



Date: July 30, 2021
From: WHO Collaborating Center for Dracunculiasis Eradication, CDC
Subject: GUINEA WORM WRAP-UP #279
To: Addressees

Detect and contain every Guinea worm! Trace the source of each case!

HUMAN GUINEA WORM CASES JANUARY–JUNE 2021: 5 (-75%)
ANIMAL GUINEA WORM INFECTIONS JANUARY–JUNE 2021: 419 (-62%)

Table 1

Guinea Worm Infections January-June 2020 vs. January-June 2021		
	Total (animals/humans)	Total (animals/humans)
Chad	1,116 (1106/9)	422 (418/4) -62%
Ethiopia	10 (3/7)	1 (0/1) -90%
Cameroon*	5 (4/1)	0 (0/0) -100%
Mali	1 (0/1)	2 (2/0) +100%
Angola	1 (0/1)	0 (0/0) -100%
South Sudan	0 (0/0)	0 (0/0) ---
TOTAL	1,133 (1112/19)	425 (420/5) -63%
*All probably infected in Chad.		

As shown in Table 1, the global Guinea Worm Eradication Program (GWEP) has found only 5 laboratory-confirmed cases of Guinea worm disease in the first six months of 2021, for a reduction of 75% in cases. Four (80%) of the five cases were contained. Angola, Cameroon, Mali, and South Sudan have reported zero cases so far this year. Chad, Ethiopia, and Mali have reported a provisional total of 419 Guinea worm infections in animals, 81% of which were contained. The substantial 62% reduction in animal infections is led by Chad’s GWEP, using active surveillance and innovative interventions (see below). The 2021 reductions compare to annual reductions of 50% in human Guinea worm cases and 20% in animal infections globally in 2020.

MALI: TWO INITIATIVES AIM TO FINISH THE WORM



Mali's GWEP (MGWEP) detected no human cases of Guinea worm disease for 4 consecutive years, 2016–2019, but still found 46 domestic dogs and 4 domestic cats with Guinea worm infections during that period, before reporting one human case and 9 infected dogs in 2020. Since a *coup d'état* in 2012 the MGWEP has had only incomplete access to several endemic areas because of ongoing insecurity, and that has been a major challenge to stopping transmission. To help prevent exposure of dogs and cats in at-risk areas and improve containment of known infected animals, the MGWEP is promoting proactive tethering of all dogs and cats in communities in Tominian, Macina, and Markala districts of Segou Region and Djenne district of Mopti Region that had an infected dog, cat, or human in 2020 or 2021, in advance of this year's peak transmission season (July–November). The concept of proactively tethering *all* domestic animals at risk originated with Ethiopian villagers in 2018 and was successfully introduced in Chad in March 2020. A team from the MGWEP conducted a supervisory mission to the four districts June 15–25, 2021, to discuss the new idea, which was accepted in most of the localities visited except Djenne town and Gomakoro village in Markala district. The receptive communities and health administrations are discussing details of how to implement the proactive tethering. Instead of proactive tethering, community members and authorities in Djenne and Gomakoro decided to inspect all dogs and cats routinely during this year's transmission season. The program has also strengthened surveillance in Markala, Macina, Tominian, and Djenne districts by recruiting and training 21 local supervisors (*agents renforts*) who supervise *relais*, oversee inspection of dogs, and promote the cash reward for reporting cases or infections, as well as detecting, investigating, and notifying rumors of case or infections.

Since September 2020, Mali's Ministry of Health, regional health leaders in Mopti, and local authorities in Tenenkou district/Mopti Region, which is one of the insecure districts where dogs are bred and likely become infected, have led an effort to discuss local peace, conflict, and health issues. According to a recent assessment, the initiative on violence and health is well-received and appreciated by the communities, especially its emphasis on dialogue and inclusion. Youth and other under-represented groups expressed their satisfaction with the methodology and results so far. The report raised concerns over unequal access to healthcare by the rural villagers as well as distribution and efficacy of health agents in the district. The Non-Governmental Organization HELP will assess water, hygiene, and sanitation needs throughout the district to address one of the priorities expressed by the communities. About 5,000 persons were screened for cataracts and provided health education about Guinea worm disease, and 300 cataract surgeries were performed as a part of this initiative.

