



Date: March 5, 2014

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

Subject: GUINEA WORM WRAP-UP #224

To: Addressees

“Success is the ability to go from one setback to another with no loss of enthusiasm.”

— Sir Winston Churchill

**CONTAIN EVERY WORM!**

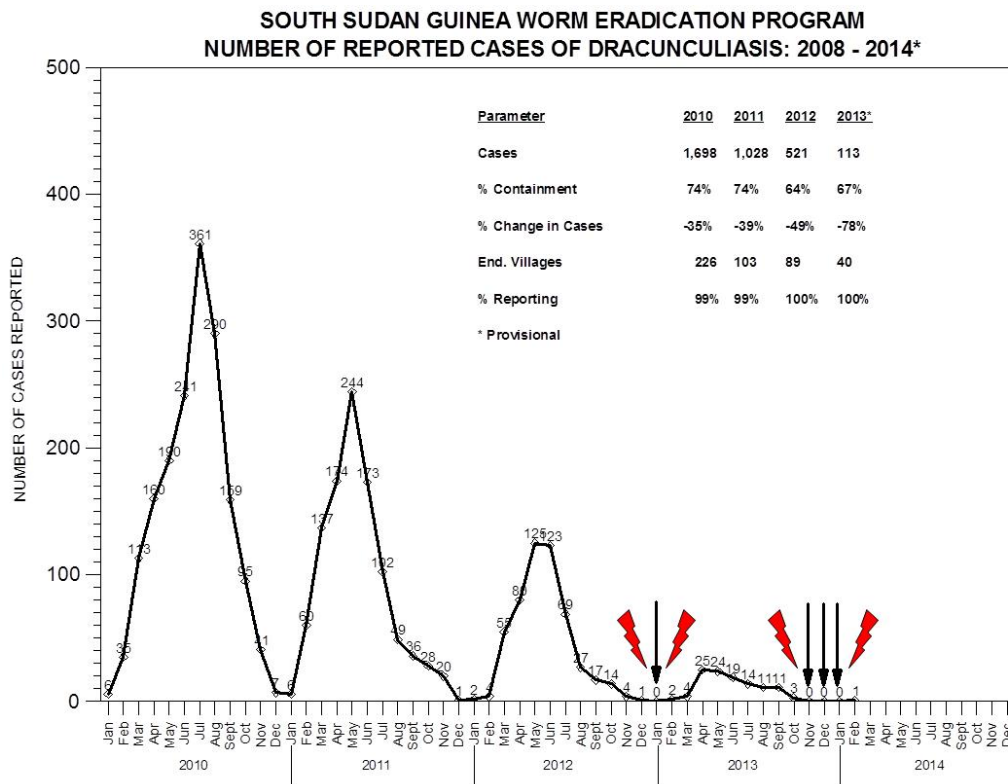
**TRACE EVERY SOURCE!**

**SOUTH SUDAN: ZERO CASES REPORTED FOR 3 CONSECUTIVE MONTHS, WITH AVERAGE 81 PERCENT REPORTING RATE**



Against many odds, the South Sudan Guinea Worm Eradication Program (SSGWEP) has recorded no cases of Guinea worm disease (GWD) for three consecutive months, November 2013-January 2014. Reporting rates in November and December 2013 were 100% and 62%, in respectively, from 6,682 villages under active surveillance (VAS), including 396 cattle camps. The reporting rate in January 2014 was 81% from 4,681 VAS as of January 1, including 394 cattle camps. The SSGWEP expects the reporting rate during these periods will increase to nearly 100% as reports for almost all VAS were collected and are in transit to the national program secretariat. (Figure 1).

