

Date: January 30, 2015

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

Subject: GUINEA WORM WRAP-UP #231

To: Addressees

“The worm will be the judge of the quality of our work last year.” Makoy Samuel Yibi

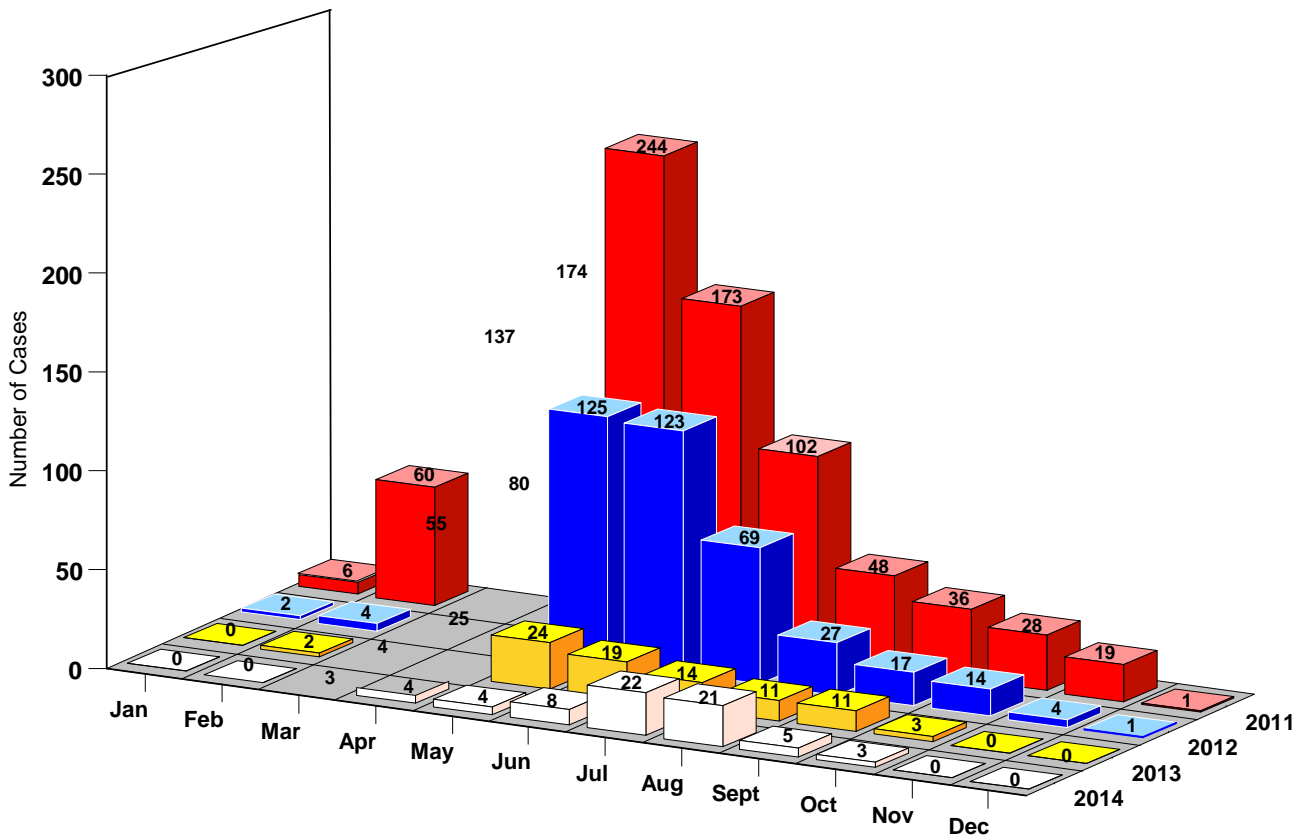
SOUTH SUDAN CLOSING IN ON THE WORM



The South Sudan Guinea Worm Eradication Program (SSGWEP) made solid progress in 2014, despite the outbreak in Kapoeta East County (KEC) in July-August. South Sudan reported zero cases in January, February, November and December 2014 (Figure 1).

Figure 1

South Sudan Guinea Worm Eradication Program
Cases of Dracunculiasis Reported by Month, 2011 - 2014*



The overall number of cases was reduced by 38% (from 113 cases in 2013 to 70 cases in 2014) and the number of villages reporting one or more cases was reduced by 53% (from 79 to 37), with only 13 villages with endemic transmission reporting indigenous cases in 2014 (24 other villages reported cases imported from those 13).

