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

DEPARTMENT OF HEALTH & HUMAN SERVICES

Date: April 16, 2010

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

Subject: GUINEA WORM WRAP-UP #196

To: Addressees

Global Dracunculiasis (Guinea Worm) Eradication Initiative
A Report to the 63rd World Health Assembly May 2010*

1. Achievements since 2004

The global Dracunculiasis Eradication Program did not achieve the goal set in 2004 to interrupt transmission of dracunculiasis (Guinea worm disease) everywhere by the end of 2009. However, the number of countries where dracunculiasis (Guinea worm disease) was reported has been reduced from 11 countries in 2004 to 4 countries in 2009, the number of cases reported has been reduced from 16,026 to 3,190, and the number of villages reporting indigenous cases of the disease has been reduced from 3,109 to 645 (Figures 1, 2, Table 1). Nigeria, which reported more cases than any other country (over 653,000 in 1988/89), and Niger reported zero cases for an entire calendar year for the first time in 2009. The number of cases of dracunculiasis reported in 2009 is the lowest annual number of cases reported since the eradication campaign began (Figure 3).

As illustrated in Figure 2, coverage rates for almost all interventions except safe water supply were increased significantly between 2004 and 2009. The apparent decrease in coverage of health education is attributed to incomplete or delayed reports of that indicator from Southern Sudan, and not an actual decrease.

Only four of the nine countries that had interrupted transmission were certified as free of dracunculiasis by the World Health Organization by 2004, whereas nine of the 16 countries that have interrupted transmission had been certified by WHO by the end of 2009. At the end of 2009, WHO had certified a total of 187 countries and territories as free of dracunculiasis. Not yet certified by WHO are the four still-endemic countries (Ethiopia, Ghana, Mali, Sudan), seven recently-endemic countries that have interrupted transmission (Burkina Faso, Chad, Cote d'Ivoire, Kenya, Niger, Nigeria, Togo), and six never– or not-recently-endemic countries (Angola, Democratic Republic of Congo, Eritrea, Somalia, South Africa) or territories (Greenland) (Figure 4).

* In May 2004, the 57th World Health Assembly adopted Resolution WHA 57.9 and representatives of the twelve countries where dracunculiasis (Guinea worm disease) was still endemic issued the "Geneva Declaration: The Final Push for Dracunculiasis Eradication". In both documents, ministers of health resolved to eradicate dracunculiasis by the end of 2009. This informal report accounts for what was achieved and what remains to be done.

Two other major developments since the Geneva Declaration and the World Health Assembly Resolution in 2004 should be noted. One was the signing of the Comprehensive Peace Agreement (CPA) between the two sides in the 22 year old civil war in Sudan in January 2005. The CPA removed the main impediment to completion of eradication in Sudan, which is the highest endemic country remaining. The other major development was the US$40 million challenge grant that the Bill & Melinda Gates Foundation awarded to The Carter Center and the World Health Organization in November 2008. That was the third large grant that the Bill & Melinda Gates Foundation has awarded for Guinea worm eradication, and provides a large share of the resources needed for the final stage of the global eradication campaign. The award includes an outright grant of $8 million, with the remaining $32 million to match contributions from other donors one-to-one. The Carter Center has lead responsibility to assist endemic countries to interrupt transmission; WHO has lead responsibility to help endemic and recently endemic countries to conduct surveillance for dracunculiasis in Guinea worm-free areas. The Carter Center has since received major grants from the United Kingdom, the Kingdom of Saudi Arabia, the Government of Oman, Vestergaard Frandsen, the John P. Hussman Foundation and the OPEC Fund for International Development as well as funding from other donors that will help match the funds from the Gates Foundation grant.

2. Remaining Challenges

Insecurity in some of the remaining endemic areas, weak surveillance for dracunculiasis in Guinea worm-free areas of endemic and recently endemic countries, and inadequate political support for eradication are the most important remaining barriers to achieving zero cases of dracunculiasis. Insecurity is discussed in the country profiles below, as is the need for improved surveillance in those countries. Most recently endemic countries (e.g., Nigeria, Niger) that are now in the pre-certification stage (Carter Center assistance for interrupting transmission ends after twelve consecutive months of no indigenous cases reported) are working with assistance from WHO to strengthen or develop Integrated Disease Surveillance and Reporting (IDSR) systems to include timely reporting of dracunculiasis, but such systems are not yet adequate to the important task. Many recently endemic countries also offer cash rewards for reporting a case of the disease. Globally, the Guinea Worm Eradication Program has attracted much less political support than polio eradication. The lack of comparable urgency to publicize and complete this campaign is regrettable.