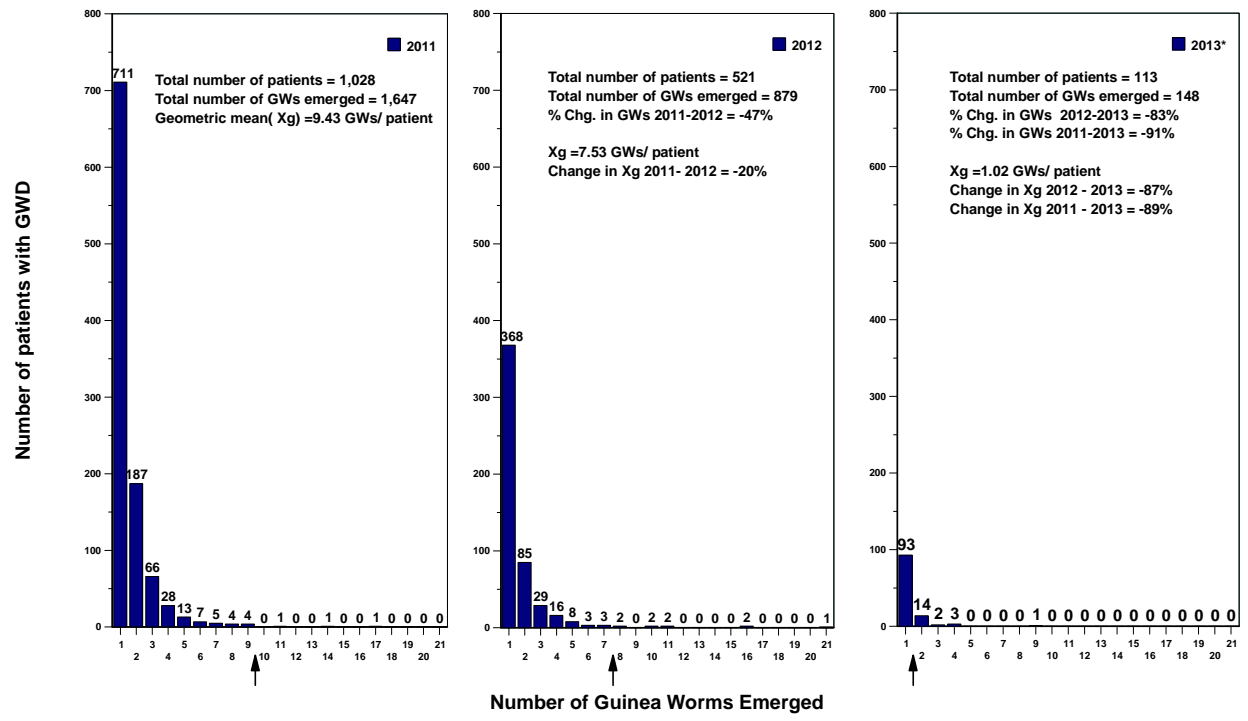
Figure 1



For all of 2013, the SSGWEP has reported a provisional total of 113 cases from 79 villages, which is a 78% reduction in cases and a 69% reduction in villages reporting cases, from the 521 cases in 255 villages in 2012. 67% of cases met the criteria for case containment in 2013, vs. the 64% containment rate in 2012. In addition, the total number of Guinea worms that emerged from all patients in South Sudan was reduced by 83%, from 879 worms in 2012 to only 148 worms in 2013 (**Figure 2**).

**Figure 2**

**South Sudan Guinea Worm Eradication Program  
Frequency Distribution of the Number of Patients with Guinea Worm Disease and the  
Number of Guinea Worms Emerging in 2011, 2012, and 2013\***



Arrows approximate location of geometric mean.

