



**Date:** October 25, 2024  
**From:** WHO Collaborating Center for Dracunculiasis Eradication, CDC  
**Subject:** GUINEA WORM WRAP-UP #314  
**To:** Addressees

*For each human Guinea worm case or infected animal:  
 Where did this GW come from (source)?  
 Who/what else was at risk there?  
 What/who has this GW contaminated or exposed now?*

**Table 1. Percent Change in Human and Animal Guinea Worm Infections  
 Jan – Sept 2023 vs Jan – Sept 2024\***

<u>Country</u>	<u>% Change</u>	<u>2024</u>	<u>2023</u>
Ethiopia	↓ 100%	0	1
Angola	↓ 57%	36	84
Chad	↓ 42%	271	465
Mali	↓ 15%	25**	34
Cameroon	↓ 5%	242***	254
South Sudan	↑ 50%	3	2
<b>TOTAL</b>	↓ 31%	577*	840

\*Provisional. \*\*Includes 17 pending infections. \*\*\*Includes 125 pending infections.

## CHAD: 4 HUMAN CASES, 267 ANIMAL INFECTIONS



Chad has reported provisional totals of 4 human Guinea worm cases, 221 dog infections, and 46 cat infections in January-September 2024, which is a 33% reduction in human cases and a 42% reduction in the animal infections (372 dogs, 84 cats) reported in the same period of 2023. The two latest human cases, a 7-year-old girl and her 30-year-old mother, are residents of Seneck village in Kouno sanitary district of Chari Baguirmi Province whose first worms emerged on July 7<sup>th</sup> and August 5<sup>th</sup> (Table 2). They appear to have been infected while living temporarily in the village of Kreyaooul 1 in Kouno sanitary district of Chari Baguirmi Province during their period of infection in May-October 2023, where the girl's parents participated in collective fishing in February-May and the family ate small fish which they grilled whole. They also drank unfiltered water in Kreyaooul 1 village from a pond named "Dagual" which may have been contaminated by an infected dog whose worm appeared in May or June 2023. The patients' home village has several sources of safe drinking water from wells with motorized pumps. Carter Center Associate Director Mindze Nkanga made a supportive visit to Chad's GWEP on October 4-26.

## SOUTH SUDAN: 3 HUMAN CASES; FINDING *DRACUNCULUS MEDINENSIS*



The South Sudan Guinea Worm Eradication Program (SSGWEP) has reported a third confirmed Guinea worm case for 2024. The patient is a 50-year-old farmer who lives in Gaak village of Tonj East County/Warrap State (Table 2). He lived in the same household as South Sudan's first case of 2024 during their infection period in 2023 because he is a friend of her brother. Those two patients of Gaak village shared water while herding animals in cattle camps. Gaak village has one borehole well. He had only one worm and his infection was not contained. This latest patient reportedly ate mudfish, but not other aquatic animals, while the other patient (15-year-old girl) from Gaak village reported eating dried fish in 2023.

South Sudan also now has detected un-emerged, confirmed *D. medinensis* worms in ten wild felines in Tonj East County/Warrap State (6), adjacent Rumbek North (1) and Rumbek Central (1) Counties of Lakes State, Uror County (1) of Jonglei State, and Lafon County (1) of Eastern Equatoria State in April (1), June (7) and July (2), 2024. This includes Serval cats (5), African wildcats (4) and an African civet (1), as well as a genet in 2023. The Guinea worms were discovered when hunters killed and skinned the animals. These animals whose GWs were all un-emerged, do not meet the case definition for Guinea worm disease, which requires an emerging worm (see definition on page 6), and so are not counted as official GW infections. However, the South Sudan Guinea Worm Eradication Program (SSGWEP) still responds with all appropriate interventions.

*Hotspot Tonj East County* reported 1 infected dog (contained) in August 2022 (one of only two dogs with GW ever reported in South Sudan), 2 human cases (both uncontained, unknown sources of infection) in August and September 2023, and now 6 small wild felines (4 servals, 2 African wildcats) with un-emerged Guinea worms in April, June, and July 2024, plus 2 human cases (both uncontained, unknown sources of infection) in June and July 2024 (Table 2). *Hotspot Lafon County* reported a human Guinea worm case (uncontained) in 2022 (*Guinea Worm Wrap-Up* #292), a genet with an emerging Guinea worm in November 2023 (South Sudan's first known GW infection in a wild animal), and now an African civet with an un-emerged Guinea worm in June 2024. There are domestic dogs in these areas, but only 4 of 239 specimens that the SSGWEP sent to CDC so far in 2024 were from dogs, and none of the dogs were positive for GW. As reported earlier, South Sudan detected a total of 37 humans, 2 dogs, and 1 genet with Guinea worm infections in 2015-2023.

