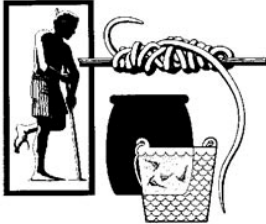


Memorandum



**Date:** October 3, 2017

**From:** WHO Collaborating Center for Dracunculiasis Eradication, CDC

**Subject:** GUINEA WORM WRAP-UP #250

**To:** Addressees

**Every uncontained worm from any source can spread infection!**



### **MALI: NO CASE OF GWD SINCE NOVEMBER 2015**

Mali has reported no case of Guinea worm disease (GWD) for 21 months (December 2015-August 2017). This suggests that transmission of Guinea worms (GWs) to humans may finally have been interrupted in Mali, but the peak transmission season in Mali is July-October, and transmission of GW infections persist in dogs. Mali currently has 455 villages under active surveillance; GW surveillance also is integrated with immunization and malaria campaigns in Tominian district of Segou Region. Awareness of the cash reward for reporting a case of GWD stood at 85% of 2,906 persons queried in January-July 2017. The program recorded 248 rumors in January-July 2017, all of which were investigated within 24 hours. Insecurity in Mali continues to constrain the ability of the program to access all areas affected by transmission of GWs to dogs (particularly in northern Mopti Region) and to fully ascertain the absence of cases in formerly endemic districts, including nomadic camps, in northern Mali.

Mali reported one GW-infected dog, its first, in 2015. Eleven (11) infected dogs were reported in 2016, of which 8 were contained and Abate applied for the three others. Eight (8) infected dogs and 1 cat have been reported in January-September 2017, of which 6 dogs and the cat (78%) were contained, with Abate applied for 4 of the dogs and the cat. Only one of the 9 infected animals was neither contained nor had the probably contaminated water treated with Abate, because the pond was much too large ([Table 1](#)). Mali's Guinea Worm Eradication Program (GWEP) treated 88 water sources with Abate in January-July 2017. The GWEP introduced a cash reward equivalent to US\$20 for reporting and containing an infected dog in March 2016. Spot checks of awareness of the reward for reporting infected dogs found 79% awareness among 4709 persons queried in 2016 and 74% of 840 persons queried in January-July 2017. Until recently all infected dogs and infections in humans over the past few years were detected in Tominian district of Segou Region, although most infected dogs had been imported by Bobo villagers from adjacent districts of Segou and Mopti Regions. In August an infected dog was detected in Mopti Region for the first time, where most dog owners are fishermen of the Bozo ethnic group.

Table 1

## MALI GWEP LISTING OF DOG INFECTIONS: 2017^

Dog #	Région	District	Aire de Sante	Village	Owner's Ethnicity	Owner's Occupation	# GWs	Containment (Yes or No)	Date ogf Detection	Date of GW Emergence	Contamination of water source (Yes/No/ Probable)	Abate treatment (Yes/No)	GW contained* (Yes/No)
1	Segou	Tominian	Fangasso	Mampe	Bobo	Farmer	1	Yes	6-Jun-17	10-Jun-17	Probable	Yes	Yes
2	Segou	Tominian	Koula	Toubara	Bobo	Farmer	1	No	29-Jun-17	29-Jun-17	Probable	Yes	No
3	Segou	Tominian	Fangasso	Parassilame	Bobo	Farmer	1	Yes	11-Jul-17	11-Jul-17	Probable	Yes	Yes
4	Segou	Tominian	Ouan	kantama	Bobo	Farmer	1	No	20-Aug-17	20-Aug-17	Probable	No	No
5	Segou	Tominian	Ouan	Dounguel	Bobo	Farmer	1	Yes (Cat)	23-Aug-17	27-Aug-17	Probable	Yes	Yes
6	Mopti	Djenne	Konio	Tacko	Bozo	Farmer/Hunter	1	Yes	10-Aug-17	10-Aug-17	Probable	Yes	Yes
7	Mopti	Djenne	Djenne central	KONOFIA/Dj.ville	Bozo	Farmer/Fishermen	5	Yes	26-Aug-17	26-Aug-17	Probable	No	Yes
8	Mopti	Djenne	Djenne central	TOLOBER/Dj.ville	Bozo	Farmer/Fishermen	1	Yes	26-Aug-17	28-Aug-17	Probable	No	Yes
9	Mopti	Djenne	Djenne central	KANAFI/Dj.ville	Bobo	Ex-employee of Camp Djne	3	Yes	10-Sep-17	12-Sep-17	Probable	No	Yes

