



DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Centers for Disease Control
and Prevention (CDC)
Memorandum

Date: February 26, 2007



From: WHO Collaborating Center for
Research, Training and Eradication of Dracunculiasis

Subject: GUINEA WORM WRAP-UP #170

To: Addressees

“With public sentiment, nothing can fail; without it, nothing can succeed.” Abraham Lincoln, 1858

GHANA: PRESIDENTS KUFUOR & CARTER ADDRESS GW CHALLENGE

Co-incident with a visit to Ghana by Former U.S. President and Mrs. Jimmy Carter on February 6-9, Ghana awoke to the news that more than 1,000 cases of dracunculiasis were detected in the country in January 2007, compared to 622 cases in January 2006. The Northern Region's Savelugu-Nanton District alone reported 656 of the new cases (vs. 99 cases in January 2006), including 533 cases in the district capital of Savelugu (population ~25,000) itself (vs. 29 cases in January 2006). Having reported a total of 4,136 cases in calendar year 2006, which was the second-highest number of cases after Sudan in a year during which Ghana's immediate neighbors Burkina Faso, Cote d'Ivoire and Togo together reported a total of only 33 indigenous cases, this latest news underscored dramatically the challenge that Ghana must overcome in this otherwise festive year of the Golden Jubilee of its political independence. The Northern Region's disastrous regression is the combined result of a complete breakdown in the water supply of the Northern Region's capital, Tamale, in March 2006, during which vendors sold contaminated water to unsuspecting households (including in Savelugu, which normally receives drinking water via a pipeline from nearby Tamale), and inadequate interventions against transmission of Guinea worm disease by the Northern Region in recent years. For the global Guinea Worm Eradication Program, this latest explosion of cases in the Northern Region is also a threat to Ghana's neighbors, as well as an unexpected financial distraction from support for activities in southern Sudan.

Ghana's President John A. Kufuor has decided to appoint a special advisor for Guinea worm eradication reporting directly to him, and Ghana has declared Guinea worm disease to be a national medical emergency and a regional disaster in the Northern Region. The Government of Ghana has also pledged to provide its ministries 10 billion cedis (~\$1 million) to fight GW disease in 2007, in addition to the 5 billion cedis (~\$0.5 million) it had already committed recently. President Carter reported to President Kufuor and later to Ghana's minister of health Maj (Rtd) Courage E.K. Quashigah on Carter's distressing visit on January 8 to the district health post in Savelugu, where he was accompanied by the minister for the Northern Region Alhaji Mustapha Ali Idris, the director-general of the Ghana Health Service Prof. A.B. Akosa, and representatives of national and international news media, and saw dozens of patients, including many young children, suffering from the disease. President Carter and Prof. Akosa also met with deputy ministers of Ghana's ministry of health, ministry of local government and ministry of water resources, representatives of UNICEF, WHO, EU, JICA, AFD, DFID and conducted a press conference, during which President Carter announced that he plans to return to Ghana early in 2008 to see what progress has been made.

Among other measures, Ghana's GWEP intends to intensify and focus its use of Abate® Larvicide, provided by BASF, on *endemic* villages only (103 villages that were under surveillance, but not endemic,

were treated with Abate at least once in 2006), and improve supervision, active surveillance and containment. A total of 11 case containment centers are now receiving patients, the availability of free treatment is widely advertised, and the reported containment rate for cases of the disease in January 2007 was 88% (Figure 1). The new safe water supply for Tamale and Savelugu will not be completed until July 2008. Meanwhile, in January 2007 the village of Diare in Savelugu-Nanton District, which in 2006 was the second-highest endemic village (298 cases) in Ghana, saw the completion of a second water project that provided it with adequate safe sources of drinking water for the first time. Three other priority endemic villages in the same district (Chrifo-yili, Tingoli and Wantugu) that together reported 268 cases in 2006, are still waiting for electrification promised by regional authorities last year in order to mechanize completed high-yielding borehole wells and obtain safe drinking water. 300,000 household filters and 270,000 pipe filters arrived in country in January 2007, and will be distributed soon.