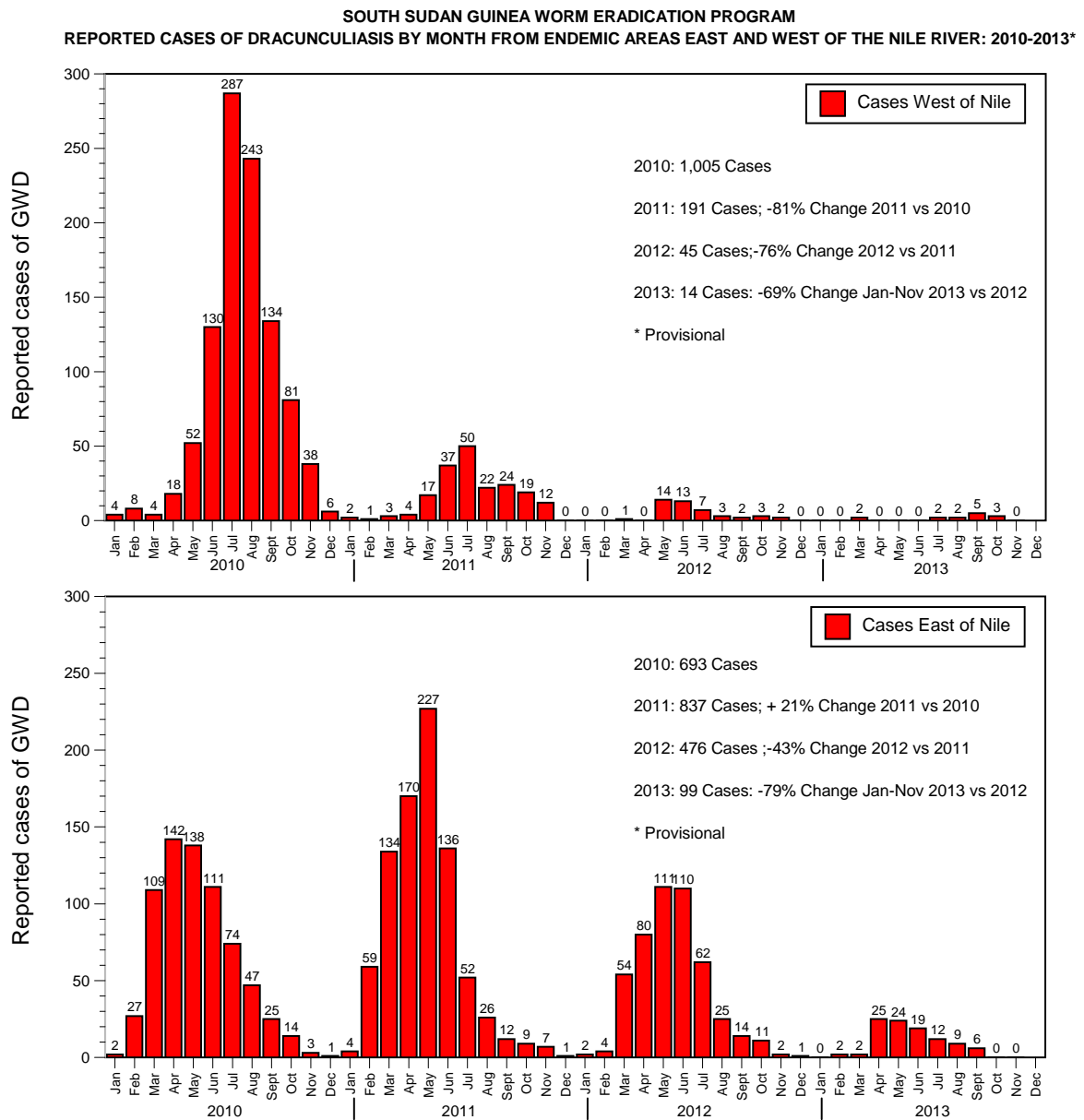
\*provisional

These remarkable results were reported by the Director of the SSGWEP, Mr. Samuel Makoy Yibi, during a small improvised review meeting held at Kapoeta, in Eastern Equatoria State, on February 18-19, 2014, after insecurity forced the annual review meeting scheduled for January to be cancelled. About 25 persons, including the County Commissioners of Kapoeta East, North and South Counties, and representatives of the state Ministry of Health, The Carter Center, the World Health Organization (WHO) and UNICEF, participated in the meeting. Most WHO staff returned to Juba the first week of January 2014, and all 34 expatriate staff assigned to the program by The Carter Center had returned to the country by February 19, including 19 technical advisors and 5 regional coordinators. After the recent conflict began on December 15, 2013, all village volunteers and their immediate South Sudanese supervisors remained in place in endemic areas east of the Nile (Eastern Equatoria, and Jonglei States) where 88% of cases were reported in 2013 (**Figure 3**). Similarly village volunteers remained in place west of the Nile (Lakes,

Warrap, and Western and Northern Bahr Al Ghazal States) during this period. The WHO Guinea worm technical officer in South Sudan assessed surveillance for GWD among refugees from Jonglei State at Internally Displaced Persons camps in Awerial County of Lakes State in February. Mr. Makoy stressed that the SSGWEP will now give priority to restoring operations urgently in endemic villages of Gogrial East County of Warrap State as well as in Pibor County (southern Jonglei), where the first cases of GWD were reported in March (2 cases, 1 contained) and April (3 cases, none contained) 2013, respectively. Kapoeta East County of Eastern Equatoria State reported the nation's first cases of 2013 in February (2 cases, 1 contained, the sources of both cases were established: see source definition on last page).

Mr. Makoy also announced that early this year the SSGWEP will introduce cash rewards of 500 South Sudanese Pounds (SSP; ~US\$125) to self-reporting patients meeting all criteria for case containment, and 200 SSP to uncontained cases who agree to subsequent containment until all worms are emerged and to informants (village volunteers or other persons) who bring a case to the attention of the SSGWEP.