Sudan reported 86% of all dracunculiasis cases remaining in the world in 2009. Indigenous transmission of dracunculiasis was interrupted in the northern states in 2003, and since then all transmission has been limited to parts of Southern Sudan, where ninety-four percent (94%) of all cases in 2009 were reported from only ten counties. After the Comprehensive Peace Agreement (CPA) was signed in January 2005, the new semi-autonomous Government of Southern Sudan organized the Southern Sudan Guinea Worm Eradication Program (SSGWEP) to combat dracunculiasis. With reporting from newly accessible areas following the war, the SSGWEP reported a surge of over 20,000 cases in 2006, but it has intensified control measures steadily since then. The number of cases reported was reduced by 24% and the number of endemic villages reduced by 46% between 2008 and 2009, while the SSGWEP increased the rate of cases contained from 49% in 2008 to 78% in 2009. Between 2008 and 2009, monthly reporting rates from endemic villages rose from 87% to 94%, cloth filter coverage increased from 79% to 98%, and the percentage of endemic villages receiving one or more treatments of water

sources with ABATE@Larvicide rose from 34% to 45%, but the proportion of endemic village with one or more safe sources of drinking water remained at about 16%. Only 35 of 150 new water points planned for endemic villages in 2009 were completed by the end of that year. Thirty-two incidents of insecurity during 2009 required workers in the SSGWEP to be confined to their homes or evacuated temporarily, thus disrupting their work in areas that together reported about half of all cases in 2009. Insecurity in Southern Sudan is the biggest threat to successful completion of the global campaign.

The SSGWEP has reported a provisional total of 142 cases in January-March 2010, compared to 77 cases reported during the same period of 2009. The peak transmission season is April – October.

Ghana accounted for 8% of all cases reported globally in 2009. After years of struggle, Ghana's Guinea Worm Eradication Program (GGWEP) improved substantially in 2007, which was manifest by a dramatic 85% reduction in cases from 3358 in 2007 to 501 cases in 2008. Despite a small outbreak in the Northern Region early in 2009, the program reduced the number of cases by another 52%, to 242 cases reported from 52 villages in 2009 (compared to 501 cases reported from 131 villages in 2008). The GGWEP has reported only 20 cases between July 2009 and March 2010, which includes Ghana's peak transmission season, compared to 232 cases reported between July 2008 and March 2009, a reduction of 91%. Ghana recorded its first month with zero cases in November 2009. The GGWEP reportedly contained 93% of all cases in 2009. All six cases reported in January-March 2010 were contained, and all were traced to known sources of transmission in 2009.

Mali reported 6% of all cases globally in 2009. This program suffered a major setback in 2008, when 261 cases were discovered in previously non-endemic Kidal Region, as a result of a single undetected patient who traveled there in 2007 from an endemic area of Mali before his symptoms appeared and the worm emerged to contaminate a source of drinking water. Unfortunately, implementation of control measures were constrained by insecurity in this and some other endemic areas of Mali in 2008 and 2009. Mali reduced cases of the disease by 55%, from 417 cases in 69 localities in 2008 to 186 cases in 52 localities in 2009, and it reportedly contained 73% of the cases in 2009. The peak transmission season for dracunculiasis is July-October. Mali reported no cases in January-April 2009, and it has reported no cases in January-March 2010.