*The SSGWEP began working with wildlife authorities in March-June 2024 to expand GW surveillance in wild animals, which has revealed apparently isolated residual pockets of GW infection in small wild felines. Use of a reward (US\$375 equivalent) to hunters and others for confirmed Guinea worms in animals has helped increase reporting, including in dead animals. Although the un-emerged Guinea worms pose no risk of contaminating water sources to cause on-going transmission, they are important evidence of GW transmission the year before. The exact locations and genetic profiles of the un-emerged worms in Tonj East County and elsewhere are of particular interest, since they may help explain the lack of known epidemiological links among the now infrequent human Guinea worm cases in South Sudan and whether GWs in humans and animals in South Sudan's isolated hotspots are related or not. The type of infected animal is also important when considering responses to each infection. The home range of African wildcats and genets, for example, can range up to 3-4 square miles (8-11sq km), while servals roam up to 4-12 square miles (10-32 sq km). Without expert examination (which we have), identification of the animal may depend on knowledge of the reporting observer and potentially on accuracy of translation from different languages.*

#### **IN BRIEF:**

**Angola** has reported thirty-six (36) confirmed Guinea worm infections in dogs from 1<sup>st</sup> January to 30<sup>th</sup> September 2024. The infections were reported from 23 villages, of which 22 have been under active surveillance since 2023. With support from WHO the Ministry of Health is developing a multi-sectoral national plan for the eradication of dracunculiasis, along with a national road map to end GW transmission and get certified by 2030. Ms. Lucia Verzotti, The Carter Center Angola Country Representative, recently arrived in Luanda.

**Mali** has reported no human cases, but eight confirmed Guinea worm infections (50% contained) in 6 dogs and 2 cats so far in 2024. The confirmed animal infections occurred in July – August. These infections are in Macina/Segou (4), Djenne/Mopti (3), and Markala/Segou (1) districts. When unconfirmed suspect Guinea worm infections are included, the provisional total is 19 dogs and 6 cats in 18 localities (Macina-11, Djenne-8, Markala-5, Tominian/Segou-1), of which 48% (12/25) were contained, in July-September 2024. This compares to Mali's confirmed infections in 34 animals (29 dogs, 5 cats) reported in May-September 2023. In August, surveys of fish gut management found proper management among 82% (168/204) of households surveyed in Macina district and 89% (403/451) of households visited in Markala district. As of early October 2024, Macina district was tethering 83% (1164/1408) and Markala district was tethering 81% (518/637) of targeted animals, respectively.

Insecurity remains the main challenge to Mali's GWEP. Access is limited in parts of Djenne, Tenenkou, Youwarou, and Mopti districts of Mopti Region and Macina, Markala, and Tominian districts of Segou Region. The Peace through Health Initiative, which includes parts of Macina, Tominian, Tenenkou, and Youwarou districts, convened its second annual conference in Bamako on August 21-12.

**Ethiopia** has reported no human GW case, but 1 confirmed baboon detected with 6 subcutaneous worms in Abobo district of Gambella Region on April 12, 2024. In addition, 1 provisional baboon with an emerging worm from AK roadside baboon troop, and another baboon detected with a subcutaneous worm from Balak baboon troop in Gog district of Gambella Region on July 30<sup>th</sup> and August 2<sup>nd</sup>, respectively. The two provisional baboon infections were trapped and detected by the baboon research team while the research team was conducting the second-round baboon capturing campaign of 2024 in Gog district. The Ethiopia Dracunculiasis Eradication Program is awaiting laboratory results of the provisional baboon infection and un-emerged worm detected. On-going surveillance and research studies have examined 183 dead baboons in January-August 2024 and 117 sedated baboons in two rounds of baboon capturing campaigns between

March and August 2024. This year's third baboon capturing campaign is scheduled for October-November 2024.

**Cameroon.** Mindze Nkanga, Associate Director at The Carter Center Guinea Worm Eradication Program headquarters, made a supportive visit to Cameroon's GWEP from September 17 to October 3.