President Carter also visited Khartoum and Juba, **SUDAN**, where he met with President Omar Al-Bashir, Vice-President Salva Kiir, Federal Minister of Health Dr. Tabita Shokaj, South Sudan Minister of Health Dr. Theophilus Ochang, and other ministry of health officials to discuss Sudan's on-going war against Guinea worm disease; **ETHIOPIA** where he met with Prime Minister Meles Zenawi and Minister of Health Dr. Tedros A. Ghebreyesus to discuss Ethiopia's impending eradication of dracunculiasis, the need for close coordination between the Guinea worm eradication efforts in Ethiopia and southern Sudan, and the security situation in Ethiopia's endemic Gambella Region; and **NIGERIA**, where he met with President Olusegun Obasanjo and ministerial officials and congratulated them on the dramatic progress of Nigeria's GWEP and discussed details of the recently discovered outbreak there (see below). Officials of the Government of South Sudan emphasized their commitment to eradicate Guinea worm disease by 2009. President & Mrs. Carter, the chairman of The Carter Center's Board of Trustees Mr. John Moores and their entourage were accompanied at various parts of the four-country trip by Lions International President Jimmy Ross, former Nigerian head of state General Yakubu Gowon, representatives of the British Broadcasting Corporation, Bill & Melinda Gates Foundation, Howard Buffett Foundation, GlaxoSmithKline, *Chicago Tribune*, CNN International, *Financial Times*, *The Lancet*, *New African* magazine, *New York Times*, *Smithsonian* magazine, *Voice of America*, and the *Wall Street Journal*, as well as Carter Center staff.

Figure 1

Ghana Guinea Worm Eradication Program Major Indicators by month
% Cases Contained by month 2006 - 2007

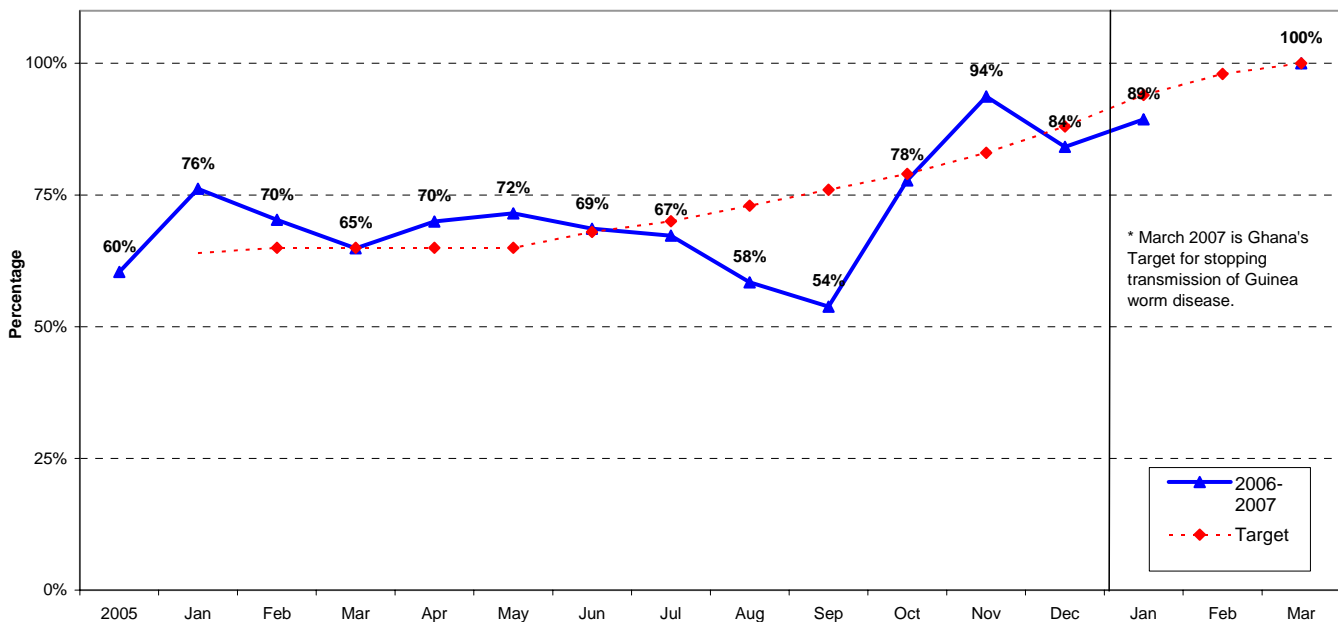


Table 1

Number of Cases Contained and Number Reported by Month during 2006*
(Countries arranged in descending order of cases in 2005)