Ethiopia reported zero indigenous cases between July 2006 and February 2008, but found 41 cases of dracunculiasis in 11 villages of the Gambella Region in 2008, including 2 confirmed cases imported from southern Sudan. Most of the cases were indigenous to Ethiopia. This unfortunate surprise suggests that dracunculiasis transmission was ongoing in the Gambella Region during the 20 months when no indigenous cases were reported, and that the surveillance system failed to detect indigenous cases. The Ethiopian Dracunculiasis Eradication Program (EDEP) detected 24 cases of the disease in nine villages of the Gambella Region in 2009, a reduction of 41%. All of the cases reported in 2009 were indigenous to Ethiopia, and 19 (79%) of them were reportedly contained. Although Ethiopia's first known uncontained case in 2009 was reported in May, in 2010 the EDEP reported zero case in January, 1 case in February and 2 cases in March, all three of which were in families that had cases in 2009. This suggests that one or more cases were missed early in 2009 or reports of containment of known case(s) last year

were inaccurate. The minister of health of Ethiopia visited the endemic area of Gambella in February 2009.

3. The way forward

Ending transmission of dracunculiasis in Ethiopia, Ghana, Mali, and Sudan will require intensified efforts by leaders of those countries and their international partners. The political milestones of Sudanese national elections in April 2010 and the referendum on Southern Sudan in January 2011, as well as ongoing incidents of insecurity in Southern Sudan are the most important challenges to global eradication. The gains against dracunculiasis in Southern Sudan are fragile and obviously very important, and every effort should be made by The Carter Center, UNICEF and WHO to support the SSGWEP's efforts as much and as quickly as possible. Apart from assistance with intensification of program interventions (The Carter Center), Southern Sudan's ministries of health and water need assistance urgently to quickly help get safe sources of drinking water in as many high priority endemic villages as possible in order to accelerate interruption of transmission (UNICEF), and the ministry of health needs assistance urgently to strengthen surveillance for dracunculiasis in Guinea worm-free areas of Southern Sudan (WHO).

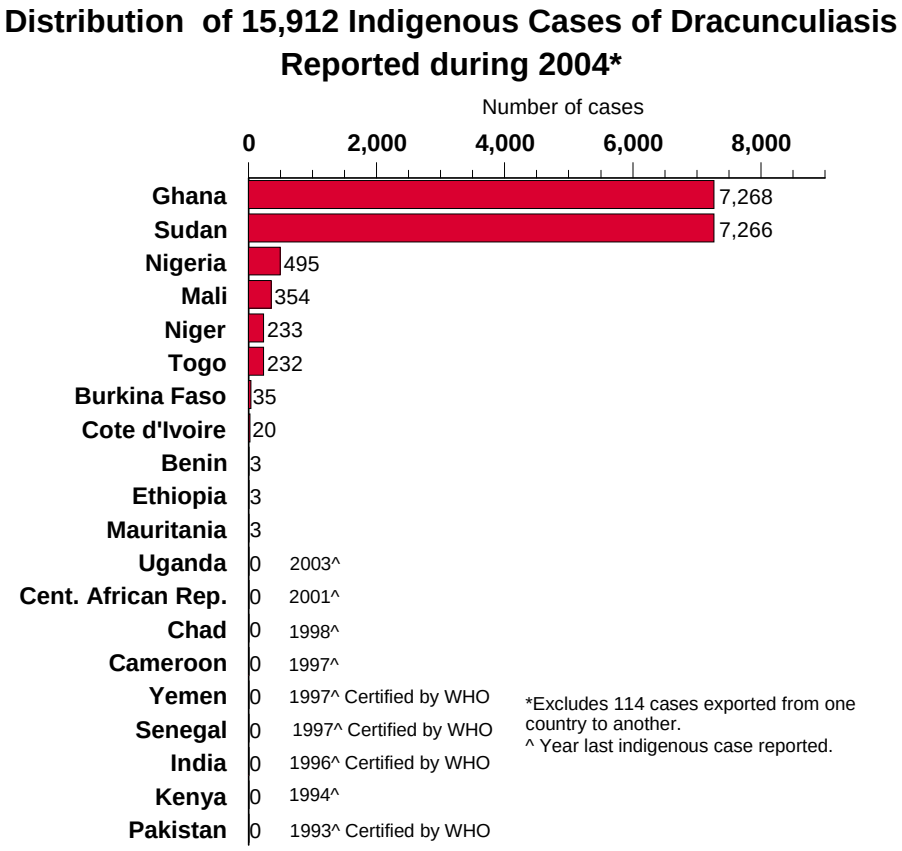
As the end of dracunculiasis transmission approaches, there is need for increased advocacy in support of the global Dracunculiasis Eradication Program. This is needed both to encourage additional funding needed to match the grant from the Bill & Melinda Gates Foundation for the program, and to foster political support for the final four national programs. The Carter Center, WHO, and UNICEF all need to assist in this important component. The special meeting with ministers and other representatives of the remaining endemic countries and formerly endemic countries during the World Health Assembly in Geneva on May 19, 2010 will be a part of this effort, as are plans to secure a written report, formal discussion and a new resolution on dracunculiasis eradication at the World Health Assembly in May 2011.