In the 79 villages that reported 113 cases in 2013, cases were reduced by 95%, to only 6 cases (83 % contained) in 2014; the remaining 64 cases (66% contained) in 2014 were in 34 villages that reported no cases (31 villages) or were not under surveillance (3 villages) in 2013: observations that reflect the significant population movements in South Sudan. Of South Sudan's 79 counties and 10 states, cases were reported from only 4 counties in 2 states (Eastern Equatoria-58 cases; Lakes-12 cases) in 2014. KEC of Eastern Equatoria state reported 57 (81%) of all cases, and was the source of the single case reported from Kapoeta South County, making KEC responsible for 83% of South Sudan's cases in 2014. In Lakes state, Awerial County reported 11 cases and Wulu County reported one case (**Figure 2**) (

Figure 2

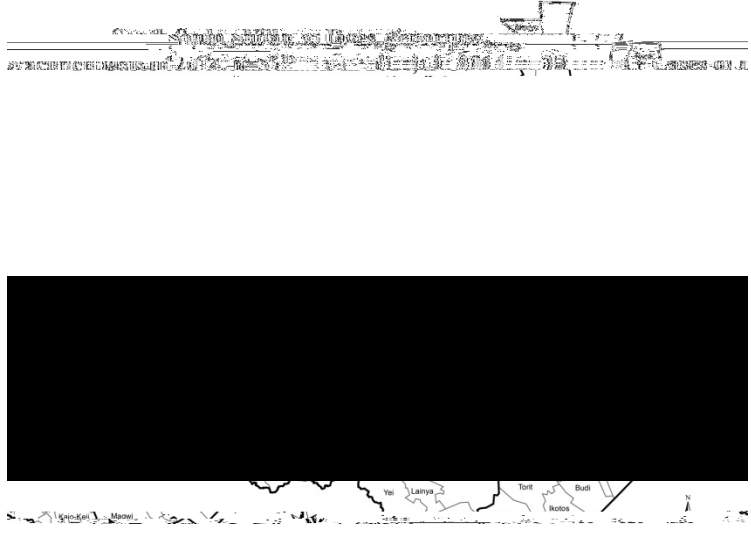
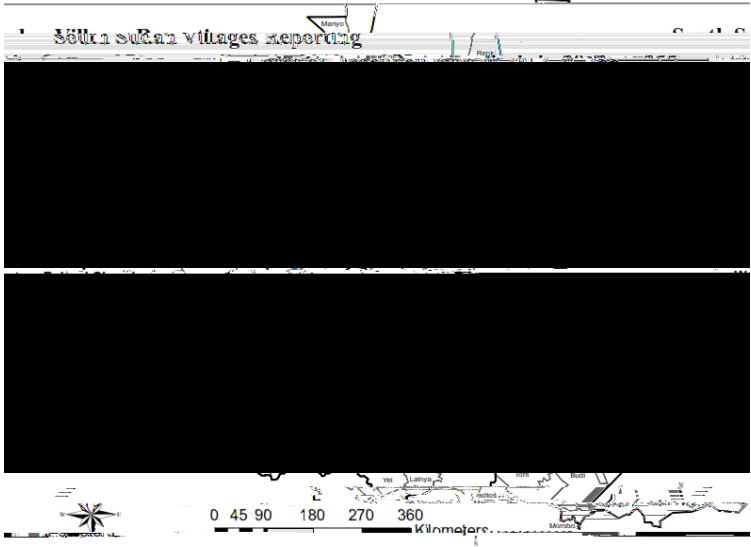
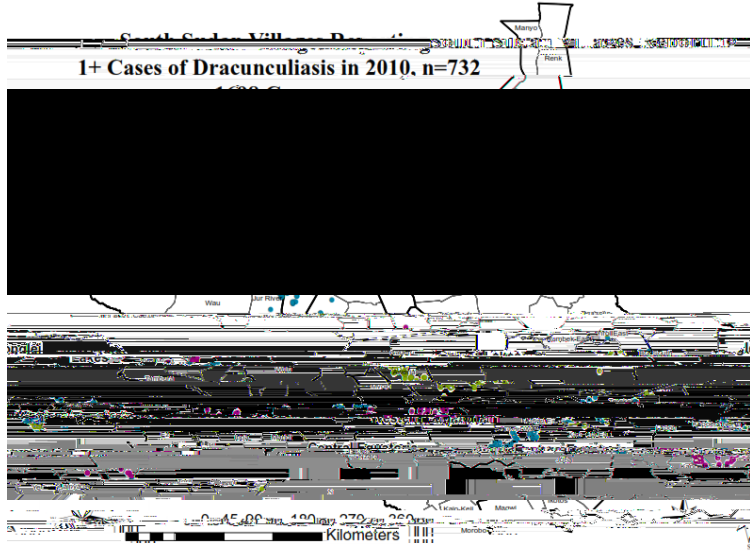
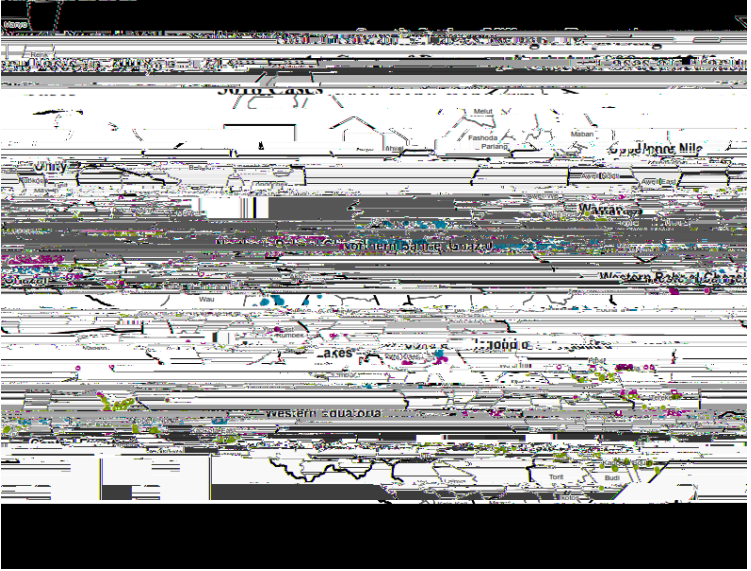