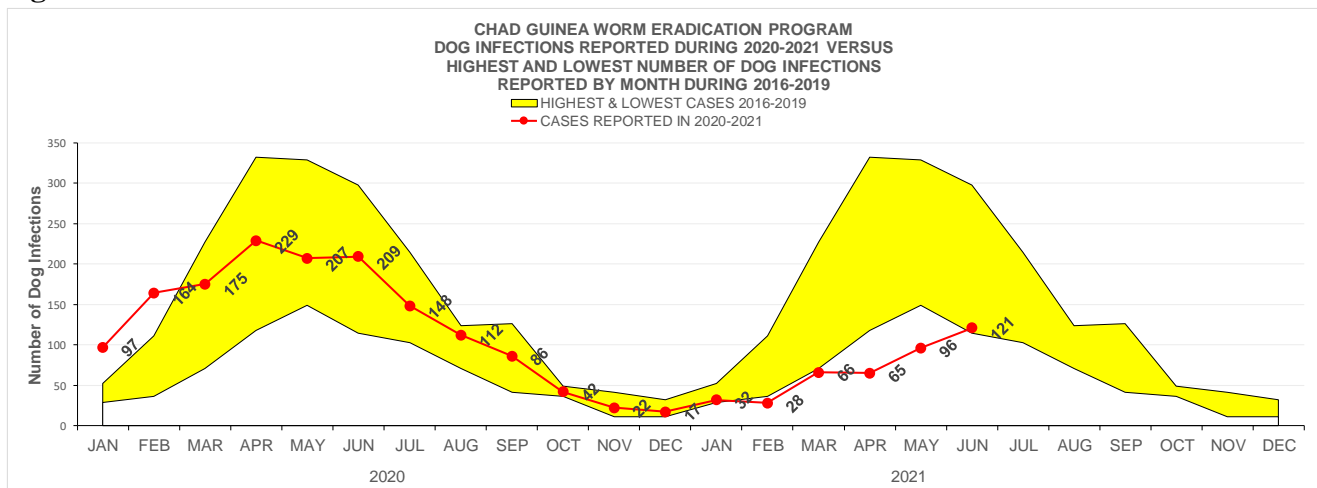
Both infected dogs detected in 2021 were contained. Technical assistants and Guinea worm focal points in San, Tominian, and Macina districts of Segou Region and Djenne district of Mopti Region met with dog traders to inspect dogs and conduct health education in May. In Macina they also discussed management of fish guts. Surveys of 8,793 persons about cash reward awareness related to reporting of suspected infections of humans and dogs in a sample of active surveillance areas (Levels 1 & 2) have found 95% awareness to date in 2021.

CHAD: INTENSIVE OFFENSIVE



Chad's GWEP (CGWEP) continues to benefit from its escalated interventions in approximately 2000 villages under active surveillance since 2017. *Containment* rates of infected dogs averaged 76% in 2017–2019 and increased to 81% in 2020 and 2021. The CGWEP increased *Abate coverage* of endemic villages sharply from 24% in 2018 to 68% in 2019 and 96% in 2020. Beginning in March 2020 it added *proactive tethering* of all or most domestic dogs and cats in priority villages at risk, beginning with the 120 highest endemic villages, reaching all of those villages by the end of that year. The impact on dog infections so far in 2021 is the most substantial decline since dogs with Guinea worm infection were detected in Chad in 2012 (Figure 1). The slight uptick in infected dogs in June 2021 may reflect temporary suspensions of activities in some foci in March 2020 due to outbreaks of Covid-19 infections.

Figure 1



The 60% reduction in human Guinea worm cases in Chad so far in 2021 compared to 2020 is as notable as Chad's 62% reduction in infected animals. While the number of known infected dogs increased annually in the decade since Guinea worm was re-discovered in Chad in 2010, the number of human cases averaged 14 per year (range: 9–26; omitting 22 cases in a common-source water-borne outbreak in Bogam in 2019) over that period, with about two-thirds of cases occurring in the first half of the calendar year. This welcome change, if sustained, is a big step toward zero human cases.