^ Provisional: as of September 14, 2017

\* All containment standards met

Carter Center Country Representative Mr. Sadi Moussa made a supervisory visit to Segou and Mopti Regions on August 24-28. In Segou he made a courtesy visit to regional health director Dr. Gabriel Guindo, who himself had visited Tominian district twice recently. Mr. Moussa also visited Koula, Fangasso and Ouan health areas in Tominian district before continuing to Mopti Region, where he visited Tacko village and the health center at Konio in Djenne district of Mopti Region.

## **CHAD: 19% FEWER INFECTED DOGS OVERALL IN JANUARY-AUGUST**



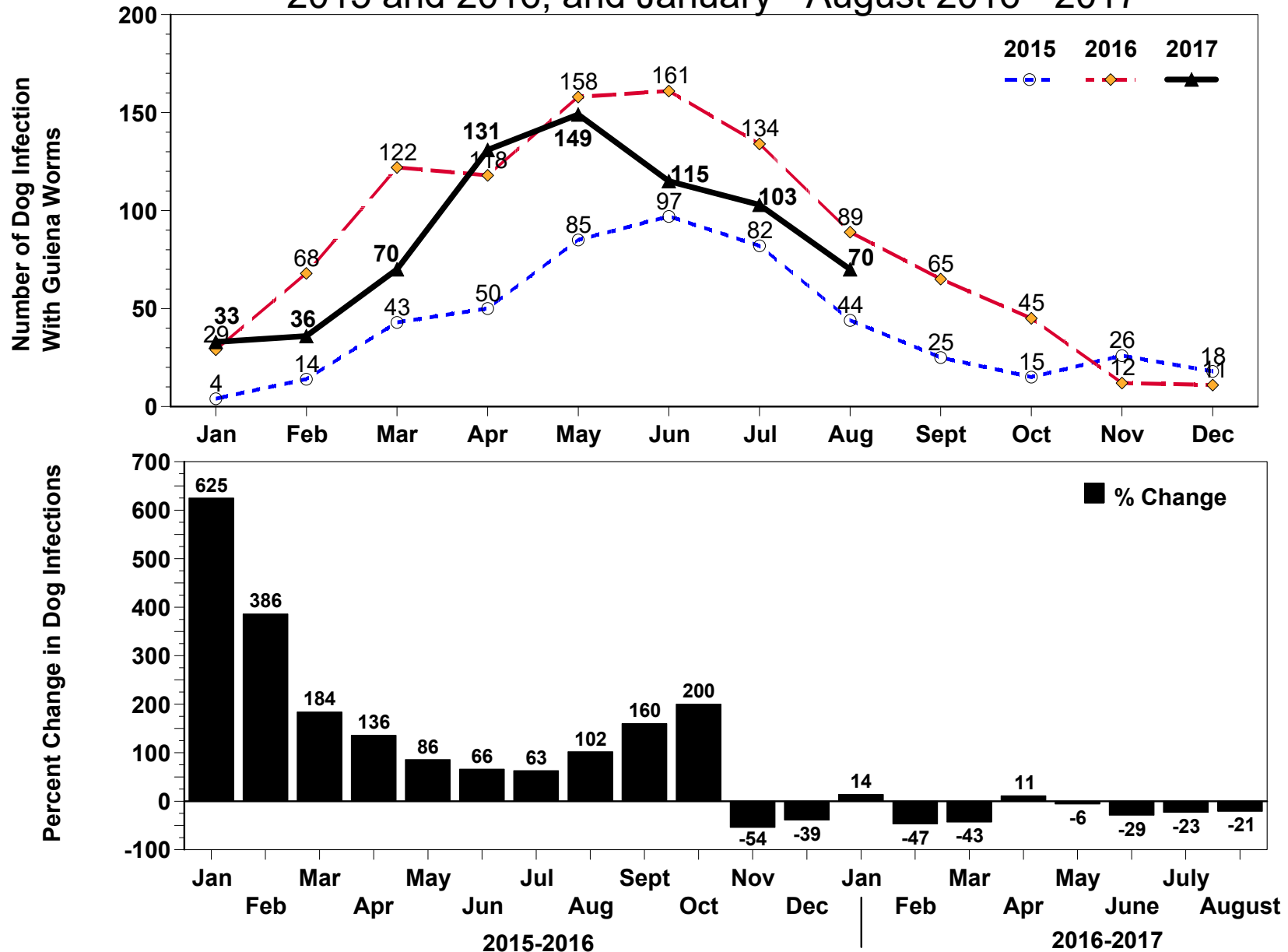
Chad's Guinea Worm Eradication Program has reported 708 infected dogs (78% contained) and 12 domestic cats (4 contained) in January-August 2017, which is a reduction of 19% from the 879 infected dogs reported during the same period of 2016 (Figure 1). Chad has 1,862 villages under active surveillance (VAS). A total of 1,991 rumors were reported in January- August, of which 1,902 (96%) were investigated within 24 hours. According to surveys by the program, 81% of 1,199 households sampled in VAS in January- August 2017 were burying fish entrails and 80% of 109 persons queried were aware of the cash reward for reporting an infected person. The impact of existing interventions (mainly dog tethering, burying fish guts) on dog infections in 907 Level 1 VAS during January-August 2016 and 2017 30% fewer infected dogs and 44% fewer Guinea worms emerging from dogs in January-August this year compared to the same period of 2016. In the 88 Level 1 VAS with existing interventions plus monthly treatment of dogs with Advocate<sup>®</sup> anthelmintic since October 2016, the number of infected dogs was reduced by 45% and the number of Guinea worms emerging was reduced by 62% in January-August 2017 compared to the same period of 2016. The increased rate of containment of dogs in January-August 2017 (78%) vs. January-August 2016 (67%) also allowed fewer uncontained dogs so far in 2017 (157 vs. 289), which means significantly less contamination of the environment with Guinea worm larvae. The average ratio of infected dogs in 2016 and 2017 to the number of uncontained dogs in the respective preceding year has declined also (Figure 2). We are grateful to the Honorable World Laureate Dr. Tebebe Y. Berhan, Guinea Worm Ambassador and member of Lions Clubs of Ethiopia, for his assistance in locating and expediting a stranded shipment of Advocate<sup>®</sup> anthelmintic to Chad.