Table 1

Age	Sex	Ethnicity	Patient contaminated sources of water (Yes/No)	Date ABATE applied (D/M/Y)
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Table 1 (cont.)

Case #	Age	Sex	Ethnicity	Village/Locality of Detection			Date GW emerged (D/M/Y)	Case contained? (Yes/No/Pending)	Patient contaminated sources of water (Yes/No)	Date ABATE applied (D/M/Y)	Source* of infection established? (Yes/No)	Worm Specimen	
11.1	18	M	TOPOSA	LOCHAPIO	KAUTO	KAPOETA EAST	5/23/2014	YES	NO		YES	7 Jul	GUJ109.4(43699)86003666.
					ABUYONG	AWERIAL	6/21/2014	YES	NO		YES	12 Jul	GUINEA WORM
19.1	16	M	TOPOSA	NGSIGAR	MACHI I	KAPOETA SOUTH	6/28/2014	NO	MAYBE	7/2/2014	YES	1 Jul	GUINEA WORM
20.1	4	F	DINKA	DAK BUONG	ABUYONG	AWERIAL	7/16/2014	YES	NO		YES	3 Aug	GUINEA WORM
21.1	50	F	DINKA	DAK BUONG	ABUYONG	AWERIAL	7/16/2014	YES	NO		YES	22 Sep	GUINEA WORM
22.1	19	M	TOPOSA	NATITIA	NARUS	KAPOETA EAST	7/19/2014	YES	NO		YES	8 Aug	GUINEA WORM
23.1	5	M	DINKA	DAK BUONG	ABUYONG	AWERIAL	7/21/2014	YES	NO		YES	13 Aug	GUINEA WORM
24.1	24	F	DINKA	YEPIC	PULUK	AWERIAL	7/22/2014	NO	MAYBE	7/24/2014	YES	22 Sep	GUINEA WORM
25.1	25	F	TOPOSA	NASUWATKOU	KAUTO	KAPOETA EAST	7/23/2014	NO	MAYBE	7/25/2014	YES	3 Aug	GUINEA WORM
25.2							8/16/2014	NO	MAYBE	7/25/2014		27 Aug	GUINEA WORM
25.3							8/17/2014	NO	MAYBE	7/25/2014		22 Sep	GUINEA WORM
25.4							10/11/2014	NO	MAYBE	7/25/2014		23 Oct	GUINEA WORM

Table 1 (cont.)

Age	Sex	Ethni	Patient contaminated sources of water (Yes/No)	Date ABATE applied (D/M/Y)
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Table 1 (cont.)

Patient

and other staff of the SSGWEP, for a total of about 130 participants. WHO was also represented by Dr. Dioudonne Sankara of its headquarters, while Drs. Donald Hopkins and Ernesto Ruiz-Tiben, Mr. Craig Withers and Mr. Adam Weiss attended from Carter Center headquarters.

The governor of Eastern Equatoria, the national minister of health and the state minister of health of Jonglei all worked in or with the GWEP earlier in their careers. The national minister of health said the SSGWEP is one of the most successful programs in his ministry, “and for this generation of South Sudanese”. **When introducing the vice president, the minister of cabinet affairs said South Sudan did not want to be the last country to eliminate GWD, but it must “defeat these three”[Chad, Ethiopia, Mali].**

CHAD: PECULIAR EPIDEMIOLOGY CONTINUES; DOG INFECTIONS DOUBLE IN 2014



Chad has reported 13 cases (62% contained) of Guinea worm disease in humans and 113 dogs with Guinea worm infections in 2014. This is a 7% reduction in human cases (from 14) and a greater than 100% increase in dog infections (from 54) compared to 2013. A line listing of the cases in 2014 is summarized in **Table 2**. While the number of cases reported in humans annually has ranged between 10 and 14 over the past five years, the number of infected dogs has increased steadily since 2012 (**Figure 3**).

According to on-going laboratory studies at the Centers for Disease Control and Prevention (CDC) and the Sanger Institute, the Guinea worms recovered from humans and dogs in Chad are all *Dracunculus medinensis* and indistinguishable from one another.