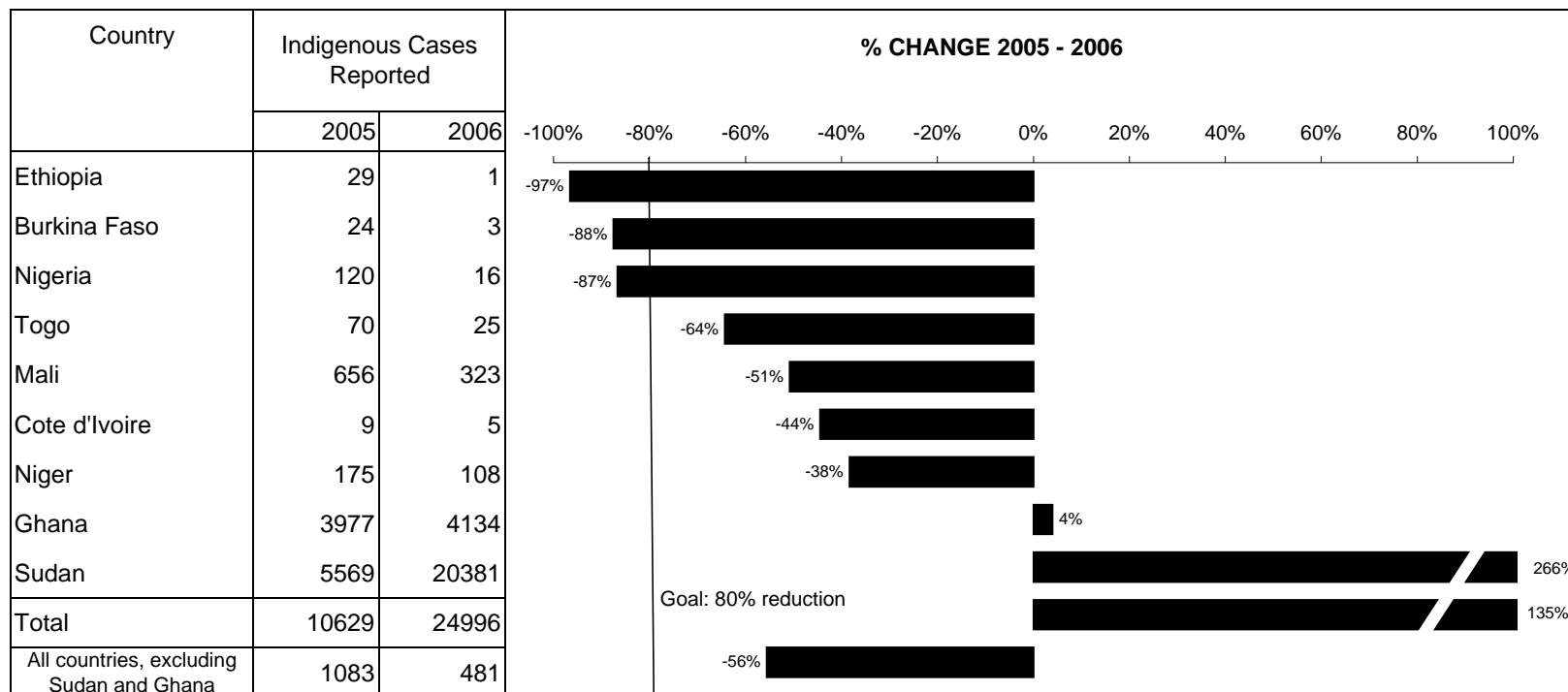
COUNTRIES REPORTING CASES	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SUDAN	0 1 2	9 12	27 77	251 2617	1932 4366	2202 3735	2160 3366	1314 2216	1195 2144	681 1241	232 520	15 87	10018 20383	49
GHANA	473 621	426 606	281 433	282 403	241 337	201 293	109 162	45 77	21 39	112 144	386 412	509 609	3086 4136	75
MALI	3 3	1 1	0 0	1 1	3 3	14 14	11 14	66 72	79 91	59 81	27 41	7 8	271 329	82
NIGER	2 2	0 0	0 0	1 2	6 6	7 7	11 12	17 21	15 21	17 20	13 17	2 2	91 110	83
NIGERIA	0 0	10 14	0 0	0 0	0 1	0 0	0 0	0 0	0 0	0 0	0 0	1 1	11 16	69
TOGO	1 1	2 3	0 0	0 1	1 1	2 2	0 0	5 5	1 1	1 1	5 7	5 7	23 29	79
BURKINA FASO	0 0	0 0	0 0	0 0	0 0	0 0	1 1	0 1	0 1	1 1	1 1	0 0	3 5	60
COTE D'IVOIRE	0 0	0 0	0 0	0 0	0 0	2 2	2 2	0 0	1 1	0 0	0 0	0 0	5 5	100
ETHIOPIA	1 1	0 0	0 0	0 0	1 1	1 1	0 0	0 0	0 0	0 0	0 0	0 0	3 3	100
UGANDA	0 0	0 0	0 0	0 0	0 0	0 0	1 1	0 0	1 1	0 0	0 0	0 0	2 2	100
TOTAL*	480 630	448 636	308 510	535 3024	2184 4715	2429 4054	2295 3558	1447 2392	1313 2299	871 1488	664 998	539 714	13513 25018	54
% CONTAINED	76	70	60	18	46	60	65	60	57	59	67	75	54	
% CONT. OUTSIDE SUDAN	76	70	65	70	72	71	70	76	76	77	90	84	75	

