DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control
And Prevention (CDC)

Memorandum

Date: January 30, 2023

From: WHO Collaborating Center for Dracunculiasis Eradication, CDC

Subject: GUINEA WORM WRAP-UP #295

To: Addressees

With public sentiment, nothing can fail; without it, nothing can succeed.
Abraham Lincoln

PUBLIC GW ERADICATION ADVOCACY BY MINISTERS OF HEALTH, 2019-2022

2019

- CHAD Minister of Health Aziz Mahamat Saleh visited 2 endemic villages February 8-9.
- ETHIOPIA Minister of Health Dr. Amin Aman visited commercial farms February 18-19; State Minister of Health Dr. Lia Tadesse attends annual program review December 17-18.
- SOUTH SUDAN Minister of Health Dr. Riek Gai Kok opened annual program review December 12-13.

2020

- CHAD Minister of Health Prof. Mahmoud Khayal opened and closed annual program review January 22-23; Minister of Health Prof. Mahmoud Khayal visited endemic village to launch proactive tethering March 6.
- ETHIOPIA Minister of Health Dr. Lia Tadesse opened Ethiopia Dracunculiasis Eradication Program consultative meeting November 25-26.

2021

- ETHIOPIA State Minister of Health Dr. Dereje Duguma addressed virtual international program review March 16-19.
- MALI Minister of Health Dr. Fanta Siby addressed virtual international program review March 16-19.
- SOUTH SUDAN Minister of Health Elizabeth Acuei Yol opened annual program review December 9-10.

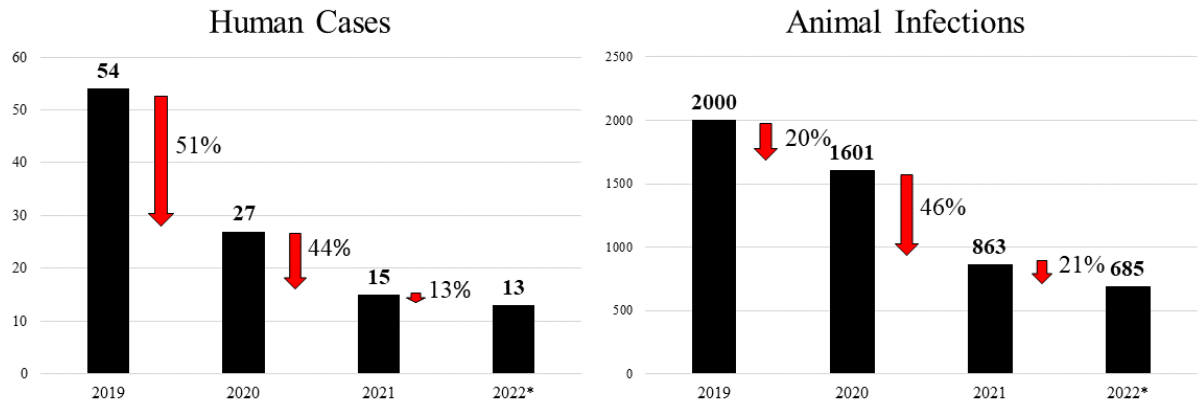
2022

- CHAD Minister of Health Dr. Abdoulmadjid Abderahim addressed virtual international program review March 9-11.
- ETHIOPIA Minister of Health Dr. Lia Tadesse addressed virtual annual program review January 25; Minister of Health Dr. Lia Tadesse visited endemic villages May 4.
- SOUTH SUDAN Undersecretary of Health Dr. Victoria Anib Majur visited endemic village December 5; Minister of Health Yolanda Awel Deng Juach opened annual program review December 6-7.