Figure 3

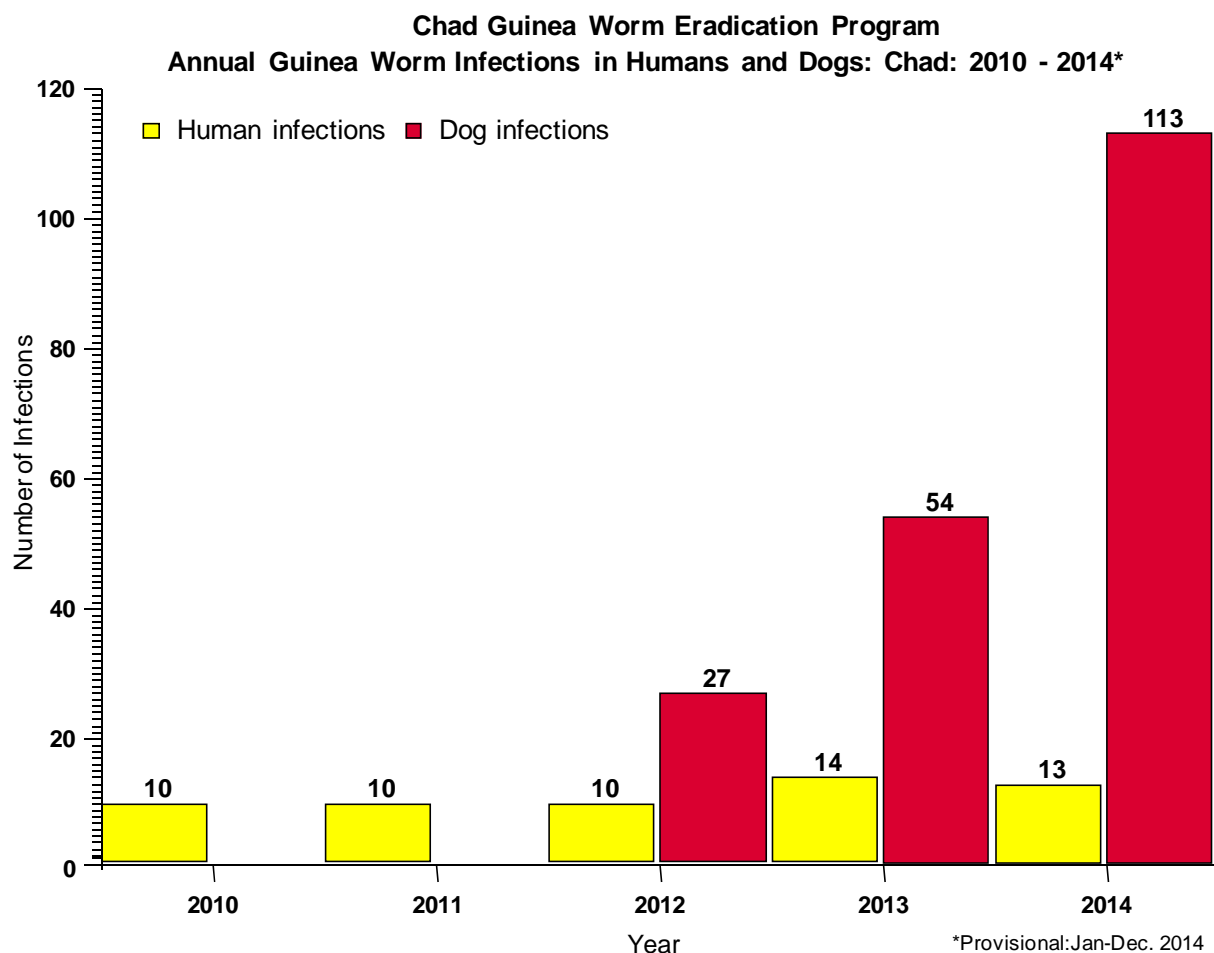


Table 2

Chad Guinea Worm Eradication Program
Line Listing of Cases: 2014

Case #	Age	Sex	Ethnicity	Village/Locality of Detection			Date GW emerged (D/M/Y)	Case contained? (Yes/No/Pending)	Patient contaminated sources of water (Yes/No)	Date ABATE applied (D/M/Y)	Source* of infection established? (Yes/No)	Worm Specimen	
				Name	Payam	County						Date sent to CDC (D/M/Y)	Diagnosis
1	9	F	Sara Madjigay	Maimou	Sarh	Moyen Chari	18-Jan-14	yes	no	no	no- eats fish	18-Apr-14	GW
2	52	F		Yadime	Bouso	Chari Baguirmi	14-Feb-14	yes	no	no	no- eats fish	18-Apr-14	GW
3	11	F	Sara	Nanguigoto	Guelendeng	Mayo Kebbi Est	7-Mar-14	yes	no	no	yes- Lelgoui pond	18-Apr-14	GW
4	11	M	Massa	Bongor	Bongor	Mayo Kebbi Est	12-Apr-14	yes	no	no	Yes-Toyobo Pond-Digini village	18-Apr-14	GW
5.1	40	M	Mongo	Kalam Kalam	Mandelia	Chari Baguirmi	5/19/2014	no	no	no	no eats fish/sells frogs	19 Aug	GW
5.2							6/3/2014	no	no	no			
6	13	F	Sara Kaba	Massa Kaba	Kyabe	Moyen Chari	30-Jun-14	no	no	no	no- eats fish	19-Aug-14	GW
7	22	F	Sara Kaba	Moudjougoussou	Kyabe	Moyen Chari	15-Jul-14	no	no	no	no- eats fish	19-Aug-14	GW
8	30	F	Sara	Kirah	Sarh	Moyen Chari	18-Jul-14	yes	no	no	no- eats fish	17-Sep-14	GW
9	28	F	Baguirmi	Boti	Bouso	Chari Baguirmi	24-Jul-14	no	yes	24-Aug-14	no- eats fish	17-Sep-14	GW
10	20	M	Rouga	Am-Bissirigne	Am-Bassirigne	Salamat	20-Aug-14	?	?	no	?	17-Sep-14	GW
11	5	F	Sara	Maimou	Sarh	Moyen Chari	24-Sep-14	yes	no	no	Yes, same house as case #12 (2013), niece of case #13 (2013), same concession as dog #43 (2014)	20-Oct-14	
12	4	F	Mbaye	Lapia	Moissala	Mandelia	22-Nov-14	yes	no	no	no	November	GW
13.1	8	F	Mbaye	Lapia	Moissala	Mandelia	12/6/2014	yes	no	no	no	December	GW
13.2							12/26/2014	yes	no	no			

* Source: known visit or residence of patient in a known endemic village/locality or village/cluster where cases of GWD occurred 10-14 months before GW emerged, and verified by the GWEP.

