DEPARTMENT OF HEALTH & HUMAN SERVICES

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

Memorandum

Date: January 11, 2008

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

Subject: GUINEA WORM WRAP-UP #178

To: Addressees

"Knowing is not enough; we must apply. Willing is not enough; we must do"
Goethe (1749-1832)

ETHIOPIA! COTE D'IVOIRE! BURKINA FASO! TOGO!

ALL REPORT NO INDIGENOUS CASES FOR FIRST TIME IN 2007

The global Guinea Worm Eradication Program marked a major milestone in 2007, when four countries, Ethiopia, Cote d'Ivoire, Burkina Faso and Togo reported zero indigenous cases for a full calendar year for the first time. These four countries thus appear to have stopped transmission of dracunculiasis in 2006, having reported their last known indigenous cases in June, September, November and December 2006, respectively. Congratulations to these four countries for having met their goals established by ministers of health at the 2004 World Health Assembly (see last page). Details of the final cases in Ethiopia and Cote d'Ivoire were reported in *Guinea Worm Wrap-Up #177*.

Figure 1

Distribution by Country of 10,053 Indigenous Cases of Dracunculiasis Reported during 2007*

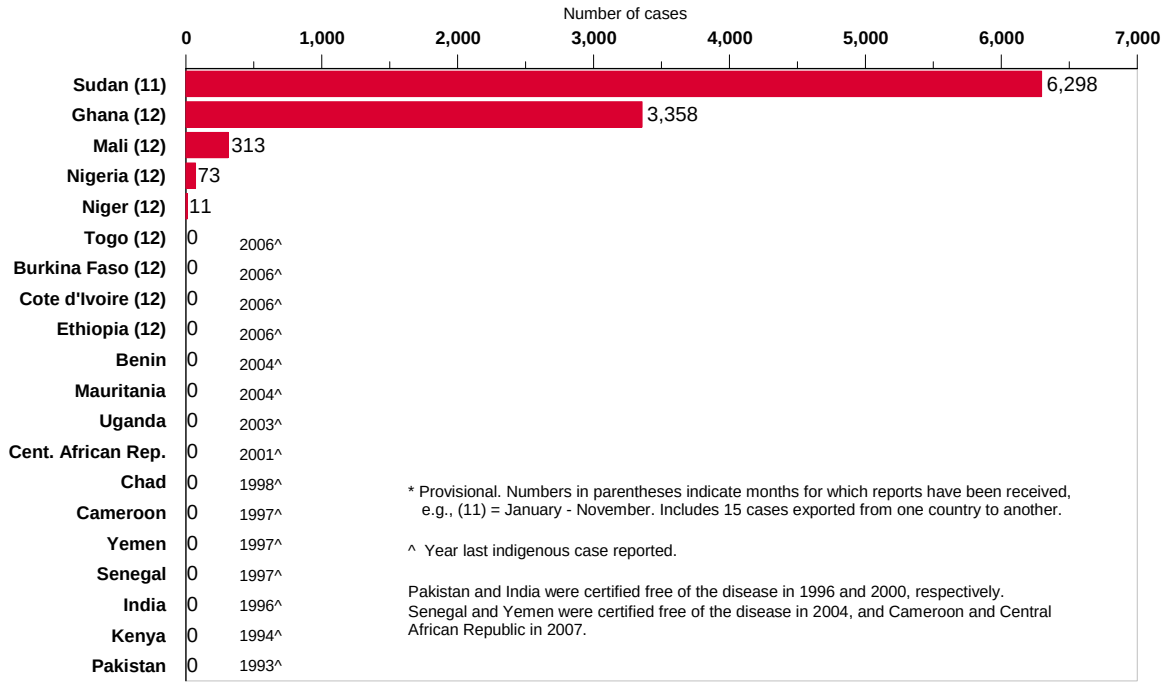


Table 1

Number of Cases Contained and Number Reported by Month during 2007*
(Countries arranged in descending order of cases in 2006)

COUNTRIES REPORTING CASES	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SUDAN	34 / 195	45 / 178	97 / 253	291 / 576	657 / 1307	666 / 1397	475 / 1101	379 / 637	308 / 506	79 / 131	11 / 17	/	3042 / 6298	48
GHANA	812 / 1005	631 / 732	442 / 478	248 / 293	233 / 272	185 / 241	91 / 110	38 / 41	14 / 19	22 / 29	62 / 68	53 / 70	2831 / 3358	84
MALI	0 / 0	0 / 0	1 / 1	0 / 0	0 / 0	1 / 1	5 / 7	29 / 120	35 / 68	15 / 27	20 / 79	4 / 10	110 / 313	35
NIGER	3 / 3	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	1 / 1	0 / 0	2 / 3	4 / 4	2 / 2	0 / 0	13 / 14	93
NIGERIA	7 / 32	9 / 9	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	6 / 7	21 / 23	44 / 73	60
TOGO	0 / 0	1 / 1	0 / 0	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 2	50
BURKINA FASO	1 / 2	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	1 / 3	33
COTE D'IVOIRE	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
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	3 / 3	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	3 / 3	0
UGANDA	0 / 0	0 / 0	1 / 1	0 / 0	1 / 1	0 / 0	0 / 0	1 / 1	0 / 0	1 / 1	0 / 0	/	4 / 4	100
TOTAL*	857 / 1237	686 / 920	542 / 734	539 / 870	892 / 1581	855 / 1642	572 / 1219	447 / 799	359 / 596	121 / 193	101 / 173	78 / 104	6049 / 10068	60
% CONTAINED	69	75	74	62	56	52	47	56	60	63	58	75	60	
% CONT. OUTSIDE SUDAN	79	86	93	84	86	77	82	42	57	68	58	75	80	

