

Memorandum



**Date:** March 9, 2020  
**From:** WHO Collaborating Center for Dracunculiasis Eradication, CDC  
**Subject:** GUINEA WORM WRAP-UP #266  
**To:** Addressees

*“Hope is not an intervention.”*  
 Donald R. Hopkins

### CHAD’S GWEP HOLDS 8<sup>TH</sup> ANNUAL IN-COUNTRY PROGRAM REVIEW



Chad’s Minister of Public Health, the Honorable Prof. Mahmoud Youssouf Khayal, presided at opening and closing ceremonies for the Chad Guinea Worm Eradication Program (CGWEP)’s 8<sup>th</sup> Annual Program Review, which was held at the Hotel Ledger Plaza in N’Djamena on January 22-23, 2020. In his remarks, the health minister appealed to the Ministry of Water and Sanitation, the Ministry of Communication, and the Ministry of Livestock to assist the CGWEP. Carter Center Vice-President Dr. Dean Sienko and World Health Organization (WHO) Country Representative Dr. Jean-Bosco Ndiokumbayo also spoke at the opening ceremony. About 200 persons attended the meeting, including CGWEP staff as well as provincial and district health workers and technical advisors from affected areas. Other participants at the meeting included Mr. Adam Weiss, Dr. Hubert Zirimwabagabo, Ms. Sarah Yerian, and Ms. Karmen Unterwegner of The Carter Center, Dr. Dieudonne Sankara and Dr Andrew Seidu Korkor of WHO, Dr. Sarah Guagliardo of the Centers for Disease Control and Prevention, and researcher Dr. Chris Cleveland of the University of Georgia/USA.

According to provisional data presented at the meeting by GWEP National Program Coordinator Dr. Tchindebet Ouakou, Chad reported 1,935 dogs with Guinea worm infections (77% contained) in 421 villages in 2019, which is an increase of 86% in infected dogs and a 28% increase in villages with dog infections compared to the 1,040 infected dogs in 328 villages in 2018. Chad also reported 48 human cases of Guinea worm disease (54% contained) in 25 villages and 47 infected cats (51% contained) in 39 villages in 2019, compared to 17 human cases and 25 infected cats in 2018. A total of 444 villages had one or more GW infections in a human and/or animal in 2019. Ninety-six percent (96%) of the infected dogs in 2019 occurred in only three of Chad’s 23 provinces: Moyen Chari (855; 44%), Chari Baguirmi (758; 39%), and Mayo Kebbi Est (252; 13%). Guelendeng district reported 243 of Mayo Kebbi Est’s 252 infected dogs and 16 (34%) of all Chad’s infected cats. Twenty (43%) of the human cases were detected in or associated with the village of Bogam in Salamat Province.

The CGWEP increased the number of villages under active surveillance from 1,895 in 2018 to 2,211 in 2019. The numbers of rumors of human Guinea worm cases rose from 19,506 in 2018 to 46,288 in 2019 (98% investigated within 24 hours), while rumors of animals with Guinea worm infections almost quadrupled from 16,616 in 2018 to 61,154 in 2019. Among 2,815 persons queried in 2019, awareness of the cash reward for reporting a human case was reported as 53% and awareness of the reward for reporting an infected animal was 45%.

Unlike most human Guinea worm infections in Chad, which are sporadic and believed to result from ingesting Guinea worm larvae in raw or poorly cooked aquatic animals, probably small fish, the Guinea worm outbreak (20 cases) that began in Bogam village in April 2019 resulted from consumption of contaminated drinking water from a common source. Bogam does not have a safe source of drinking water and is not currently scheduled to get one. Overall, 13 (52%) of the 25 villages that reported a human case of Guinea worm disease in 2019 have a source of safe drinking water. Humans with Guinea worm disease in Chad in 2019 had an average of 1.19 Guinea worms per person (56/47), while each infected cat had an average of 1.8 worms (84/47) and each infected dog had an average of 2.17 worms (4191/1935).

