DEPARTMENT OF HEALTH & HUMAN SERVICES

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

Memorandum

Date: August 31, 2023

From: WHO Collaborating Center for Dracunculiasis Eradication, CDC

Subject: GUINEA WORM WRAP-UP #301

To: Addressees

Detect every GW infection immediately. Contain every GW. Find the source of every GW infection.

MALI

Mali has not reported a human case of Guinea worm disease since September 2021. It has reported confirmed Guinea worm infections in 8 dogs as of the end of July 2023 and 1 dog in August 2023 so far. Eight (8) of 9 confirmed infections in 2023 were *contained*, and the *presumed sources of all 9 infections are known*: infected dogs detected in 2022 in the same three villages as the 2023 infections (Table 1). Kolongo Bozo had 15 dogs with GW infections in 2022, including 4 uncontained infections. Ke Bozo had 3 animals with GW infections in 2022, including 2 uncontained cats and 1 uncontained dog. Nemabougou quartier of Macina Ville had 2 GW infected dogs (1 uncontained) in 2022. All three villages are in Macina district of Segou Region. Mali's GWEP applied Abate appropriately in the three villages after infections were detected in 2023. All 254 dogs targeted for proactive tethering in Kolongo Bozo are being tethered; tethering of 111 cats in the village is scheduled to begin in August. Mali introduced proactive tethering of some dogs in November 2021, expanded it to some other adult dogs at risk during the June-September peak transmission season in 2022, and extended it to include puppies in 2023 after the first infected dogs in 2023 were found to have not been tethered as puppies during their likely period of infection in 2022.

Seventy-eight percent (78%) of villages under active surveillance in Macina district have at least one source of safe drinking water. A survey on management of fish entrails in Macina district in June 2023 found 23 of 34 households (68%) disposed of the fish entrails properly, and 8 of 11 fish sellers (73%) that were interviewed did so. Mali's Peace through Health Initiative held a workshop on August 9-10 for a cross section of regional, district, and local level community and government stakeholders from Macina, Tenenkou, Youwarou, and Tominian districts to exchange experiences.

Table 1

MALI GWEP LISTING OF CONFIRMED ANIMAL INFECTIONS: YEAR 2023

#	Region	District	Health Zone	Village	Ethnicity	Profession	Host	Host name	Probable origin	Date of detection	Date of emergence	Entered water?	Abate Applied? (Y/N)	Contained ? * (Y/N)	Confirmed Y/N	Total # of GW
1	Segou	Macina	Kolongo	Kolongo Bozo	Bozo	Housewife	dog	Bozi	Kolongo Bozo	May 24th	May 25th	No	No	Yes	Yes	1
2	Segou	Macina	Kolongo	Kolongo Bozo	Bozo	Farming/fishing	dog	Police	Kolongo Bozo	May 24th	May 25th	No	No	Yes	Yes	1
3	Segou	Macina	Kolongo	Kolongo Bozo	Bozo	Housewife	dog	Betesinidon	Kolongo Bozo	May 25th	May 25th	No	No	Yes	Yes	1
4	Segou	Macina	Kolongo	Kolongo Bozo	Bozo	Farming/fishing	dog	Yerebalo	Kolongo Bozo/Barakabougou	June 5th	June 5th	No	No	Yes	Yes	1
5	Segou	Macina	Kolongo	Kolongo Bozo	Bozo	Farming/fishing	dog	Police Mamady Traore	Kolongo Bozo	June 11th	June 11th	No	No	Yes	Yes	1
6	Segou	Macina	Kolongo	Kolongo Bozo Hamlet	Bozo	Farming/fishing	dog	Police Amidou Keita	Barakabougou	June 11th	June 11th	No	No	Yes	Yes	1
7	Segou	Macina	Kolongo	Kolongo Bozo	Bozo	Farming/fishing	dog	Sinikossouma	Kolongo Bozo	June 27th	June 27th	No	No	Yes	Yes	1
8	Segou	Macina	Macina Central	Nemabougou/ Mac ina town	Bozo	Farming/fishing	dog	Chio	Nemabougou	July 16th	July 20th	Yes	Yes	No	Yes	1
9	Segou	Macina	Macina Central	Ke Bozo	Bozo	Farming/fishing	dog	Soria	Ke Bozo	July 25th	August 3rd	Yes	No	Yes	Yes	1