**Figure 3**



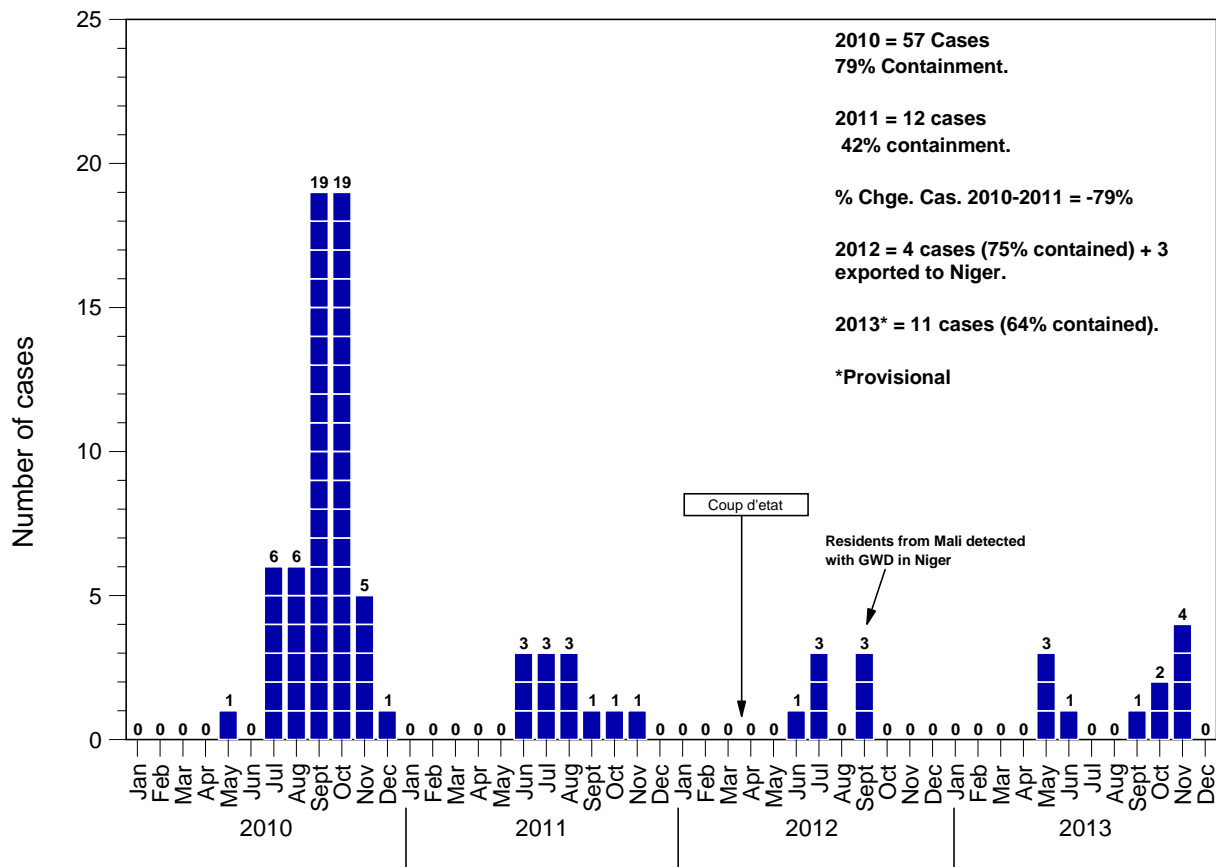
## MALI GEARING UP

The Technical Advisor to the Minister of Health of Mali chaired a meeting on January 14 to discuss intensification of Mali's GWEP. Participants included the director and the deputy director of public health, as well as representatives of information, surveillance, health education, hygiene, environmental health, and water supply, The Carter Center and WHO. The national coordinator of the GWEP, Dr. Gabriel Guindo, made a presentation on the status of the GWEP and of GWD in the country, reviewed 2013 activities, and outlined plans for 2014. The meeting agreed on several needs: to establish a task force for supporting GWEP activities, to create a national commission for certification, to reinforce surveillance in Gao, Timbuktu, Kidal and Mopti Regions, to increase use of ABATE Larvicide in Ansongo and Kidal Regions, and to scale up publicity of the cash reward for reporting a case of GWD nationwide. It was decided to resume activities in Kidal using traditional leaders, representatives of communes, other key local persons, and NGOs. The transmission season for GWD in Mali is May-November (**Figure 4**).