In 2019 the CGWEP applied Abate larvicide (temephos) to 7,220 water sources in 408 villages, compared to 688 water sources in 72 villages in 2018. The program also began evaluating the quality of Abate treatments more methodically in 2019. Using 80% reduction in copepods post treatment as the minimal acceptable standard, it found 67% of 54 systematic Abate treatments of ponds to be effective, and 45% of 31 barrier treatments of cordoned sections of lagoons to be effective. Overall, 72% of sampled households were reported to dispose of raw fish guts properly.

## MALI GWEP CONVENES ANNUAL IN-COUNTRY PROGRAM REVIEW



Mali's Guinea Worm Eradication Program (MGWEP) held its annual in-country Program Review at the d'Azalai Hotel Salam in Bamako on January 29-30, 2020. Dr. Mohammed Berthe, Advisor to the Minister of Health and former National GWEP Coordinator, opened and closed the meeting on behalf of the Minister of Health. About 150 participants attended the review, including 7 members of Mali's *Commission Nationale de la Certification de l'Éradication de la Dracunculose (CNCED)*; representatives from the national bureaus of veterinary services, water and social development; regional health directors, Guinea worm focal points, and veterinary services; technical advisors; and district *medecins chefs*. Dr. Alhousseini Maïga, Vice President of the CNCED, made a presentation on the Committee's achievements in 2019 and its plans for 2020. Partner representatives included Mr. Adam Weiss, Mr. Sadi Moussa, Mr. Craig Withers, Ms. Sarah Yerian and Ms. Karmen Unterwegner of The Carter Center; Dr. Dieudonne Sankara and Dr. Andrew Seidu-Korkor of the World Health Organization; Mr. Alain Dembele of UNICEF, and a representative of the German NGO, HELP.

MGWEP National Program Coordinator Dr. Cheick O. Coulibaly and Data Manager Mr. Yacouba Traore reported on the state of the program. Mali reported no human cases of Guinea worm disease for the fourth consecutive year in 2019, but detected 8 dogs and 1 cat with Guinea worm infections (6 contained) in May-September 2019 (compared to no human cases, 18 infected dogs and 2 infected cats in 2018). Six of the infected animals were detected in Segou Region, of which three were apparently imported from Tenenkou district in adjacent Mopti Region; the other three infected animals were indigenous to three villages in Djenne district of Mopti Region. Mali tripled the number of villages under active surveillance for Guinea worm infections from 903 villages in 2018 to 2,802 villages in 2019, but the number of reported rumors of Guinea worm infections *declined* from its already small total of 424 rumors in 2018 to