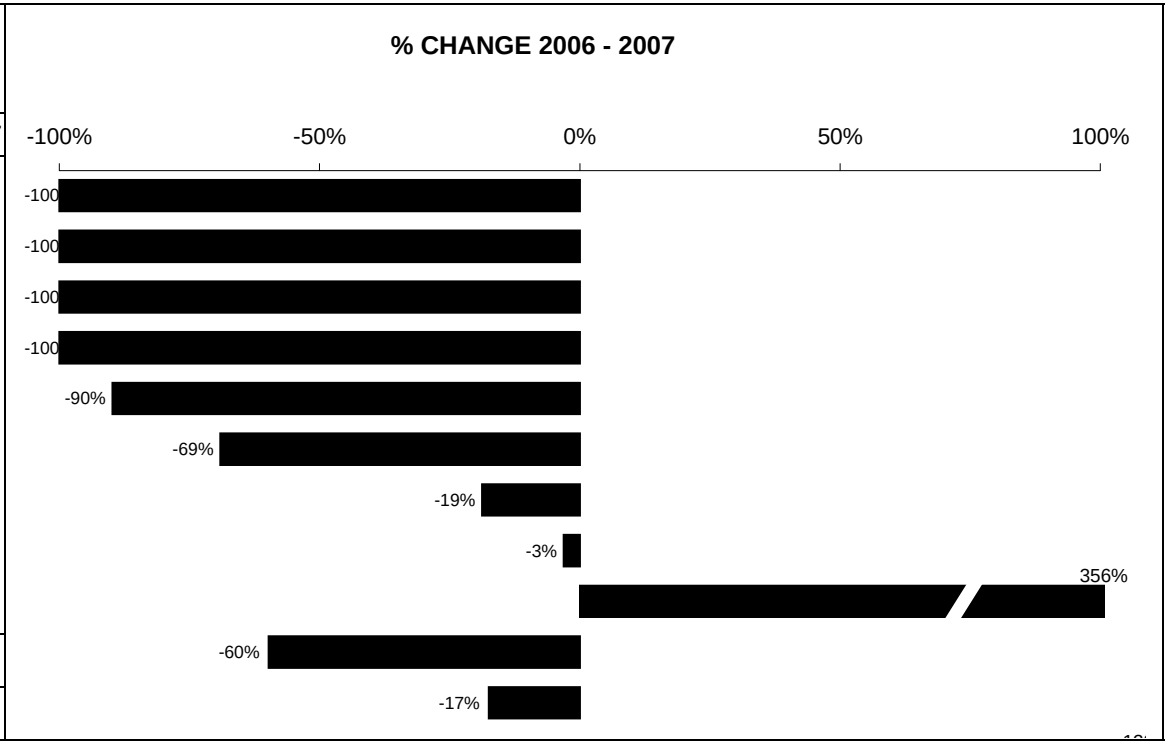
* provisional

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 2006 and 2007*, and Percent Change in Cases Reported

Country	Indigenous Cases Reported	
	2006	2007
Togo (12)	25	0
Cote d'Ivoire (12)	5	0
Ethiopia (12)	1	0
Burkina Faso (12)	3	0
Niger (12)	108	11
Sudan (11)	20368	6298
Ghana (12)	4134	3358
Mali (12)	323	313
Nigeria (12)	16	73
Total	24983	10053
All countries, excluding Sudan and Ghana	481	397



Overall % change outside of Sudan = -19%

(12) Indicates months for which reports were received, i.e., Jan. -Dec.