Assessments of reward awareness conducted with the support of WHO in November/December 2013 revealed 98% reward awareness in Djenne District (1 uncontained case in May 2013) of Mopti Region and in Ansongo District (6 cases, including 1 uncontained, in October/November 2013) of Gao Region, 13% reward awareness in Kidal District (3 cases, including 1 uncontained, in May/June 2013) of Kidal Region, and 4% reward awareness in Gourma Rharous District (1 contained case in September 2013) of Timbuktu Region.

**Figure 4**

Mali Guinea Worm Eradication Program  
Reported cases of dracunculiasis: 2010 - 2013\*



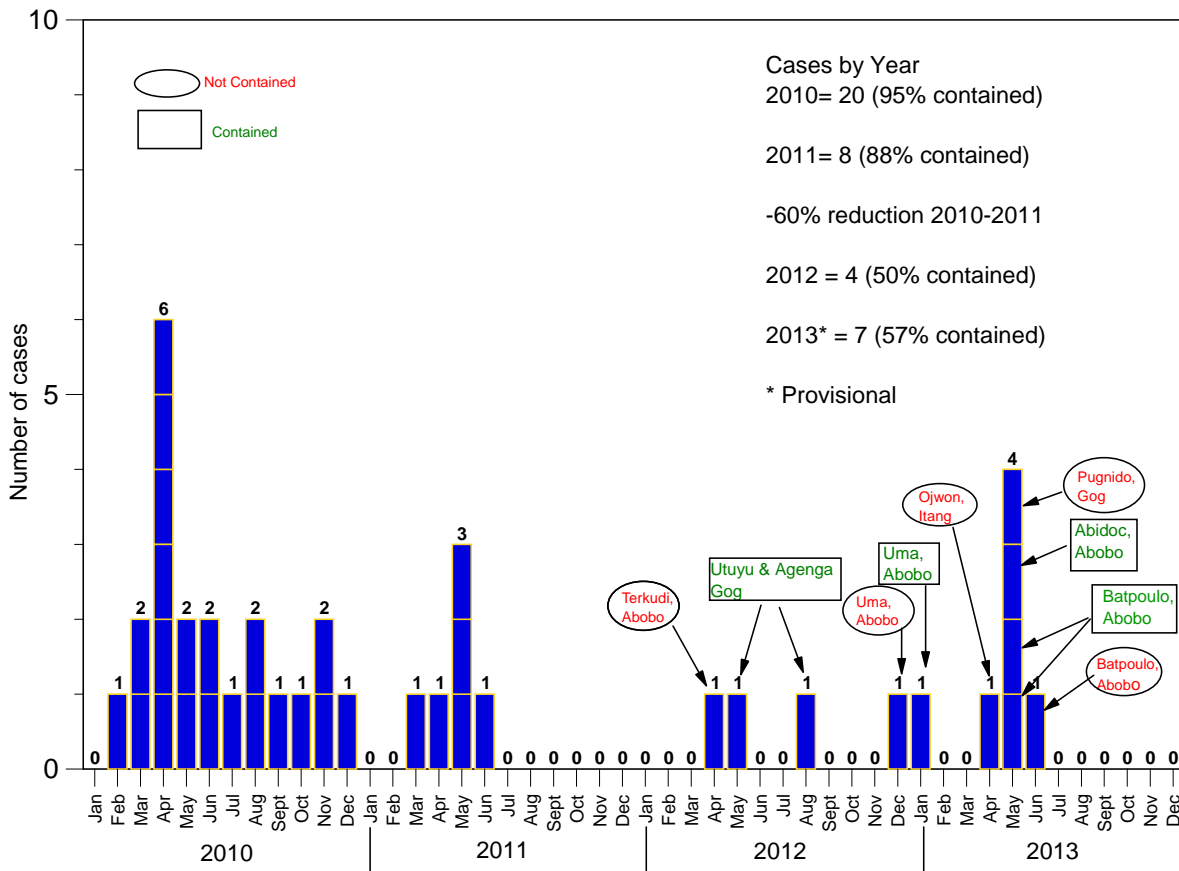
## ETHIOPIA STRENGTHENING ACTIVE SURVEILLANCE

The Ethiopian Dracunculiasis Eradication Program (EDEP) reported a total of 7 cases of GWD from three *woredas* (districts), all in Gambella Region, in 2013: Abobo (5 cases, in January-June), Gog (1 case, in May) and Itang (1 case, in April) (**Figure 5**). No cases have been reported in the country for seven consecutive months, July 2013-January 2014. Active village-based surveillance has been in place in all 70 villages of Gog District beginning in 2010 with assistance provided by The Carter Center, which at the request of the Federal Minister of Health, Dr. Kesetebirhan Admasu Birhane, also began assisting authorities in Abobo District in 2013. Active village-based surveillance and other interventions by 123 trained village volunteers were in place in all 61 villages of Abobo District by January 2014.

