DEPARTMENT OF HEALTH & HUMAN SERVICES

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

Memorandum

Date: October 29, 2010

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

Subject: GUINEA WORM WRAP-UP #201

To: Addressees

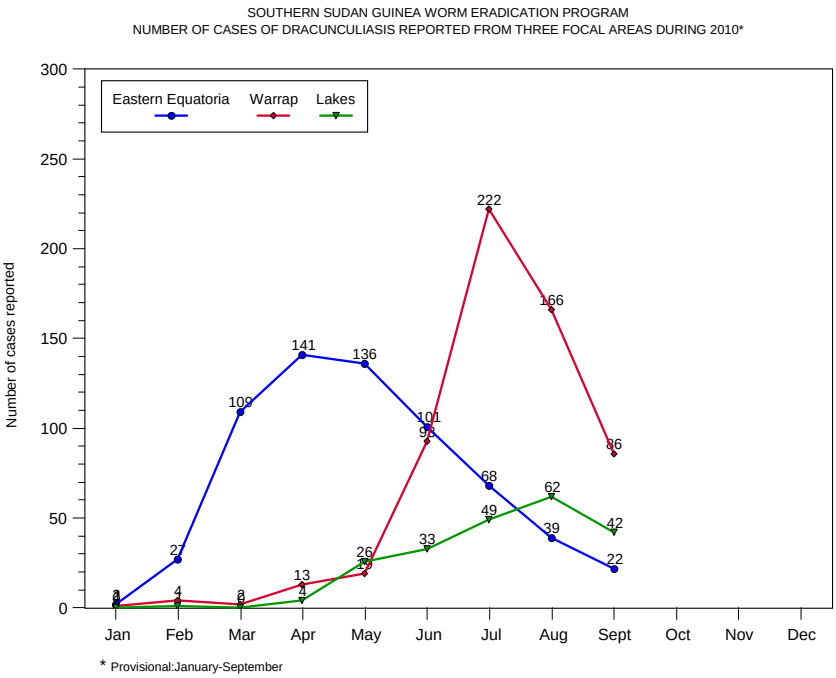
<u>Detect</u> Every Case! <u>Contain</u> all transmission! <u>Explain</u> every source!

"No good measure was ever proposed which, if duly pursued, failed to prevail in the end."
Thomas Jefferson

SUDAN: WHEN AND WHERE TO EXPECT THE GREAT WORM IN 2011

So far in 2010, the Southern Sudan Guinea Worm Eradication Program (SSGWEP) has reported 1,549 cases, of which 76% were contained, in 681 villages; and it now seems likely that the program will report fewer than 800 cases in 2011. 20% of this year's cases were contained in a Case Containment Center (vs. 8% of cases in 2009). Many (252, or 76%) of 313 Group III villages, i.e., under surveillance in 2009 and reporting zero cases then, but reporting cases in 2010, reported only cases imported from other villages in southern Sudan. Better containment of cases in endemic villages will help suppress exportation of cases to non-endemic villages.

Figure 1



As their numbers decline in southern Sudan, Guinea worms will seize every weakness they can in 2011, such as inattentive surveillance, inadequate containment, and disruptive insecurity. They will ignore the referendum and all its associated activities, except any actions that allow the worms to contaminate water and infect more people. Each missed worm in 2011 could cause 100 times as many patients in 2012.

<u>Expect the Worm</u> to peak first in the Eastern Equatoria focus, then in the Central Equatoria/Lakes and Warab foci (Figure 1).

Expect the Worm in Kapoeta East, Tonj North, Tonj East, Awerial, Kapoeta North, Tonj South, Terekeka, Kapoeta South, Pibor and Gogrial East Counties that reported 98% of all cases in 2010, and in the 237 villages reporting indigenous cases so far in 2010. Monitor households in 2011 of all patients who had the disease in 2010 (Figures 2 and 3). Anticipate possible increased cases as a result of insecurity in 2010 so far: in Eastern Equatoria in March (Kapoeta County/Kaldo payam), June (Kapoeta East County & payam); in Warrap in January-July, October; and in Central Equatoria/Lakes in February, March, June, August.

Expect the Worm wherever people are living and working a year after cases appeared in their area in 2010, whether in their village, farm, garden, cattle camp or elsewhere. Note the age and sex distribution of cases that occurred in 2010 in your area and use that to help predict where transmission is occurring (Figure 4). The ethnic groups mostly affected by dracunculiasis in Southern Sudan are the Dinka (53%) and the Toposa (42%) of all cases reported in 2010, so far.