The program plans to intensify application of Abate once the annual Chari River flood begins to wane during November-December 2017 in 37 villages reporting 5+ dog infections in 2016 and/or 2017. Dr. Ernesto Ruiz-Tiben and Mr. Adam Weiss of Carter Center headquarters visited Chad September 16 - 24, 2017 to help train Technical Advisors and *Agents de Renfort* on the strategy of Abate use, calculation of water volumes and dosing ponds at one part per million. Chad also is incrementally implementing the communication campaign launched in July 2017, beginning with Level 3 surveillance areas in the southwest (Bongor, Fianga, Moulkou) and southeast (Salamat). The purpose of this enhanced communication campaign is to increase reward awareness to at least 80% & promptness of reporting, and support compliance with dog tethering, burying fish guts, and cooking aquatic animals well.

Figure 1

# Chad Guinea Worm Eradication Program

## Dog Guinea Worm Infections, and Percent Change Month-to-Month During 2015 and 2016, and January - August 2016 - 2017\*



\*Provisional as of 31 August 2017

Figure 2

**CHAD GUINEA WORM ERADICATION PROGRAM**  
**CONTAINED AND UNCONTAINED NUMBER OF DOGS INFECTED WITH GUINEA WORMS, AND RATIO OF UNCONTAINED DOGS THE PRECEDING YEAR TO INFECTED DOGS THE FOLLOWING YEAR 2015-2017\***