There were an average 1.15 worms per infected human (range 1-2) and an average 1.53 worms per infected dog (range 1-10) in 2014. In Chad, the proportion of Guinea worms that have emerged from dogs compared to humans has increased exponentially over time from 2.7 in 2012 to 3.9 in 2013 to 8.7 in 2014. Moreover, the monthly incidence of human cases has been scattered throughout the year over the past five years, but infections in dogs peak at the end of the dry season in May-June, coincident with the mass harvesting of fish (*peche collective*) conducted at that time*. The working hypothesis is that all or most Guinea worm infections in Chad are acquired by humans eating under-cooked fish and dogs eating discarded raw fish entrails, and are mediated by fish acting as a transport or paratenic host of the parasite. This is a dynamic unlike that seen in any other endemic country in the global Guinea Worm Eradication Program, including in Chad itself during its eradication campaign in the 1990s (**Figure 4**). It thus appears that dogs in Chad are infected with Guinea worms that originated in humans, although dogs apparently are now the main driving force of Guinea worm infections in humans and dogs in Chad.

Figure 4



* See Eberhard ML, et. al.,2014. The peculiar epidemiology of Dracunculiasis in Chad. Am J Trop Med Hyg 90:61-70.

Interventions timeline:

Village-based surveillance for cases of Guinea worm disease (GWD) became operational in Chad again in April 2012, with 757 villages under active surveillance by the end of 2014, of which 90 villages had one or more infections in dogs and/or humans in 2013-2014. Approximately 66% of Chadians surveyed were aware of the cash reward for reporting a case of GWD in 2014.

Enhanced health education to urge villagers to cook, dry, or smoke fish well and not allow dogs to eat raw fish entrails began in October 2013. All villages under active surveillance received such enhanced health education messages in 2014, and at least some have begun to bury fish entrails. Random spot checks will be conducted monthly in 2015 to assess related changes in behavior in households and fish markets.

Beginning in February 2014 villagers have been encouraged to tether infected dogs until the