* Provisional

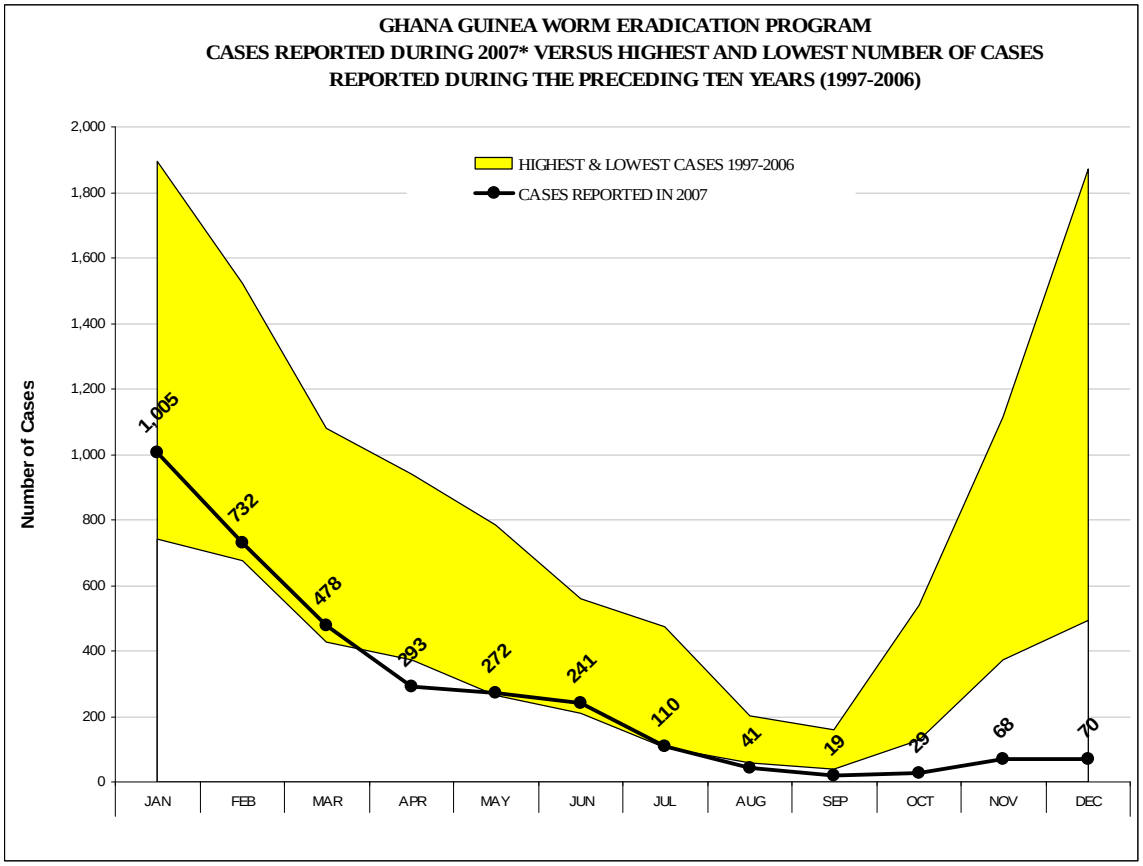
In Burkina Faso, five cases were reported in July-November 2006. Tondia Kangue village in Dori District reported two of the cases. Three of the cases were contained; two were imported from Cote d'Ivoire. Burkina also had two cases imported from Ghana in January 2007, one of which was reportedly contained. Togo reported 29 cases (23 contained; 4 imported from Ghana) in 2006, and only two cases, both imported from Ghana, one in February and one in April 2007. One of the latter two cases, a 13 year-old Peulh (Fulani) boy in Agbande village in Doufelgou District, was uncontained because he was detected on April 12 after his worm emerged on April 10. Burkina Faso, Cote d'Ivoire, and Togo will need to be alert in 2008, especially in January, to the risk of imported cases infected in northern Ghana in 2007 possibly appearing in unpredictable localities. The achievements of these four countries in reaching the momentous milestone of zero indigenous cases will be honored at the next Carter Center Awards for Guinea Worm Eradication Ceremony, which will be held on the first day of the African Regional Conference on Dracunculiasis Eradication in Abuja on April 2nd.

Of the five endemic countries now remaining from the 20 endemic countries when the global eradication campaign began in 1980, Sudan has reported 6,298 cases in January-November 2007, a reduction of -69% (Figures 1,2 and 4), Ghana reported 3,358 cases during Jan-Dec; -19% (Figures 1,2, and 3), Mali 312 cases in Jan-Dec; -3% (Figures 1,2 and 5), Nigeria 73 cases in Jan-Dec; +356% (Figures 1,2, and 6), and Niger 14 cases in Jan-Dec; -89% (Figures 1,2, and 7). Of the 14 cases reported in Niger in 2007 (including 3 cases imported from Mali), 13 were reportedly contained. Niger's only uncontained case in 2007 was in September in a 19 year-old Peulh shepherd boy in Tindikitane village of Tillaberi District who was isolated in a case containment center beginning more than 24 hours after his worm started emerging. It is possible that Niger had its last case in 2007, but in 2008 Niger (and Burkina Faso) will need to be on high alert to the risk of unpredictable cases imported from Mali. Nigeria should not be far behind Niger in reporting its last indigenous case, perhaps in 2008.

GHANA: FINALLY BREAKING WITH THE PAST

As of December 2007, Ghana's Guinea Worm Eradication Program (GWEP) reported its ninth consecutive month of fewer cases than the same month of 2006. More impressively, the rates of monthly reductions show a substantial increasing trend (>80% in October-December) despite the beginning of the current peak transmission season in October 2007 (Table 2). Moreover, as illustrated in Figure 3, the numbers of cases reported in recent months are lower than ever. The fact that Ghana's rates of case containment improved considerably in 2007 (84% overall, vs. 75% in 2006) adds reason to expect continued sharp reductions in cases in 2008, although repercussions from the explosion of cases in Savelugu District in January 2007 may become evident early in 2008 (Table 1). The World Health Organization conducted an evaluation of Ghana's GWEP during a visit by an international team of eight persons on November 12-23, and found no reason or basis to doubt the recent reports of unprecedented low cases. Having avoided the potential humiliation of reporting more cases than Sudan in 2007 (see *Guinea Worm Wrap-Up #174*). Ghana's new challenge is to see whether in 2008 it will break the decade-old record for reduction in cases by countries reporting over one thousand cases (now held by Niger's GWEP, which reduced its cases nationwide by -79%, from 13,821 cases to 2,956, between 1995 and 1996). Ghana's tasks now, however, are to detect every case immediately, implement control and containment measures assiduously, and beware of over-confidence.