Although the SSGWEP reported 1,549 confirmed cases of Guinea worm disease (GWD) during January-September 2010, the *Weekly Epidemiological Bulletin* of the Ministry of Health/Government of South Sudan's Integrated Disease Surveillance and Response (IDSR) system, which is supported by the United States Agency for International Development (USAID) and the World Health Organization (WHO), has reported 5 suspected cases of GWD in Week # 25: 21-27 June) and one suspected case (in Week #37: 13-19 September 2010), during January-September. Since GWD is included among the communicable diseases reported through the IDSR system, and since such system is designed to report confirmed cases of those disease, its reports should reflect the number of cases confirmed by the SSGWEP each month. These data are reported monthly by the SSGWEP to all partners, including the ministry of health, and could easily be incorporated into the IDSR reports. Standard operating procedure of the SSGWEP since 2006 has been the preparation of quadruplicate carbonized copies of its monthly reports from all endemic areas, and which are earmarked for the recipients below.

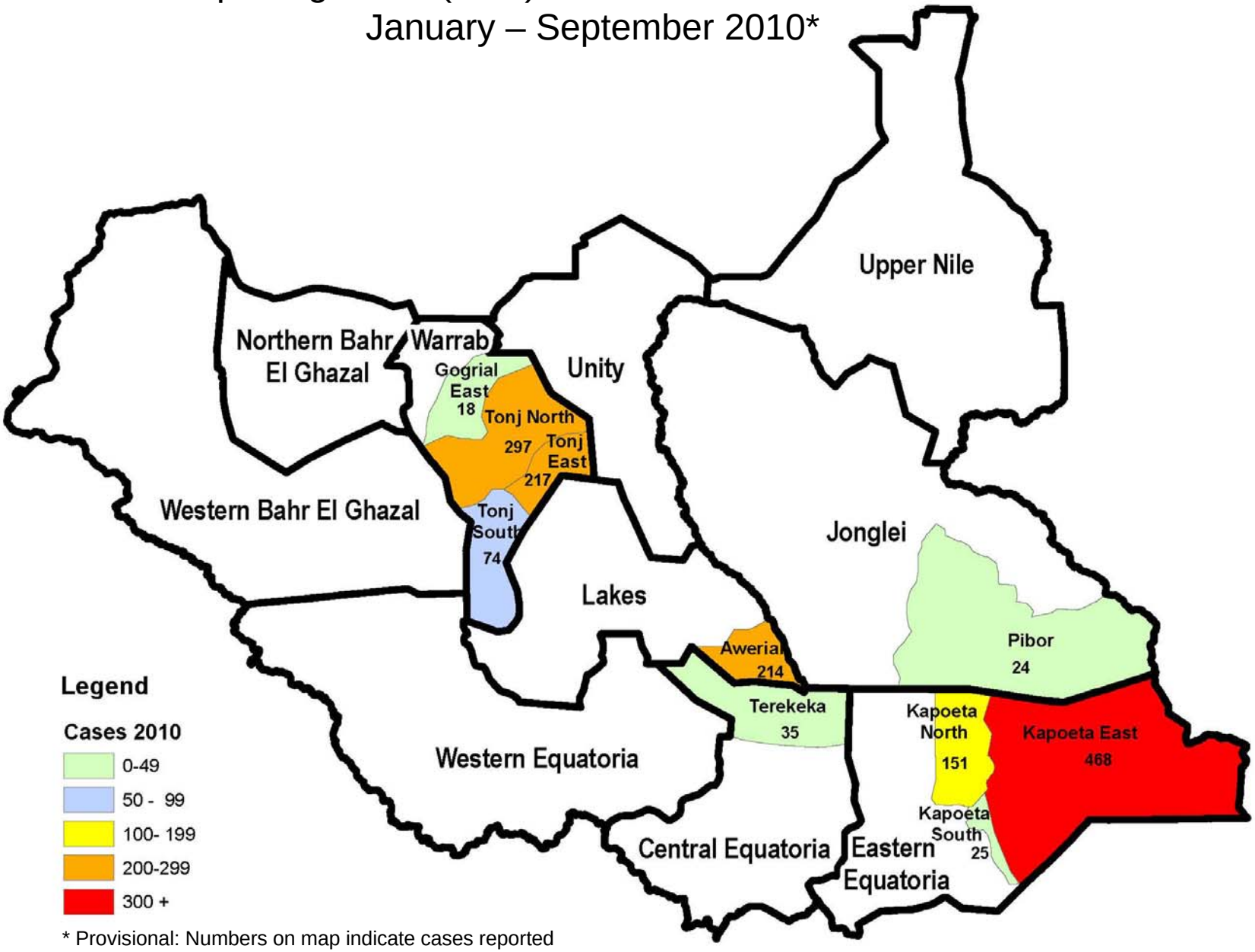
- One copy remains at the local level SSGWEP sub-office (payam).
- One copy for the county health department
- One copy for the stat health department, and
- One copy for the SSGWEP national secretariat.

