

Date: August 10, 2017

From: WHO Collaborating Center for Dracunculiasis Eradication, CDC

Subject: GUINEA WORM WRAP-UP #249

To: Addressees

Every uncontained Guinea worm from any source can spread infection!

9 CASES WORLDWIDE IN JANUARY-JULY, ALL IN CHAD

As illustrated in Figure 1, a provisional total of 9 cases of Guinea worm disease (78% contained), all of them in Chad, have been reported worldwide in January-July 2017, compared to 12 cases (75% contained) reported from Chad, Ethiopia and South Sudan in the same period of 2016 (Table 1). Table 2 is a line-listing of Chad's cases so far in 2017. Chad reported 6 cases (67% contained) in the same period of 2016. Ethiopia reported 2 cases (both contained) in January-July 2016, while South Sudan reported 4 cases (75% contained) in January-July 2016. Mali has reported no cases so far this year and it reported no cases throughout 2016.

Figure 1.

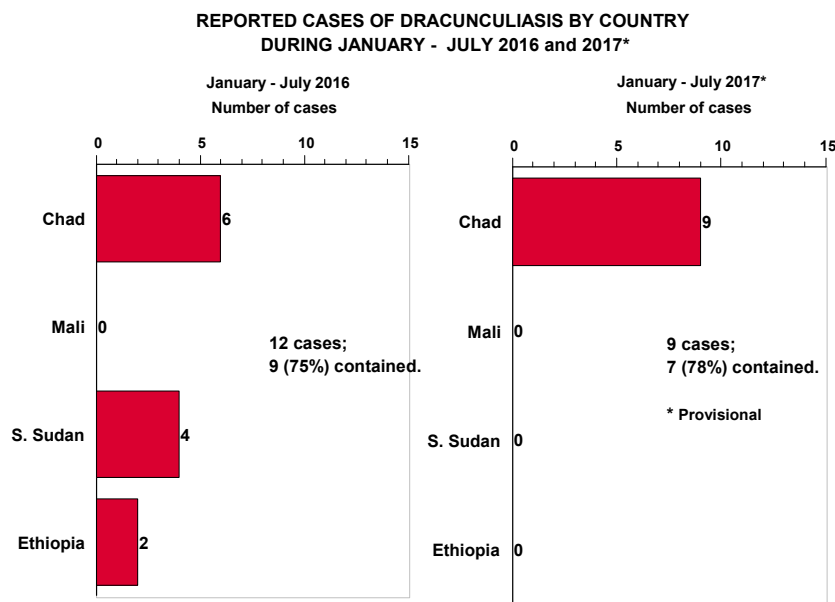


Table 1

Number of Laboratory-Confirmed Cases of Guinea Worm Disease, and Number Reported Contained by Month during 2017*
(Countries arranged in descending order of cases in 2016)

COUNTRIES WITH ENDEMIC TRANSMISSION	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	2 / 2	1 / 2	1 / 1	/	/	/	/	/	7 / 9	78%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	/	/	/	/	0 / 0	0%
ETHIOPIA	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%
TOTAL*	0 / 0	1 / 1	1 / 1	1 / 2	2 / 2	1 / 2	1 / 1	/	/	/	/	/	7 / 9	75%
% CONTAINED	0%	100%	100%	50%	100%	50%	100%						78%	

*Provisional

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

Cells shaded in yellow denote months when one or more cases of GWD did not meet all case containment standards.

[§]Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Tinbuktu and Gao Regions; contingent on security conditions during 2017, the GWEP continued to deploy one technical advisor to Kidal Region to oversee the program.

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	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
CHAD	0 / 0	1 / 1	0 / 0	1 / 1	1 / 1	0 / 1	1 / 2	1 / 3	1 / 2	3 / 4	0 / 0	0 / 1	9 / 16	56%
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%
SOUTH SUDAN	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	3 / 4	0 / 0	0 / 0	0 / 1	0 / 0	0 / 1	0 / 0	3 / 6	50%
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	1 / 1	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	0 / 0	2 / 3	67%
TOTAL*	0 / 0	1 / 1	0 / 0	1 / 1	2 / 2	4 / 6	1 / 2	1 / 3	1 / 4	3 / 4	0 / 1	0 / 1	14 / 25	56%
% CONTAINED	0%	100%	0%	100%	100%	67%	50%	33%	25%	75%	0%	0%	56%	

*Provisional

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[§]Reports include Kayes, Koulikoro, Segou, Sikasso, and Mopti, Tinbuktu and Gao Regions; contingent on security conditions during 2016, the GWEP continued to deploy one technical advisor to Kidal Region to oversee the program.