only 191 rumored human infections and 20 rumors of animal infections in 2019. The reported awareness of the cash rewards for reporting Guinea worm infections in humans and animals was 77% in 2019 (144,371/188,033). Members of the national secretariat of the MGWEP made 13 supervisory visits to endemic regions during 2019. The *Commission Nationale de la Certification de l'Éradication de la Dracunculose* held four meetings and made three field visits (Kayes-Bamako, Koulikoro, Segou) in 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	Fisherman/Farmer	Ngargue (Quartier Kormada)	Bailli 1	Bailli	CB	1/1/2019	1/1/2019	No	Probable (Abate applied)
2	11	M	Sara Kaba	Child-berger	Dangala Kanya (Quartier Kibita)	Marabe	Kyabe	MC	1/5/2019	1/5/2019	No	Probable (Abate applied)
3	13	M	Sara Kaba	Child	Marabe 2 (Quartier Dilibi)	Marabe	Kyabe	MC	2/11/2019	2/15/2019	Yes	0
4	64	F	Sara Kaba	Housewife	Kyabe (Hors-zone)	Kyabe	Kyabe	MC	3/24/2019	3/24/2019	No	Probable (Abate applied)
5	M	4	Ngambaye	Child	Mourkou	Gonori	Dourbali	CB	4/13/2019	4/16/2019	Yes	0
6.1	19	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	4/12/2019	4/19/2019	No	0
6.2	19	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	6/10/2019	6/23/2019	No	0
7.1	58	M	Sara-Goulaye	Farmer	Gassaou/Ndjourou	Kiao	Bouso	CB	4/23/2019	4/23/2019	Yes	0
7.2	58	M	Sara-Goulaye	Farmer	Gassaou/Ndjourou	Kiao	Bouso	CB	4/23/2019	4/23/2019	Yes	0
7.3	58	M	Sara-Goulaye	Farmer	Gassaou/Ndjourou	Kiao	Bouso	CB	4/23/2019	4/23/2019	Yes	0
7.4	58	M	Sara-Goulaye	Farmer	Gassaou/Ndjourou	Kiao	Bouso	CB	4/23/2019	4/23/2019	Yes	0
8	24	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	5/1/2019	5/7/2019	No	0
9	50	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	3/1/2019	5/9/2019	Yes	0
10	18	M	Rachid	Farmer	Residentiel	Hors Zone	Sarh	MC	5/10/2019	5/10/2019	No	Probable
11	22	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	5/4/2019	5/12/2019	Yes	0
12	9	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	5/3/2019	5/15/2019	Yes	0
13	18	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	5/12/2019	5/15/2019	No	0
14	55	M	Torom	Farmer	Liwi	Liwi	Aboudeia	SLM	5/18/2019	5/18/2019	No	0
15	30	m	Torom	Farmer	Bogam	Liwi	Aboudeia	SLM	5/17/2019	5/23/2019	Yes	0
16	8	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	5/23/2019	5/23/2019	Yes	0
17	53	M	Torom	Farmer	Tarh	Liwi	Aboudeia	SLM	5/25/2019	5/25/2019	Yes	0
18	5	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	5/17/2019	5/25/2019	Yes	0
19	50	m	Rachid	Farmer	Amhabile	Am-habile	Aboudeia	SLM	5/26/2019	5/31/2019	Yes	0
20	15	M	Torom	Farmer	Bogam	Liwi	Aboudeia	SLM	6/5/2019	6/5/2019	Yes	0
21	44	m	Boua	Farmer	Mama	Korbol	Korbol	MC	6/6/2019	6/7/2019	No	Probable (Abate applied)