That incongruity should be corrected. To be useful, the IDSR should include all available data for confirmed cases of GWD, as well as for other communicable diseases on which it reports. Since the IDSR disease reports are first received and consolidated at the county level, it is apparent that practical arrangements between the the county level public health surveillance office (in endemic counties) and the SSGWEP, to facilitate the transfer of a copy of the monthly SSGWEP report about confirmed cases of GWD, are needed to ensure the IDSR captures current and future data on GWD in the system. In areas now free of GWD in Southern Sudan, where the SSGWEP is not present (because there is no transmission to interrupt), the practical communication and reporting linkages between the county level surveillance staff and communities at large to capture information about possible imported cases of GWD are not yet fully evident.

Figure 2

South Sudan Guinea Worm Eradication Program

10 Counties Reporting 1,523 (98%) of 1,549 Cases of Guinea Worm Disease: January – September 2010*

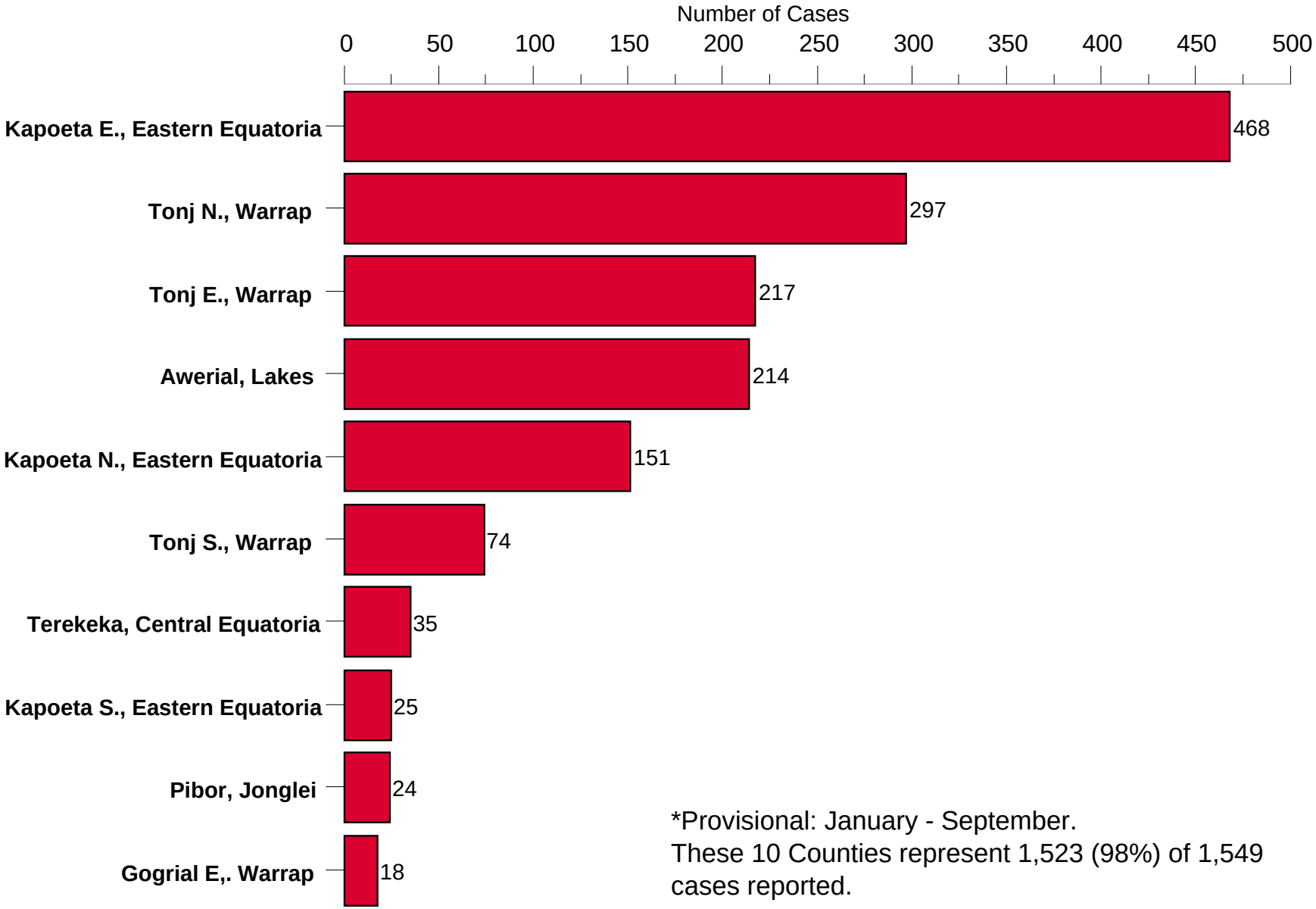


* Provisional: Numbers on map indicate cases reported

Figure 3

South Sudan Guinea Worm Eradication Program

Top 10 Counties, by State, Reporting Cases of Dracunculiasis During 2010*

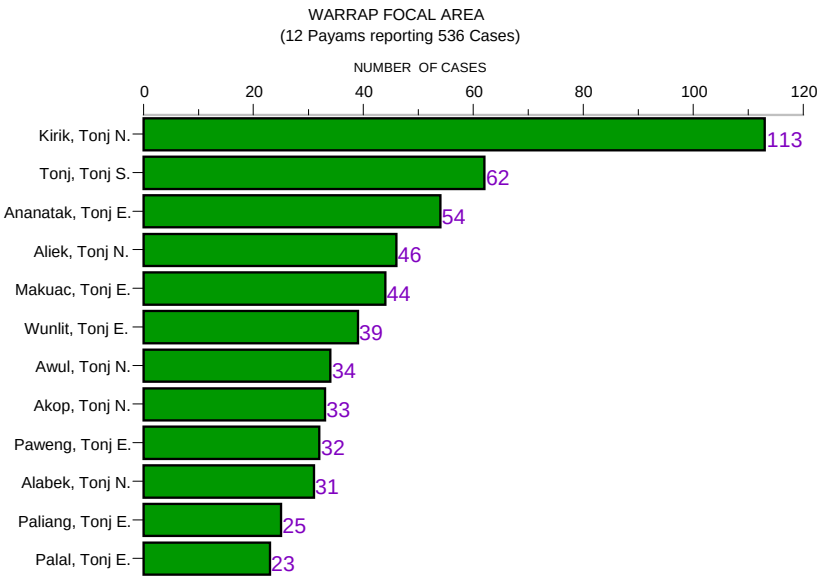


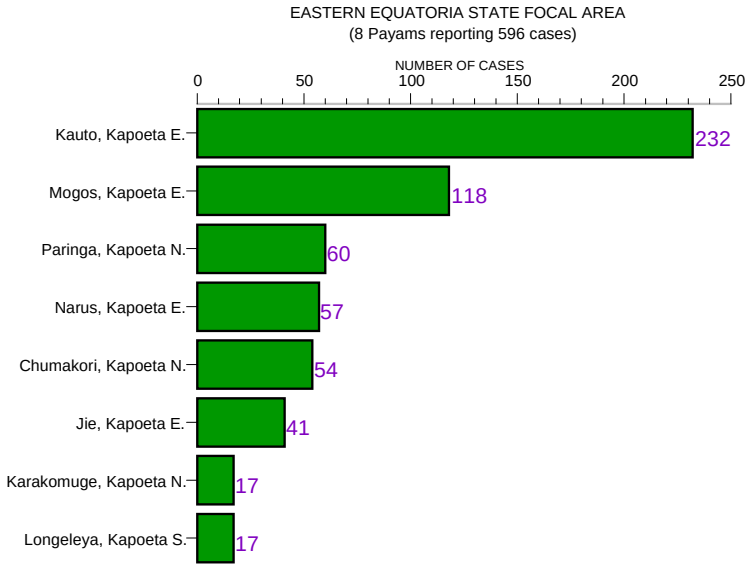
*Provisional: January - September.
These 10 Counties represent 1,523 (98%) of 1,549 cases reported.