SOUTH SUDAN

South Sudan has not reported a Guinea worm infection in a human or animal in January-July 2023. It reported its most recent human Guinea worm case in October 2022. The South Sudan Guinea Worm Eradication Program (SSGWEP) has reported only two animals with Guinea worm infections, both dogs, ever: in September 2015 and August 2022. The program reported 5 human Guinea worm cases in 2022 (4 contained); it identified none of the presumed sources of infection of the six infections in 2022, although epidemiological investigations linked 4 of the 5 human cases to an unknown common source of infection in Jarweng village of Awerial district in Lakes State. Epidemiological investigations have not identified a presumed source of infection for any of the fourteen human Guinea worm cases that South Sudan reported in 2019-2022. South Sudan's peak transmission season is July-October.

According to Drs. Liz Thiele and Jessica Ribado (Visiting Scholar at Vassar College and Senior Research Scientist at Bill & Melinda Gates Foundation, respectively), recent genetic analyses so far show some shared maternal lineages among worms (using mitochondrial DNA sequencing analyses to identify fine-scale connections) between GW specimens from 2021 and 2022 in South Sudan. However, hosts with GW disease detected by the SSGWEP appear to cluster within bomas, suggesting relatively localized transmission. At least two worms from two of the human cases detected in Jarweng in 2022 are highly probable siblings from the same parent Guinea worm, according to genetic analysis, as the epidemiology also suggests. *These preliminary results seem to confirm that GW infections in humans and/or animals have gone undetected by the SSGWEP in Jarweng. The apparent localization of GW infections within bomas, however, is not consistent with long range transmission by highly mobile humans or other definitive hosts in South Sudan though surveillance should remain vigilant.*

CHAD

U.S. Ambassador to Chad Amb. Alexander Laskaris and Carter Center CEO Ms. Paige Alexander joined Chad's Minister of Public Health and Prevention Dr. Abdelmadjid Abderahim in a visit to formerly endemic Ali Garga village in Mandelia district of Chari Baguirmi Province on August 14, 2023. This village, which reported 39 animals (37 dogs, 2 cats) with Guinea worm infections in 2018, and where a former Minister of Health launched Chad's intervention for proactive tethering of dogs in March 2020, reported 32 infected animals in 2019, 15 infected animals in 2020, 0 in 2021, and 0 in 2022. The dignitaries visited households and observed tethered cats and dogs in the village, accompanied by the National Program Coordinator of Chad's Guinea Worm Eradication Program, Dr. Tchindebet Ouakou, his deputy Dr. Youssouf Ali Haggar, The Carter Center's Guinea Worm Program Director Mr. Adam Weiss, Senior Country Representative Dr. Abdalla Bakri Meftuh, Deputy Country Representative Mr. Al-Hassana Idriss Outman, and Country Technical Coordinator Ms. Ariane Hob Ngog, among others. Ms. Alexander, Dr. Meftuh, Mr. Outman, Mr. Weiss, and Ms. Hob Ngog also observed disposal of fish waste in an endemic area of N'Djamena.

Chad has reported 2 confirmed human cases of Guinea worm disease (*both contained*) in January-July 2023, compared to 4 human cases in January-July 2022. The *presumed sources* of this year's human cases are *unknown*. Chad has provisionally reported 291 dog infections (81% contained) in January-July 2023, which is a reduction of 7% compared to the 310 dog infections Chad reported in January-July 2022. The provisional reduction in dog infections between 2022 and 2023 so far is the fourth consecutive year of reductions in Chad's dog infections, which fell by 22% between 2019 and 2020, by 49% between 2020 and

2021, and by 33% between 2021 and 2022. Table 2 shows the distribution of dog infections in Chad by district in 2019-2022. Most districts reduced dog infections during that period, except Bere/Tandjile, Bongor/Mayo Kebbi East, Benoye/Logone Occidental, Kolon/Tandjile, Lai/Tandjile, and Balima/Moyen Chari.