* provisional

Shaded cells denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were reported and contained that month.

Figure 2

Number of Indigenous Cases Reported During the Specified Period in 2005 and 2006*, and Percent Change in Cases Reported



Overall % change outside of Sudan = -9%

* Provisional

Table 2

Number of Cases Contained and Number Reported by Month during 2007*
(Countries arranged in descending order of cases in 2006)

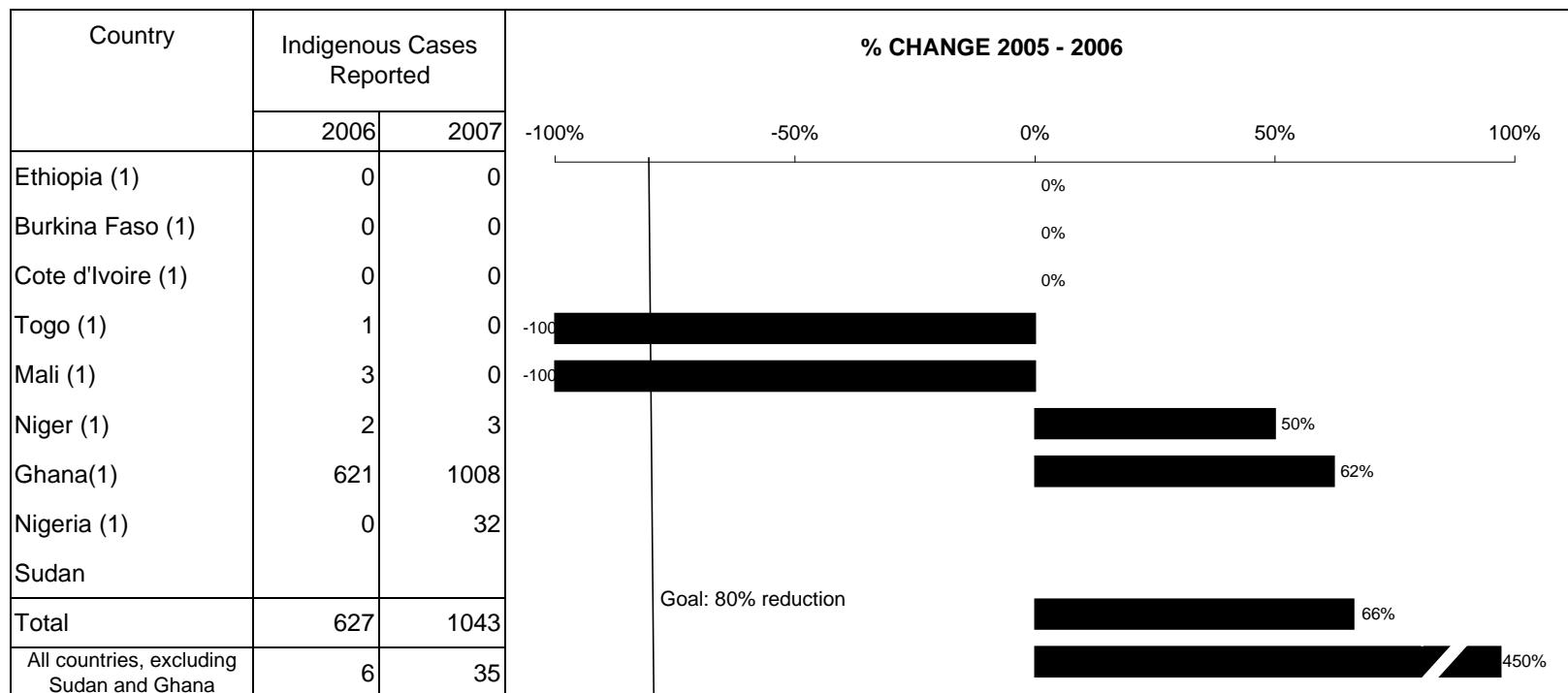
COUNTRIES REPORTING CASES	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													%
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	CONT.
SUDAN	/	/	/	/	/	/	/	/	/	/	/	/	0 / 0	
GHANA	889 / 1008	/	/	/	/	/	/	/	/	/	/	/	889 / 1008	88
MALI	0 / 0	/	/	/	/	/	/	/	/	/	/	/	0 / 0	
NIGER	3 / 3	/	/	/	/	/	/	/	/	/	/	/	3 / 3	100
TOGO	0 / 0	/	/	/	/	/	/	/	/	/	/	/	0 / 0	
NIGERIA	7 / 32	/	/	/	/	/	/	/	/	/	/	/	7 / 32	
BURKINA FASO	2 / 2	/	/	/	/	/	/	/	/	/	/	/	2 / 2	100
COTE D'IVOIRE	0 / 0	/	/	/	/	/	/	/	/	/	/	/	0 / 0	
ETHIOPIA	0 / 0	/	/	/	/	/	/	/	/	/	/	/	0 / 0	
TOTAL*	901 / 1045	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	901 / 1045	86
% CONTAINED	86												86	
% CONT. OUTSIDE SUDAN	86												86	