Chad reports a provisional total of 638 infected domestic dogs (77% contained) and 8 infected domestic cats in January-July 2017 vs. 790 infected dogs (69% contained) and 4 infected cats in the same period of 2016, which is a 19% reduction in numbers of infected dogs in Chad overall so far this year (Figure 2). Ethiopia has reported 8 infected dogs (63% contained) and 4 infected baboons in January-July 2017, with all 12 infected animals occurring in Gog district of Gambella Region, compared to 7 infected dogs (43% contained) and 1 infected baboon in January-July 2016. Mali has reported 3 infected dogs (67% contained), all in Tominian district of Segou Region, in January-July 2017 and 3 infected dogs (67% contained) in the same period of 2016. South Sudan has reported no infected animals in 2016 or so far in 2017.

CHAD LAUNCHES COMMUNICATION CAMPAIGN; NATIONAL ASSEMBLY MEETS ON GUINEA WORM ERADICATION



Chad's Minister of Public Health Mme. Carmel Ngarbatina Sou IV, presided at the official launching of Chad's enhanced Guinea worm communication campaign (theme: "Guinea Worm Heroes") at the *Maison de la Femme* in N'Djamena on Saturday, July 22, 2017. The minister's motivational speech to an audience that included about 450 stakeholders, partners, journalists, members of youth groups and women's groups from the N'Djamena area, the ambassador from Central African Republic, and the president of the Chadian Red Cross, encouraged everyone to participate in the GW eradication effort. National GWEP Program Coordinator Dr. Tchindebet Ouakou, Carter Center Country Representatives Ms. Melinda Denson and Dr. Hubert Zirimwabagabo, WHO Country Representative Dr. Jean Bosco Ndiokubwayo, and the mayor of N'Djamena also made remarks at the ceremony, which was followed by a news conference. The ceremony included performance of a GW skit by a theater troupe, testimonies by the 2015 GW patient from Onoko who tried to hide her illness and her granddaughter who insisted on informing the GW program about her grandmother's infection, playing a campaign video, and display of five posters developed for the campaign. The campaign video may be viewed at <http://bit.ly/2fuTDWI>. The launching was covered by national television and radio and several Chadian newspapers. Chad's GWEP enhanced communication campaign is a joint effort of the ministry of public health and the ministry of information, with technical support by The Carter Center and the KYNE communication team.

