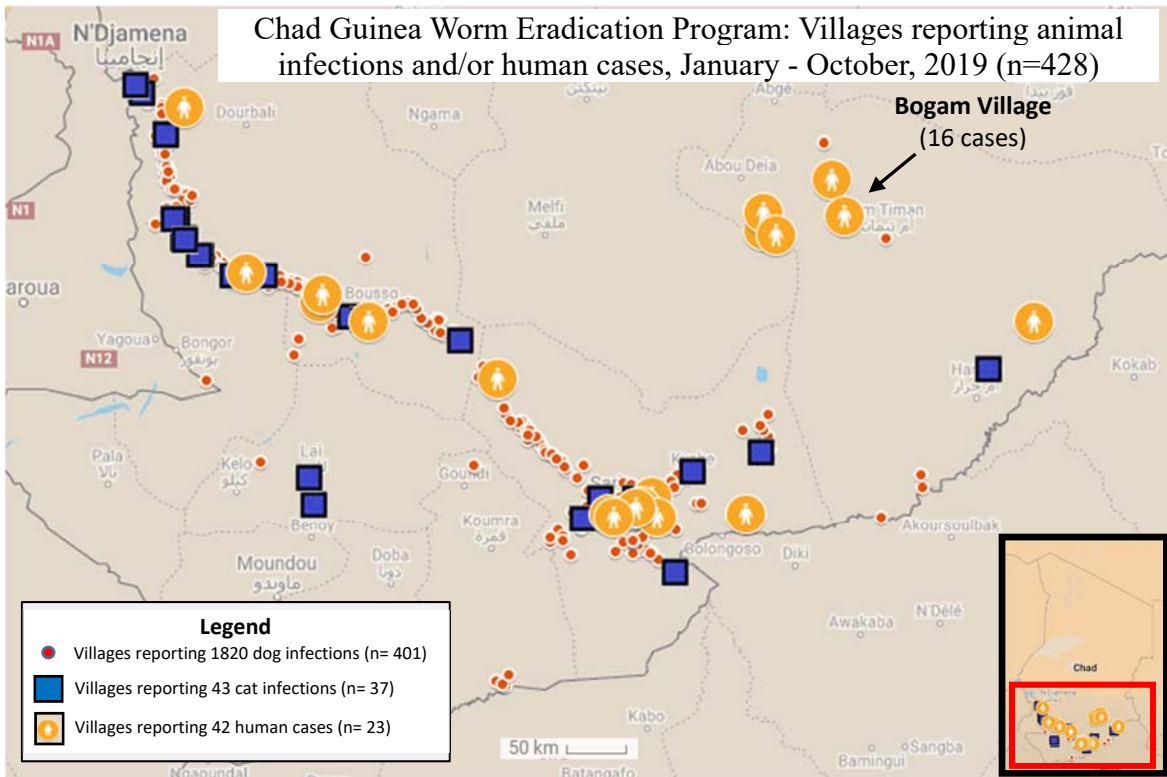


**Date:** December 9, 2019  
**From:** WHO Collaborating Center for Dracunculiasis Eradication, CDC  
**Subject:** GUINEA WORM WRAP-UP #264  
**To:** Addressees

*“The pain of Guinea worm is worse than Childbirth, because it is relentless.”*  
 Anguec Kuot Atugu, Mother with Guinea worm disease in Akuyu, South Sudan

MAP 1



**CHAD**

Chad has reported a total of 1,855 dogs, 46 cats and 43 humans with Guinea worm infections in January-October 2019. This is an increase of 85% in infected animals and 107% in human cases compared to the same period of 2018. Overall, 77% (1455/1901) of the infected animals and 58% (25/43) of the human cases were contained. Table 1 is a line list of the 43 confirmed cases in humans so far in 2019. The number of villages reporting Guinea worm infections in animals

and/or humans so far in 2019 is 428 ( 1), compared to 340 villages in 2018. As reported in the previous issue, Chad’s Guinea Worm Eradication Program (GWEP) has scaled up Abate applications significantly in 2019. The Guinea worm infections reported in Chad in January-October 2019 represent 98.7% (1,945/1,971) of all Guinea worm infections in humans and animals and 87.8% of all human cases reported worldwide so far this year.