Public support of national Guinea Worm Eradication Programs by ministers of health motivates their Guinea worm team and partners, incentivizes other ministry of health and government officials, and encourages people at risk to work with the program and report Guinea worm infections. The Covid-19 pandemic severely constrained public activities in 2020-2022, but that is expected to be much less in 2023. Strong public advocacy by ministers of health in the remaining endemic countries is very important and helpful at this final challenging stage of the campaign. At the March 2022 Abu Dhabi Guinea Worm Summit's conclusion, the ministers, representatives, and partners each declared their intent to ensure "Bold involvement of political leaders, including heads of state, to lead community-targeted advocacy visits at least annually". The list above shows that most programs benefited from some ministerial public advocacy in recent years despite Covid-19. To reduce Guinea worm faster (Figure 1), more public advocacy, especially ministerial visits to endemic villages and program reviews, is needed in 2023. We shall emphasize such events this year in the *Guinea Worm Wrap-Up.*

Figure 1

Global Guinea Worm Infections, 2019-2022*



*Provisional

Table 1

Guinea worm infections, 2022 (provisional)

	Humans	Animals
Chad	6	606
Mali	0	41
Cameroon	0	27*
Angola	0	7
South Sudan	5	1
Ethiopia	1	3
Central African Rep.	1*	0
TOTAL	13	685

*Apparently imported from Chad

CHAD'S 2023 CHALLENGE: STOP GW IN DOGS AND HUMANS

Chad's Guinea Worm Eradication Program (CGWEP) has reduced the number of reported Guinea worm infections in dogs dramatically from a high of 1,935 infections in 2019 to a provisional total of 521 infections in 2022 (Figure 2). Chad reduced its number of reported infected dogs by 32%, from 767 to 521 between 2021 and 2022, and the number of reported human cases by 25%, from 8 to 6. Evidence increasingly supports the hypothesis that the dog infections and few human cases in Chad are mainly transmitted by eating raw or poorly cooked fish, except for a common source water borne outbreak at Bogam in 2019, and that the numerous dog infections are driving continued infections of humans. The peak in reported dog infections occurred in 2019 after the program gradually extended active surveillance to all endemic areas following discovery of infections in dogs in 2012. Intensified vector control and proactive tethering have helped reduce Chad's dog infections by 73% between 2019 (1,935) and 2022 (521) (Figure 2). Guinea worm cases in humans, however, have remained steady during the past decade, averaging 13.4 cases annually in 2013-2017 (range: 9-16) vs. 13.8 cases annually in 2018-2022 (range: 6-26 provisionally; excluding 22 cases in the Bogam outbreak).