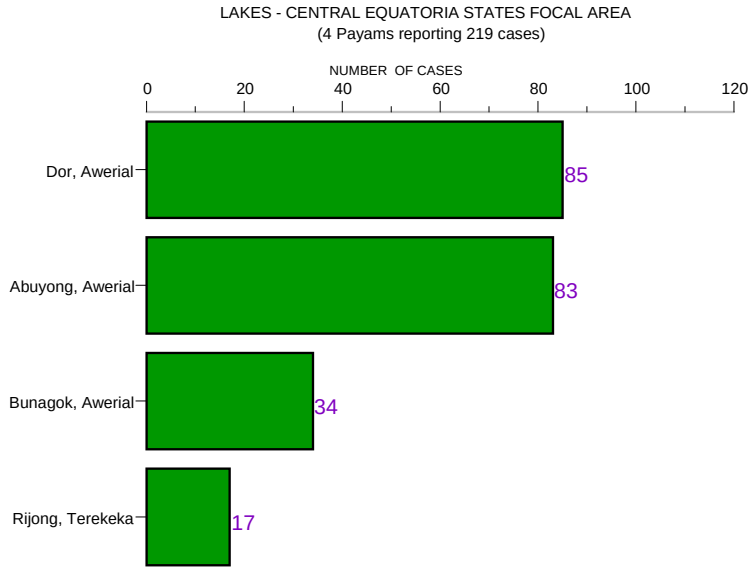
Figure 4

SOUTH SUDAN GUINEA WORM ERADICATION PROGRAM

24 PAYAMS, BY COUNTY, REPORTING 1,351 (87%) OF 1,549 CASES OF DRACUNCULIASIS BY FOCAL AREA:JANUARY-SEPTEMBER 2010*



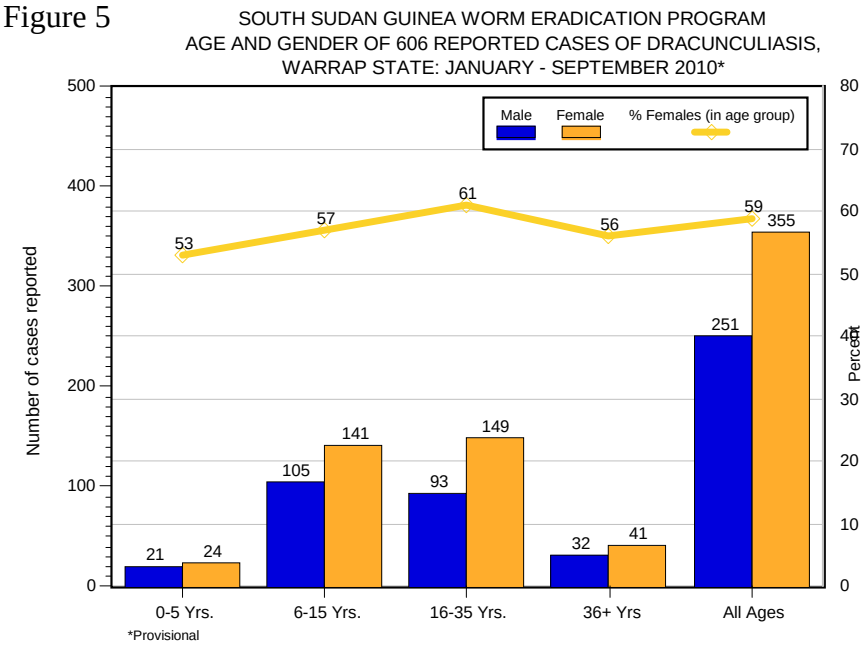


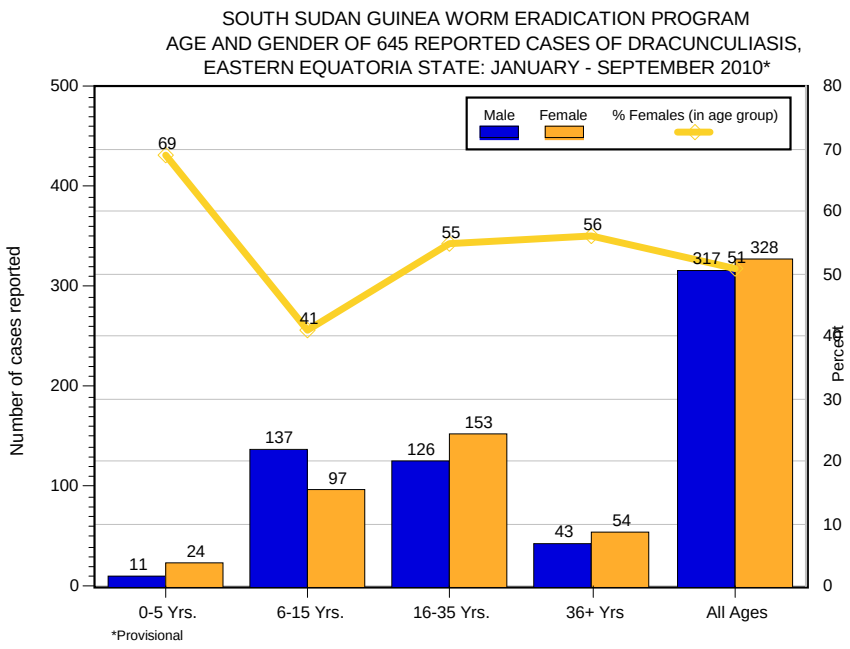


*PROVISIONAL.

Excludes 24 cases reported from Kassingor Payam, Pibor County, Jonglei State.

Figure 5


SOUTH SUDAN GUINEA WORM ERADICATION PROGRAM
AGE AND GENDER OF 606 REPORTED CASES OF DRACUNCULIASIS,
WARRAP STATE: JANUARY - SEPTEMBER 2010*
Male
Female
% Females (in age group)
Number of cases reported
Percent
0-5 Yrs.
6-15 Yrs.
16-35 Yrs.
36+ Yrs
All Ages
*Provisional
21
24
105
141
93
149
32
41
251
355
53
57
61
56
59


SOUTH SUDAN GUINEA WORM ERADICATION PROGRAM
AGE AND GENDER OF 645 REPORTED CASES OF DRACUNCULIASIS,
EASTERN EQUATORIA STATE: JANUARY - SEPTEMBER 2010*
Male
Female
% Females (in age group)
Number of cases reported
Percent
0-5 Yrs.
6-15 Yrs.
16-35 Yrs.
36+ Yrs
All Ages
*Provisional
11
24
137
97
126
153
43
54
317
328
69
41
55
56
51