*Research studies provide increasingly convincing evidence that consumption of raw fish guts and/or small fish (fingerlings) are the most frequent sources of Guinea worm infections in dogs and cats in Chad, not frogs.* The seasonal pattern of Guinea worm infections in animals parallels the seasonal pattern of mass fishing along the Chari River in Chad (not the peak period for frogs), an epidemiologic study by CDC found consumption of raw fish guts to be a risk factor for infection of dogs, laboratory studies at the University of Georgia/USA found small fish to be much more avid consumers of copepods than tadpoles were, and researchers at Exeter University/UK using radioactive isotopes to study the diet of dogs in endemic villages in Chad by examining the dogs’ whiskers found that dogs with evidence of fish in their diet are at greater risk of Guinea worm infection. The latter researchers also found that dogs with a history of prior Guinea worm infection were at increased risk of Guinea worm infection subsequently and should be a priority for close monitoring by the program. During a supervisory visit by Carter Center GWEP director Mr. Adam Weiss to Chad in October, he joined the National Program Coordinator of Chad’s GWEP, Dr. Tchindebet Ouakou, and Carter Center Country Representative Dr. Hubert Zirimwabagabo in the second round of treatments of dogs with the anti-helminthic Flubendazole.

FIGURE 1

**Percent Change in Total Guinea Worm Infections (Human and Animal)  
by Country Jan. - Oct. 2018 and Jan. - Oct. 2019\***