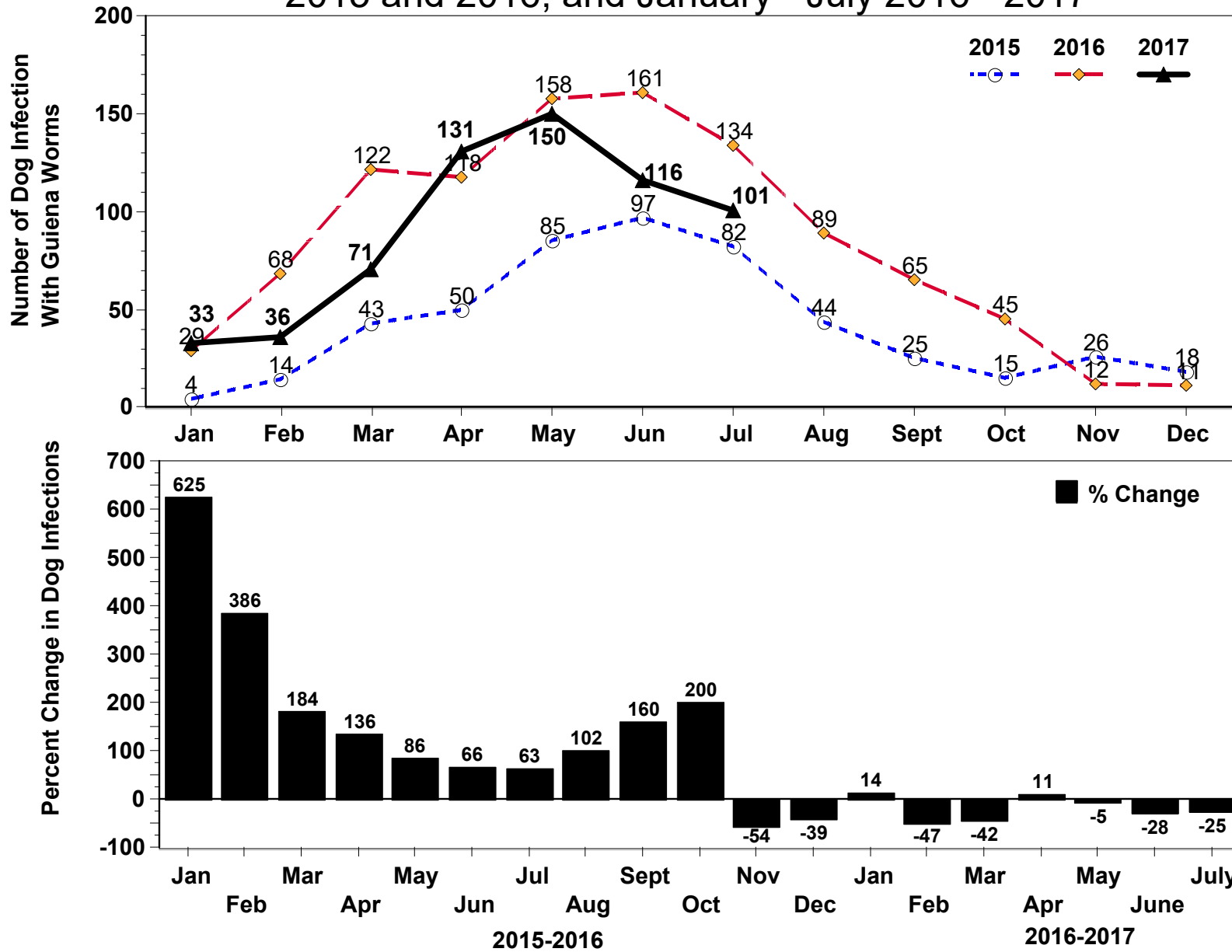
The month before the communication campaign launch, the President of Chad's National Assembly, the Honorable Haroun Kabadi, convened a special session of the National Assembly on Wednesday, June 7, for a briefing on Chad's Guinea Worm Eradication Program. This meeting was attended by about 150 persons (mostly Deputies), Minister of Public Health Mme. Carmel Ngarbatina Sou IV, national program coordinator Dr. Tchindebet and other senior staff of the ministry, and representatives of The Carter Center, WHO, Lions Clubs, and others, as well as members of television, radio and print media. After a presentation by the Honorable Minister, deputies engaged in a question and answer session for about an hour.

At the end of June, Chad's GWEP had registered 1,302 rumors of GW cases, of which 1,246 (96%) were investigated within 24 hours. 79% of 2,119 households surveyed in priority villages and 97% of 461 fish vendors surveyed in May and June 2017 were practicing safe disposal of fish

Figure 2

Chad Guinea Worm Eradication Program

Dog Guinea Worm Infections, and Percent Change Month-to-Month During 2015 and 2016, and January - July 2016 - 2017*