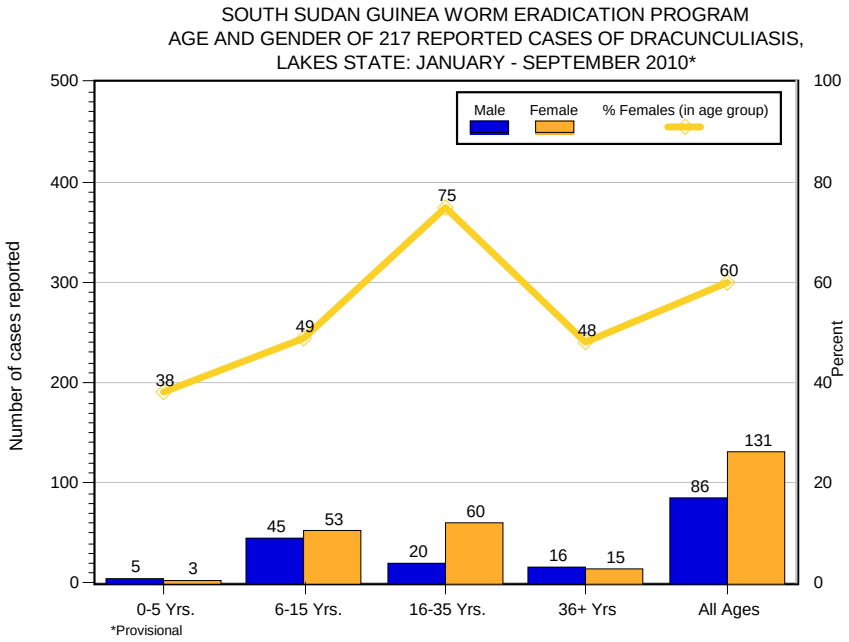

SOUTH SUDAN GUINEA WORM ERADICATION PROGRAM
AGE AND GENDER OF 217 REPORTED CASES OF DRACUNCULIASIS,
LAKES STATE: JANUARY - SEPTEMBER 2010*
Male
Female
% Females (in age group)
Number of cases reported
Percent
0-5 Yrs.
6-15 Yrs.
16-35 Yrs.
36+ Yrs
All Ages
*Provisional
5
3
45
53
20
60
16
15
86
131
38
49
75
48
60

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*
SUDAN	6 / 7	22 / 36	80 / 113	119 / 159	147 / 190	176 / 239	274 / 359	229 / 289	120 / 157	/	/	/	1173 / 1549
GHANA	2 / 2	3 / 3	1 / 1	1 / 1	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	8 / 8
MALI	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	4 / 6	6 / 6	13 / 19	17 / 18	/	/	41 / 50
ETHIOPIA^	0 / 0	1 / 1	2 / 2	6 / 6	1 / 2	1 / 2	1 / 1	2 / 2	1 / 1	1 / 1	/	/	16 / 18
CHAD	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	0 / 1	0 / 0	/	/	/	/	/	0 / 2
NIGER^	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 2	/	/	2 / 2
TOTAL*	8 / 9	26 / 40	83 / 116	126 / 166	150 / 195	177 / 242	279 / 366	237 / 297	134 / 177	20 / 30	/	/	1240 / 1629
% CONTAINED	89	65	72	76	77	73	76	80	76	67			76
% CONT. OUTSIDE SUDAN	100	100	100	100	60	33	71	100	70	67			84

* provisional

^ Ethiiopia reported and imported case from Southern Sudan in June, and Niger reported two imported cases from Mali in October.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*
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
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
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
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
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
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
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
% 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

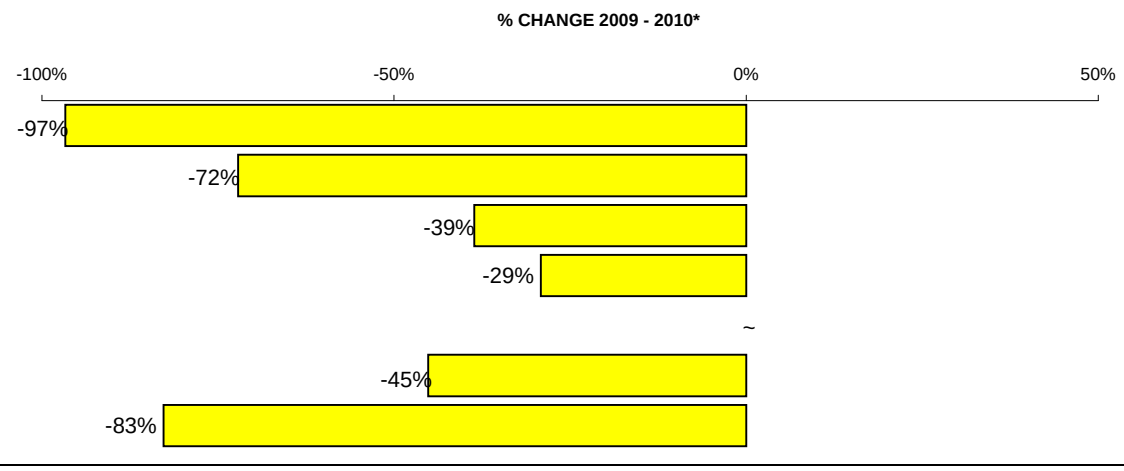
^ Niger reported 5 imported cases: 1 from Ghana and 4 from Mali.