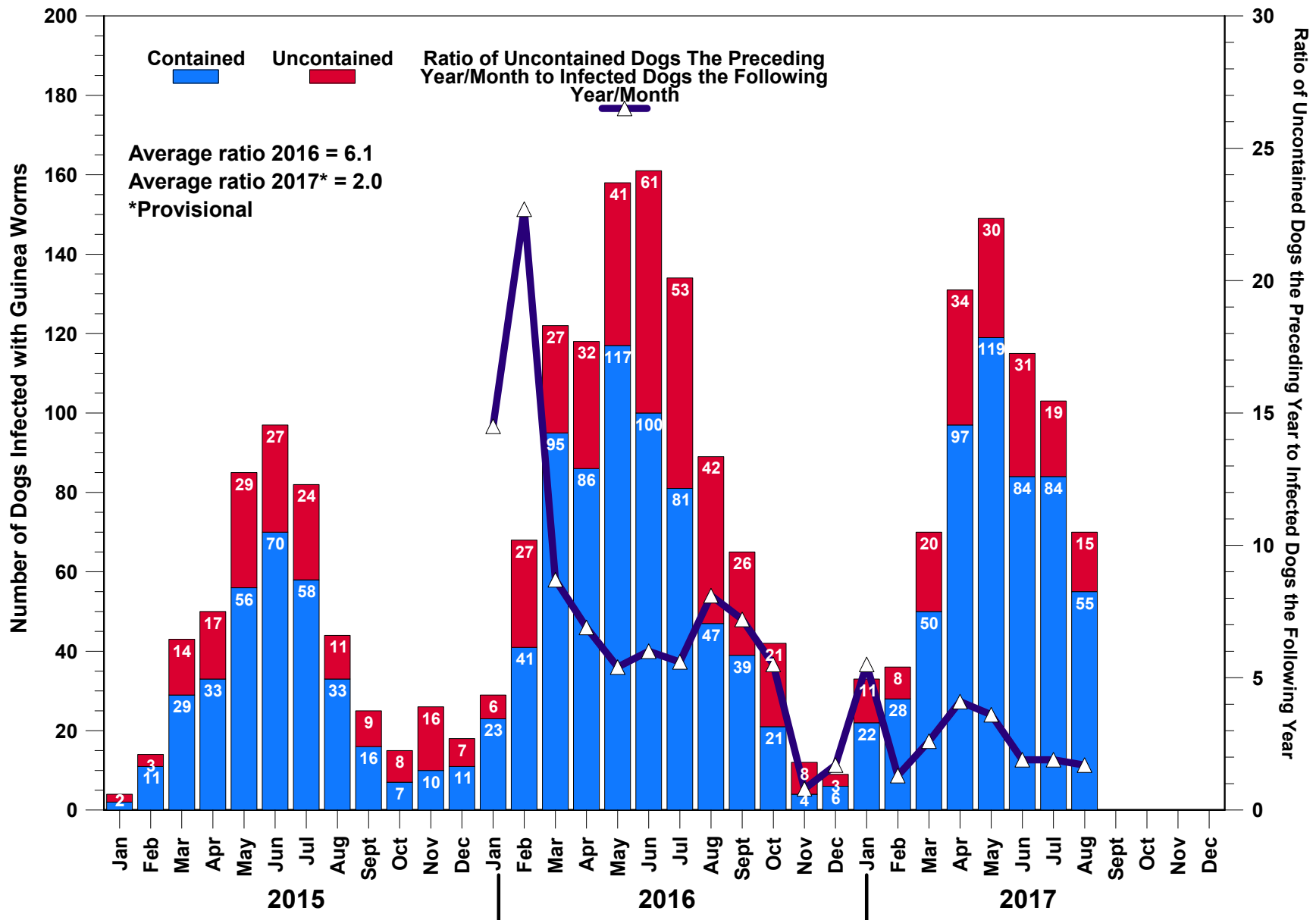


Table 2

**Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2017\***  
(Countries arranged in descending order of cases in 2016)

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*	
CHAD	0 / 0	1 / 1	1 / 1	1 / 2	2 / 2	1 / 2	2 / 2	0 / 1	0 / 1	/	/	/	8 / 12	67%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	/	0 / 0	0%
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	/	/	/	0 / 1	0%
MALI §	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	/	0 / 0	0%
TOTAL*	0 / 0	1 / 1	1 / 1	1 / 2	2 / 2	1 / 2	2 / 2	0 / 1	0 / 2	/	/	/	8 / 13	75%
% CONTAINED	0%	100%	100%	50%	100%	50%	100%	0%	0%				62%	

\*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 one or more cases of GWD did not meet all case containment standards.

§Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Tinbuktu and Gao Regions; contingent on security conditions during 2017, the GWEP continued to deploy one technical advisor to Kidal Region to oversee the program.

**Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2016\***  
(Countries arranged in descending order of cases in 2015)

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*	
CHAD	0 / 0	1 / 1	0 / 0	1 / 1	1 / 1	0 / 1	1 / 2	1 / 3	1 / 2	3 / 4	0 / 0	0 / 1	9 / 16	56%
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%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	3 / 4	0 / 0	0 / 0	0 / 1	0 / 0	0 / 1	0 / 0	3 / 6	50%
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	1 / 1	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	0 / 0	2 / 3	67%
TOTAL*	0 / 0	1 / 1	0 / 0	1 / 1	2 / 2	4 / 6	1 / 2	1 / 3	1 / 4	3 / 4	0 / 1	0 / 1	14 / 25	56%
% CONTAINED	0%	100%	0%	100%	100%	67%	50%	33%	25%	75%	0%	0%	56%	

\*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 one or more cases of GWD did not meet all case containment standards.

§Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Tinbuktu and Gao Regions; contingent on security conditions during 2016, the GWEP continued to deploy one technical advisor to Kidal Region to oversee the program.

Table 3

**CHAD GUINEA WORM ERADICATION PROGRAM**  
**LINE LISTING OF CASES OF GWD DURING 2017**

Case #	Village or Locality of detection			District	Region	Patient				Case Contained?		1 = imported 2 = indigenous	Home Village or Locality			Presumed Source of infection identified?		Presumed Source of infection is a known VAS?	
	Name	1 or 2 = VAS	3 = VNAS			Ethnicity	Age	Sex	Date GW emerged (D/M/Y)	(Yes, No, or Pending)	If no, date of Abate Rx		Name	1 or 2 = VAS	3 = VNAS	(Yes or No)	Name	(Yes or No)	Actions/ Comments?
1.1	Loumia	1		Mandelia	Chari Baguirmi	Goulaye	10	F	27-Feb-17	Yes	-	2	Loumia	1		No	N/A	N/A	Patient and family eat frogs and catfish ( <i>Synodontis</i> ) as well as Nile water monitors ( <i>Varanus</i> ).
1.2									5-Mar-17		-								
2	Kakale Mberi	1		Guelendeng	Mayo Kebbi Est	Mberi	6	F	22-Mar-17	Yes	-	2	Kakale Mberi	1		No	N/A	N/A	Patient's dog had two worms emerge during the same week.
3	Bougoumene 1	2		Dourbali	Chari Baguirmi	Mousgoum	10	M	31-Mar-17	Yes	-	2	Bougoumene 1	2		No	N/A	N/A	Patient household is between those of two infected dogs.
4	Tarangara	1		Danamadji	Moyen Chari	Sara Kaba	7	M	27-Apr-17	No	6-May-17	2	Tarangara	1		No	N/A	N/A	Patient resides in a quartier where 100% of the known dog population was infected in 2016.
5	Kira	1		Sarh	Moyen Chari	Sara	12	M	11-May-17	Yes	-	2	Kira	1		No	N/A	N/A	18 animal infections were reported in Kira in 2016, as well as 1 human case in 2014
6	Choukara	1		Amtiman	Salamat	Hemat	43	M	2-Jun-17	Yes	-	2	Choukara	1		No	N/A	N/A	
7.1	Bembaya	1		Sarh	Moyen Chari	Ngor	62	M	10-Jun-17	Yes		2	Bembaya			No	N/A	N/A	Patient's nephew is Case 5 and they swim and participate in the collective fishing together. Pt also lives in close proximity to 3 infected dogs
7.2									13-Jun-17	Yes						No	N/A	N/A	
7.3									6-Jul-17	Yes						No	N/A	N/A	
8	Ngargue Marche	1		Bouso	Chari Baguirmi	Arabe	35	M	22-Jun-17	No	29-Jun-17	2	Ngargue Marche	1		No	N/A	N/A	
9	Djoballa 4	1		Bouso	Chari Baguirmi	Arabe	42	M	27-Jul-17	Yes	-	2	Djoballa 4	1		No	N/A	N/A	
10.1	Gouari	2		Sarh	Chari Baguirmi	Loua	50	F	29-Jul-17	Yes		2	Gouari	2		No	N/A	N/A	4 infected dogs were reported in Gouari in 2016
10.2									19-Aug-17	Yes				2		No	N/A	N/A	
11	Birme		3	Massenya	Chari Baguirmi	Baguirmi	34	F	25-Aug-17	No		2	Birme		3	No	N/A	N/A	
12.1	Woin	2		Sarh	Moyen Chari	Sara	25	F	2-Sept.-17	No		2	Woin	2		No	N/A	N/A	Patient was in Gouari village for four days in 2016
12.2									19-Sept.-17	No									