*Provisional as of 31 July 2017

Table 2

**CHAD GUINEA WORM ERADICATION PROGRAM
LINE LISTING OF CASES OF GWD DURING 2017**

Case #	Village or Locality of detection			District	Region	Patient			Case Contained?		1 = imported 2 = indigenous	Home Village or Locality			Presumed Source of infection identified?		Presumed Source of infection is a known VAS?	
	Name	1 or 2 = VAS	3 = VNAS			Age	Sex	Date GW emerged (D/M/Y)	(Yes, No, or Pending)	If no, date of Abate Rx		Name	1 or 2 = VAS	3 = VNAS	(Yes or No)	Name	(Yes or No)	Actions/ Comments?
1.1	Loumia	1		Mandelia	Chari Baguirmi	10	F	27-Feb-17	Yes	-	2	Loumia	1		No	N/A	N/A	Patient and family eat frogs and catfish (<i>Synodontis</i>) as well as Nile water monitors (<i>Varanus</i>).
1.2	Loumia							5-Mar-17	Yes	-			1					
2	Kakale Mberi	1		Guelendeng	Mayo Kebbi Est	6	F	22-Mar-17	Yes	-	2	Kakale Mberi	1		No	N/A	N/A	Patient's dog had two worms emerge during the same week.
3	Bougoumene 1	2		Dourbali	Chari Baguirmi	10	M	31-Mar-17	Yes	-	2	Bougoumene 1	2		No	N/A	N/A	Patient household is between those of two infected dogs.
4	Tarangara	1		Danamadji	Moyen Chari	7	M	27-Apr-17	No	6-May-17	2	Tarangara	1		No	N/A	N/A	Patient resides in a quartier where 100% of the known dog population was infected in 2016.
5	Kira	1		Sarh	Moyen Chari	12	M	11-May-17	Yes	-	2	Kira	1		No	N/A	N/A	18 animal infections were reported in Kira in 2016, as well as 1 human case in 2014
6	Choukara	1		Amtiman	Salamat	43	M	2-Jun-17	Yes	-	2	Choukara	1		No	N/A	N/A	
7.1	Bembaya	1		Sarh	Moyen Chari	62	M	10-Jun-17	Yes		2	Bembaya	1		No	N/A	N/A	Patient's nephew is Case 5 and they swim and participate in the collective fishing together. Pt also lives in close proximity to 3 infected dogs
7.2	Bembaya	1		Sarh	Moyen Chari	62	M	13-Jun-17	Yes		2	Bembaya	1		No	N/A	N/A	
7.3	Bembaya	1		Sarh	Moyen Chari	62	M	6-Jul-17	Yes		2	Bembaya	1		No	N/A	N/A	
8	Ngargue Marche	1		Bouso	Chari Baguirmi	35	M	22-Jun-17	No	29-Jun-17	2	Ngargue Marche	1		No	N/A	N/A	
9	Gouari	2		Sarh	Chari Baguirmi	50	F	29-Jul-17	Yes		2	Gouari	2		No	N/A	N/A	4 infected dogs were reported in Gouari in 2016

VAS = village under active surveillance in level 1 or 2 areas

VNAS = village not under active surveillance, level 3 areas

guts. The program applied Abate® to contaminated ponds in 15 villages in May and the same number of villages in June. In January-June 2017, the number of GW infections among dogs being treated with Advocate® anthelmintic was 54% less than in January-June 2016 (95 infected dogs vs. 208), and the number of emerging GWs in the treated dogs was 66% less (155 GWs vs. 452).

The director of The Carter Center's GWEP Dr. Ernesto Ruiz-Tiben and in-coming Carter Center Country Representative in Chad Dr. Hubert Zirimwabagabo made an oversight visit to Chad on June 17-27. They were joined by out-going Carter Center Representative Ms. Melinda Denson and national GWEP coordinator Dr. Tchindebet Ouakou in a visit to Minister of Public Health Mme. Carmel Ngarbatina Sou IV, who agreed to lead the launching of the national GW communication campaign to increase awareness about GWD and the cash reward for reporting cases of the disease. The minister also thanked Ms. Denson for her years of service as Country Representative to Chad since 2014 (to which we add our thanks, Melinda!!). The Carter Center team held two long briefings with the national coordinator, met with all 14 of the Technical Advisors to the program and visited four endemic villages in Guelendeng Zone (Mayo Kebbi East Region) and Mandalia Zone (Chari Baguirmi Region). On July 4-11, Dr. Zirimwabagabo, who was a Technical Advisor to Chad's GWEP before joining the GW team at Carter Center headquarters in 2015, made a supervisory visit to Haraze (Salamat Region) and noted there were many fewer dogs there than in Sarh or Guelendeng areas.

Carter Center consultant Dr. Mark Eberhard and Mr. Christopher Cleveland of the University of Georgia visited Chad July 15-28 to collect Guinea worms from dogs treated with Advocate® or HeartGar® anthelmintic for study, as well as GWs from humans or untreated dogs to harvest larvae and infect copepods to bring back to the United States for experimental infections, and to continue examining various frog species for presence of GW larvae. Their visit overlapped with that of Dr. Sharon Roy and Epidemic Intelligence Officers Dr. Anita Sircar and Dr. Eugene Liu of CDC, whose mission was to lead pilot testing of a questionnaire for conducting a case control study of households and owners with and without infected dogs.