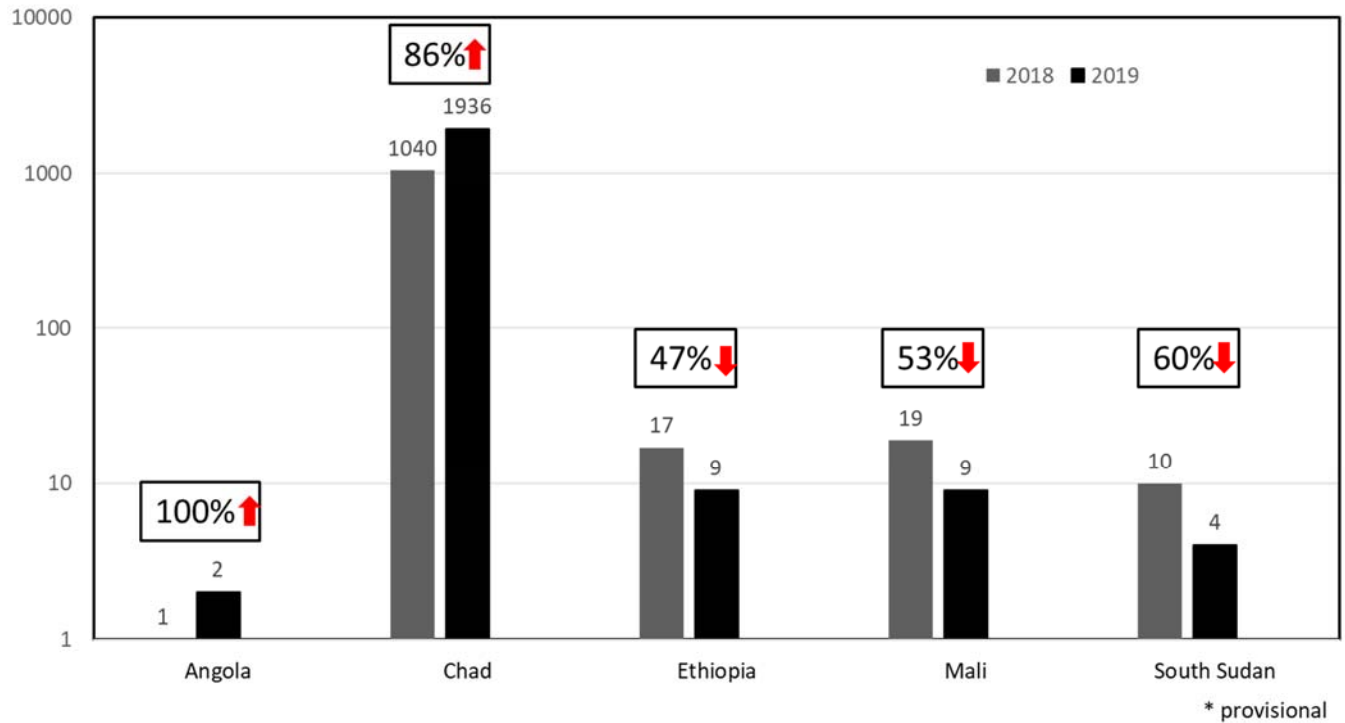


Table 1

## Chad Guinea Worm Eradication Program: GWEP Line Listing of Confirmed Cases: Year 2019\*

Case #	Age	Sex	Ethnicity	Occupation	Village of Detection	Zone	District	Region	Date of Detection	Date of Emergence	Contained (yes / no)	Entered water
1	33	M	Mbao	Fisher/ Farmer	Ngargue (Quartier Kormada)	Bailli 1	Bailli	CB	01-Jan.-19	01-Jan.-19	No	Probable (Abate applied)
2	11	M	Sara Kaba	Child-shepard	Dangala Kanya (Quartier Kibita)	Marabe	Kyabe	MC	05-Jan.-19	05-Jan.-19	No	Probable (Abate applied)
3	13	M	Sara Kaba	Child	Marabe 2 (Quartier Dilibi)	Marabe	Kyabe	MC	11-Feb.-19	15-Feb.-19	Yes	0
4	64	F	Sara Kaba	Housewife	Kyabe (Hors-zone)	Kyabe	Kyabe	MC	24-Mar-19	24-Mar-19	No	1 (Abate applied)
5	4	M	Ngambaye	Child	Mourkou	Gonori	Dourbali	CB	13-Apr.-19	16-Apr.-19	Yes	0
6.1	19	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	12-Apr.-19	19-Apr.-19	No	0
6.2	19	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	10-Jun-19	23-Jun-19	No	0
7.1	58	M	Sara-Goulaye	Farmer	Gassaou/Ndjourou	Kiao	Bouso	CB	23-Apr.-19	23-Apr.-19	Yes	0
7.2	58	M	Sara-Goulaye	Farmer	Gassaou/Ndjourou	Kiao	Bouso	CB	23-Apr.-19	23-Apr.-19	Yes	0
7.3	58	M	Sara-Goulaye	Farmer	Gassaou/Ndjourou	Kiao	Bouso	CB	23-Apr.-19	23-Apr.-19	Yes	0
7.4	58	M	Sara-Goulaye	Farmer	Gassaou/Ndjourou	Kiao	Bouso	CB	23-Apr.-19	23-Apr.-19	Yes	0
8	24	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	1-May-19	7-May-19	No	0
9	50	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	01-mars-19	9-May-19	Yes	0
10	18	M	Rachid	Farmer	Residentiel	Hors Zone	Sarh	MC	10-May-19	10-May-19	No	Probable
11	22	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	4-May-19	12-May-19	Yes	0
12	9	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	3-May-19	15-May-19	Yes	0
13	55	M	Torom	Farmer	Liwi	Liwi	Aboudeia	SLM	18-May-19	18-May-19	No	0
14	30	M	Torom	Farmer	Bogam	Liwi	Aboudeia	SLM	17-May-19	23-May-19	Yes	0
15	8	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	23-May-19	23-May-19	Yes	0
16	53	M	Torom	Farmer	Tarh	Liwi	Aboudeia	SLM	25-May-19	25-May-19	Yes	0
17	5	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	17-May-19	25-May-19	Yes	0
18	50	M	Rachid	Farmer	Amhabile	Am-habile	Aboudeia	SLM	26-May-19	31-May-19	Yes	0
19	15	M	Torom	Farmer	Bogam	Liwi	Aboudeia	SLM	5-Jun-19	5-Jun-19	Yes	0
20	44	M	Boua	Farmer	Mama	Korbol	Korbol	MC	6-Jun-19	7-Jun-19	No	Probable (Abate applied)
21	6	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	17-May-19	10-Jun-19	Yes	0

Table 1 continued

Case #	Age	Sex	Ethnicity	Occupation	Village of Detection	Zone	District	Region	Date of Detection	Date of Emergence	Contained (yes / no)	Entered water
22	30	M	Torom	Farmer	Bogam	Liwi	Aboudeia	SLM	21-May-19	10-Jun-19	Non	Probable (Abate applied)
23	6	F	Sara Kaba /Koulfa	Child	Bemadjirodjo	Kemata	Sarh	MC	11-Jun-19	11-Jun-19	Non	1
24.1	35	M	Zahawa Arabe	Farmer	Amhabile	Am-habile	Aboudeia	SLM	6-Jun-19	12-Jun-19	Yes	0
24.2	35	M	Zahawa Arabe	Farmer	Amhabile	Am-habile	Aboudeia	SLM	22-Sept.-19	26-Sept.-19	Non	1
25	23	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	9-May-19	19-Jun-19	Yes	0
26.1	11	F	Sara Kaba	Child	Ngondei Centre	Ngondei	Kyabe	MC	15-May-19	date unknown (may 2019)	No	1 (Abate applied)
26.2	11	F	Sara Kaba	Child	Ngondei Centre	Ngondei	Kyabe	MC	21-Jun-19	21-Jun-19	No	1 (Abate applied)
35	11	F	Sara Kaba	Child	Tarangara	Maymana	Danamadji	MC	21-Aug-19	21-Aug-19	Yes	0
36	21 months	M	Sara kaba	Child	Bebita	Kemata	Sarh	MC	23-Aug-19	23-Aug-19	No	Possible
37	20	F	Arabe	Housewife	Amdabri	Gozdjarat	Am Timan	SLM	30-Jul.-19	28-Aug-19	Yes	0
38	14	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	15-Aug-19	28-Aug-19	Yes	0
39	14	F	Sara Kaba	Student	Bombi	Boussa	Kyabe	MC	30-Aug-19	30-Aug-19	No	
40.1	50	F	Sara Kaba	Housewife	Bombi	Boussa	Kyabe	MC	30-Aug-19	02-Sept.-19	No	
40.2	50	F	Sara Kaba	Housewife	Bombi	Boussa	Kyabe	MC	30-Aug-19	17-Sept.-19	Yes	
41	20	F	Rachid	Housewife	Amhabile	Am-habile	Aboudeia	SLM	30-Jul.-19	03-Sept.-19	Yes	
42	23	M	Sara kaba	Farmer	Kassai	Kassai	Sarh	MC	04-Sept.-19	04-Sept.-19	No	1
43	55	M	Massa	Farmer	Mossio Massa	Bogomoro	Bailli	CB	08-Sept.-19	08-Sept.-19	Yes	0