* provisional

Shaded cells denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were reported and contained that month.

Figure 3

Number of Indigenous Cases Reported During the Specified Period in 2005 and 2006*, and Percent Change in Cases Reported



Overall % change outside of Sudan = 66%

(1) Indicates months for which reports were received, i.e., Jan. 2006

* Provisional

Table 3

List of Guinea Worm Cases and Interventions Against Transmission: 2007 (except Sudan & Ghana)

Case #	Age	Sex	Ethnic Group	Profession	Village	District	Region	Date				Detected <24 hrs? (Yes / No)	Water Contaminated? (Yes / No)	ABATE Applied? (Yes / No)	Case Contained? (Yes / No)	Admitted to a Case Containment Center? (Yes / No)	Patient had Guinea worm last year? (Yes / No)	Imported Case? (Yes / No)	Probable Origin of Infection (name of village, zone, or country)
								Suspect Case Identified	Worm Began to Emerge	Village Volunteer, or Case Containment Center, began to contain case	Case Confirmed by a Supervisor								
BURKINA FASO																			
1.1	23	M		Farmer	Toupar	Batie	South West	28-Dec-06	14-Jan-07	14-Jan-07	14-Jan-07	Yes	No	Yes	Yes	Yes	No	Yes	???, Ghana
2.1	50	F		Housewife	Tinteka	Po	South Central	14-Jan-07	18-Jan-07	18-Jan-07	18-Jan-07	Yes	No	No	Yes	No	No	Yes	Zoggu, Ghana
NIGER																			
1.1	20	F	Sonrai	Farmer	Yogare	Tera	Tillaberi		13-Jan-07			Yes	No	Yes	Yes	Yes	Yes	No	Yogare, Tera
2.1	43	F	Bellah	Herder	Timana	Tillaberi	Tillaberi		17-Jan-07			Yes	No	Yes	Yes	Yes	Yes	No	Timana, Tillaberi
3.1	25	F	Sonrai	Farmer	Yogare	Tera	Tillaberi		20-Jan-07			Yes	No	Yes	Yes	Yes	Yes	No	Yogare, Tera
NIGERIA																			
1.1	28	M	Mbembem	Housewife	Ofura	Obubra	Cross Rivers	15-Jan-07	16-Jan-07	16-Jan-07	16-Jan-07	Yes	No	Yes	Yes	Yes	No	No	Ofura
2.1	35	F	Mbembem	Farmer	Ofura	Obubra	Cross Rivers	17-Jan-07	17-Jan-07	17-Jan-07	17-Jan-07	Yes	No	Yes	Yes	Yes	No	No	Ofura
3.1	18	F	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	24-Jan-07	14-Jan-07	24-Jan-07	24-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
4.1	11	F	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	24-Jan-07	10-Nov-06	24-Jan-07	24-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
5.1	48	M	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	24-Jan-07	6-Jan-07	24-Jan-07	24-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
6.1	30	F	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	24-Jan-07	12-Oct-06	24-Jan-07	24-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
7.1	52	M	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	15-Jan-07	24-Jan-07	24-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
8.1	18	F	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	18-Jan-07	24-Jan-07	24-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
9.1	16	M	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	15-Jan-07	25-Jan-07	25-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
10.1	42	M	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	16-Jan-07	25-Jan-07	25-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
11.1	15	F	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	21-Jan-07	25-Jan-07	25-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