WHO is helping regional and district authorities to develop active surveillance in part of Itang District, which had not reported a case of GWD for several years. The National Coordinator of the EDEP, Mr. Gole Ejeta of the Federal Ministry of Health, and other team members from the Gambella Regional Health Bureau and WHO visited Itang District in February 2014 and surveyed 6 villages in and around Iliia sub-district, where the case was detected in April 2013. The team facilitated selection of two village volunteers from each village during community mobilization exercises. The 12 village volunteers were trained and provided supplies to conduct active village-based surveillance starting in mid-February. A Guinea worm officer assigned by the Regional Health Bureau and a National Program Officer employed by WHO have been charged to supervise the village volunteers in Itang District.

**Figure 5**

**Ethiopia Dracunculiasis Eradication Program  
Number of Indigenous Cases of Dracunculiasis Reported from Gambella Region 2010 – 2013\***



## CHAD: ACTIVE SURVEILLANCE EXPANDED TO SARH DISTRICT

Following the discovery of 5 cases (none contained) of GWD in Maimou village of Sarh District in Moyen Chari Region of southern Chad in November-December 2013 (**Table 2**), Chad's GWEP began establishing active village-based surveillance in Maimou and surrounding villages with assistance of The Carter Center. A sixth case, which was *contained*, was detected in January 2014. So far, however, the *source* of infection of the cases in Maimou, including the case detected in January 2014, is *unknown*. Chad's second case of 2014 (who did not contaminate water and is pending containment at the local health center), was detected in February in the village of Yadime, in the passive surveillance section of Kouno zone, of Bousso District, Chari Baguirmi Region. During the period of infection, the case lived in Madjamra, a village under active surveillance in Kouno and lived near Lelgoui pond where residents fish. This pond was previously contaminated by the 2012 Case #7 in August of 2012 (a date outside the 10-14 month incubation period). The Bongor District of the Mayo Kebbi East Region, where no cases of GWD have been detected since 2010, but which had been under active surveillance, transitioned to passive surveillance at the end of 2013. The WHO office in Chad is helping the GWEP to integrate surveillance for GWD into the polio and measles campaigns in all regions of the country following a partners meeting on February 6. The Minister of Health, Dr. Ngariera Rimadjita, has written the Minister of the Interior and Public Safety to request assistance in implementing control measures. A meeting was held jointly by the Ministry of Health and the Ministry of Rural Water on February 10th to advocate for partner organizations to provide potable water in Guinea worm affected communities.

## IN BRIEF

**Sudan.** At the request of the Ministry of Health, WHO supported a mission to El Radom locality of South Darfur in December(?) 2013 to investigate the 3 cases reported from the area of Kafia Kingi and begin strengthening surveillance there. Sudan had detected no indigenous case of GWD since 2002. The 3 patients, all females, are related (a 45 year old woman, her 18 year old niece and 4 year old granddaughter), their infections began in June and September 2013, and they reportedly have not traveled to South Sudan, Chad, or Central African Republic in recent years. A traditional leader of Kafia Kingi, a local health worker and several other villagers allege that uniformed soldiers from South Sudan occupied the area and displaced local residents for more than a week beginning on April 29, 2012. The villagers believe the soldiers contaminated a local water source, which resulted in infection of the 3 patients.

Former U.S. President Jimmy Carter discussed issues related to renewed Carter Center assistance to Sudan's GWEP with Sudanese President Omar Al-Bashir and ministry officials during a visit to Khartoum on January 20-22. Mr. Adam Weiss, assistant director of the GWEP at The Carter Center, visited Khartoum on February 18-24 to meet with the national coordinator for GW eradication (and NTD director) Dr. Mousab Siddig, the Guinea worm focal person in the El Radom area of South Darfur Mr. Mekki Eltigani, other officials in the Federal Ministry of Health, and Carter Center Country Representative Mr. Nabil Aziz to discuss preparations for implementing active surveillance in the area.