## ETHIOPIA

*The Ethiopia Dracunculiasis Eradication Program (EDEP) has not reported a human case of Guinea worm disease since December 2017, despite on-going (but diminishing) Guinea worm infections in animals. It has reported 47% fewer Guinea worm infections in animals in January-October 2019 (9) than in the same period of 2018 (17). Educating villagers about Guinea worm prevention and publicizing the reward for reporting are key program elements. The program conducted 104,244 health education sessions in Gog and Abobo districts (combined population about 35,000 persons) of Gambella Region in January-September 2019 and it has received 10,356 rumors of human and animal infections nationwide in the same period. Surveys of residents in Level 2 (at-risk) surveillance areas of Gambella Region and Nyangatom district of Southern Nations Nationalities Peoples' Region in August and September found 93% (1801/1930) were aware of the cash reward (now equivalent to US\$345 for human cases and \$35 for infected animals) for reporting Guinea worm infections, but only 4% (44/1022) of persons surveyed in Level 3 areas of SNNP and Amhara Regions knew of the rewards. Residents in Level 1 (endemic) villages now routinely have awareness levels of at least 85%.*

The EDEP continues to reap benefits of proactive tethering and care of dogs and cats in at risk villages of Gog and Abobo districts of Gambella Region which began at the initiative of villagers in April 2018. As of September 2019, a total of 1,819 dogs and 160 cats in Gog and Abobo districts were proactively tethered, although importation of puppies and release of dogs for hunting and farm protection are on-going challenges. The program also continues to intensify application of Abate in endemic and at-risk areas of the same two districts, making 4,225 applications of Abate to unsafe water sources in January-September 2019, vs. 3,396 sources in January-September 2018 and 2,234 in January-September 2017. Ethiopia had 30 infected humans and animals in 13 localities in January-October 2017, 17 infected animals (no humans) in 11 localities in January-October 2018, and 9 infected animals (no humans) in 6 localities during the same period of 2019. A line list of the infected animals this year is in Table 2.

Ethiopia's National Dracunculiasis Eradication Certification Committee inspected Guinea worm eradication activities in Gog and Abobo districts on August 26-29, 2019. On October 17 the Honorable Dr. Tebebe Yemane Berhan and a delegation of five other dignitaries visited Gambella Regional President Omod Ojulu and his cabinet for a peace and reconciliation mission. At the end of the mission, Dr. Tebebe met separately with the president and his cabinet and expressed great concern about the failure of commercial farm owners to provide safe water to their laborers following the 2017 outbreak of Guinea worm disease. The regional president promised to take serious action against owners who refuse to comply with the recommended measures.

## MALI

Mali's National Committee for Certification of Dracunculiasis Eradication met in September 2019 to debrief on their supervisory visits to Kayes Region and Bamako in July and prepare for a supervisory visit to Koulikoro Region. On November 7 members of the National Committee and its Vice President Dr. Alhousseini Mayga met with the Minister of Health Honorable Michel Sidibe in the presence of the minister's public health advisor, Dr. Mohamed Berthe. This was the first time that the National Committee met with Mali's minister of health since its creation in May

2015. The group discussed the status of the eradication program; apparent interruption of Guinea worm transmission in humans in Mali since 2015 despite ongoing surveillance challenges due to insecurity; challenges related to stopping transmission in dogs and cats; surveillance at the community level; collaboration with the veterinary services department; publicizing the success of the program; and ministry of health funding to support the National Committee's activities. The minister expressed his appreciation and promised to support the committee. He advised the National Committee to communicate more about the success of the program and asked it to submit a plan for their activities. He said the ministry of health will plan for support to the National Committee in 2020. *Mali has not reported a human case of Guinea worm disease since November 2015, despite detecting infected animals in the endemic area. Except for continued infections in dogs and cats, Mali would be considered for certification of Guinea worm eradication by now.* It has reported 9 animal Guinea worm infections in 2019 compared to 19 (-53%) in January-October 2018.

