEDGE TO GUINEA WORM ERADICATION PROGRAM

In July 2010, The Carter Center's Guinea Worm Eradication Program received generous support from a new donor: the Arab Fund for Economic and Social Development. The Arab Fund pledged approximately $1 million in funds to support Guinea worm eradication in Southern Sudan. Based in Kuwait, the Arab Fund was established in 1968 through the approval of the Arab League for the purpose of financing social and economic development projects in Arab states. Their donation will be matched one-to-one by the Bill & Melinda Gates Foundation according to a challenge grant awarded to The Carter Center in November 2008. The $40 million challenge grant includes an outright contribution of $8 million and $32 million to match contributions from other donors dollar for dollar.

GUINEA WORM DISEASE IN PRINT, IN THE NEWS AND IN CYBERSPACE

Miri ES, Hopkins DR, Ruiz-Tiben E, Keana AS, Withers PC Jr, Anagbogu IN, Sadiq LK, Kale OO, Edungbola LD, Braide EI, Ologe JO, Ityonzughul C, 2010. Nigeria's triumph: dracunculiasis eradicated. *Am J Trop Med Hyg* 83:215-225.

Guinea worm eradication is featured on the website for CNN's "Impact Your World". See: http://www.cnn.com/SPECIALS/impact.your.world/

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

World Health Organization

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