## **WHO DIRECTOR GENERAL WRITES MINISTERS OF COUNTRIES WITH GUINEA WORM**



World Health Organization Director General Dr. Tedros Ghebreyesus wrote the Ministers of Health of the countries still reporting Guinea worm cases--Angola, Cameroon, Central African Republic, Chad, Ethiopia, Mali, and South Sudan--individually on August 20, 2024 to commend them for their efforts to eradicate the disease. He urged each minister to support specific actions to address the needs of their country's Guinea Worm Eradication Program and reminded them that "Dracunculiasis eradication will be a great global and human victory, and another important step in reducing suffering on the African continent."

Table 2. Provisional Line List of Confirmed Human Guinea Worm Cases, 2024 (as of October 9)

<u>Country</u>	<u>District/Village</u>	<u>Sex/Age</u>	<u>Ethnicity</u>	<u>Worm Emerged</u>	<u>Contained?</u>	<u>Presumed Source of Infection</u>	<u>Likely mode of Infection</u>	<u>Number of GWs</u>
Chad	Kyabe/Goho	F/60	Sara Kaba	30 May	No	Indigenous	Aquatic Animal	1
Chad	Kyabe/Moudjousso	M/14	Sara Kaba	3 July	No	Goho	Unclear	1
Chad	Kouno/Seneck	F/7	Goulaye	7 July	No	Kreyaou 1	Unclear	2
Chad	Kouno/Seneck	F/30	Goulaye	5 August	Yes	Kreyaou 1	Unclear	1
S Sudan	Tonj E/Gaak	F/15	Dinka	28 June	No	Indigenous	Water	3
S Sudan	Rumek N/Bardiak CC	M/7	Dinka	30 June	No	Unknown	Unclear	1
S Sudan	Tonj E/Gaak	M/50	Dinka	25 July	No	Indigenous	Water	1

CC = Cattle Camp

S Sudan = South Sudan

## DEFINITIONS:

A **rumor** is defined as any information about a possible case of Guinea worm disease or animal infection.

A **suspect** is a person or animal exhibiting a sign or symptoms compatible with GW infection (i.e., localized or generalized itching and/or swelling, a painful blister, and/or a skin lesion) but no visible Guinea worm.

A Guinea worm/dracunculiasis **case** is defined as an infection occurring in a person exhibiting a skin lesion or lesions with emergence of one or more worms that is laboratory-confirmed as *Dracunculus medinensis* at CDC. Because *D. medinensis* has a 10-14-month incubation period, each infected person is counted as having an infection only once during a calendar year. [The same requirement of worm emergence applies to confirmed *D. medinensis* infections in animals.]

A **presumed source of Guinea worm infection** 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.

A **contained case**\*\* means 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.*

## MEETINGS

The South Sudan Guinea Worm Eradication Program plans to hold its annual national program review in Juba on December 10-11, 2024.

**Table 3**  
**Number of Laboratory-Confirmed Human Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2024\***  
 (Countries arranged in descending order of cases in 2023)

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	0/1	0/0	0/2	1/1					1/4	25%
SOUTH SUDAN	0/0	0/0	0/0	0/0	0/0	0/2	0/1	0/0					0/3	0%
CENTRAL AFRICAN REPUBLIC	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0					0/0	N/A
CAMEROON	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	0/0					0/0	N/A
TOTAL*	0/0	0/0	0/0	0/0	0/1	0/2	0/3	1/1					1/7	14%
% CONTAINED	N/A	N/A	N/A	N/A	0%	0%	0%	100%					14%	

*\*Provisional*

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

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 (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	1/3	1/1	1/2	1/1	0/0	0/0	6/9	67%
SOUTH SUDAN	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/1	0/1	0/0	0/0	0/0	0/2	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	N/A
CENTRAL AFRICAN REPUBLIC	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/1	0/0	0/0	0/1	0%
MALI	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/1	0/0	0/0	0/0	0/0	0/1	0%
CAMEROON	0/0	0/0	0/0	0/0	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/1	100%
TOTAL	0/0	0/0	0/0	0/0	2/2	1/1	1/3	1/3	1/3	1/2	0/0	0/0	7/14	50%
% CONTAINED	N/A	N/A	N/A	N/A	100%	100%	33%	33%	33%	50%	N/A	N/A	50%	

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**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. Mary Kamb at CDC ([gwwrapup@cdc.gov](mailto:gwwrapup@cdc.gov)).

Note to contributors: Submit your contributions via email to Dr. Mary Kamb ([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. Dieudonné Sankara of WHO. Formatted by Diana Yu.

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CDC is the WHO Collaborating Center for Dracunculiasis Eradication