The National Program Coordinator of Mali's GWEP, Dr. Cheick Oumar Coulibaly, and Carter Center Country Representative Mr. Sadi Moussa made a supervisory visit to Macina and Markala districts of Segou Region from September 29 to October 4, 2019. In Macina 3 of the 20 health areas were not accessible for supervision due to insecurity, although local staff from all of the health areas report monthly on Guinea worm. Dr. Coulibaly and Mr. Moussa visited the two endemic villages in the district, Gueda (2 dog infections in 2018, 1 in 2019) and Kokry Bozo (1 infected cat in 2019), which are both located along the Niger River. The GWEP national team also made supervisory visits to Sikasso, Koutiala, Yorosso, Touminian, Mopti and Djenne districts in September. The program also supported broadcasts of 5,520 messages on community radio stations and 37 messages on national television/radio stations in September.

## SOUTH SUDAN

The South Sudan Guinea Worm Eradication Program (SSGWEP) has reported 4 confirmed cases of Guinea worm disease in humans (2 contained) in January-October 2019, which is a reduction of 60% from the ten cases reported in the same period of 2018. Three of the cases occurred in a woman, her husband and their daughter in Jur River County of former Western Bahr Al-Ghazal State, as shown on the map (Map 2) and in the line-listing (Table 3). The fourth case, a 24-year-old married woman in Torit State (part of former Eastern Equatoria State) who has no history of travel to a known recently endemic area, occurred in an area that has not had a case of GWD in seven years. The SSGWEP is treating surface water sources in her area with Abate. South Sudan has had only one dog with a Guinea worm infection, in 2015.

The SSGWEP also has several integrated activities and case searches ongoing throughout the country. During the Trachoma Mass Drug Administration (MDA) in Kapoeta State, the program successfully screened 89,381 people to date, which resulted in 1,062 rumors and 269 suspect cases. During the Onchocerciasis MDA in former Wulu County of former Lakes State, the program screened 14,129 persons, resulting in 38 rumors and 13 suspect cases. In addition, the program's case search in Eastern Lakes has screened 16,940 persons and 565 animals, which resulted in 161 rumors and 35 suspect cases. The Trachoma and Onchocerciasis MDA's as well as the case searches in Eastern Lakes, will conclude at the beginning of December.

TABLE 2

## Ethiopian Dracunculiasis Eradication Program: Line Listing of Confirmed Infections, January-October 2019

Animal Infection ID	Region	Zone	Village of Detection	Type of Animal	Name of Animal	Date Worm Detected	Water Contamination	Date Abate Applied	Containment (yes/no)
A1.1-1.5	Gambella	Agnua	Duli	Baboon	NA	2-Jun-19	Unknown	On active abate cycle	No
A2.1	Gambella	Agnua	Akweramero Farm	Baboon	NA	11-Jun-19	Unknown	On active abate cycle	No
A3.1	Gambella	Agnua	Akweramero Farm	Baboon	NA	11-Jun-19	Unknown	On active abate cycle	No
A4.1-4.5	Gambella	Agnua	Akweramero Farm	Baboon	NA	15-Jun-19	Unknown	On active abate cycle	No
A5.1	Gambella	Agnua	Akweramero Village	Baboon	NA	15-Jun-19	Unknown	On active abate cycle	No
A6.1-6.2	Gambella	Agnua	Lel Anyaro	Baboon	NA	16-Jun-19	Unknown	On active abate cycle	No
AA7.1-7.4	Gambella	Agnua	Aregawi Farm	Leopard	NA	8-Aug-19	Unknown	On active abate cycle	No
A8.1	Gambella	Agnua	Atheti	Dog	Dokaciel	9-Sep-19	No	On active abate cycle	Yes
A8.2	Gambella	Agnua	Atheti	Dog	Dokaciel	10-Sep-19	No	On active abate cycle	Yes
A8.3	Gambella	Agnua	Atheti	Dog	Dokaciel	7-Oct-19	No	On active abate cycle	Yes
A8.4	Gambella	Agnua	Atheti	Dog	Dokaciel	8-Oct-19	No	On active abate cycle	Yes
A9.1	Gambella	Agnua	Atheti	Dog	Rangowang	13-Sep-19	No	On active abate cycle	Yes