Scaling up *Abate coverage* in Chad between 2018 and 2019 with stable case containment rates in those two years suggests that the improved *Abate coverage* probably accounted for most of Chad's 20% reduction in dog GW infections in 2020. The additional increase in *Abate coverage* in 2020 while overall case containment improved only slightly in 2020 suggests that *Abate* probably accounts for some of the larger reductions of infected dogs in Chad so far in 2021, but the new *proactive tethering* may have caused most of the additional reductions, which in total result from the combined impact of all interventions. Impact from *proactive tethering* in Chad would have been expected to start about 10 months after that was introduced. (The number of infected dogs declined by 80% in Ethiopia one year after Ethiopia began *proactive tethering* in 2018). *These interim results should encourage Chad and Ethiopia to bear down with both Abate and proactive tethering, with more emphasis on Abate in*

Ethiopia's small forested endemic area (because of infected baboons), while encouraging Mali, whose endemic area's riverine ecology is similar to Chad's, to introduce proactive tethering in as many high-risk communities as they can as soon as possible this year.

Chad's Minister of Public Health and National Solidarity, Dr. Abdoulaye Sabre Fadoul, received a Carter Center delegation led by The Carter Center's Guinea Worm Eradication Program Director Mr. Adam Weiss, Carter Center Country Representative Dr. Hubert Zirimwabagabo, and Administrator Manager Ahmat Hassan Ahmat on June 25. The group discussed the context of the Guinea worm eradication campaign in Chad. Mr. Weiss thanked the minister for his leadership of the eradication effort in Chad and reaffirmed The Carter Center's commitment to support the ministry's efforts. The minister expressed his appreciation for the Center's assistance and noted the importance of harmonizing control measures with border areas of Cameroon. While in Chad from June 19–27, Weiss visited Guelendeng and Mandelia as well as communities along the border with Cameroon. He and Dr. Zirimwabagabo held a conference call with National Program Coordinator Dr. Ouakou Tchindebet, who was on a field mission with WHO to refugee camps, to debrief and discuss key strategies.

ETHIOPIA: LOOKING TO FIND & CONTAIN THE LAST GUINEA WORM



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MINISTRY OF HEALTH - ETHIOPIA
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In 2012–2020, endemic Guinea worm transmission in Ethiopia has occurred only at a low level in a small, forested area of about 50x25 miles (80x40 kilometers) in Gog district of Gambella Region, where a total of 60 domestic dogs, 46 humans, 13 domestic cats, and 20 wild baboons have been found to be infected during that time. All the infected cats occurred in a refugee camp in 2018 and 2020. Dog infections declined by 80%, from an average 12.5 infections annually in 2015–2018 to 2 and 3 infected dogs in 2019–2020 respectively, after the Ethiopian Dracunculiasis Eradication Program (EDEP) began proactive tethering of dogs and cats in 2018. No human cases occurred in 2018–2019 before a point-source outbreak of 11 cases in 2020. The EDEP reported one confirmed human case in February 2021.

The EDEP has 198 villages and 177 non-village areas under active surveillance in Gog and Abobo districts of Gambella Region. The program received and investigated 20,452 rumors of Guinea worm infections in humans and animals in 2020, and 7,069 (5576 human and 1493 animal) rumors in January–May 2021. Surveys to assess levels of awareness of the cash rewards for reporting suspected infections in January–May 2021 found 96% (4597/4801) awareness of the reward for reporting suspected human cases and 74% (3324/4494) awareness of the reward for reporting suspected animal infections in Level 1 and Level 2 areas under active surveillance in Gambella Region, but only 14% (223/1600) awareness of the human reward in Amhara Region and 3% (38/1191) awareness in Oromia Region, neither of which has ever been known to be endemic for Guinea worm disease.

As of May 2021, the EDEP was proactively tethering 1,914 dogs and 249 cats in Gog and Abobo districts and applying Abate intensively to eligible water sources in Gog district. Field teams continued to track selected baboon troops in 2020 despite suspension of other parts of the Baboon-Dog Guinea Worm Eradication Project due to the Covid-19 pandemic. The Ethiopian Public Health Institute (EPHI), Ethiopian Wildlife Conservation Authority, and several international partners are preparing to resume full operations to understand the extent of Guinea worm infections among baboons in the area. All six

previous study sites in Gog district have been assessed and evaluated one of which (Uncle) was replaced by a new site, Ogul, near Abawiri village. In addition, five new study sites were identified in Gog (2) and Abobo (3) districts. Trapping of baboons for examination will begin in Gog in mid-October and then proceed to Abobo.