Figure 3



*provisional

A total of 180 villages reported endemic cases of dracunculiasis in Ghana in 2007, compared to 346 villages in 2006, a reduction of 48%. As of October 2007, 99% of endemic villages had received health education, 71% had cloth filters in all households, 55% had received pipe filters since January 2006, 7% had water sources treated with ABATE, and 47% had at least one source of safe drinking water. Guinea Worm Weeks were held in Tamale, Karaga, Gushiegu, Yendi and Saboba Districts during November 26-30; in East Gonja, Central Gonja, Nanumba North, Nanumba South and Tolon Districts during December 3-7; and a Guinea Worm Day in Savelugu District on December 14. During a durbar held at Diare as a part of the Guinea Worm Day events, a member of Ghana's Council of State, Naa Thomas Tia Sulemana, who is also the traditional leader of Zoosali, a community located only four kilometers from Savelugu Town, urged other traditional rulers and members of affected communities to help eradicate Guinea worm disease from the country. Ghana's GWEP sponsored a five day field trip led by Ms. Lamisi Mbillah (Miss World Beauty With a Purpose) and national coordinator Dr. Andrew Seidu-Korkor, to some endemic areas of the Northern Region in early December to familiarize a group of six journalists from Accra with the status of the program and the challenges remaining in the fight to eradicate dracunculiasis in Ghana.

Table 2

Ghana Guinea Worm Eradication Program

Provisional Number of Uncontained Cases by Month, 2007

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
# Cases Reported	1005	732	478	293	272	241	110	41	19	29	68	70
% Cases Contained	81%	86%	92%	85%	86%	27%	83%	93%	79%	76%	91%	76%
# uncontained cases	**193**	**101**	**36**	**45**	**39**	**56**	**19**	**3**	**5**	**7**	**6**	**17**

NIGERIA WORKS TO STOP RESIDUAL TRANSMISSION

Nigeria reported seven cases, all from endemic Ezza Nkwubor village of Enugu East Local Government Area, in November, and 23 more cases in December, for a total of 73 cases during 2007. One of the November cases, a 17 year-old male, was not contained because of delayed notification (worm emerged November 10, containment began November 15), having hidden his emerging worm because of fear that his friends would mock him. The Guinea worm team admitted him to the Case Containment Center and conducted a thorough search of his compound, surrounding houses, and his farms, where they found and treated two ponds with ABATE® Larvicide. The team also met with local chiefs, elders, women's groups, schoolteachers and pupils, and visited the Catholic Diocese of Enugu. The program and the community agreed that henceforth any case of Guinea worm disease that was not reported within 24 hours of worm emergence would attract a fine of 2,000 naira (~US$15) and a carton of drinks to be paid by the community members, and that the same fine would apply to staff of the GWEP if they should not be available for immediate treatment of Guinea worm patients. The Catholic Diocese sent a letter authorizing all of the churches to allow Guinea worm staff to conduct health education in the various churches of the diocese.

Two of the 23 cases reported in December were uncontained. One case, a 15 year old student from Ezza Nkwubor, was not detected within the required 24 hour period, but the program reports it is unlikely that contamination of drinking water sources occurred as she was bedridden, the secondary school she attends in neighboring Ishielu LGA has a functioning borhehole, there are no ponds in the vicinity of the school, and the patient claimed that she did not enter any water source. She was immediately admitted to a case containment center in Ezza Nkwubor, where she remained until the Guinea worm was manually extracted. The patient and two other siblings indicated they had Guinea worm disease in November 2006. The second uncontained case was also a 15 year old female from Okwerike (Agalegu) village in Ebonyi LGA. Detection of this case occurred 6 days after the Guinea worm emerged on December 15, 2007. The patient was bedridden at the time of detection. This village last reported two indigenous cases of dracunculiasis in 2002, but is close to Ofurekpe village where two cases were reported in February 2006. Residents visit each others village, but do not share common sources of drinking water. The program reports application of ABATE® Larvicide to seven ponds in the vicinity Okwerike in case the patient had contaminated water before she became bedridden. Nigeria's only other uncontained case since January 2007 was a schoolgirl from the same village who absconded to attend school elsewhere in October two days after her worm emerged.

Daily searches for cases of dracunculiasis, distribution of filters and education about their use and care, social mobilization in villages and markets, including Guinea Worm Weeks in the currently endemic and at risk villages are being undertaken. Messages about rewards for reporting cases are being routinely disseminated through the local FM radios in the local languages and all rumors about alleged cases of dracunculiasis are being promptly investigated.

Dr. (Mrs.) Chinyere Maduka has resigned as The Carter Center's zonal coordinator for the Southeast Zone. She is succeeded by Mr. Adamu Sallau, the former zonal coordinator for the Northeast and Central Zones, who orchestrated the vigorous response to the single uncontained case in November.

SOUTHERN SUDAN GWEP IMPROVES COVERAGE OF INTERVENTIONS

Sudan has reported 6,298 cases (48% contained) from 2,069 villages in January – October, with a reporting rate of 73%. This is a reduction of -69% from the 20,638 cases reported during the same eleven months of 2006 and an improvement of the reporting rate of 63% in 2006. The status of interventions

(percent Coverage) of the 3,212 endemic villages where the program intervened during Jan. – Oct. 2006 and the same period in 2007 is shown below.

Parameter	2006	2007
• With trained village volunteers	85%	94%
• With access to 1+ safe sources of drinking water	16%	19%
• 100% of households with cloth filters	10%	72%
• 100% of eligible persons with pipe filters	25%	34%
• 1+ health education sessions	66%	84%
• Monthly visits by supervisors	6%	63%
• 1+ protected with ABATE® Larvicide	7%	9%
• With established geographic coordinates	0%	34%

Sporadic insecurity during 2007 limited operations and access in the counties of Ayod, Jonglei State, Gogrial, Warrab State, and Jie, Eastern Equatoria State. Magwe County, Eastern Equatoria State remains off-limits because of the Lord's Resistance Army.