IN BRIEF

Mali has reported 186 rumors of GW cases so far in 2017 as of June, all of which were investigated within 24 hours. Recent surveys of reward awareness for reporting GW infection in humans found 90% (n=40) awareness in Level I areas and 64% (n=45) awareness in Level II areas in May, with 33% awareness of the dog reward in Level I (n=40) in May, and 87% (n=288) awareness (human reward) in Level II areas in June. The program continues to monitor all GW patients from 2015 monthly, despite significant insecurity in much of northern and central Mali. The program's enhanced GW Hero communications campaign that was launched in March is supporting broadcasts in four languages from 30 radio stations in Kidal, Gao, Timbuktu, Segou and Mopti Regions for two months. Those stations are currently airing the campaign radio spot and song featuring singer Djeneba Seck, with more airings planned across the country. Additionally, nine theater troupes recently participated in a training focused on the campaign social drama. To date, thirteen performances have been conducted in the Segou, Timbuktu, and Kayes regions, with approximately 500-700 community members in attendance at each. Ninety additional performances are scheduled throughout the country. The national program coordinator Dr.

Mohamed BERTHE and Carter Center country representative Mr. Sadi MOUSSA made a supervisory visit to Gao Region on June 6-9, but they were unable to visit the formerly endemic settlement of Tanzikratene in Ansongo district of Gao Region or Gossi district in Timbuktu Region due to insecurity. Dr. Berthe also visited Maupe village in Segou Region on June 16 and Dr. Berthe and Mr. Moussa visited Segou and Mopti Regions on July 10-17, where they observed an infected dog in Parassilame village (Tominian district, Segou) whose Guinea worm emerged on July 11.

Ethiopia has reported 5,918 rumors of GW cases in 2017 as of June, of which 99% were investigated within 24 hours. Overall level of reward awareness in surveys in January-June 2017 (n=11,712) is 82%: 75% in Level I areas (n=3466), 86% in Level II (n=10,573), and 18% in Level III (n=331). Awareness of the dog reward in Gog and Abobo districts of Gambella Region is 61% (n=2,123): 65% in Gog (n=1206) and 57% in Abobo (n=917). The Ethiopian Dracunculiasis Eradication Program (EDEP) is monitoring households of all GW patients and infected dogs from 2016 weekly. The EDEP plans to launch its enhanced communication campaign in October 2017. Dr. James Zingeser of Carter Center headquarters visited the EDEP on June 10-21 for meetings with program staff and partner organizations in Addis Ababa and Gambella, including the Ethiopia Public Health Institute, Ethiopia Wildlife Conservation Authority, Ministry of Livestock and Fisheries, and Food and Agriculture Organization, to explore resources and plan for a study of GW transmission in baboons and dogs in Gambella Region, beginning later this year. Mr. Adam Weiss of Carter Center headquarters made a supervisory visit to the EDEP on June 12-22, including a visit to the strategic Atheti-Ablen-Wichini triangle in Gog district of Gambella Region. The program is addressing gaps in identification of water sources in 2016, especially related to the Awowi stream in the area. Carter Center country representative Dr. Zerihun Tadesse, Alpha Gebrie, and Firew Demeke also made a supervisory visit to Gog, Abobo and Lare districts of Gambella Region on July 10-14. Senior Technical Advisor to the EDEP Mr. Frank Wong, who has labored for seven years in the GWEPs of South Sudan and in Gambella, Ethiopia, left the program at the end of July. Thank you, Frank!! His successor Senior TA is Mr. Christopher Wells, also based at Gambella.

South Sudan expects to launch its enhanced communication campaign in September 2017. The Minister of Health, Dr. Riek Gai Kok and Director of Neglected Tropical Diseases, and of South Sudan GWEP, Mr. Makoy Samuel Yibi visited Tonj East of Warrap State on August 3rd to launch a Mectizan® mass drug administration (MDA) of campaign against onchocerciasis (river blindness disease). The function was also attended by the Governor of Tonj State Hon. Major General Akec Tong Aleu, State Minister of Health Hon. Lual Longar Abhal, and the entire cabinet including commissioners from all counties in the state. The minister used the opportunity to popularize information about the cash reward for information leading to confirmation of cases of Guinea worm disease (GWD). Carter Center Technical Advisor, Mr. Jake Wheeler and Senior Program Officer Mr. Paul Parek, of the Tonj East GWEP staff were present to support the Guinea worm eradication agenda during the event. GWEP village volunteers participated in a drama skit and sang their cash reward song. The event included a popular singer from Tonj Town to perform the song along with the drama troop. By all accounts the MDA launching was a successful event.