Table 1

Number of Dracunculiasis Cases Reported by Year 2004 - 2009

Country	Year					
	2004	2005	2006	2007	2008	2009
Sudan	7,266	5,569	20,582	5,815	3,618	2,733
Ghana	7,275	3,981	4,136	3,358	501	242
Nigeria	495	120	16	73	38	0
Mali	357	659	329	313	417	186
Togo	278	73	29	0	0	0
Nigeria	240	183	110	14	3	0
Burkina Faso	60	30	5	0	0	0
Cote d'Ivoire	21	10	5	0	0	0
Ethiopia	17	37	3	0	41	24
Benin	3	0	0	0	0	0
Mauritania	3	0	0	0	0	0
Cases exported from one country to another	11	12	2	12	1	5
Total	16,026	10,674	25,217	9,585	4,619	3,190

Figure 1


Distribution of 15,912 Indigenous Cases of Dracunculiasis Reported during 2004*
Number of cases
0
2,000
4,000
6,000
8,000
Ghana 7,268
Sudan 7,266
Nigeria 495
Mali 354
Niger 233
Togo 232
Burkina Faso 35
Cote d'Ivoire 20
Benin 3
Ethiopia 3
Mauritania 3
Uganda 0 2003^
Cent. African Rep. 0 2001^
Chad 0 1998^
Cameroon 0 1997^
Yemen 0 1997^ Certified by WHO
Senegal 0 1997^ Certified by WHO
India 0 1996^ Certified by WHO
Kenya 0 1994^
Pakistan 0 1993^ Certified by WHO
*Excludes 114 cases exported from one country to another.
^ Year last indigenous case reported.