In northern Sudan, on November 15, Dr. Nabil Aziz, the former national program coordinator of Sudan's GWEP for over ten years, was named Acting Resident Technical Advisor for The Carter Center health programs. He replaces Mr. Miles Kemplay, who ended his service to The Carter Center and to the people of Sudan in order to pursue other options.

IN BRIEF

Mali detected a 159% increase of cases in Ansongo District, which reported 70 cases in November 2007, compared to 27 cases in November 2006. Most (55) of the new cases were from three formerly endemic (> 4 years ago) localities, which were discovered as a result of the Niger GWEP's cross-notification of a case imported into Niger from Tibanguir village in Ansongo, which was found to contain 33 of the new cases. The zonal supervisor of this area of Mali has been sanctioned. The program believes that the security situation in Kidal will have improved enough to permit access there in January 2008.

Niger conducted its second Worm Week of 2007 in parts of Tera District on October 25-29. Nigerien animators and program staff joined with four US Peace Corps Volunteers and a Japan International Cooperation Agency volunteer to carry out this event, which included a slide show prepared by the JICA volunteer and a theater group performance. Health and Development International funded four new "camel-back supervisors", and provided them with camels and saddles, to work in Tillaberi (3) and Ouallam (1) Districts. UNICEF has drilled eight successful boreholes in eight localities in Tera District.