DONATIONS

The Carter Center welcomes the United Kingdom government's recent support of an additional £5 million to support the Guinea Worm Eradication Program.

MEETINGS

The International Task Force for Disease Eradication will review the status of the Guinea worm eradication campaign during its next meeting at The Carter Center on October 17, 2017.

The Carter Center will hold a meeting of its GW Research Group on October 18, 2017

The South Sudan GWEP plans to hold its annual program review during the week of December 11-15, 2017 in Juba.

RECENT PUBLICATIONS

Adroher, F.J., La lucha contra el gusano de la Guinea o la recompensa del esfuerzo solidario/The fight against the Guinea worm or the reward of solidarity endeavor. *Ars Pharmaceutica* – December 2016. <http://revistaseug.ugr.es/index.php/ars/article/download/5564/5188>.

Cleveland, C.A., Eberhard, M.L., Thompson, A.T., Smith, S.J., Zirimwabagabo, H., Bringolf, R., Yabsley, M.J., 2017. Possible role of fish as transport hosts for *Dracunculus* spp. Larvae. *Emerging Infectious Diseases* 23(9):

Sreenivasan, N., Weiss, A., Djiatsa, J.-P., Toe, F., Djimadoumaji, N., Ayers, T., Eberhard, M., Ruiz-Tiben, E., Roy, S., 2017. Recurrence of Guinea worm disease in Chad after a 10-year absence: risk factors for human cases identified in 2010-2011. *Am J Trop Med Hyg* 97:xx-xx. <https://doi.org/10.4269/ajtmh.16-1026>

Tayeh, A., Cairncross, S., Cox, F.E.G., 2017. Guinea worm: from Robert Leiper to eradication. *Parasitology* <https://doi.org/10.1017/S0031182017000683>

World Health Organization, 2017. Monthly report on dracunculiasis cases, January-December 2016. *Wkly Epidemiol Rec* 92:179-180.

World Health Organization, 2017. Monthly report on dracunculiasis cases, January-March 2017. *Wkly Epidemiol Rec* 92:239-240.

World Health Organization, 2017. Monthly report on dracunculiasis cases, January-April 2017. *Wkly Epidemiol Rec* 92:331-2.

OBITUARY



We deeply regret to report the passing of **Dr. Mohammad Abdur Rab** (1949-2015), who died in Toronto, Canada on August 8, 2015. An epidemiologist, Dr. Rab was the first National Program Coordinator of Pakistan's Guinea Worm Eradication Program in 1987-1989 and oversaw the reduction in GW cases from 1,110 in 1988 to 534 cases in 1989. He was kidnapped by bandits while on Guinea worm duties in North West Frontier Province and held for six and a half weeks in 1989. He earned his MD degree from the University of Punjab in 1973, a DTM&H from the London School of Hygiene and Tropical Medicine in 1977 and an MPH&TM degree from Tulane University in 1984. Not long after his ordeal in NWFP he began another course of study at the London School of Hygiene and Tropical Medicine, earning a PhD in clinical epidemiology in 1994. Dr. Rab later joined the World Health Organization as an advisor in its Eastern Mediterranean Regional Office from 2001 to 2006 and as WHO Country Representative in Khartoum, Sudan from 2006 to 2010. At a meeting with President Jimmy Carter in Juba in February 2010, Dr. Rab told the story of how he visited a village in Pakistan years after GW had been eradicated and asked an old man "Do you have Guinea worm here?" "Oh no!" the man replied, "May God bless all those people who came here and saved us from being lame." May God bless Dr. Mohammad Abdur Rab.

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 Dr. Ernesto Ruiz-Tiben (eruizti@emory.edu), 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, Drs. Donald R. Hopkins and Ernesto Ruiz-Tiben of The Carter Center, Drs. Sharon Roy of CDC, Dr. Dieudonné Sankara of WHO, and Dr. Mark Eberhard.

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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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CDC is the WHO Collaborating Center for Dracunculiasis Eradication