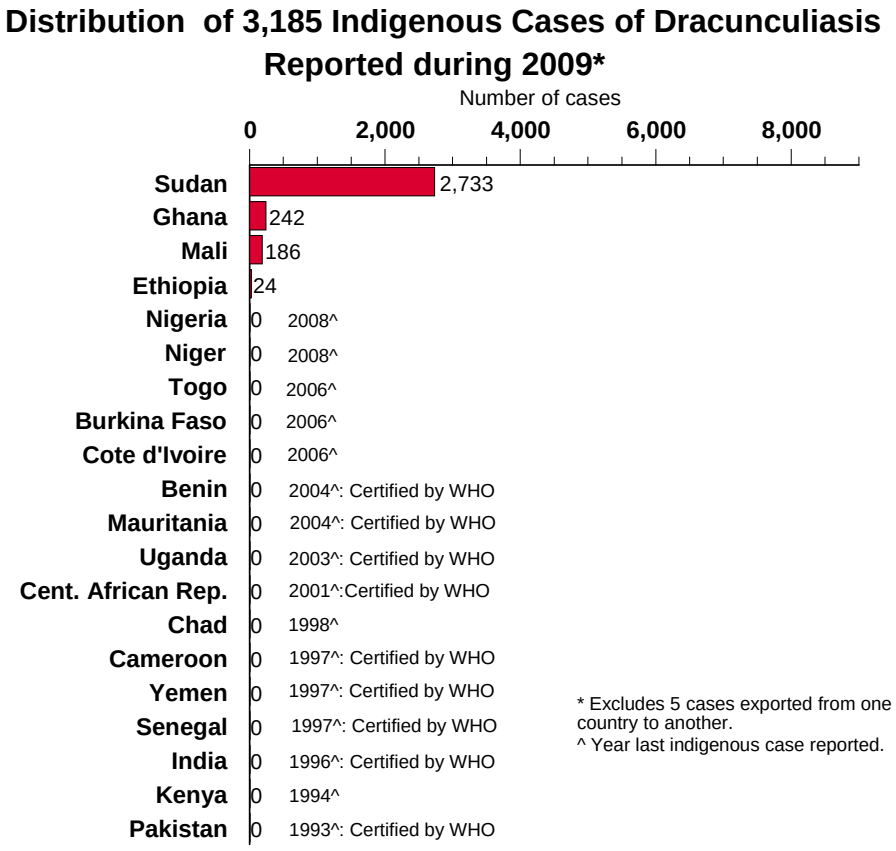
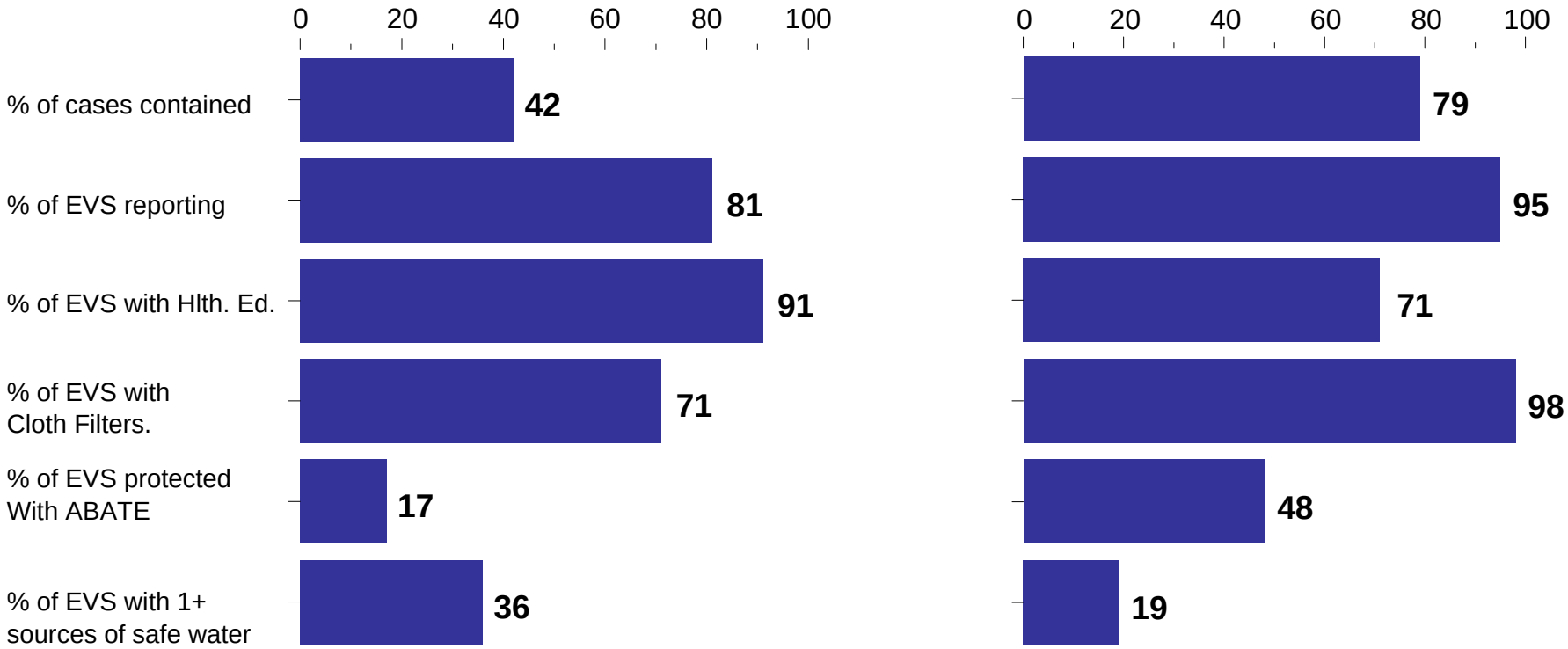

Distribution of 3,185 Indigenous Cases of Dracunculiasis Reported during 2009*
Number of cases
0
2,000
4,000
6,000
8,000
Sudan 2,733
Ghana 242
Mali 186
Ethiopia 24
Nigeria 0 2008^
Niger 0 2008^
Togo 0 2006^
Burkina Faso 0 2006^
Cote d'Ivoire 0 2006^
Benin 0 2004^: Certified by WHO
Mauritania 0 2004^: Certified by WHO
Uganda 0 2003^: Certified by WHO
Cent. African Rep. 0 2001^:Certified by WHO
Chad 0 1998^
Cameroon 0 1997^: Certified by WHO
Yemen 0 1997^: Certified by WHO
Senegal 0 1997^: Certified by WHO
India 0 1996^: Certified by WHO
Kenya 0 1994^
Pakistan 0 1993^: Certified by WHO
* Excludes 5 cases exported from one country to another.
^ Year last indigenous case reported.