12.1	55	M	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	15-Dec-06	25-Jan-07	25-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
13.1	32	F	Ezza	Housewife	Ezza Ogwuomu	Enugu East	Enugu	25-Jan-07	18-Jan-07	25-Jan-07	25-Jan-07	No	No	Yes	No	No	No	Yes	Ezza Nkwubor
14.1	3	F	Ezza	Child	Ezza Ogwuomu	Enugu East	Enugu	25-Jan-07	16-Jan-06	25-Jan-07	25-Jan-07	No	No	Yes	No	No	Yes	Ezza Nkwubor	
15.1	28	M	Ezza	Famer	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	30-Nov-06	26-Jan-07	26-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
16.1	24	F	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	19-Nov-06	26-Jan-07	26-Jan-07	No	Yes	Yes	No	No	No	Yes	Ezza Nkwubor
17.1	2	M	Ezza	Child	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	10-Jan-06	26-Jan-07	26-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
18.1	20	F	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	30-Dec-06	26-Jan-07	26-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
19.1	23	F	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	19-Jan-07	26-Jan-07	26-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
20.1	3	F	Ezza	Child	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	8-Jan-06	26-Jan-07	26-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
21.1	43	F	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	10-Jan-07	26-Jan-07	26-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
22.1	26	F	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	28-Dec-06	26-Jan-07	26-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
23.1	44	M	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	26-Jan-07	26-Jan-07	26-Jan-07	Yes	No	Yes	Yes	No	No	No	Ezza Nkwubor
24.1	34	F	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	23-Jan-07	25-Jan-07	27-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
25.1	45	F	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	27-Jan-07	27-Jan-07	27-Jan-07	27-Jan-07	Yes	No	Yes	Yes	No	No	No	Ezza Nkwubor
26.1	18	F	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	20-Jan-07	25-Jan-07	27-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
27.1	33	F	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	18-Jan-07	25-Jan-07	27-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
28.1	21	M	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	25-Jan-07	18-Jan-07	25-Jan-07	27-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor
29.1	40	M	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	27-Jan-07	27-Jan-07	27-Jan-07	27-Jan-07	Yes	No	Yes	Yes	No	No	No	Ezza Nkwubor
30.1	23	F	Ezza	Farmer	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	26-Jan-07	27-Jan-07	28-Jan-07	Yes	No	Yes	Yes	No	No	No	Ezza Nkwubor
31.1	18	M	Ezza	Student	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	26-Jan-07	27-Jan-07	28-Jan-07	Yes	No	Yes	Yes	No	No	No	Ezza Nkwubor
32.1	5	F	Ezza	Pupil	Ezza Nkwubor	Enugu East	Enugu	26-Jan-07	26-Jan-07	30-Jan-07	30-Jan-07	No	Yes	Yes	No	No	No	No	Ezza Nkwubor

* 1.1 = Case number one and first worm to emerge from patient during this calendar year

1.2 = Case number one and second worm to emerge from patient during this calendar year

2.1 = Case number two and first worm to emerge from patient during this calendar year