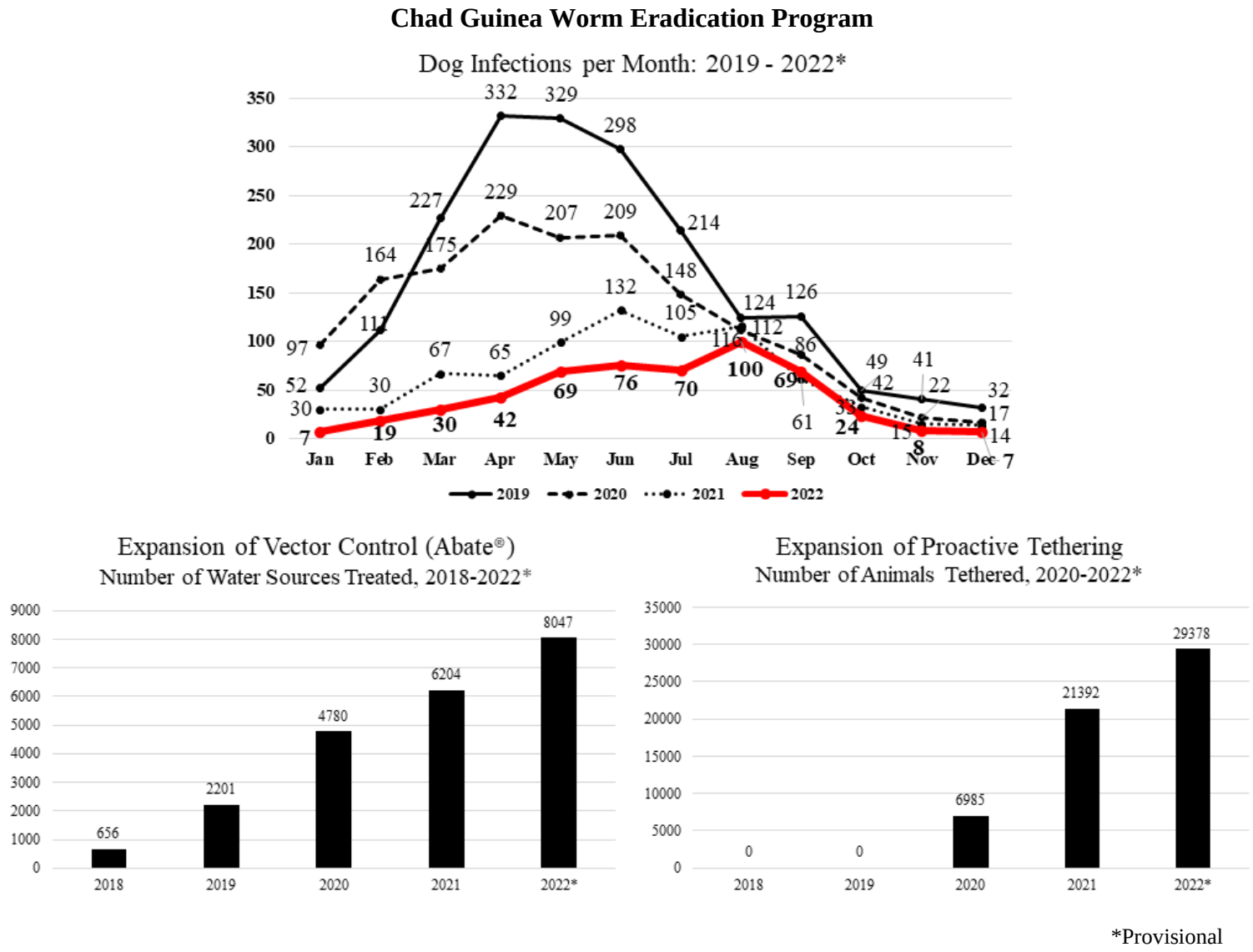
The reasons for the discordance in reduction of human and dog infections in Chad are not clear. Cases persist in humans despite the CGWEP urging people in endemic areas to prevent *exposure* to Guinea worm infection by cooking fish and other aquatic animals thoroughly and by filtering unsafe drinking water, while proactive tethering of dogs and vector control with Abate reduce *contamination* of water sources for humans as well as dogs. The 69 human cases in Chad in 2018-2022 were mostly male (65%); adult or near-adult (67% 15 years old or more; 25% 5-14 years old; 8% 0-4 years old); and included a normal spectrum of occupations (farming, fishing, hunting, housewife, student); but they were scattered in fifty different villages and reflected Chad's extreme cultural diversity by comprising thirty-five different ethnic groups. *Eliminating Guinea worm in humans and animals in Chad will require obsessive house to house and village to village combat, engaging villagers at risk to actively help protect themselves and their dogs.* According to Guagliardo et.al. (Surveillance of human Guinea worm in Chad, 2010-2018. *AJTMH* 2021; 105:188-195), only about one half of 89 villages with human Guinea worm cases in Chad in 2010-2018 had access to at least one source of safe drinking water—an observation that highlights the risk of more common-source water-borne outbreaks like the one at Bogam.