Figure 4

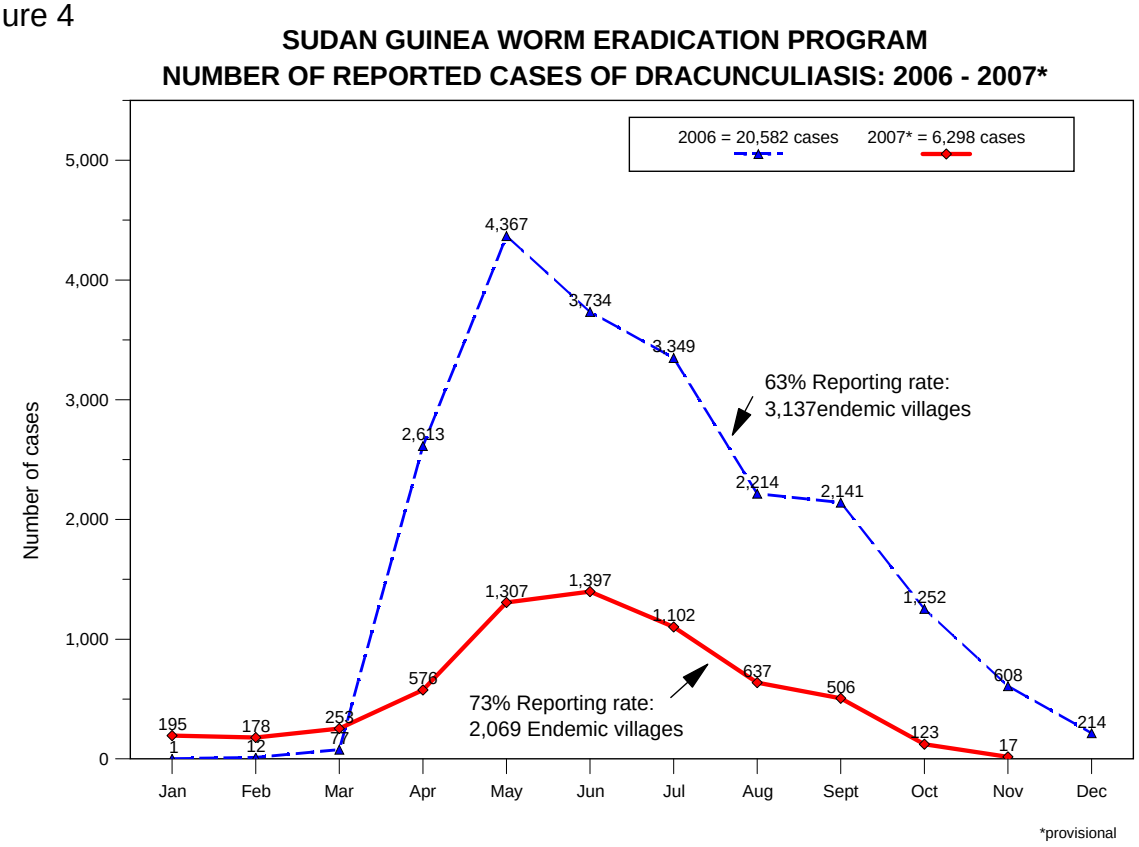


Figure 5

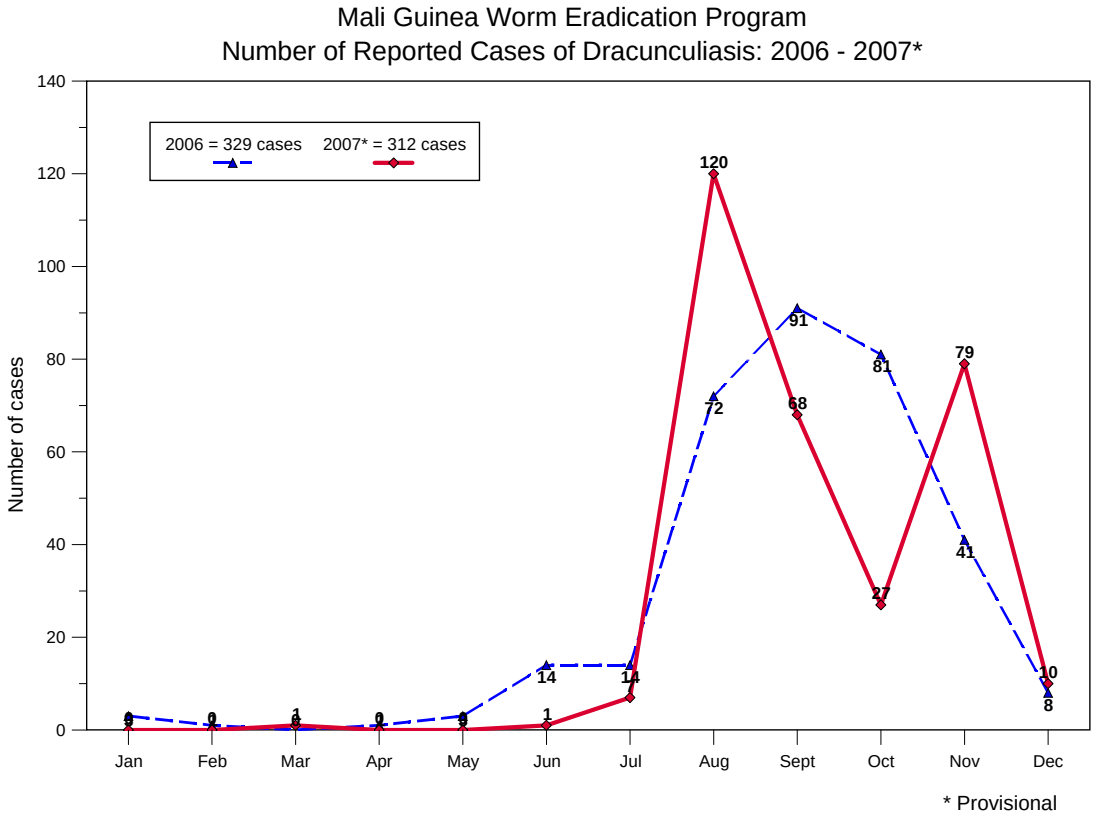


Figure 6

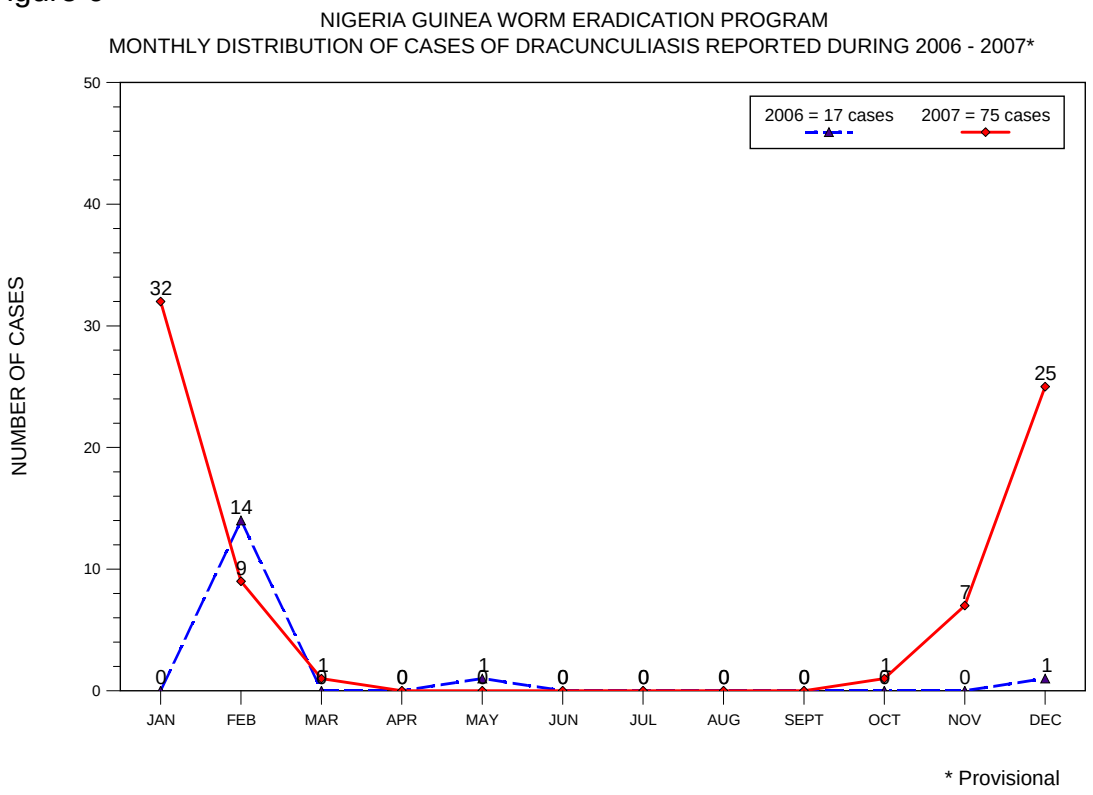


Figure 7

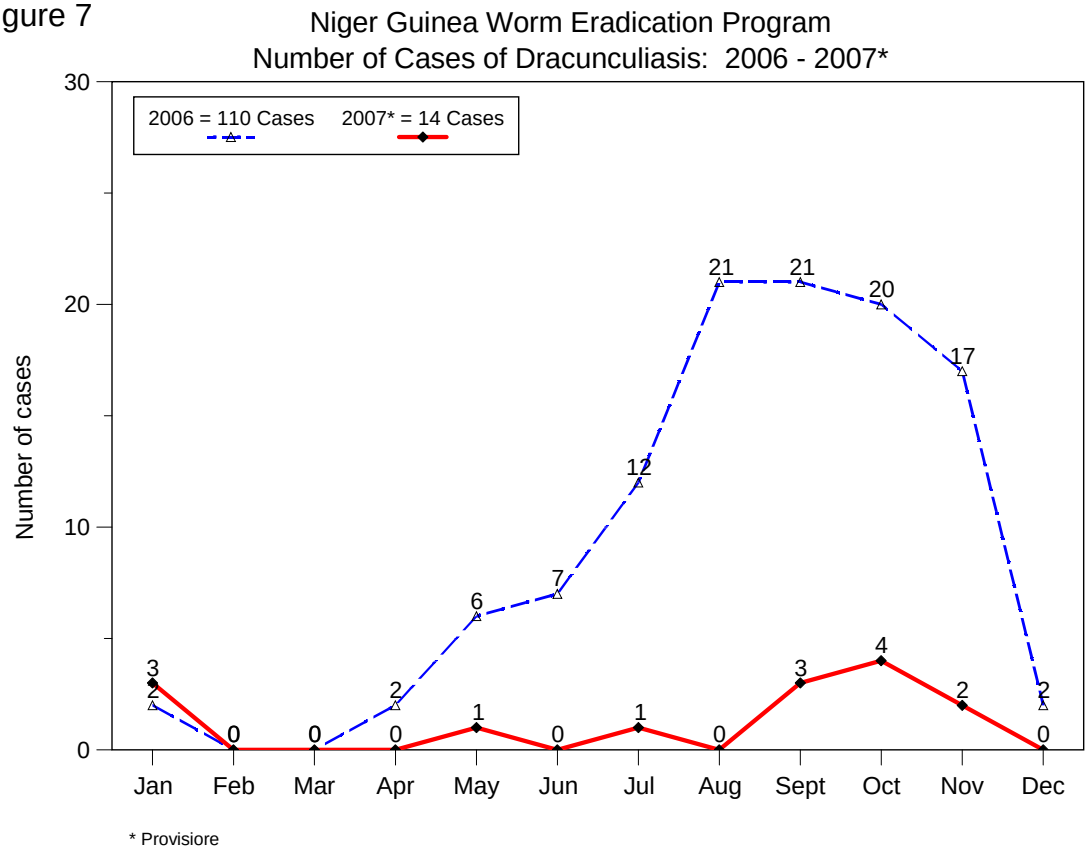


Figure 8

Dracunculiasis Eradication Campaign

Reported International Exportation of 15 Cases of Dracunculiasis: 2007*

REPORTED IMPORTATIONS AND EXPORTATION OF CASES OF DRACUNCULIASIS IN 2007*

From	To	Month and number of cases imported													Number of cases exported
		Jan.	Feb.	Mar.	Apr.	May	Jun	Jul	Aug.	Sept	Oct	Nov	Dec.	Total	
Ghana	Burkina Faso	2											1	3	5
	Togo		1		1									2	
Sudan	Ethiopia						3							3	7
	Uganda			1		1			1		1			4	
Mali	Niger									1	1	1		3	3
Total		2	1	1	1	1	3	0	1	1	2	1	1	15	