\* provisional

Case #	Age	Sex	Ethnicity	Occupation	Village of Detection	Zone	District	Region	Date of Detection	Date of Emergence	Contained (yes / no)	Entered water
22	6	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	5/17/2019	6/10/2019	No	
23	30	M	Torom	Farmer	Bogam	Liwi	Aboudeia	SLM	5/21/2019	6/10/2019	No	Probable (Abate applied)
24	10	M	Torom	Farmer	Bogom	Liwi	Aboudeia	SLM	5/18/2019	6/10/2019		0
25	6	F	Sara Kaba /Koulfa	Child	Bemadjirodjo	Kemata	Sarh	MC	6/11/2019	6/11/2019	No	Probable
26.1	35	m	Zahawa Arabe	Farmer	Amhabile	Am-habile	Aboudeia	SLM	6/6/2019	6/12/2019	Yes	0
26.2	35	m	Zahawa Arabe	Farmer	Amhabile	Am-habile	Aboudeia	SLM	9/22/2019	9/26/2019	No	Probable
27	23	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	5/9/2019	6/19/2019	Yes	0
28.1	11	F	Sara Kaba	Child	Ngondei Centre	Ngondei	Kyabe	MC	5/15/2019	date unknown (may 2019)	No	Probable (Abate applied)
28.2	11	F	Sara Kaba	Child	Ngondei Centre	Ngondei	Kyabe	MC	6/21/2019	6/21/2019	No	Probable (Abate applied)
29.1	5	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	6/23/2019	6/23/2019	Yes	0
29.2	5	F	Torom	Child	Bogam	Liwi	Aboudeia	SLM	9/6/2019	9/8/2019	Yes	0
30	70	F	Torom	Housewife	Bogam	Liwi	Aboudeia	SLM	6/28/2019	6/28/2019	Yes	0
31	25	M	Mouroum	Fisherman	Bouso	Bouso	Bouso	CB	7/1/2019	7/1/2019	Yes	0
32	10	m	Sara Kaba	Child	Marakouya 2	Marabe	Kyabe	MC	7/10/2019	7/10/2019	No	Probable (Abate applied)
33	35	M	Sara Kaba	Farmer	Ngondei Centre	Ngondei	Kyabe	MC	7/15/2019	7/15/2019	No	Probable (Abate applied)
34	43	M	Torom	Farmer	Bogam	Liwi	Aboudeia	SLM	5/17/2019	7/22/2019	Yes	0
35	8	M	Torom	Child	Bogam	Liwi	Aboudeia	SLM	7/17/2019	7/23/2019	Yes	0
36	60	M	Kanembou	Fisherman	Naoune	Manguaigne	Haraze	SLM	8/18/2019	8/18/2019	No	
37	11	F	Sara Kaba	Child	Tarangara	Maimana	Danamadji	MC	8/21/2019	8/21/2019	Yes	0
38	22	M	Arabe	student	Ambissirigne	Ambissirigne	Haraze	SLM	8/17/2019	8/17/2019		
39	21 months	M	Sara kaba	Child	Bebita	Kemata	Sarh	MC	8/23/2019	8/23/2019	No	Probable
40	20	F	Arabe	Housewife	Amdabri	Gozdjarat	Am Timan	SLM	7/30/2019	8/28/2019	Yes	0
41	14	F	Torom	student	Bogam	Liwi	Aboudeia	SLM	8/15/2019	8/28/2019	Yes	0
42	14	F	Sara Kaba		Bombi	Boussa	Kyabe	MC	8/30/2019	8/30/2019	No	
43.1	50	F	Sara Kaba	Housewife	Bombi	Boussa	Kyabe	MC	8/30/2019	9/2/2019	Yes	Probable (Abate applied)
43.2	50	F	Sara Kaba	Housewife	Bombi	Boussa	Kyabe	MC	8/30/2019	9/17/2019	No	
44	20	F	Rachid	Housewife	Amhabile	Am-habile	Aboudeia	SLM	7/30/2019	9/3/2019	No	
45	23	M	Sara kaba	Farmer	Kassai	Kassai	Sarh	MC	9/4/2019	9/4/2019	No	Probable
46	55	M	Massa	Farmer	Mossio Massa	Bogomoro	Bailli	CB	9/8/2019	9/8/2019	Yes	0
47	45	m	Goulaye	Farmer/Fisherman	Walia Miltou	Miltou	Kouno	CB	10/27/2019	11/3/2019	No	Probable
48	27	M	Ouaddai	Farmer	Ambissirigne	Ambissirigne	Haraze	SLM	11/21/2019	11/21/2019	No	0

\* provisional

Table 2

**Chad Guinea Worm Eradication Program: GWEP Line Listing of Confirmed Cases: Year 2020\***

Case #	Age	Sex	Ethnicity	Occupation	Village of Detection	Zone	District	Region	Date of Detection	Date of Emergence	Contained (yes / no)	Entered water
1	32	M	Marba	Farmer	Bouar Baguirmi	Gambarou	Mandelia	Chari Baguirmi	3 Jan. 2020	3 Jan. 2020	Yes	No

\* provisional

Table 3

**Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2020\***  
(Countries arranged in descending order of cases in 2019)

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 / 1												0 / 1	
SOUTH SUDAN	0 / 0												0 / 0	
ANGOLA													0 / 0	
ETHIOPIA	0 / 0												0 / 0	
MALI §	0 / 0												0 / 0	
TOTAL*	0 / 0												0 / 0	
% CONTAINED	0%													

\*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.