Table 1

SOUTH SUDAN GUINEA WORM ERADICATION PROGRAM  
LINE LISTING OF CASES OF GWD DURING 2014\*

Case #	Village or Locality of Detection			Payam	County	Age	Sex	Date GW Emerged	Case Contained?		1 = Imported 2 = Indigenous	Home Village or Locality			Presumed Source of Infection Identified?		Presumed Source of Infection is a Known EVA?	
	Name	1 = EVAS	2 = NEVAS						(Yes, No, or Pending)	If No, Date of Abate Rx*		Name	1 = EVAS	2 = NEVAS	(Yes / No)	Description	(Yes / No)	Actions?
1.1	NAPUSIRIYET	1		JIE	KAPOETA EAST	25	F	24-Feb-14	YES		2	NAPUSIRIYET	1		1	WATER SOURCES SURROUNDING VILLAGE (STILL UNDER INVESTIGATION)	YES	FULL INTERVENTIONS IN PLACE

EVS= Endemic Villages

NEVS = Non Endemic Villages

Gardens = Farming areas of villages

CC = Cattle Camp

CCC = Case Containment Center

\* provisional

Table 2

CHAD GUINEA WORM ERADICATION PROGRAM  
LINE LISTING OF CASES OF GWD DURING 2014

Case #	Village or Locality of detection				Payam or District or Woreda	County or Region	Patient			Case Contained?		1 = imported 2 = indigenous	Home Village or Locality				Presumed Source of infection identified?		Presumed Source of infection is a known EVA?	
	Name	1 = EVAS	2 = NEVAS	3 = PSV			Age	Sex	Date GW emerged (D/M/Y)	(Yes, No, or Pending)	If no, date of Abate Rx		Name	1 = EVAS	2 = NEVAS	3 = PSV	(Yes or No)	Name	(Yes or No)	Actions?
1.1	Maimou			3	Sarh	Moyen Chari	9	F	18-Jan-14	yes		2	Maimou			3	No			
2.1	Yadime			3	Bouso	Chari Baguirmi	52	F	14-Feb-14	yes		2	Yadime			3	Yes	Lelgoui pond?	no	too large to Rx with ABATE

use the 1.1, 1.2...etc. system to designate number of GWs emerging from same case-patient.

EVAS = endemic village under active surveillance

NEVAS = non endemic village under active surveillance

PSV = passive surveillance areas

\* provisional

Table 3

**Number of Reported Cases of Guinea Worm Disease Contained and Number Reported by Month during 2014\***  
(Countries arranged in descending order of cases in 2013)

COUNTRIES WITH ENDEMIC TRANSMISSION	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SOUTH SUDAN <sup>^</sup>	0/0	1/1	/	/	/	/	/	/	/	/	/	/	1/1	
CHAD	1/1	1/1	/	/	/	/	/	/	/	/	/	/	2/2	100
MALI <sup>§</sup>	0/0	0/0	/	/	/	/	/	/	/	/	/	/	0/0	
ETHIOPIA	0/0	0/0	/	/	/	/	/	/	/	/	/	/	0/0	
TOTAL*	1/1	2/2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	3/3	100
% CONTAINED	100	100											100	

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	/	/	/	/	/	/	/	/	/	/	/	/	0/0	0%

TOTAL	1/1	2/2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	3/3	100
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\*Provisional

Cells shaded in black denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were contained and reported that month.

Cells shaded in yellow denote months when transmission of GWD from one or more cases was not contained.

<sup>^</sup> The South Sudan GWEP ceased operations on December 16, 2013 as a result of armed conflicts and insecurity.

<sup>§</sup> Since April 2012 reports include only Kayes, Koulikoro, Segou, Sikasso, and Mopti Regions; the GWEP was not fully functional in Timbuktu, and Gao Regions throughout 2013, and not at all in Kidal Region.