Map 2

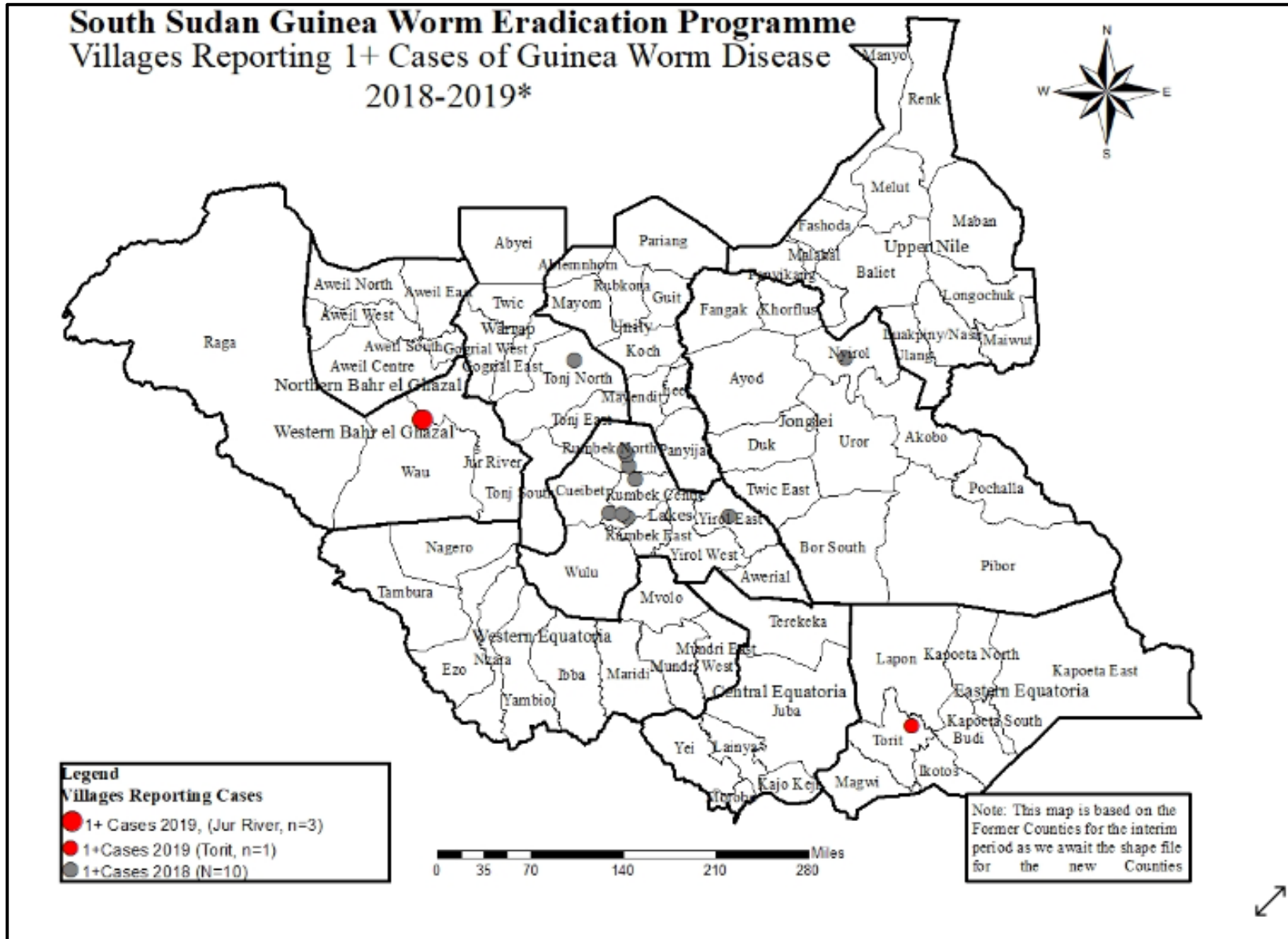




TABLE 3

## South Sudan Guinea Worm Eradication Program: Line Listing of Confirmed Cases, January-October 2019

Case Number	Age	Sex	Village of Detection	Boma	Payam	County	Date of Detection	Date of GW Emergence	No. of Worms	Case Contained	Water Contamination	Abate Applied	Source of Infection Established	Date Sent to CDC
1	14	F	Bar-Urud	Kayango	Udici	Jur River	29-Jul-19	28-Jul-19	3	No	Unknown	30-Jul	No	9-Aug
2	28	F	Akuoyo	Kayango	Udici	Jur River	29-Jul-19	1-Aug-19	6	Yes	No	31-Jul	No	16-Sep
3	43	M	Akuoyo	Kayango	Udici	Jur River	26-Sep-19	26-Sep-19	1	Yes	No	N/A	No	2-Oct
4	24	F	Mura-Hatiha	Mura-Hatiha	Hiyala	Torit	26-Sep-19	18-Sep-19	1	No	Unknown	4-Oct	No	5-Oct

## ANGOLA

On November 19, 2019, the Minister of Health of Angola, the Honorable Silvia Lutucuta, hosted a ceremony in Luanda with Carter Center CEO Ambassador Mary Ann Peters to sign a Memorandum of Understanding between the Angolan Ministry of Health and The Carter Center. The Memorandum will allow The Carter Center to register as a Non-Governmental Organization for assisting Angolan health authorities to establish community-based surveillance and interventions to interrupt transmission of Guinea worm infections in the country.