VAS = village under active surveillance in level 1 or 2 areas

VNAS = village not under active surveillance, level 3 areas

Table 4

## Chad GWEP Ethnicities as of Sept 1, 2017

	2010	2011	2012	2013	2014*	2015	2016	2017	TOTAL
Massa	4	3	5	3	1	1			17
Kabalay/Kabalaye	1						1		2
Gouley/Gulaye	2		1					1	4
Sara	2				3	1		1	7
Niellim	1								1
Boulala			1	1					2
Gabri			1	1					2
Sara Kaba			1		2	3	1	1	8
Mb aye			1		2				3
Nangtchere		1							1
Baguirmi		1		1	1			1	4
Gurri		1							1
Moussei		2							2
Mousgoum		1		1		1	1	1	5
Fulbe		1							1
Sara Mousgoum				2					2
Sara Madjigay				5	1				6
Mon go					1		1		2
Rouga/Rounga					1		3		4
Ara be						2	1	2	5
Ki bet						1	1		2
Ngambaye							1		1
Boa							1		1
Briguite (Abdeya)							1		1
Rachid							2		2
Mboulou							1		1
Laka							1		1
Mbeuri								1	1
Gor/Ngor								1	1
Loua								1	1
Hernat								1	1
TOTAL	10	10	10	14	12	9	16	11	92

\* one case ethnicity N/A



Twelve cases of GWD, 8 (67%) contained, have been confirmed in Chad so far this year, and these compare to 11 in the same period of 2016 ([Table 2](#)). Notably, over the past eight years a remarkable total of 31 ethnicities are represented among the 92 cases of Guinea worm disease reported in Chad ([Table 4](#)). This unusual diversity illustrates in another way the scattered locations of Guinea worm cases in Chad since 2010. According to the program, however, dog infections are more focal and originate mostly from villages where two ethnicities predominate: Massa (located in Chari Baguirmi and Mayo Kebbi Est Regions) and Sara/Sara Kaba/Sara Madjigaye (located in Moyen Chari Region).

### **ETHIOPIA: STREAK OF NO CASES OF GUINEA WORM DISEASE DURING LAST 11 CONSECUTIVE MONTHS ENDED IN LATE SEPTEMBER; 13 INFECTED ANIMALS**

The Ethiopian Dracunculiasis Eradication Program (EDEP) reported a 32 year-old, male patient resident of southern Oromia Region who was admitted to the Gambella Town Hospital, Gambella Region, on 26 September 2017 with a worm emerging from below the ankle area of one of his feet. Photographs of the clinical presentation appear textbook classic for GWD. Detection occurred on 25 September and the patient allegedly contaminated a source of water, while bathing. ABATE application in this presumed contaminated water source took place on 27 September. His travel and aquatic food consumption history is being ascertained, as well as who else traveled or worked with him during his travels from southern Oromia Region during 2016-2017 seeking work in the agricultural farms of Gambella Region. This patient's infection remains to be laboratory confirmed, once the GW is fully extracted.