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

Figure 6

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 (10)	240	8
Mali (10)	176	49
Sudan (9)	2523	1549
Wethiopia (10)	24	17
Chad (7)	0	2
Total	2963	1625
All countries, excluding Sudan	440	76



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

IN BRIEF

The number of reported and contained cases of dracunculiasis, by country, during January – September 2010 are shown in Table 1 and 2, and the percentage change in cases during this period versus January-September 2009 is shown in Figure 6. An update about dracunculiasis in Chad is summarized in Table 3.

Table 1

Countdown to Eradication

Country	Cases Jan-Sept 2010	% Cases Contained	% Reduction 2009-2010
SUDAN	1,549	76%	39%
MALI	49	86%	72%
ETHIOPIA	18	89%	29%
GHANA	8	100%	97%

* Provisional: January - October

Ethiopia has reported 17 indigenous cases from 8 villages in January-October 2010, plus one case imported from Southern Sudan in June. All of the indigenous cases occurred in Gog woreda of Gambella Region.

Mali exported two cases to Niger in October. One patient, a 35 year old man, was detected and containment of transmission was begun on the same day his worm emerged in Niamey: October 1st. He arrived in Niger on August 8, 2010 from Gourma Rharous District of Timbuktu Region, and had spent four months in Algeria immediately before that. The other case, a 20 year old man, arrived in Tillaberi District on September 23, 2010 and was immediately placed under observation (with signs suspected of dracunculiasis). A Guinea worm emerged on October 12th and measures to contain transmission were begun the same day. Ironically, both men indicated "water vending" was their occupation. Both patients are residents of Gossi (reporting 6 cases, 5 contained), in Gourma Rharous District of Timbuktu Region in Mali during January -September.

STATUS OF DRACUNCULIASIS IN NIGER AND BURKINA FASO ASSESSED BY INTERNATIONAL CERTIFICATION TEAMS (ICTS)

In follow-up of Niger's claim of having interrupted transmission of dracunculiasis in 2008, the World Health Organization (WHO) sent an external evaluation team to visit Niger during September 15-30, 2010. The team was led by Dr. Abolhassan Nadim, a member of the International Commission for the Certification of Dracunculiasis Eradication (ICCDE) and included Mr. Adam Thomas of UNICEF/Ghana, Dr. Kimberly Mace of CDC, Dr. L.Theodore Kangoye of Burkina Faso, Mr. Alto Oumarou of CERMES/Niamey, and Mr. Sadi Moussa, Dr. Salissou Adamou and Mr. Aboubacar Adakal of the Ministry of Health, Niger. Facilitators included Drs. Alhouseini Maiga and Dieudonné Sankara of WHO, national GWEP coordinator Mr Harou Oumarou, and others.

The objectives of the evaluation were to 1) confirm the interruption of GWD local transmission in Niger, 2) assess the surveillance as well as intervention activities of the program and 3) formulate relevant recommendations to improve pre-certification activities. Four teams, each composed of an external evaluator, a national evaluator and a facilitator traveled to specific

formerly endemic areas to evaluate the program. The evaluation covered 7 of the 8 health regions, 21 health districts, 37 primary health care centers (CSI) and 96 localities (formerly endemic localities/villages and villages with no history of the guinea worm disease) in Niger. A total of 1083 individuals were interviewed. Results showed that guinea worm disease surveillance is being carried out through the national Integrated Disease Surveillance and Response system. Up to 64% of villages visited are utilizing ponds as sources of drinking water. No evidence of local transmission was found; therefore the evaluation team concluded that local transmission of dracunculiasis has been interrupted. However, because the potential of importation of cases from endemic countries is high (5 cases imported from Ghana (1) and Mali (4) were reported in Niger in 2009, and 2 from Mali in 2010, so far) actionable recommendations have been made to Niger MOH to strengthen nation wide Guinea worm disease surveillance and response so as to prevent any reintroduction of the disease. The final report of the evaluation is expected to be available by end November 2010.