The CGWEP National Program Coordinator Dr. Tchindebet Ouakou led a supervisory visit to Bongor district in Mayo Kebbi Est Region on December 14-17, 2022. He was accompanied by Carter Center Acting Country Representative in Chad Mr. Sadi Moussa and Senior Technical Coordinator Ms. Ariane Ngo Bea Hob. Bongor, Bere, Benoye, and Laye are the four of Chad's 23 endemic districts that reported increased Guinea worm infections in 2022. The infections reported in Bongor district are likely the source of human and dog Guinea worm infections in Cameroon's neighboring Guere district in recent years. The team held discussions with regional officials and also visited Moulkou and Guelendeng districts. They made several recommendations for improvements in logistics, administration, and programmatic issues related to the Guinea worm program. The CGWEP Deputy NPC Dr. Youssouf Ali Haggar led a supervisory visit to Salamat

Region on December 6-10, 2022, accompanied by Mr. Sadi Moussa and Ms. Ariane Ngo Bea Hob. They visited Amtiman and Aboudeia districts and made similar recommendations as those cited above, as well as urging increased involvement of traditional authorities in the Guinea worm program.

The CGWEP will hold its annual national program review on February 2-3, 2023. Mr. Abdalla Bakri Meftuh, MPH will join the CGWEP on February 6 as the new Senior Country Representative of The Carter Center. He is a public health and development professional with over two decades of experience, having been based in Benin, Burundi, Cameroon, Chad, Djibouti, and Uganda. He earned Bachelor of Medicine and Bachelor of Surgery degrees from Somali National University, and a Master of Public Health from the University of California at Los Angeles. Welcome, Abdalla!!

Figure 2



*Provisional

ETHIOPIA: RECORD LOW INFECTIONS

STATE MINISTER, GAMBELLA REGIONAL VICE-PRESIDENT OPEN PROGRAM REVIEW

The Ethiopian Dracunculiasis Eradication Program (EDEP) convened its 27th Annual Review Meeting in Gambella on January 24-25, 2023. State Minister of Health Dr. Dereje Duguma and the Vice-President of Gambella Region, Thankuey Jock, addressed the meeting, which began with a minute of silence in memory of the late Most Honorable Dr. Tebebe Yemane Berhan. The approximately 150 participants included the Director General of the Ethiopia Public Health Institute Dr. Mesay Hailu, and Drs. Dieudonne Sankara and Andrew Seidu Korkor of the World Health Organization, as well as Mr. Adam Weiss and Dr. Zerihun Tadesse of The Carter Center. EDEP National Program Coordinator Mr. Kassahun Demissie presented a thorough overview of the program's performance in 2022.

Carter Center Senior Country Representative Dr. Zerihun Tadesse, GWEP Director Mr. Adam Weiss and Senior Associate Director Mrs. Sarah Yerian met with the Honorable Minister of Health, Dr. Lia Tadesse and the State Minister of Health, Dr. Dereje Duguma, in Addis Ababa. The discussion focused on reflections about the 27th EDEP program review meeting and the way forward in 2023. The Honorable Minister pledged her continued support to strengthen surveillance and increase advocacy for safe water in Gog and Abobo woredas.

The EDEP detected four confirmed Guinea worm infections (2 baboons, 1 dog, 1 human) in 2022, of which the human and the dog were contained. This is the same number of total infections that Ethiopia reported in 2021 (2 dogs, 1 cat, 1 human), and is the fewest total annual GW infections since Ethiopia detected its first infected animals in 2013. Ethiopia detected no infected baboon in 2021 for the first time since 2013, and it detected only one infected dog in 2022 for the first time since 2013. In 2022 the two baboons apparently were infected from their own troop near Gutok village in Abobo district/Gambella Region near Gog district of Gambella Region, the human case may have been infected by drinking water from a pond contaminated by baboons at Mulat Farm in Atheti sub-district of Gog, and the infected dog in Cheing village of Atheti sub-district was detected in the same household as one of the infected dogs in 2021.