The EDEP has reported confirmed infections in 6 domestic dogs and 4 baboons with confirmation of 3 additional dog infections pending so far in 2017 ([Table 2](#)). This compares to 9 infected dogs and 2 infected baboons reported in January-August 2016. Ethiopia has 162 VAS in Gog, Abobo and Lare districts of Gambella Region. The EDEP continues to intensify application of Abate to surface water sources in Atheti sub-district of Gog district in Gambella Region, which is the small GW- endemic focal area remaining in the country. In Atheti sub-district, the program treated 44 surface water sources with Abate in July 2015, 131 in July 2016 and 484 in July 2017.

As Benishangul Gumuz Region is also currently receiving refugees from South Sudan, training on GWD was provided by the Ethiopian Public Health Institute and Regional Health Bureau staff in collaboration with WHO and Carter Center staff in Assosa. Public Health Emergency Management officers, Neglected Tropical Disease focal points from Regional Health Bureau, zonal and district health offices as well as Rapid Response Team (RRT) managers from refugee camps were involved in the training.

Mr. Adam Weiss made a supervisory visit to this program in September 21- October 2. Dr. James Zingeser of Carter Center headquarters visited in late September to consult with officials in the Ethiopia Public Health Institute (EPHI) and the Ethiopian Wildlife Conservation Society (EWCS) to continue preparations for a study of baboons in Gog district. Ethiopia plans to launch its enhanced Guinea worm communication campaign in association with its annual in-country program review during the week of December 4, 2017.

Table 5

**ETHIOPIA DRACUNCULIASIS ERADICATION PROGRAM**  
**Reported Animal Infections in 2017 - Abobo, Gog and Lare Woreda (Level I only)**

<b>Animal #</b>	<b>Animal Type</b>	<b>Woreda</b>	<b>Kebele</b>	<b>Village of detection</b>	<b>Month</b>	<b>Infection Contained</b>	<b>Case Imported</b>	<b>Lab Confirmed</b>	<b>Reward Given</b>
1	Baboon	Gog	Atheti	Ablen	Jan	No	No	Yes	NA
2	Baboon	Gog	Atheti	Wichini	Apr	No	No	Yes	NA
3	Dog	Gog	Atheti	Ablen	May	Yes	No	Yes	Yes
4	Dog	Gog	Atheti	Atheti	May	Yes	No	Yes	Yes
5	Dog	Gog	Atheti	Atheti	Jun	No	No	Yes	Yes
6	Dog	Gog	Okedi	Kidane Farm-Athibir	Jun	No	Yes?	Yes	Yes
7	Dog	Gog	Atheti	Wichini	Jun	No	Yes?	Yes	Yes
8	Dog	Gog	Atheti	Wichini	Jun	Yes	Yes?	Yes	Yes
9	Baboon	Gog	Atheti	Abawiri	Jun	No	No	Yes	NA
10	Baboon	Gog	Gog Dipach	Duli	Jun	No	No	Yes	NA
11	Dog	Gog	Atheti	Wichini	Jul	Yes	Yes?	Pending	Yes
12	Dog	Gog	Atheti	Wichini	Jul	Yes	Yes?	Pending	Yes
13	Dog	Gog	Atheti	Atheti	Aug	Yes	No	Pending	Pending
<b>TOTALS</b>	<b>9 dogs</b>					<b>6 contained</b>		<b>6 confirmed &amp; 3 pending</b>	
	<b>4 baboons</b>					<b>0 contained</b>		<b>4 confirmed</b>	

## **SOUTH SUDAN: NO CASES, NO INFECTED ANIMALS**

South Sudan completed nine consecutive months with no cases of Guinea worm disease at the end of August 2017. The South Sudan Guinea Worm Eradication Program (SSGWEP) plans to launch its enhanced Guinea worm communication campaign at the end of October. The theme of the campaign is: “It pays to report Guinea worm-Find it, report it, get paid”. Three expatriate technical advisors have returned in-country to assist national staff of the SSGWEP in the formerly GW-endemic counties of Jur River and Tonj East, both of which are at Level 1 surveillance and located west of the Nile, and in the formerly GW-endemic Kapoeta North, South and East counties of Kapoeta State, located east of the Nile, which are now at risk Level 3 but with Level 1 surveillance structure still in place.