During the period April to June 2021, WHO supported the EDEP to strengthen cross-border surveillance and surveillance in the refugee camps.

- ✓ A total of 11,480 households and 54,346 people reached during house-to-house GWD active case searches in 5 refugee camps of Gambella region.
- ✓ 143 GWD rumors were detected and investigated in 5 refugee camps of Gambella within 24 hours and none of the reported rumors were confirmed as Guinea worm case.
- ✓ 22 health workers at entry points were trained for 3 days on Guinea worm surveillance in Lare district from May 20–23, 2021.
- ✓ A team of WHO, TCC, and FMoH conducted supportive supervision jointly with EDEP Regional Technical Working Group members to monitor the Guinea Worm Eradication interventions in Level 1 surveillance areas (Gog and Abobo) during April 6–11, 2021.

WHO also provided financial and technical support to EPHI to intensify Guinea worm surveillance activities (particularly in support of advocacy workshops, trainings, conducting review meetings, supporting pre-certification activities and National Certification Committee [NCC] field visits, as well as conducting joint monitoring).

DEFINITION OF A PRESUMED SOURCE OF GUINEA WORM INFECTION

A presumed source/location of a human dracunculiasis case is considered identified if:

- The patient drank unsafe water from the same source/location (specify) as other human case(s) or an infected domestic animal 10–14 months before infection; or
- The patient lived in or visited the (specify) household, farm, village, or non-village area of (specify) a Guinea worm patient or infected domestic/peri-domestic animal 10–14 months before infection; or
- The patient drank unsafe water from (specify) a known contaminated pond, lake, lagoon, or cut stream 10–14 months before infection.

If none of the above is true, the presumed source/location of the infection is unknown. Whether the patient's residence is the same as the presumed source/locality of infection or not should also be stated in order to distinguish indigenous transmission from an imported case.

DEFINITION OF A CONTAINED CASE*

A case of Guinea worm disease is contained if all of the following conditions are met:

1. The patient is detected before or within 24 hours of worm emergence; and
2. The patient has not entered any water source since the worm emerged; and
3. A village volunteer or other health care provider has properly managed the case, by cleaning and bandaging until the worm is fully removed and by giving health education to discourage the patient from contaminating any water source (if two or more emerging worms are present, the case is not contained until the last worm is pulled out); and
4. The containment process, including verification that it is a case of Guinea worm disease, is validated by a supervisor within seven days of the emergence of the worm; and
5. ABATE is used if there is any uncertainty about contamination of sources of drinking water, or if a source of drinking water is known to have been contaminated.

*The criteria for defining a contained case of Guinea worm disease in a human should be applied also, as appropriate, to define containment for an animal with Guinea worm infection.

Table 2

Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2021*
(Countries arranged in descending order of cases in 2020)

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 ^a	0 / 0	1 / 1	0 / 0	2 / 3	0 / 0	0 / 0	/	/	/	/	/	/	3 / 4	75%
ETHIOPIA	0 / 0	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	/	/	/	/	/	/	1 / 1	100%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	/	/	/	/	0 / 0	0%
ANGOLA	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	
TOTAL*	0 / 0	2 / 2	0 / 0	2 / 3	0 / 0	0 / 0	/	/	/	/	/	/	4 / 5	80%
% CONTAINED		100%		67%									80%	

*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.