Dog infections fell sharply after the EDEP began helping at-risk communities tether dogs and cats proactively in 2018 (it is believed dogs were exposed in the forest while accompanying their owners; 1650/1652 dogs and 217/217 cats in at-risk villages of Gog and Abobo districts were proactively tethered in November 2022). Use of cloth and pipe filters have reduced human exposures, while increased treatment of water sources with Abate since 2018 in forest areas where transmission apparently is occurring has protected humans, dogs, cats, and presumably some baboons. Comparing Guinea worm infections detected before (2015-2018) and after (2019-2022) proactive tethering and enhanced Abate usage began in 2018, the number of dog infections in Ethiopia fell by 84%, while infections in humans and cats declined by 38% and 33% respectively. The number of known infected baboons increased from 8 to 12 in the same period, as researchers

began trapping and inspecting baboons for study in 2018. Construction of a borehole well at Duli Farm, which was the site of a water-borne common-source outbreak of cases in humans in April 2020, has been delayed because of heavy rains and flooding.

Baboon Study Project researchers from the Ethiopia Public Health Institute (Dr. Endalkachew Birhanu, Dr. Yimer Mulugeta, and EDEP National Program Coordinator Kassahun Demissie), Ethiopia Wildlife Conservation Authority, and The Carter Center (Dr. Fernando Torres-Velez, Dr. Fitsum Alemayehu and Frew Demeke) completed an expedition in Gog and Abobo districts in mid-December 2022. The team trapped, sedated, examined, and released 70 olive baboons (*Papio anubis;* 52 in Gog, 18 in Abobo), none of which had emerging Guinea worms or other signs of Guinea worm infection. Wildlife surveillance in January-November 2022 found no signs of Guinea worm infection in 274 dead or killed baboons and monkeys (mostly baboons) in Gog and Abobo districts except the two infected baboons killed near Gutok village in Abobo district in August (see *Guinea Worm Wrap-Up* #292). In 2021, project researchers found no Guinea worms in 6 examined baboons and 17 baboons inspected visually in cages during an expedition in October that was cut short due to Covid-19, and wildlife surveillance found no evidence of Guinea worm infection in 81 baboons that were found dead or killed that year. The peak season for Guinea worm transmission in Ethiopia is April-August.

The EDEP organized colorful cash reward ceremonies in Gambella Town for the human case, and at Gutok and Cheing villages of Abobo and Gog districts for reporters of the baboon and dog infections, respectively. The ceremonies were attended by several migrant workers, community residents, and members of district and sub-district cabinets. The cash reward was given to the reporters by Dr. Zerihun Tadesse, Senior Country Representative of The Carter Center, and Mr. Tech Makuey, Deputy Head of Gambella Regional Health Bureau.

MALI

Mali has reported provisional totals of confirmed Guinea worm infections in 39 dogs and 2 cats for 2022, 63% (26/41) of which were contained. This 141% increase over the 17 animal infections Mali reported in 2021 follows Mali Guinea Worm Eradication Program's (MGWEP) proactive tethering of dogs and cats, which improved surveillance for Guinea worm infections starting in late 2021. Mali's limited remaining endemic area shares similar riverine ecology and hypothesized Guinea worm transmission by eating raw or poorly cooked fish as in Chad, but with many fewer dog and human infections. In Mali however, some dogs are fed fish and fish guts to fatten them for human consumption, while some stray dogs that live along the river scavenge discarded small fish and fish guts. Both are at risk of Guinea worm infection and of being swept up, transported, and sold in a robust internal trade and market, which contributes to Guinea worm transmission. Despite on-going dog infections, Mali reported no Guinea worm cases in humans in 2022, and for four consecutive years in 2016-2019. An outbreak of 29 cases at Tanzikratene in Gao Region in 2014 was Mali's most recent common-source water-borne outbreak in humans. All

16 localities associated with Mali's 41 animal Guinea worm infections in 2022 have at least one source of safe drinking water.

Contractors completed a well with eight standpipes at Thial in Tenenkou district in mid-December 2022 as part of a ten-activity health package requested by local communities in Mali's Peace through Health initiative, which began in that district in September 2020. (See *Guinea Worm Wrap-Up* #279.) The functioning well is the first safe water supply in the area in decades.