Figure 2

GUINEA WORM ERADICATION CAMPAIGN
STATUS OF PROGRAM INDICATORS DURING 2004 AND 2009*

Year	2004	2009
Number of endemic countries	12	4
Villages reporting indigenous cases	3,109	645
Number of cases reported	16,026	3,190
Number of endemic villages (EVS) where interventions applied	5,564	1,431



* Provisional

Figure 3

Number of Reported Cases of Dracunculiasis by Year, 1989 – 2009

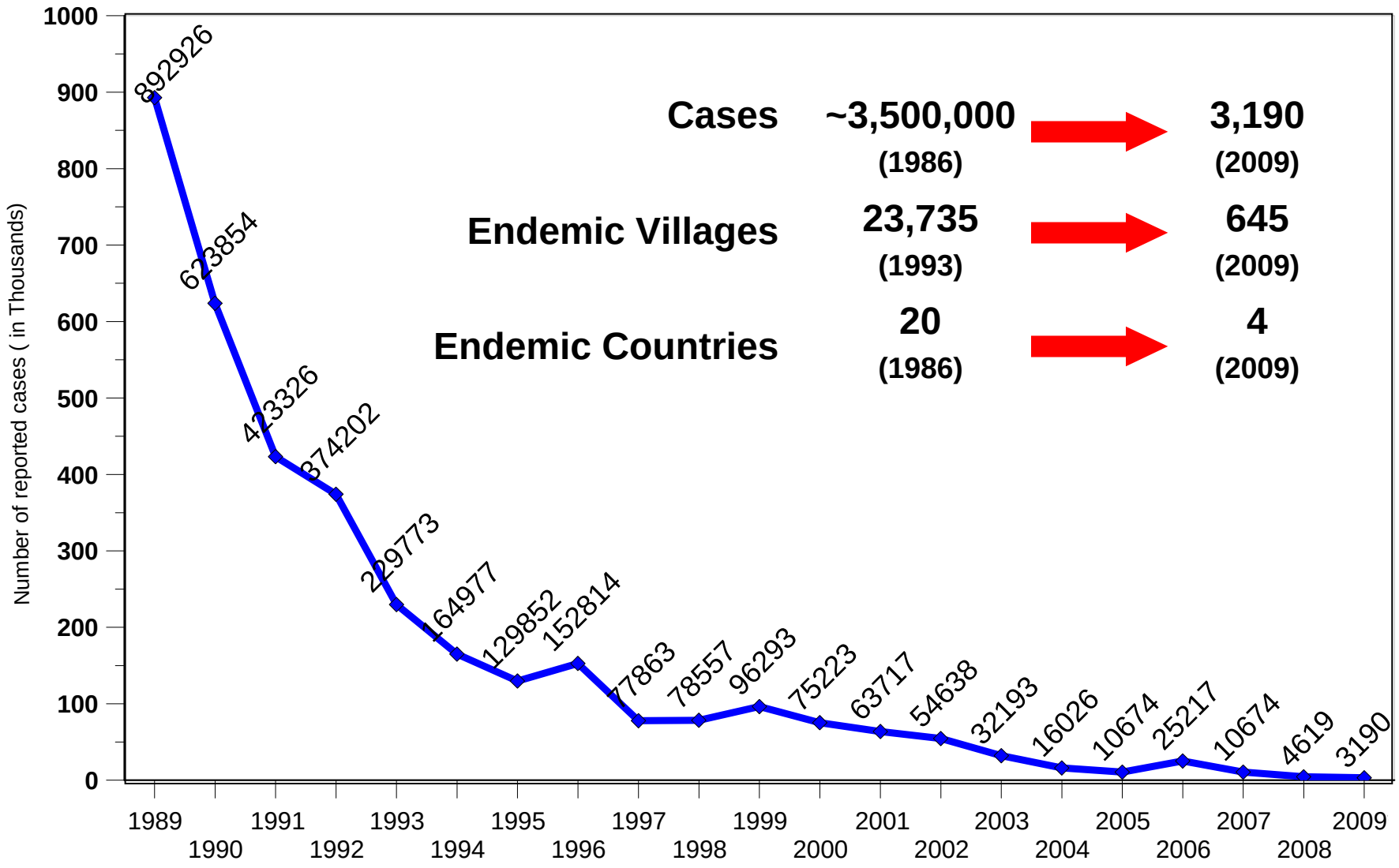


Figure 4

Status of Certification of Dracunculiasis Eradication

As of January 2010

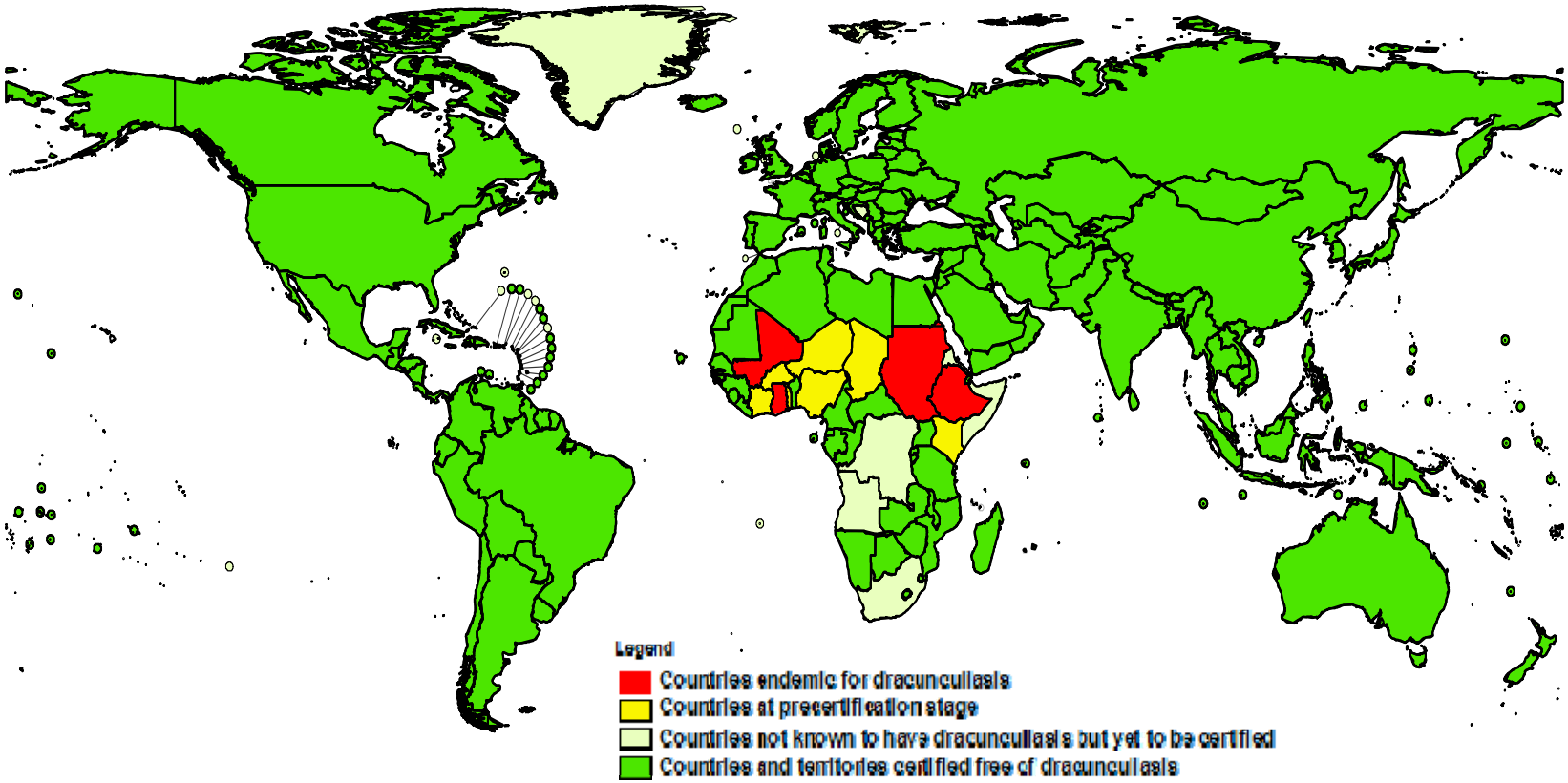


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Table 2

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	23/32	81/103	/	/	/	/	/	/	/	/	/	110/142	77
GHANA	2/2	3/3	1/1	/	/	/	/	/	/	/	/	/	6/6	100
MALI	0/0	0/0	0/0	/	/	/	/	/	/	/	/	/	0/0	0
ETHIOPIA	0/0	1/1	2/2	/	/	/	/	/	/	/	/	/	3/3	100