Table 3

Mali Guinea Worm Eradication Program
Line Listing of Cases: 2014

Case #	Age	Sex	Ethnicity	Village/Locality of Detection			Date GW emerged (D/M/Y)	Case contained? (Yes/No/Pending)	Patient contaminated sources of water (Yes/No)	Date ABATE applied (D/M/Y)	Source* of infection established? (Yes/No)	Worm Specimen ^A	
				Name	District/ payam/ worda	County/ Region						Date sent to CDC (D/M/Y)	Diagnosis
													GW
4	21	M	Black Touareg	Tanzikratène	Ansongo	Gao	9/3/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	9/26/2014	GW
5	48	F	Black Touareg	Tanzikratène	Ansongo	Gao	9/7/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	9/26/2014	GW
6	13	F	Black Touareg	Tanzikratène	Ansongo	Gao	9/8/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	11/10/2014	GW
7	70	M	Black Touareg	Nangaye	G.Rharous	Tombouctou	9/12/2014	No	Yes	9/11/2014	Yes (Nangaye)	10/8/2014	GW
8	25	F	Black Touareg	Tanzikratène	Ansongo	Gao	9/13/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	9/26/2014	GW
9	35	M	Black Touareg	Tanzikratène	Ansongo	Gao	9/14/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	10/20/2014	GW
10	30	M	Black Touareg	Nangaye	G.Rharous	Tombouctou	9/15/2014	No	Yes	9/11/2014	Yes (Nangaye)	10/8/2014	GW
11	20	F	Black Touareg	Nangaye	G.Rharous	Tombouctou	9/16/2014	No	Yes	9/11/2014	Yes (Nangaye)	11/10/2014	GW
12	22	F	Black Touareg	Tanzikratène	Ansongo	Gao	9/17/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	10/20/2014	GW
13	4	M	Black Touareg	Tanzikratène	Ansongo	Gao	9/20/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	10/20/2014	GW
14	20	F	Black Touareg	Nangaye	G .Rharous	Tomboutou	9/20/2014	Yes	No	9/11/2014	Yes (Nangaye)	11/10/2014	GW
15	16	F	Black Touareg	Tanzikratène	Ansongo	Gao	9/22/2014	No	No	9/1/2014	Yes (Tanzikratène)	11/10/2014	GW
16	46	M	Black Touareg	Tanzikratène	Ansongo	Gao	9/26/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	11/10/2014	GW
17	8	M	Black Touareg	Tanzikratène	Ansongo	Gao	9/26/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	10/20/2014	GW
18	8	F	Black Touareg	Tanzikratène	Ansongo	Gao	9/27/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	11/10/2014	GW
19	40	F	Black Touareg	Nangaye	G.Rharous	Tombouctou	9/27/2014	Yes	No	9/11/2014	Yes (Nangaye)	11/10/2014	GW
20	31	M	Black Touareg	Tanzikratène	Ansongo	Gao	10/4/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	11/10/2014	GW
21	4	M	Black Touareg	Tanzikratène	Ansongo	Gao	10/7/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	11/10/2014	GW
22	18	M	Black Touareg	Tanzikratène	Ansongo	Gao	10/10/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	10/20/2014	GW
23	16	F	Black Touareg	Tanzikratène	Ansongo	Gao	10/10/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	11/10/2014	GW
24	14	F	Black Touareg	Tanzikratène	Ansongo	Gao	10/11/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	12/22/2014	GW
25	18	M	Black Touareg	Nangaye	G.Rharous	Tombouctou	10/13/2014	Yes	No	9/23/2014	Yes (Nangaye)	11/10/2014	GW
26	12	M	Bobo	Fion	Tominian	Ségou	10/17/2014	No	yes	10/18/2014	Yes (Fion)	10/30/2014	GW
27	12	M	Black Touareg	Tanzikratène	Ansongo	Gao	10/21/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	12/22/2014	GW
28	7	F	Black Touareg	Tanzikratène	Ansongo	Gao	10/21/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	12/22/2014	GW
29	20	F	Black Touareg	Tanzikratène	Ansongo	Gao	10/21/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	11/10/2014	GW
30	23	F	Black Touareg	Nangaye	G.Rharous	Tombouctou	10/23/2014	Yes	No	9/23/2014	Yes (Nangaye)	11/10/2014	GW
31	3	F	Black Touareg	Nangaye	G.Rharous	Tombouctou	10/23/2014	Yes	No	9/23/2014	Yes (Nangaye)	11/10/2014	GW
32	30	F	Black Touareg	Tanzikratène	Ansongo	Gao	10/28/2014	Yes	No	9/1/2014	Yes (Tanzikratène)	12/22/2014	GW
33	20	M	Black Touareg	Tanzikratène	Ansongo	Gao	08/11/20014	Yes	No	No	Yes (Tanzikratène)	12/22/2014	GW
34	17	M	Black Touareg	Tanzikratène	Ansongo	Gao	11/11/2014	Yes	No	No	Yes (Tanzikratène)	12/22/2014	GW
35	7	M	Black Touareg	Tanzikratène	Ansongo	Gao	11/17/2014	Yes	No	No	Yes (Tanzikratène)	12/22/2014	GW
36	20	F	Black Touareg	Tanzikratène	Ansongo	Gao	11/19/2014	Yes	No	No	Yes (Tanzikratène)	12/22/2014	GW
37	19	F	Black Touareg	Tanzikratène	Ansongo	Gao	11/22/2014	Yes	No	No	Yes (Tanzikratène)	12/22/2014	GW
38	16	M	Black Touareg	Tanzikratène	Ansongo	Gao	11/26/2014	Yes	No	No	Yes (Tanzikratène)	12/22/2014	GW
39	7	M	Black Touareg	Nangaye	G.Rharous	Tombouctou	11/28/2014	Yes	No	No	Yes (Nangaye)	12/22/2014	GW
40	4	M	Black Touareg	Nangaye	G.Rharous	Tombouctou	11/30/2014	Yes	No	No	Yes (Nangaye)	12/22/2014	GW

* Source: known visit or residence of patient in a known endemic village/locality or village/cluster where cases of GWD occurred 10-14 months before GW emerged, and verified by the GWEP.