### **GUINEA WORM CROSS BORDER MEETING FOR EAST AFRICA COUNTRIES IN ENTEBBE, UGANDA, 21-22 SEPTEMBER 2017**



The continued civil unrest in South Sudan and the movement of populations that have ensued, triggered a significant flux of refugees from South Sudan to neighboring countries, i.e., to the Democratic Republic of Congo (DRC), Ethiopia, Kenya, and Sudan. This called for intensified coordination and collaboration among these countries to intensify surveillance for prompt detection of cases of GWD along their borders and among refugees from South Sudan, where GWD remains endemic.

Accordingly, a cross border meeting was held in Entebbe, Uganda from 21 to 22 September 2017. Delegations from DRC, Ethiopia, Kenya, and South Sudan attended the meeting (only the WHO/South Sudan country office representative attended the meeting, the national GWEP team was not able to attend). The objective of the meeting was to identify and discuss opportunities for strengthening Guinea worm disease surveillance along and across the borders of these countries. Accomplishments were:

1. Review, country by country, of specific activities carried out during 2016-2017 to strengthen cross-border surveillance for GWD; including a review of the status of implementation of the recommendations of last year's meeting in Ethiopia.
2. Discussion of challenges to effective implementation of activities to strengthen cross-border surveillance for GWD; including review of the current refugee situation in each country and ways to strengthen GWD surveillance among them.
3. Elaboration, in line with the above, a SWOT analysis and identification of areas for effective collaboration and joint actions to strengthen surveillance, communication and coordination for Guinea worm disease eradication, at regional and peripheral levels in the border areas.

## MEETINGS

- The International Task Force for Disease Eradication (ITFDE) will review the global Guinea Worm Eradication Program on October 17, 2017 at The Carter Center in Atlanta, USA. The second meeting of laboratory and field researchers to discuss studies of Guinea worm infections in humans and dogs in Chad will be held at The Carter Center on October 18.
- Ethiopia's annual Guinea worm program review will be held the week of December 4, 2017 in Addis Ababa.
- South Sudan's annual Guinea worm program review will be held in Juba the week of December 11, 2017.
- Mali's annual Guinea worm program review will be held in Bamako on January 18-19, 2018.
- Chad's annual Guinea worm program review will be held in N'Djamena on January 23-24, 2018.
- The International Commission for the Certification of Dracunculiasis Eradication (ICCDE) will meet at World Health Organization headquarters in Geneva, Switzerland on February 15-16, 2018.
- The 22<sup>nd</sup> International Preview Meeting of Guinea Worm Eradication Program Managers will be held at The Carter Center in Atlanta, USA on March 21-23, 2018.

## RECENT PUBLICATIONS

Beyene, H.B., et.al., 2017. Elimination of Guinea worm disease in Ethiopia; current status of the diseases's eradication strategies and challenges to the end game. Ethiop Med J 55(suppl. 1):15-31.

Netshikweta, R., Garira, W., 2017. A multiscale model for the world's first parasitic disease targeted for eradication: Guinea worm disease. Computational and Mathematical Methods in Medicine 2017: 29pp. <https://doi.org/10.1155/2017/1473287>.

World Health Organization, 2017. Monthly report on dracunculiasis cases, January-May 2017. Wkly Epidemiol Rec 92:403-4.

World Health Organization, 2017. Monthly report on dracunculiasis cases, January-June 2017. Wkly Epidemiol Rec 92:498-9.

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 Dr. Ernesto Ruiz-Tiben ([eruizti@emory.edu](mailto:eruizti@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 of CDC, Dr. Dieudonné Sankara of WHO, and Dr. Mark Eberhard.

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<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/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)



**World Health  
Organization**

CDC is the WHO Collaborating Center for Dracunculiasis Eradication