Table 2

Chad: Number of Dogs with Guinea Worm Infections by District, 2019-2022

District/Region	2019	2020	2021	2022
Bailli/CB[1]	359	235	89	36
Kyabe/MC[2]**	346	253	82	39
Guelendeng/MKE[3]	243	221	130	69
Sarh/MC (includes Balima)	238	265	148	82
Mandelia/CB*	156	122	40	21
Danamadji/MC	138	101	44	27
Bousso/CB	112	44	33	14
Massenya/CB	72	76	19	13
Korbol/MC	70	33	15	3
Biobe/MC**	62	62	40	9
Kouno/CB	30	22	17	8
Dourbali/CB	29	9	11	2
Moissala/MDL[4]	24	4	1	0
9e Arrondissement/NDJ[5]*	15	11	11	2
Bere/Tandjile	10	12	52	71
Bedaya/MDL	5	8	2	2
Bongor/MKE*	5	1	14	46
Haraze/SLM[6]**	5	4	8	5
Moulkou/MKE	4	6	4	0
Ndjamena Sud/NDJ	4	8	0	0
Aboudeia/SLM	4	1	0	0
Korbol/CB	1	0	0	0
Benoye/LOC[7]	1	2	1	6
Kouno/MC	1	0	0	0
Kolon/Tandjile	1	1	0	1
Mangalme/Guera	0	1	0	0
Am Timan/SLM	0	2	1	0
Kelo/Tandjile	0	1	0	0
Lai/Tandjile	0	2	4	30
Bekourou/MDL**	0	0	1	0
Balima/MC	0	0	0	34
TOTAL	1935	1507	767	520

*Borders Cameroon

**Borders Central African Republic

[1] CB-Chari Baguirimi
[2] MC-Moyen Chari
[3] MKE-Mayo Kebbi Est
[4] MDL-Mandoul
[5] NDJ-N'Djamena
[6] SLM-Salamat
[7] LOC-Logone Occidental

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*

Table 3

Number of Dogs with Guinea Worm Infections and Number Reported Contained by Month during 2022
(Countries arranged in descending order of cases in 2022)

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	4 / 7	14 / 19	14 / 30	28 / 42	56 / 69	59 / 76	41 / 69	68 / 101	50 / 70	18 / 23	7 / 8	5 / 7	364 / 521	N / A
MALI	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 2	2 / 3	7 / 8	7 / 16	7 / 9	1 / 1	0 / 0	25 / 39	N / A
CAMEROON	6 / 6	7 / 7	7 / 7	4 / 4	2 / 2	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 2	28 / 28	N / A
ANGOLA	0 / 0	0 / 0	0 / 1	0 / 4	0 / 2	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 7	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	N / A
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	0 / 0	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	N / A
TOTAL*	10 / 13	21 / 26	21 / 38	32 / 50	58 / 73	60 / 78	44 / 73	58 / 87	25 / 32	8 / 9	7 / 9	N / A	419 / 597	

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.

Table 4

Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2023*

(Countries arranged in descending order of cases in 2022)

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	0 / 0	0 / 0	0 / 0	1 / 1	1 / 1	0 / 0						2 / 2	100%
SOUTH SUDAN	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							N / A
CENTRAL AFRICAN REPUBLIC	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							N / A
TOTAL*	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	1 / 1	0 / 0						2 / 2	100%
% CONTAINED	N / A	N / A	N / A	N / A	100%	100%	N / A	N / A	N / A	N / A	N / A	N / A	100%	

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 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 %	

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.

300th ISSUE OF GUINEA WORM WRAP-UP!!!

On January 31, 1983, the *Guinea Worm Wrap-Up* memorandum was printed for the first time and distributed quarterly, in English only, by mail, to a readership of less than 50 persons. Beginning with the 15th issue, on March 30, 1987, the *Guinea Worm Wrap-Up* began to be translated and mailed to interested French-speakers in Africa and Europe. Issue #52 (January 10, 1996) marked the beginning of monthly issues. The newsletter began to be distributed electronically on the CDC website with issue #82 on September 10, 1998, as well as by mail, and only electronically on the CDC webpage and the Carter Center website beginning with issue #155 on August 26, 2005. With last month's 300th issue, we mark 40 years and 5 months of efforts to inform 827 subscribers, an actual readership in the thousands, and the coalition of supporting organizations about the status of national efforts to eradicate dracunculiasis in affected countries. As the global goal of Guinea worm eradication looms closer and closer, we re-commit ourselves to continuing to inform all of you about the status of the campaign. The editors of the *Guinea Worm Wrap-Up* thank the national coordinators of eradication programs in all the affected countries, who continue to provide much of the substance of this publication and all others who, at one time or another, have helped to chronicle the history of this campaign. We hope to not need many more issues!!!

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).

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. Formatted by Jacqueline Mullen.

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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

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World Health Organization

CDC is the WHO Collaborating Center for Dracunculiasis Eradication.