TOTAL*	8/9	27/36	84/106	/	/	/	/	/	/	/	/	/	119/151	79
% CONTAINED	89	75	79										79	
% CONT. OUTSIDE SUDAN	100	100	100										100	

* 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	

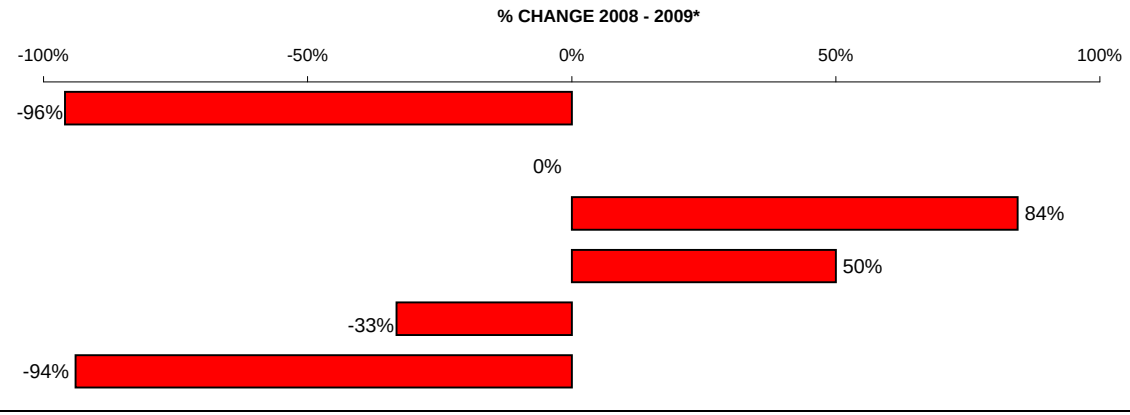
* provisional

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

Figure 5

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 (3)	147	6
Mali (3)	0	0
Sudan (3)	77	142
Ethiopia (3)	2	3
Total	226	151
All countries, excluding Sudan	149	9



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

MEETINGS

The 14th Program Review of Program Managers of National Guinea Worm Eradication Programs was held at The Carter Center on March 27, 2010. It included presentations by program managers from Sudan, Ghana, Mali, Ethiopia, Nigeria and Niger.

The World Health Organization will host a meeting to discuss issues related to surveillance of GWD in GW-free areas at Nairobi, Kenya on April 20-23. This meeting will be for program managers from countries in the pre-certification stage as well as managers of the four remaining endemic countries.

GUINEA WORM DISEASE IN THE NEWS AND ON THE WORLDWIDE WEB

The preview of the new documentary, "Foul Water Fiery Serpent" may be seen at www.foulwaterfieryserpent.com

On April 6, CNN.com posted five articles about Guinea worm eradication, including an editorial by former U.S. President Jimmy Carter. These may be viewed at www.cnn.com/2010/HEALTH/04/06

On April 7, the Public Broadcasting Station broadcast a story about Guinea worm eradication efforts and President Carter's visit to Southern Sudan in February 2010 on its program called Newshour. This program may be viewed at www.pbs.org/newshour/bb/africa/janjune10/sudan04-07.

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