(Gao Region) in December 2014. The secretariat is unable to conduct supervisory visits of staff in Kidal Region because of insecurity. The national Guinea Worm Eradication Task Force has not been appointed yet. The Carter Center has supported the design and manufacture of a new “Guinea worm cloth” for Mali’s GWEP.



Mali will hold the annual review of its GWEP in Bamako on February 16-17, 2015 to be followed by the annual meeting of National Program Managers for all four of the remaining endemic countries (Chad, Ethiopia, Mali, South Sudan) in Bamako on February 18-20.

ETHIOPIA REPORTS ANOTHER CASE IN DECEMBER; NATIONAL COORDINATOR LEAVES COUNTRY FOR THREE MONTHS

After five consecutive months with no reported cases, Ethiopia’s Dracunculiasis Eradication Program (EDEP) detected a case of Guinea worm disease in a 37 year old Agnuak man who resides in Bathor village of Gog woreda (district) in Gambella Region. He was detected, reported and sent to the case containment center on the same day, December 2, 2014, that his worm began to emerge. A farmer, he reportedly had not been outside of Gog district for the past 14 months. He does not know any of the villages where there were Guinea worm infections in humans or dogs in 2013 or 2014. He buys sun-dried fish and gets his drinking water from ponds near his home and in the nearby forest. All eight ponds were treated with ABATE® Larvicide the week after his first worm emerged. A second worm emerged on December 13 when he was in the case containment center.

Led by National Program Manager Mr. Gole Ejeta, the EDEP convened its annual review on December 3-4, 2014 in Jimma, with Mr. Ejeta as the highest ranking representative of the Federal Ministry of Health. Other participants in the meeting, which generated active discussion, included interested representatives from The Carter Center, the World Health Organization, the Bill & Melinda Gates Foundation, and staff of the EDEP. All three of Ethiopia’s cases in 2014 were reportedly contained (**Table 4**). The EDEP had 156 villages under active surveillance in 2014 (vs. 91 villages in 2013). Ethiopia increased the amount of its cash reward for reporting a case of GWD to the equivalent of \$100 in September 2014. The average level of reward awareness in Gambella Region, where all cases have occurred in recent years, increased from 40% in 2013 to 72% (range 51%-94%) in 2014. The program generated more rumors of GWD than expected in the three districts of greatest concern in Gambella Region 2014 (**Table 5**).

On December 16, 2014 Mr. Ejeta surprised the partners of the EDEP by informing them that he was leaving Ethiopia a few hours later to work on the outbreak of Ebola in West Africa for three months.

IN BRIEF

Sudan, which reported three cases of Guinea worm disease in

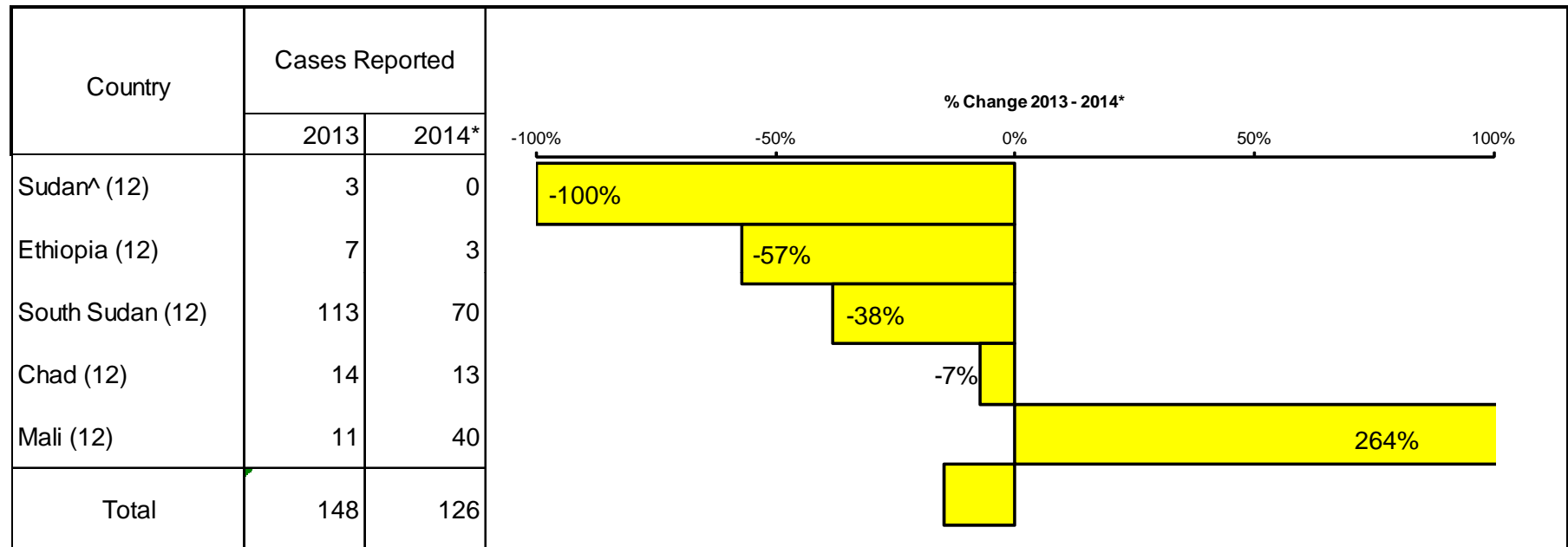
South Sudan

January	February	March	April	May	June	July	August	September	October	November	December
0/0	0/0	3/3									