Reported levels of awareness of the cash reward for reporting people and dogs with Guinea worm infections is high (90%) according to the MGWEP's spot checks in Level 1 and Level 2 surveillance areas in October 2022, and daily monitoring of proactively tethered dogs in key parts of Djenne (Mopti Region) and Macina (Segou Region) districts was confirmed during supervisory visits. However, surveys of fish gut management in four of Mali's five Level 1 endemic districts in October showed the need for more education on that intervention for people at risk. The surveys found proper fish gut management (mostly burial; also sun-dried, cooked, or fed to chickens) in 77/100 (77%) of households surveyed in Djenne district, 40/61 (66%) of households in Tominian district, 70/162 (43%) of households in Markala district, and 15/46 (33%) of households in Macina district, for an average rate of 55% proper management of fish guts among households surveyed in those four districts (Mopti district was not surveyed). A survey in Level 2 San district found 105/177 (59%) had proper fish gut management.

SOUTH SUDAN

The South Sudan Guinea Worm Eradication Program (SSGWEP) has reported a provisional total of 5 confirmed Guinea worm cases in humans (3 contained) and one confirmed Guinea worm infection in a dog (contained) in 2022. Four of the human cases appear linked to a single unknown source in Awerial County of Lakes State; the other case was in Lopa/Lafon County/Eastern Equatoria State, and the infected dog was in Tonj East County/Warrap State. None of the presumed sources of infection of South Sudan's human Guinea worm cases and dog infection in 2022 is known. The SSGWEP responded to 70,694 rumors of Guinea worm infections (compared to 44,236 rumors in 2021) of which 12,145 became suspect cases in 2022, for a suspect yield of 17.2%. The SSGWEP began additional training on animal surveillance in December and intends to do more before the next peak transmission season begins in June 2023. The annual review meeting in December 2022 recommended that the program ensure that genomic analyses are available to complement its epidemiological investigations and learn more about transmission linkages among Guinea worm infections in the country and that the SSGWEP discuss opportunities to engage graduates of the Field Epidemiology Training Program with South Sudan's Ministry of Health and the U.S. Centers for Disease Control and Prevention by February this year. The SSGWEP is actively discussing projects with UNICEF, Water for South Sudan, DT Global, Oxfam, and other partners to provide safe water to communities at risk in Awerial, Tonj East, Lafon, Rumbek North, and Uror Counties in 2023.

CENTRAL AFRICAN REPUBLIC

The Central African Republic has reported one confirmed case of Guinea worm disease in Gordil village of Vakaga district, about 113 km from the border with Chad's Haraze district. The patient, a 45-year-old female farmer of Goula ethnicity, was detected and admitted to Birao district hospital after her worm emerged: July 25, 2022. Taking refuge behind the flooding – as armed rebels' activities in the area was reduced to minimum during flooding- the national coordinator and team conducted a supportive supervision visit to the area in August 2022; the team collected the worm specimen which was submitted to the World Health Organization on September 16, 2022, eleven days after the patient was discharged from the health center. Due to logistical problems related to the carrier's resistance to transporting biological samples, the sample did not arrive at CDC until 19 December 2022. The patient claimed not to have traveled to Chad. In 2021 a cattle herder from Chad was seen at Gordil health facility with an alleged emerged guinea worm, however he did not accept to be hospitalized nor did he return for follow up. The area is visited regularly by transhumance cattle herders from Chad and Sudan. No further Guinea worm infection of humans or animals was found in the locality and surrounding areas. Central African Republic has been engulfed in a multi-factorial civil war for the past decade, including conflict in the northeast part of the country where this case occurred, making in-country and external communications very difficult.