**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	1 / 3	2 / 3	11 / 17	4 / 6	4 / 6	2 / 7	1 / 2	0 / 1	0 / 1	0 / 0	26 / 49	53%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	1 / 1	1 / 2	0 / 0	0 / 0	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 / 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 / 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 / 0	0 / 0	0%
TOTAL*	0 / 3	1 / 1	1 / 3	2 / 3	11 / 17	4 / 6	4 / 7	3 / 8	2 / 4	0 / 1	0 / 1	0 / 0	28 / 54	52%
% CONTAINED	0%	100%	33%	67%	65%	67%	57%	38%	50%	0%	0%		52%	

\*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.

## IN BRIEF

**Cameroon** has reported a suspect case of Guinea worm disease in a four-year-old Massa girl from the village of Nouldaina in Guere district of Extreme Nord Province. Nouldaina is located on the Logone River opposite the village of Nahaina in Bongor district of Chad's Mayo Kebbi Est Province. The worm emerged from the girl's right ankle on February 12, 2020. The girl's parents, who are farmers, refused to have her isolated in a health center, so she was put under supervision at her home, and her infection is considered not contained. In response to this, and at the request of the Ministry of Health of Cameroon, a team from the Chad Guinea Worm Eradication Program led by Mr Tchonfienet Moundaj, Deputy National Coordinator and Dr Ibrahim Djeomboro, from WHO country Office in Chad, visited Cameroon to apply Abate in the village and other high-risk villages in the area. They also trained Abate application teams for the three high-risk districts: Guéré, Moulvoudaye and Kousseri. A WHO support team from the Maroua Field Office and Cameroon WHO Country Office (Dr Etienne Nnomzoo) coordinated and participated in the exercise. They were later joined by Dr Andrew Seidu Korkor, from WHO AFRO to provide support and guidance on the organization of a community-based surveillance system in the three high-risk districts. This is the same Guere district where a forty-nine-year-old Massa woman had a Guinea worm infection in the village of Kokaima in March 2019.

## NEW GUINEA WORM WARRIORS

Dr. Fernando J. Torres-Velez, recently joined the GWEP at Carter Center headquarters as an Associate Director – Research, to help manage the program's many research projects. Dr. Torres is a PhD graduate of the University of Georgia's School of Veterinary Medicine and earned his DVM degree from Tuskegee University's School of Veterinary Medicine. Welcome Fernando!!

Epidemiologist Dr. Maryann G. Delea will begin work later this month as a new staff member at Carter Center GWEP headquarters to strengthen epidemiological analysis of surveillance reports from infected animals and humans and other program data. Dr. Delea earned her MPH degree from the Rollins School of Public Health at Emory University and her PhD degree from the London School of Hygiene and Tropical Medicine. She also has experience as a former Technical Assistant to the South Sudan GWEP. Welcome Maryann!!

## MEETINGS

The 24<sup>th</sup> International Review Meeting of Guinea Worm Eradication Program Managers at The Carter Center in Atlanta, USA on March 16-17, 2020. The meeting has been CANCELLED due to COVID-19, Efforts are underway to host the discussions remotely.

Ongoing discussions are being held with ICCDE Chair and Members on the way forward with the 14<sup>th</sup> Meeting of the International Commission for the Certification of Dracunculiasis Eradication scheduled to be held at WHO headquarters in Geneva, Switzerland on April 15-16, 2020 in the context of the COVID-19 outbreak.

## RECENT PUBLICATIONS

Garrett KB, Box EK, Cleveland CA, Majewska AA, Yabsley MJ, 2020. Dogs and the classic route of Guinea Worm transmission: an evaluation of copepod ingestion. Scientific Reports <https://doi.org/10.1038/s41598-020-58191-4>

World Health Organization, 2020. Monthly report on dracunculiasis cases, January-November, 2019. Wkly Epidemiol Rec 95:47-48.

World Health Organization, 2020. Monthly report on dracunculiasis cases, January, 2020. Wkly Epidemiol Rec 95:89-96. 2020  
<https://extranet.who.int/iris/restricted/bitstream/handle/10665/331346/WER9510-eng-fre.pdf?ua=1>

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.

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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)



CDC is the WHO Collaborating Center for Dracunculiasis Eradication