Ms. Sarah Yerian, Senior Associate Director of The Carter Center's GWEP, was in Luanda, Angola October 29-November 1 to meet with Angolan authorities regarding the Memorandum of Understanding between the Center and the Angolan Ministry of Health, as well as to make arrangements for registering The Carter Center as a Non-Governmental Organization for work in Angola. While in Luanda she met with U.S. Ambassador Nina Fite, the Director of the Angolan Ministry of Health's Neglected Tropical Diseases Program, Dr. Maria-Cecelia De Almeida, and other Angolan government officials, as well as staff of the local offices of CDC and WHO. A follow up visit is planned in December. With two humans and one dog found with Guinea worm infections in Cunene Province in April 2018, January 2019 and April 2019, respectively, the peak season for Guinea worm transmission in Angola begins very soon.

## RESEARCHERS CONFERENCE CALL

On October 28, Carter Center GWEP Program Director Mr. Adam Weiss led a two hour long conference call with members of the Guinea worm research team. Participants included colleagues from the CDC, WHO, University of Exeter/UK, University of Georgia/USA, University of Roehampton/UK, Wellcome Sanger Institute, and Vassar College. Efforts to pinpoint the modalities of transmission continue and the research increasingly suggests that consumption of fish entrails and fingerlings (small fish) are the greatest risk factors for Guinea worm infections of dogs in Chad. Colleagues at CDC continue to make advancements towards a serologic assay that will help us understand which dogs have been exposed to Guinea worm infection in the past ~12 months. Once available this new tool should help the program to target interventions among likely infected dogs. In Ethiopia, the Mayn water sources used by baboons in the six troops being tracked are now known and being targeted for Abate treatments; these baboons have much smaller home ranges, about 1-3 km square, compared to baboons that have been studied elsewhere in Africa.

## DONATIONS

**BILL & MELINDA**  
**GATES** *foundation*

The Carter Center is grateful for the continued support of the Bill & Melinda Gates Foundation, particularly its recent grant of USD \$28 million for Guinea worm disease eradication efforts through 2021. With this new support, the foundation has generously provided \$208 million to the eradication campaign since May 2000.

## MEETINGS

The South Sudan Guinea Worm Eradication Program will hold its annual Program Review in Juba on December 12-13, 2019.

Ethiopia's Dracunculiasis Eradication Program will hold its annual Program Review in Gambella on December 17-18, 2019.

Chad's Guinea Worm Eradication Program will hold its annual Program Review in N'Djamena on January 22-23, 2020

Mali's Guinea Worm Eradication Program will hold its annual Program Review in Bamako on January 29-30, 2020

The 24<sup>th</sup> International Review Meeting of Guinea Worm Eradication Program Managers will be convened at The Carter Center in Atlanta, USA on March 16-17, 2020.

## RECENT PUBLICATIONS

Anonymous, 2019. Dracunculiasis-a case study for infection eradication. The Lancet 19:1149. DOI: [https://doi.org/10.1016/S1473-3099\(19\)30488-8](https://doi.org/10.1016/S1473-3099(19)30488-8)

Hopkins DR, Weiss AJ, Roy SL, Zingesser J, Guagliardo SAJ, 2019. Progress toward global eradication of dracunculiasis, January 2018-June 2019. MMWR Morbid Mortal Wkly Rpt 68:979-984. See also: Editor, 2019. *Erratum*. MMWR 68:1101.

World Health Organization, 2019. Monthly report on dracunculiasis cases, January-August 2019. Wkly Epidemiol Rec 94:470-471.

Table 4

**Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2019\* †**  
(Countries arranged in descending order of cases in 2018)

COUNTRIES WITH TRANSMISSION OF GUINEA WORMS	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
CHAD	0 / 2	1 / 1	0 / 1	2 / 3	8 / 12	6 / 9	3 / 6	1 / 5	2 / 4	0 / 0	/	/	23 / 43	53%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	1 / 1	1 / 2	0 / 0	/	/	2 / 4	50%
ANGOLA	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	0 / 1	0%
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	0 / 0	0%
MALI §	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	0 / 0	0%
CAMEROON †	/	/	0 / 1	/	/	/	/	/	/	/	/	/	0 / 1	0%
TOTAL*	0 / 3	1 / 1	0 / 2	2 / 3	8 / 12	6 / 9	3 / 7	2 / 6	3 / 6	0 / 0	0 / 0	0 / 0	25 / 49	51%
% CONTAINED	0%	100%	0%	67%	67%	67%	0%	33%	50%	100%			51%	

\*Provisional

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

Shaded cells denote months when one or more cases of GWD did not meet all case containment standards.

§Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Timbuktu and Gao Regions; contingent on security conditions during 2018, the GWEP continued to deploy one technical advisor to Kidal Region to oversee the program.

†Cameroon reported one case in March that was likely infected in Chad.

**Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2018\***  
(Countries arranged in descending order of cases in 2017)

COUNTRIES WITH TRANSMISSION OF GUINEA WORMS	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
CHAD	1 / 1	1 / 1	1 / 1	0 / 0	1 / 1	0 / 0	1 / 5	1 / 4	0 / 0	0 / 1	0 / 0	1 / 3	7 / 17	41%
ETHIOPIA	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%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 2	0 / 2	1 / 3	1 / 2	1 / 1	0 / 0	0 / 0	0 / 0	3 / 10	30%
MALI §	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%
ANGOLA^	/	/	/	0 / 1	/	/	/	/	/	/	/	/	0 / 1	0%
TOTAL*	1 / 1	1 / 1	1 / 1	0 / 1	1 / 3	0 / 2	2 / 8	2 / 6	1 / 1	0 / 1	0 / 0	1 / 3	10 / 28	36%
% CONTAINED	100%	100%	100%	0%	33%	0%	25%	33%	100%	0%	100%	33%	36%	

\*Provisional

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

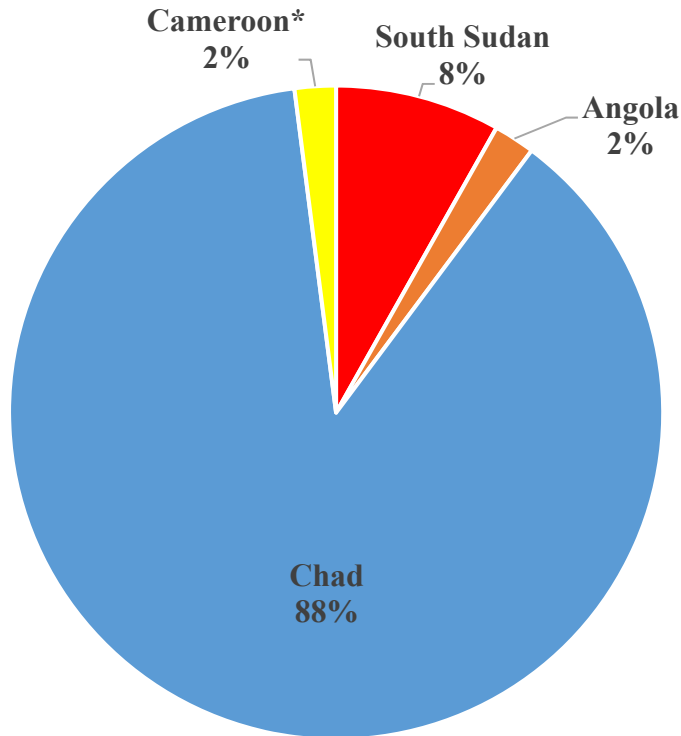
Shaded cells denote months when one or more cases of GWD did not meet all case containment standards.

§Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Timbuktu and Gao Regions; contingent on security conditions during 2018, the GWEP continued to deploy one technical advisor to Kidal Region to oversee the program.

^ Investigation of the origin of this case is ongoing. Preliminary outcomes indicate there is no current or historical evidence of human or animal infections in the district of residence.

FIGURE 2

Distribution of 49 Cases of Guinea Worm Disease in Humans,  
January-October 2019



\*Imported from Chad

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](mailto:gwwrapup@cdc.gov)) or to Adam Weiss ([adam.weiss@cartercenter.org](mailto:adam.weiss@cartercenter.org)) 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, Dr. Donald Hopkins and Adam Weiss of The Carter Center, Dr. Sharon Roy of CDC, and Dr. Dieudonne Sankara of WHO.

WHO Collaborating Center for Dracunculiasis Eradication, Center for Global Health, Centers for Disease Control and Prevention, Maylstop A-06, 1600 Clifton Road NE, Atlanta, GA 30329, USA, eMayl: [gwwrapup@cdc.gov](mailto:gwwrapup@cdc.gov), fax: 404-728-8040. The GW Wrap-Up web location is

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