An International Certification Team (ICT) visited Burkina Faso during October 18-29 to also assess the claim that interruption of dracunculiasis. The ICT was led by Professor David Molyneux, member of the ICCDE, included Mr. Sadi Moussa (Niger), Dr. Dama Mana (Camerron), Mr.Adam Thomas (UNICEF), and Dr. Roodly Archer (CDC, USA). The team visited 11 of 13 regions, 30 districts, 58 CSPS (primary health care centers), 98 villages, and interviewed 73 village volunteers and 938 residents. As with the assessment in Niger, the ICT will provide a report to the ICCDE for their review and final recommendations to WHO regarding certification.

UPDATE ON CHAD

Below is a summary about two confirmed cases of dracunculiasis and 5 other reports (yet to be confirmed) from six villages in Chad so far during 2010. None were contained due to late detection or possible contamination of sources of drinking water.

Table 3

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

Patient Number	Village of Residence	District	Age	Gender	Date of emergence of 1st Guinea worm (total worms emerged)	Date of Detection	Date case investigated	Contaminated Water	Contained	Travel History: Year, Village and District
1**	Nanguegoto	Guelendeng	60	F	29 May 2010 (2 worms)	20-May-10	2-May-2010	Yes	No	2008:Mitau Village, Guelendeng District; and Bram Village, Massenia District
2**	Nanguegoto	Guelendeng	27	F	18 June 2010 (1 worm)	18-Jun-10	19-Jun-2010	Yes	No	2008:Mitau Village, Guelendeng District
3	Matassi	Guelendeng	27	F	24 Aug 2010 (1 worm)	24-Aug-10	8-Sep-2010	Yes	No	2005 and 2009:Matassi Village, Mandalia District
4	Abba Limane	Guelendeng	15	M	15 Aug 2010 (2 worms)	26-Aug-10	24-Aug-2010	Yes	No	2010:Abba Limane Village, Guelendeng District
5	Mathssi	Dourbali	25	M	15 July 2010 (2 worms)	30-Aug-10	1-Sep-2010	Yes	No	2009:Raihoutou Village, Guelendeng District
6	Abourgui	Dourbali	60	M	1 July 2010 (5 worms)	2-Sep-10	2-Sep-2010	Yes	No	1950s ?:Aboukgai Village, Dourbali District
7	Moulkou	Guelendeng	4	F	17 Sept 2010 (1 worm)	17-Sep-10	17-Sep-2010	Yes	No	2009:Cigague Village, Bongor District

* Provisional

** Worm specimens obtained from these patients were confirmed to be *Dracunculus medinensis* by the Centers for Disease Control and Prevention in Atlanta. Receipt of specimens from other and confirmation of alleged cases is pending.

Patients 1 and 4 dates (underlined) are puzzling.

The origin of these cases remains unknown as is the number of villages with endemic transmission of dracunculiasis. None of these patients is known to have traveled outside of Chad in recent times, suggesting that dracunculiasis was reintroduced in Chad sometime after the national program stopped it about ten years ago, or that transmission in Chad was never interrupted and smoldered along undetected for years, despite previous assessments of Chad's efforts to maintain surveillance for cases of dracunculiasis.

RECENT DONATIONS

The World Food Program provided a donation - under its long-established food-for-training (FFT) program in Southern Sudan – to support and train monthly more than 8,000 volunteer staff (village volunteers and area supervisors) of the Southern Sudan Guinea Worm Eradication Program (SSGWEP) in 2010. FFT also makes it possible for the SSGWEP to train and maintain patients at twelve case containment centers located in five priority counties in Southern Sudan, critical help in efforts to care for patients and prevent transmission of dracunculiasis. Without WFP's generous contribution, the SSGWEP would be unable to support the village volunteer network that makes the surveillance system the program depends on possible. The World Food Program is the world's largest humanitarian agency fighting hunger worldwide. Established in 1962, it strives to ensure that every man, woman and child has access at all times to the food needed for an active and healthy life.

NEW GW DOCUMENTARY WINS AWARDS; MORE SCREENING DATES SET

The new documentary film, "Foul Water Fiery Serpent", by Cielo Productions, won four awards at the 2010 Los Angeles Reel Film Festival, for Documentary Feature, Best Director, Best Voiceover, and Best Score/Sound Track. The depiction of the struggle to eradicate dracunculiasis also won an award for Environmental Documentary at the 2010 Atlanta International Documentary Film Festival. On October 18, the film was shown before an audience of almost 400 persons at the National Geographic Center in Washington DC. Additional screenings are being planned at the University of California at Berkeley on November 17, 2010; at the University of Washington in Seattle, in January 2011; and at Harvard University in Cambridge, Massachusetts on February 14, 2011. These screenings will be open to the public. For more details, see **www.foulwaterfieryserpent.org**

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.

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/guineaworm/
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.