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)

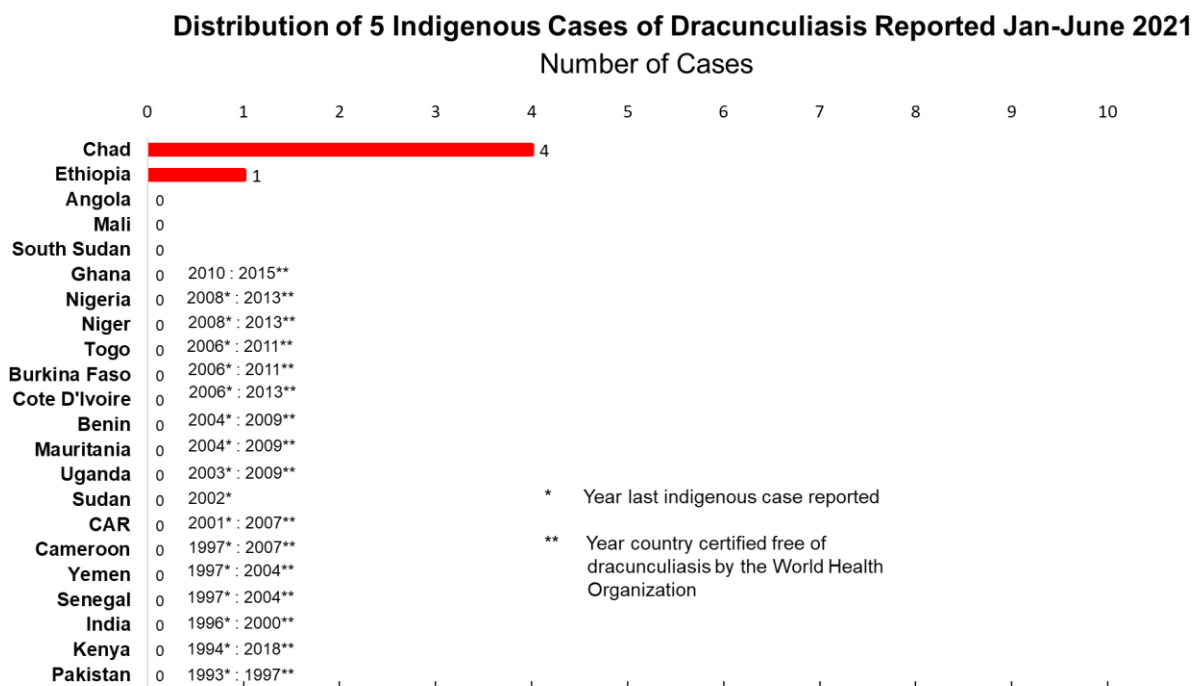
COUNTRIES WITH TRANSMISSION OF GUINEA WORMS	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED												% CONT.	
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER		TOTAL*
CHAD ^a	1 / 1	0 / 2	0 / 3	1 / 2	2 / 2	0 / 0	0 / 1	0 / 1	0 / 0	1 / 1	0 / 0	0 / 0	5 / 13	38%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	100%
ANGOLA	0 / 0	0 / 0	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	7 / 7	0 / 0	0 / 0	0 / 0	2 / 2	1 / 1	1 / 1	0 / 0	0 / 0	11 / 11	100%
MALI ^b	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	0%
TOTAL*	1 / 1	0 / 2	0 / 5	8 / 9	2 / 2	0 / 0	1 / 2	2 / 3	1 / 1	2 / 2	0 / 0	0 / 0	17 / 27	63%
% CONTAINED	100%	0%	0%	89%	100%		50%	67%	100%	100%			63%	

*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.

^b Reports include Kiyes, 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.
^a Cameroon reported one case in February that was most likely infected in Chad.

Figure 2



RECENT PUBLICATIONS

Guagliardo S.A.J., Ruiz-Tiben E., Hopkins D.R., Weiss A.J, et.al. 2021. Surveillance of human Guinea worm in Chad, 2010-2018. Am J Trop Med Hyg 105:188-195. doi:10.4269/ajtmh.20-1525

Standley C.J., Schermerhorn J., 2021. Reaching the “Last Mile”: fresh approaches needed for Guinea worm eradication. Am J Trop Med Hyg 105:1-2. doi:10.4269/ajtmh.21-0433

World Health Organization, 2021. Monthly report on dracunculiasis cases, January-April 2021. Wkly Epidemiol Rec 96:279-280.

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 Adam Weiss (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, Mailstop H24-3 1600 Clifton Road NE, Atlanta, GA 30329, 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/publications/health/guinea_worm_wrapup_francais.html



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