* PROVISIONAL

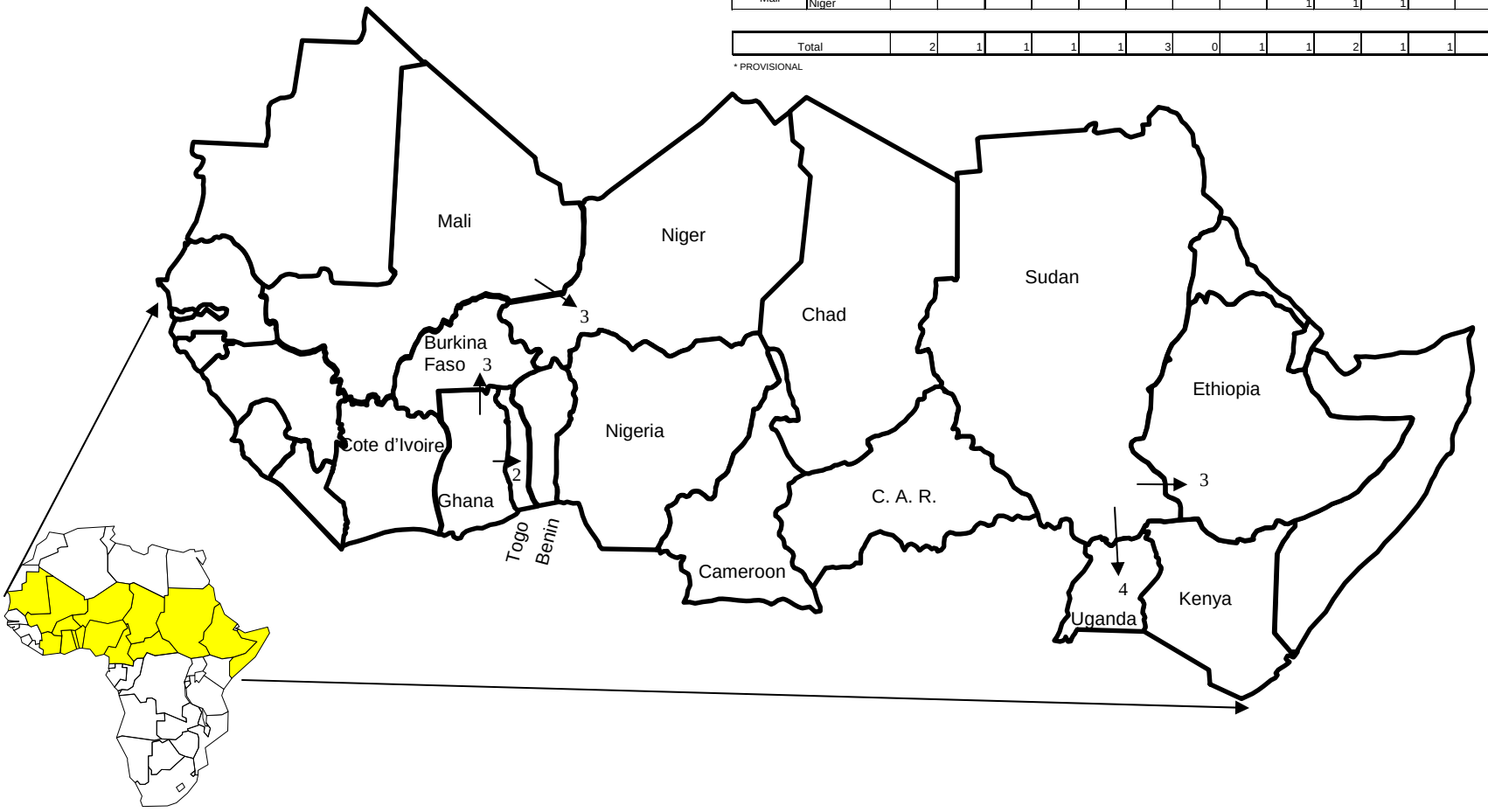
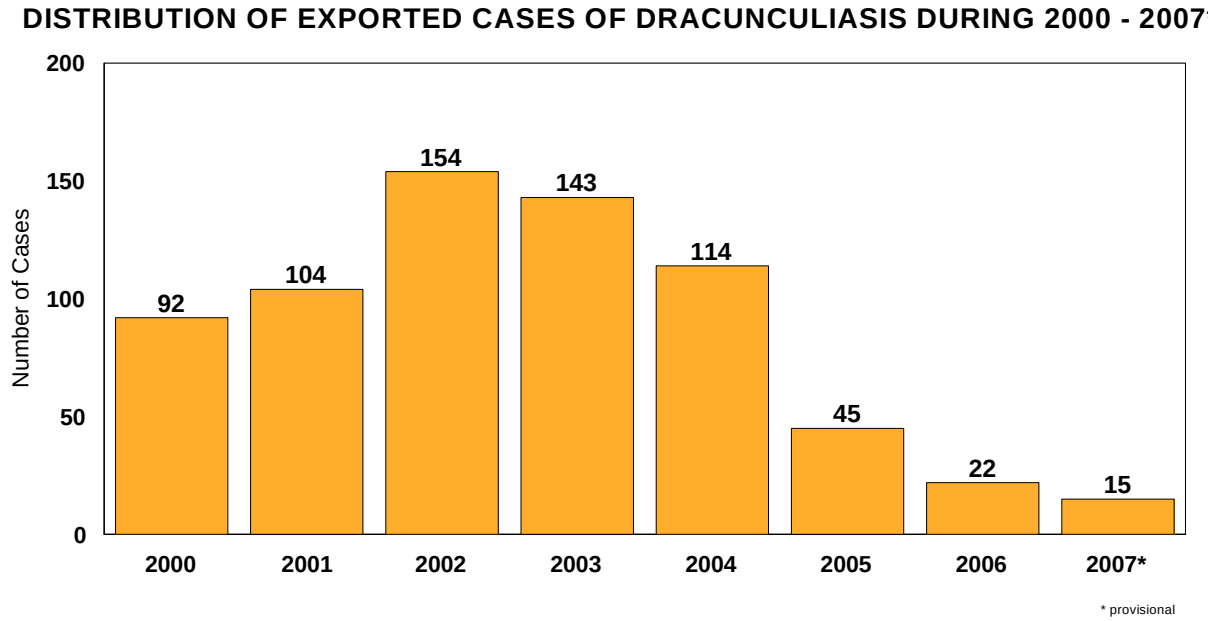


Figure 9



MEETINGS

- Executive Board of WHO, week of January 21, 2008; Geneva, Switzerland.
- Program Review for Southern Sudan GWEP, January 30-31, 2008; Juba, Sudan.
- 8th African Regional Conference on Dracunculiasis Eradication, April 2-4, 2008; Abuja, Nigeria.
- World Health Assembly, week of May 19, 2008; Geneva, Switzerland.

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

Tayeh A, Cairncross S, 2007. Dracunculiasis eradication by 2009: will endemic countries meet the target? Trop Med & International Health 12:1403-1408.

Target Dates for Last Cases*

2006 – 2007 ~~**Burkina Faso, Cote d'Ivoire, Ethiopia, Togo,**~~ **Niger, Nigeria, Mali**

2007 – 2008 **Ghana**

2009 **Sudan**

** Established by ministries of health at 2004 World Assembly. One year incubation period; thus cannot know until at least 1 year or be sure until 3 years required by the World Health Organization.*

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.