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 animal 10-14 months before infection, or

The patient lived in or visited the (specify) household, farm, village, or non-village area of a (specify) Guinea worm patient or infected domestic/peri-domestic animal 10-14 months before infection, or

The patient drank unsafe water from a (specify) 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 7 days of the emergence of the worm, and
5. ABATE® is used if there is any uncertainty about contamination of the source(s) 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.*

NIGER HONORS CRAIG WITHERS

On December 19, 2022, Mr. P. Craig Withers, Jr, Vice President for Overseas Operations of The Carter Center, was honored to receive a Gold Medal of Public Health from the Republic of Niger. The award was approved by the president of Niger and presented by Niger's Minister of Health, Dr. Idi I. Mainassara. The award recognizes Mr. Withers' contributions to the elimination of Guinea worm disease and to the fight against trachoma in Niger.

Table 2

Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2022*

(Countries arranged in descending order of cases in 2021)

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 / 0	1 / 2	0 / 0	0 / 0	0 / 0	0 / 1	0 / 1	1 / 2	0 / 0	0 / 0	0 / 0	0 / 0	2 / 6	33 %
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	0 / 0	2 / 3	1 / 1	0 / 0	0 / 0	3 / 5	60 %
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	N / A
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	0 / 0	0 / 0	1 / 1	100%
CENTRAL AFRICAN REPUBLIC	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 %
TOTAL*	0 / 0	1 / 2	0 / 0	0 / 0	0 / 0	0 / 1	1 / 3	1 / 2	3 / 4	1 / 1	0 / 0	0 / 0	7 / 13	54 %
% CONTAINED	N / A	50 %	N / A	N / A	N / A	0 %	33 %	50 %	75 %	100 %	N / A	N / A	54 %	

Provisional

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

Numbers indicate how many cases were contained and reported that month.

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	0 / 0	1 / 1	1 / 1	1 / 2	0 / 0	0 / 0	1 / 2	0 / 0	0 / 0	1 / 1	1 / 1	0 / 0	6 / 8	75 %
ETHIOPIA	0 / 0	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	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	1 / 2	0 / 1	0 / 0	0 / 1	0 / 0	0 / 0	1 / 4	25 %
ANGOLA	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	N / A
MALI	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	1 / 1	0 / 0	0 / 0	0 / 0	1 / 2	50 %
TOTAL	0 / 0	2 / 2	1 / 1	1 / 2	0 / 0	0 / 0	2 / 4	0 / 2	1 / 1	1 / 2	1 / 1	0 / 0	9 / 15	60 %
% CONTAINED	N / A	100 %	100 %	50 %	N / A	N / A	50 %	0 %	100%	50 %	100 %	N / A	60 %	

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

Numbers indicate how many cases were contained and reported that month.

RECENT PUBLICATIONS

World Health Organization, 2023. Monthly report on dracunculiasis cases, January-November 2022. Wkly Epidemiol Rec 98(4):50-51.

Are the right people receiving the *Guinea Worm Wrap-Up?*

We remind leaders of National Guinea Worm Eradication Programs to make sure all appropriate persons are receiving the *Guinea Worm Wrap-Up* directly, by email. With frequent turnover of government officials, representatives of partner organizations, and recruitment of new Guinea worm program staff, keeping desired recipients up to date is challenging. Frequent review of who is receiving the newsletter directly is advised. To add an addressee, please send their name, title, email address, and preferred language (English, French, or Portuguese) to Dr. Sharon Roy at CDC (gwwrapup@cdc.gov).

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. Dieudonné Sankara of WHO.

WHO Collaborating Center for Dracunculiasis Eradication, Center for Global Health, Centers for Disease Control and Prevention, Mailstop H21-10, 1600 Clifton Road NE, Atlanta, GA 30333, USA, email: gwwrapup@cdc.gov, fax: 404-728-8040. The GW Wrap-Up web location is https://www.cdc.gov/parasites/guineaworm/wrap-up
Back issues are also available on the Carter Center web site in English, French, and Portuguese and 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

http://www.cartercenter.org/news/publications/health/guinea_worm_wrapup_portuguese.html

World Health Organization

CDC is the WHO Collaborating Center for Dracunculiasis Eradication