**Number of Reported Cases of Guinea Worm Disease Contained and Number Reported by Month during 2013\***  
(Countries arranged in descending order of cases in 2012)

COUNTRIES WITH ENDEMIC TRANSMISSION	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SOUTH SUDAN <sup>^</sup>	0/0	1/2	1/4	18/25	19/24	13/19	8/14	7/11	7/11	2/3	0/0	0/0	76/113	67
CHAD	0/0	0/0	0/0	3/3	1/1	0/1	3/3	1/1	0/0	0/0	0/3	0/2	8/14	57
MALI <sup>§</sup>	0/0	0/0	0/0	0/0	0/3	1/1	0/0	0/0	1/1	1/2	4/4	0/0	7/11	64
ETHIOPIA	1/1	0/0	0/0	0/1	3/4	0/1	0/0	0/0	0/0	0/0	0/0	0/0	4/7	57
TOTAL*	1/1	1/2	1/4	21/29	23/32	14/22	11/17	8/12	8/12	3/5	4/7	0/2	95/145	66
% CONTAINED	0	50	25	72	72	64	65	67	67	60	57	0	66	

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	/	/	/	/	/	0/2	/	/	0/1	/	/	/	0/3	0%

TOTAL	1/1	1/2	1/4	21/29	23/32	14/24	11/17	8/12	8/13	3/5	4/7	0/2	95/148	64
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\*Provisional

Cells shaded in black denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were contained and reported that month.

Cells shaded in yellow denote months when transmission of GWD from one or more cases was not contained.

<sup>^</sup> The South Sudan GWEP ceased operations on December 16, 2013 as a result of armed conflicts and insecurity. Zero cases of GWD were reported during December 1-16, 2013.

<sup>§</sup> Since April 2012 reports include only Kayes, Koulikoro, Segou, Sikasso, and Mopti Regions; the GWEP was not fully functional in Timbuktu, and Gao Regions throughout 2013, and not at all in Kidal Region.



## MEETINGS

During the meeting of the Executive Board of WHO in Geneva on January 20-25, 2014, when the annual Progress Report on the status of the global Guinea Worm Eradication Program was presented (see: [http://apps.who.int/gb/ebwha/pdf\\_files/EB134/B134\\_53-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/EB134/B134_53-en.pdf) ), representatives of two non-Executive Board members commented as follows:

- USA noted that 197 countries, areas and territories have been certified, complimented the progress towards Guinea worm eradication, reiterated its continued support, and appreciated WHO's continued support for the final push towards eradication.
- Ethiopia congratulated countries that have been certified and those at the precertification stage, and reported that the Ethiopian Minister of Health attended the Informal Meeting on Dracunculiasis Eradication at the 66<sup>th</sup> World Health Assembly in May 2013 and is fully committed to Guinea worm eradication in Ethiopia. Ethiopia has drawn up a master plan to stop transmission in Gambella Region. Efforts are being made to link dracunculiasis surveillance with other programs like mapping Neglected Tropical Diseases (NTDs) and Community-Directed Treatment with Ivermectin (CDTI). Greater emphasis will be given to nationwide surveillance and awareness of the cash reward.

The annual meeting of National Program Managers of Guinea Worm Eradication Programs will be held in Addis Ababa, Ethiopia on March 19-21, 2014.

The annual Informal Meeting on Dracunculiasis Eradication will be held during the 67<sup>th</sup> World Health Assembly at WHO headquarters in Geneva on Wednesday evening, May 21, 2014.

### Definition of a contained case:

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.

### Working definition of a case source:

The source of a case is considered "probably known" if the patient resided in or visited a community under surveillance where a case of Guinea worm disease occurred within 10-14 months before the patient's worm emerged. Attribution to such a village or community is sufficient. Exact location of contaminated water source is not necessary.

## RECENT PUBLICATIONS

Hopkins DR, 2014. The Sudan conflict and disease (letter, on-line). New York Times January 9.

Jones AH, Becknell S, Withers PC, Ruiz-Tiben E, Hopkins DR, Stobbelaar D, Makoy SY, 2014. Logistics of Guinea worm disease eradication in South Sudan. Am J Trop Med Hyg 90:xxx-xxx. See also: [www.ajtmh.org/content/early/2014/01/16/ajtmh.13-0110.abstract](http://www.ajtmh.org/content/early/2014/01/16/ajtmh.13-0110.abstract)

McNeil DG Jr, 2014. Guinea worm said to infect few in 2013. New York Times January 17.

Inclusion of information in the Guinea Worm Wrap-Up does not constitute “publication” of that information.  
In memory of BOB KAISER

Contributors to this issue were: the national Guinea Worm Eradication Programs, Drs. Donald R. Hopkins and Ernesto Ruiz-Tiben of The Carter Center, and Drs. Sharon Roy and Mark Eberhard of CDC.

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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_english.html).  
[http://www.cartercenter.org/news/publications/health/guinea\\_worm\\_wrapup\\_francais.html](http://www.cartercenter.org/news/publications/health/guinea_worm_wrapup_francais.html)



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