Total*

Figure 5

Number of Indigenous Cases Reported During the Specified Period in 2013 and 2014*,
and Percent Change in Cases Reported



* Provisional: Numbers in parentheses denote months for which data received, e.g., (12)= January-December

§ Reports include: Kaves, Koulikoro, Segou, Sikasso, and Mopti. Timbuktu and Gao Regions: in late April 2014, the GWEP deployed one technical advisor to Kidal to

With Ghana certified, a total of 198 countries, territories and areas, representing 186 WHO Member States have been certified as free of dracunculiasis transmission. Only 8 countries remain to be certified.

The commission further discussed on the particular challenges with regard to eradication in the four remaining endemic countries- Chad, Ethiopia, Mali and South Sudan. The way forward to implement a cash reward for reporting GWD globally was also discussed.

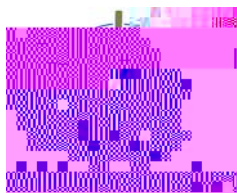
The commission further acknowledged the tremendous progress so far by the Global campaign to eradicate Guinea worm disease, and made general and country specific recommendations in line with shortening the last mile leading to global eradication of Guinea worm disease.

SCIENTIFIC EXPERT GROUP MEETING

A Scientific Expert Group Meeting on operational research questions of programmatic importance for Dracunculiasis Eradication was held at the WHO headquarters, from 12 to 13 January 2015. A total of about 40 experts participated in this meeting which included the ICCDE Members, representatives from the Wellcome Trust Sanger Institute, University of Basel, Swiss Institute of Tropical Medicine, IRED, Chad, Programme Managers/Directors of the GWEP/MOH from, Chad, Mali and South Sudan, The WHO Ethiopia GW National Program Officer, along with staff from WHO headquarters, WHO Eastern Mediterranean Region, WHO African Region, and experts from United States Centers for Disease Control and Prevention (CDC) and the Bill and Melinda Gates Foundation. The meeting was chaired by Dr. Sharon Roy, Director, WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis, Centers for Disease Control and Prevention, USA.

The meeting focused on the peculiar infection of Guinea Worm Disease (GWD) in dogs in Chad, the lingering low level transmission of dracunculiasis in Ethiopia and other programmatic challenges which operational research can provide evidence to address at this important phase of the Eradication Program. The experts acknowledged and appreciated the ongoing research being carried out by The Carter Center, CDC and The Sanger Institute. A list of questions were formulated and prioritized.

WHO SUPPORTIVE VISITS TO COUNTRIES



Dr Andrew Seidu Korkor, from AFRO/ISTWA, conducted a technical support mission to Ethiopia from 20th – 29th October to support the orientation of members of the National Certification Committee. A joint team, including the National Coordinator, Mr. Gole Ejeta and The WHO NPO for GWE, Dr. Zeyede Zeleke and two members of the EDEP NCC, made a joint field visits to Abobo,

Itang and Lare woredas as well as the refugee crossing point with South Sudan and Reception Center at Pakag. They were briefed during the mission by field staff of The Carter Center and WHO. The mission afforded the members of the NCC to observe at first hand activities carried out in areas

RECENT PUBLICATIONS

Cavendish, Julius 2014. The last bastions of guinea-worm disease. Bull World Health Organ 92:854-855.

Tan, Thuan T; Ling ML, Tan BH, Koh TH, 2014. An experience with dracunculiasis in Melbourne, Australia. Pathology 46:652-653.

Whipple, Tom 2014. How to eradicate a disease. Intelligent Life (The Economist) Nov/Dec:70-76.

World Health Organization, 2014. Monthly report on dracunculiasis cases, January-October 2014. Wkly Epidemiol Rec 89:587-588.

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

Note to contributors:

Submit your contributions via email to Dr. Sharon Roy (gwwrapup@cdc.gov) or to Dr. Ernesto Ruiz-Tiben (eruziti@emory.edu), by the end of the month for publication in the following month’s issue. Contributors to this issue were: the national Guinea Worm Eradication Programs, Drs. Donald R. Hopkins and Ernesto Ruiz-Tiben of The Carter Center, Drs. Sharon Roy and Mark Eberhard of CDC and Dr. Dieudonné Sankara of WHO.

WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis, Center for Global Health, Centers for Disease Control and Prevention, Mailstop C-09, 1600 Clifton Road NE, Atlanta, GA 30333, USA, email:

gwwrapup@cdc.gov, fax: 404-728-8040. The GW Wrap-Up web location is

<http://www.cdc.gov/parasites/guineaworm/publications.html#gwwp>

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/publicatio>