NIGERIAN OUTBREAK DELAYS FIRST ZERO CASE YEAR

Like several no longer endemic countries (e.g. Benin, Cameroon, Pakistan, Uganda), Nigeria discovered an unexpected outbreak of dracunculiasis just as it was preparing to cross the finish line to interrupting transmission nationwide. The outbreak, in two villages of Enugu East Local Government Area (LGA) of Enugu State, came to notice when a patient went to a clinic to seek treatment in mid-January. Program staff from the Southeast Zone confirmed the rumor on January 22. Subsequent investigation revealed 28 active cases in Ezza Nkwubor village, and 2 cases in Ezza Ugwuomu village nearby. The latter two patients, a mother and her child, had just come there from the first village. Ezza Nkwubor is inhabited exclusively by Ezza people who migrated from Ezza speaking communities in Ebonyi State. The source of the outbreak in Nkwubor village, which began in about October 2006, is believed to be Amainyima village in Ezza North LGA of Ebonyi State, which had a major outbreak in April 2005 and 3 cases in Feruary 2006, and from which some persons migrated to Ezza Nkwubor village. Only 5 of 30 cases were contained, all 5 in Ezza Nkwubor village. Nkwubor has no source of clean drinking water, but Ugwuomu obtains its drinking water from two fast-flowing rivers. Nineteen of the 30 patients were female. Two other cases, both with onset in January and contained, were reported in Ofura village, in Cross River State (three cases, none contained, were reported from Ofura in February 2006). In response to the outbreak in Enugu State, health education sessions were conducted in local schools and the market, five village based health workers were appointed and trained, all patients were asked to remain in the villages and not enter the ponds, over 2,500 cloth filters and nearly 1,500 pipe filters were distributed to all households, and 26 ponds were treated with ABATE® Larvicide. All appropriate authorities were notified, including WHO Nigeria. UNICEF promised to provide three borehole wells. The Nigerian GWEP is redeploying personnel to this area, and is conducting a search of all Ezza communities in Ebonyi, Enugu and Cross River States.

No one in Ezza Nkwubor village, which is located only a few kilometers from the Enugu airport, said they knew of the cash reward (5,000 naira, or ~\$38) for reporting a case of dracunculiasis. Enugu State had never been endemic since it was formed in the 1990s, and was supposed to be under the surveillance by state and federal health authorities, with technical assistance from WHO, as part of the now vast non-endemic areas of the country. The Ezza people are re-noun farmers, who migrate over large distances, and they have been implicated as having imported Guinea worm disease into communities several times during the eradication program.

IN BRIEF:

Sudan has now reported a provisional total of 20,383 cases (49% contained) from 3,264 endemic villages in January-December 2006, with an average reporting rate of 59% among endemic villages. A total of 19,232 villages in South Sudan are under surveillance. UNICEF/South Sudan has completed 8 of 20 boreholes originally promised in Eastern Equatoria State's highly endemic Kapoeta County during 2006. The 8 villages concerned reported 556 of cases of dracunculiasis in 2006. None of the 13 existing boreholes scheduled for rehabilitation were rehabilitated, which could have impacted another 2,406 cases in those communities.

The President of the Republic of Sudan, Omer Hassan Ahmed al Bashir signed a decree on 22 January 2007 awarding the Order of the Two Niles Award to Mr. Raymond Stewart, Resident Technical Advisor of The Carter Center in Sudan for his "great efforts in controlling river blindness and Guinea worm disease, and appreciating the role of The Carter Center and the honest voluntary organizations working in Sudan." **Congratulations Raymond!!!**

DEFINITION OF CASE CONTAINMENT

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. The village volunteer 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.

RECENT PUBLICATIONS

Kristof ND, 2007. Torture by worms. New York Times Section 4, p 13. February 18.

*Inclusion of information in the Guinea Worm Wrap-Up does not constitute
“publication” of that information.
In memory of BOB KAISER*

For information about the GW Wrap-Up, contact the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis, NCZVED, Centers for Disease Control and Prevention, F-22, 4770 Buford Highway, NE, Atlanta, GA 30341-3724, U.S.A. FAX: 770-488-7761. The GW Wrap-Up web location is <http://www.cdc.gov/ncidod/dpd/parasites/guineaworm/default.htm>.



CDC is the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis.