



Date: March 25, 2002



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

Subject: GUINEA WORM WRAP-UP #121

To: Addressees

WHAT'S NEW IN 2002?

“The rule of the final inch... The work has been almost completed, the goal almost attained... In that moment of fatigue and self-satisfaction it is especially tempting to leave the work without having attained the apex of quality... In fact, the rule of the Final Inch consists in this: not to shirk this crucial work. Not to postpone it... And not to mind the time spent on it, knowing that one's purpose lies... in the attainment of perfection.”

--Alexander Solzhenitzyn, *The First Circle*

ENDEMIC COUNTRIES MEET IN KHARTOUM, BEGIN “FINAL PUSH”



Representatives of all 13 remaining endemic countries convened in Khartoum, Sudan on March 47, 2002 for the 7th Meeting of Program Managers of Guinea Worm Eradication Programs. The Sudanese head of state, President Omar Al Bashir, presided over the resplendent Opening Ceremony, which also featured remarks by former United States President Jimmy Carter, from Nigerian head of state General (Dr.) Yakubu Gowon, and the Federal Minister of Health of Sudan, Dr. Ahmed Bilal.



President Carter noted that there was no way to separate the suffering due to Guinea worm, AIDS, river blindness, or trachoma from that caused by conflict, and that Guinea worm disease cannot be eradicated without Peace in Sudan. President Bashir recalled the acceptance of President Carter's proposal for the “Guinea Worm Cease-Fire” in 1995, and said the absence of stability and Peace are now the main obstacles to Guinea worm eradication in Sudan. After congratulating the countries that have already been certified as Guinea worm-free, and those still working hard to become so, President Bashir unveiled three commemorative postage stamps in honor of this milestone on the road to dracunculiasis eradication.



The Opening Ceremony was attended by over 1,000 persons, including two former heads of state of Sudan, Jafer M. Numeri and Abdal Rahman S. Aldahab. Dr. Donald Hopkins of the Carter Center and Dr. Maria Neira of the World Health Organization reviewed the current status of the campaign and of WHO's certification process, respectively. The theme of this program managers' meeting, which was co-sponsored

by The Government of Sudan, The Carter Center, UNICEF and WHO, was “The Final Push for the Eradication of Dracunculiasis.”

WHO organized a Round Table Meeting on the first afternoon of the conference that was attended by the WHO Regional Director for the Eastern Mediterranean and at least ten ministers or deputy ministers of health or representatives from Burkina Faso, Cameroon, Chad, Cote d'Ivoire, Central African Republic, Ethiopia, Ghana, Niger, Sudan, Uganda and Yemen. The technical councilor to the Minister of Health of Cote d'Ivoire represented his minister. The ministers or their representatives reiterated their commitment to eradicating dracunculiasis as soon as possible, and adopted a Khartoum Declaration on Guinea Worm Eradication to that effect. The Meeting of Program

Managers generated massive publicity about the eradication campaign before, during and after the meeting itself, in Sudan and internationally. The national program coordinator of Sudan's Guinea Worm Eradication Program, Dr. Nabil Aziz, was interviewed several times on television, and by radio and print media. This meeting also inaugurated a different format for such meetings, in which the national program coordinators each described separately the epidemiology of the disease in their country, the status of interventions during 2001, and plans to intensify interventions in 2002.

HOW TO ERADICATE GUINEA WORM DISEASE

"We went to the villages with the intention of listening to what they had to say about why Guinea worm was eradicated in other areas, but not in their village, and to encourage the community to create and implement concrete measures to stop transmission, that will be enforced by them... We tried to implement strategies that have not been tried before in this region... The first strategy was to involve the local, traditional chiefs in the area... Another strategy that we employed was actively engaging the community in a debate and listening to them... The most popular measures were fines... One village decided to take a goat from the offender's herd, cook it, and share the meat with the entire community... Another strategy that we tried was to pick people from each village, more specifically each encampment to act as a "surveyor" of Guinea worm." From a consultant's report

NIGERIA REDUCES CASES DRASTICALLY; MAY OVERTAKE GHANA

The Nigerian Guinea Worm Eradication Program (NIGEP) has recorded steep reductions in reported cases during the peak transmission months of January and February. Cases were reduced by -38% in January and -67% in February 2002, for an average reduction of -53% for the two months (from 2,075 to 983 cases). The sharp reductions were spearheaded by drastic declines in incidence in Ebonyi State (-80% in January, -83% in February), which reported 39% of all cases in Nigeria in 2001. Interventions have been intensified further in 2002, with Nigeria's first "Worm Weeks," held in all 58 endemic villages of Ezza North Local Government Area (LGA) February 25-March 1, and in Izzi LGA the following week. So far in 2002, Nigeria also reports fewer endemic villages and higher filter coverage than Ghana (Figure 1, Table3), which was the third-highest endemic country, after Sudan and Nigeria, in 2001. President Jimmy Carter visited Abuja and discussed the Guinea Worm Eradication Program with Nigerian President Olusegun Obasanjo and Federal Minister of Health Prof. A.B.C. Nwosu briefly in March.

Ghana reported its lowest annual total cases ever in 2001, although the rate of reduction declined in the last quarter of that year. Of the three regions (out of 10) reporting collectively >95% of Ghana's cases, Volta Region continues to achieve substantial reductions (58% in Oct-Dec 2001; -65% in January 2002) while Northern Region's cases increased by 22% in Oct-Dec 2001 and Brong Ahafo Region reduced its cases by only -5%. Fifteen of Ghana's 110 districts reported 90% of the country's cases in 2001. The program held its fourth six-monthly review at Sunyani, in Brong Ahafo Region on February 11-12. Some patients are being isolated in "containment houses" at an average cost so far, of US\$20 (equivalent) per patient (vs. \$30/patient in Uganda and \$37/patient in Benin). Volunteers in over 700 endemic communities have been retrained, and some key Guinea worm workers in Northern and Brong Ahafo Regions have been replaced. Ghana's Community Based Surveillance system is being extended nationwide, which is already facilitating continued surveillance for dracunculiasis in formerly endemic areas.

HOW NOT TO ERADICATE GUINEA WORM DISEASE

"... District had the highest increase in the number of cases (110) in 2001 over (44) in 2000 due to a broken down borehole in the community. This community [then] depended on water from [an] unsafe source, which was not abated until the system was repaired." From a regional report. Comment: There were four missed opportunities, any one of which might have averted this outbreak: adequate health education, rapid repair of the broken borehole, prompt use of Abate in the unsafe source, emergency distribution of cloth filters.

Figure 1

Number of Cases of Dracunculiasis Reported Since 1989 From the Guinea Worm Eradication Programs in Ghana and Nigeria

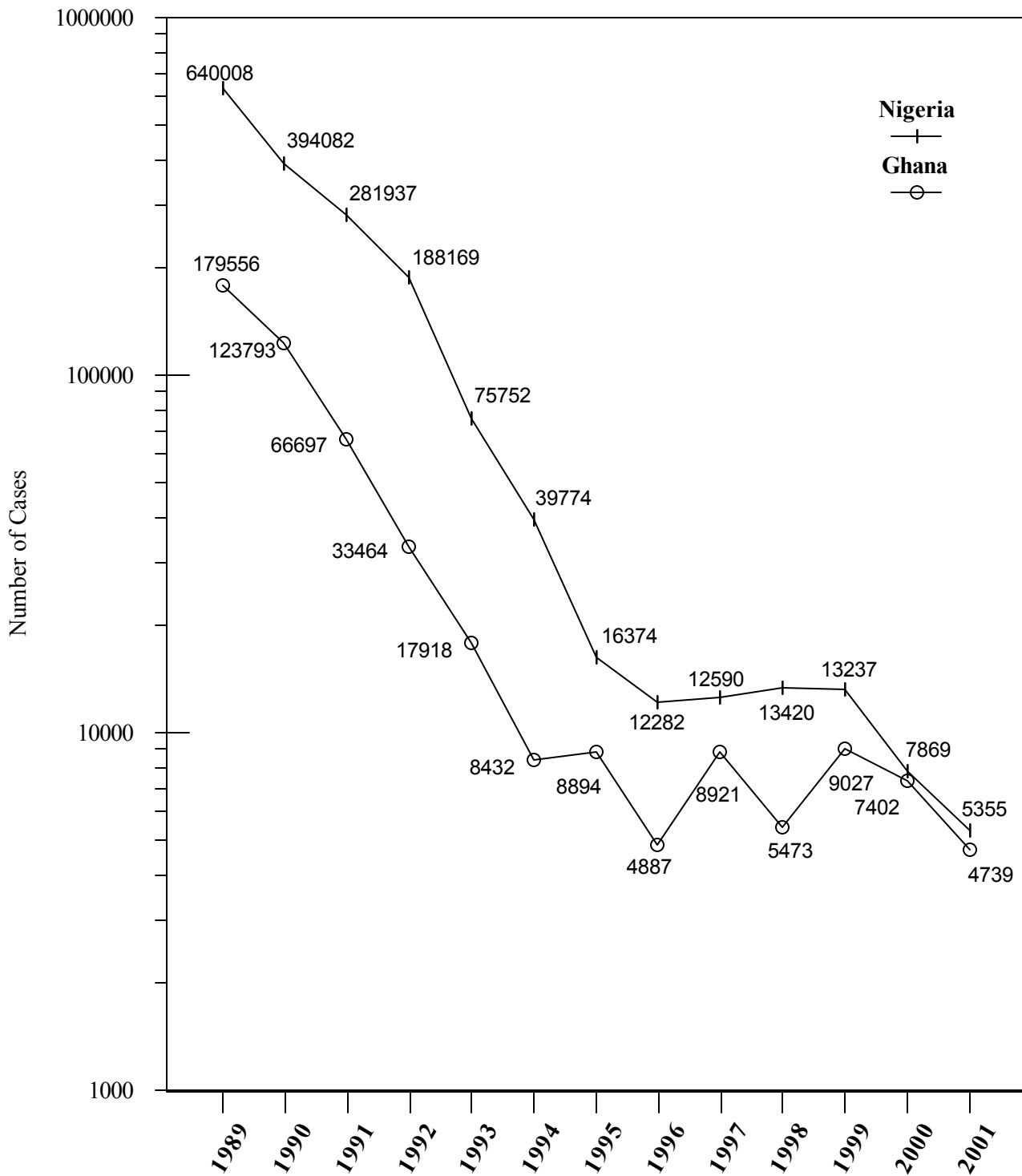


Table 1

**Number of cases contained and number reported by month during 2001*
(Countries arranged in descending order of cases in 2000)**

COUNTRY	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													%
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SUDAN	897 / 2423	1121 / 2296	959 / 2321	1393 / 3278	2096 / 5488	3371 / 7200	4134 / 7606	3090 / 5535	3607 / 6929	1853 / 3098	1199 / 2066	744 / 1231	24464 / 49471	49
NIGERIA	675 / 1043	622 / 1032	423 / 730	171 / 271	208 / 250	213 / 323	248 / 382	244 / 331	142 / 195	109 / 147	209 / 285	239 / 366	3503 / 5355	65
GHANA	631 / 906	673 / 954	269 / 543	347 / 474	267 / 380	177 / 208	77 / 105	60 / 63	35 / 39	92 / 134	262 / 438	337 / 495	3227 / 4739	68
BURKINA FASO	18 / 20	25 / 29	35 / 37	38 / 61	117 / 189	141 / 197	89 / 126	64 / 75	72 / 108	95 / 116	52 / 62	8 / 12	754 / 1032	73
NIGER	1 / 2	2 / 2	0 / 0	1 / 2	9 / 13	7 / 12	33 / 62	53 / 101	58 / 105	40 / 66	20 / 33	13 / 19	237 / 417	57
TOGO	114 / 125	61 / 89	69 / 81	42 / 48	16 / 24	27 / 57	25 / 51	26 / 55	24 / 45	141 / 308	166 / 278	129 / 193	840 / 1354	62
MALI	3 / 6	0 / 0	0 / 0	0 / 0	1 / 2	1 / 2	21 / 55	114 / 193	88 / 134	57 / 181	53 / 74	28 / 71	366 / 718	51
COTE D'IVOIRE	18 / 40	18 / 60	11 / 39	5 / 6	4 / 10	7 / 8	3 / 4	8 / 9	8 / 8	0 / 0	14 / 14	32 / 33	128 / 231	55
BENIN	12 / 17	13 / 14	7 / 7	3 / 3	1 / 1	0 / 0	1 / 1	1 / 1	6 / 6	8 / 8	70 / 70	42 / 44	164 / 172	95
MAURITANIA	1 / 1	0 / 0	1 / 1	0 / 0	0 / 1	3 / 3	17 / 25	7 / 21	15 / 29	3 / 8	0 / 2	2 / 3	49 / 94	52
UGANDA	0 / 0	0 / 0	0 / 0	3 / 3	6 / 19	14 / 17	5 / 9	1 / 1	4 / 4	1 / 1	1 / 1	0 / 0	35 / 55	64
ETHIOPIA**	0 / 0	0 / 0	0 / 0	1 / 1	2 / 5	4 / 7	1 / 2	2 / 3	5 / 5	4 / 4	1 / 2	0 / 0	20 / 29	69
CAR	0 / 1	0 / 2	0 / 4	0 / 4	0 / 3	2 / 5	2 / 4	1 / 2	0 / 3	0 / 2	0 / 0	0 / 6	5 / 36	14
CAMEROON	/	/	1 / 1	/	/	/	1 / 1	/	2 / 2	1 / 1	/	/	5 / 5	100
SENEGAL	/	/	/	/	/	/	/	/	/	1 / 1	/	/	1 / 1	100
KENYA	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	1 / 1	1 / 1	4 / 4	0 / 0	1 / 1	0 / 0	0 / 0	8 / 8	100
TOTAL*	2370 / 4584	2535 / 4478	1774 / 3764	2005 / 4152	2727 / 6385	3968 / 8040	4658 / 8434	3675 / 6394	4066 / 7612	2406 / 4076	2047 / 3325	1574 / 2473	33805 / 63717	53
% CONTAINED	52	57	47	48	43	49	55	57	53	59	62	64	53	

* PROVISIONAL.

** 1 case reported in April, 3 in May, 5 in June, 1 in July, 4 in September, 2 in October, and 2 in November were imported from Sudan.

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

Table 2

**Number of cases contained and number reported by month during 2002*
(Countries arranged in descending order of cases in 2001)**

ENDEMIC COUNTRY	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED												
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*
SUDAN	/	/	/	/	/	/	/	/	/	/	/	/	0 / 0
NIGERIA	350 / 647	195 / 336	/	/	/	/	/	/	/	/	/	/	545 / 983
GHANA	497 / 744	389 / 680	/	/	/	/	/	/	/	/	/	/	886 / 1424
BURKINA FASO	6 / 8	24 / 28	/	/	/	/	/	/	/	/	/	/	30 / 36
NIGER	6 / 6	0 / 0	/	/	/	/	/	/	/	/	/	/	6 / 6
TOGO	/ 84	/	/	/	/	/	/	/	/	/	/	/	0 / 84
MALI	3 / 4	0 / 0	/	/	/	/	/	/	/	/	/	/	3 / 4
COTE D'IVOIRE	90 / 91	52 / 52	/	/	/	/	/	/	/	/	/	/	142 / 143
BENIN	28 / 28	11 / 11	/	/	/	/	/	/	/	/	/	/	39 / 39
MAURITANIA	/	/	/	/	/	/	/	/	/	/	/	/	0 / 0
UGANDA	0 / 0	0 / 0	/	/	/	/	/	/	/	/	/	/	0 / 0
ETHIOPIA	0 / 0	0 / 0	/	/	/	/	/	/	/	/	/	/	0 / 0
CAR	/	/	/	/	/	/	/	/	/	/	/	/	0 / 0
TOTAL*	980 / 1612	671 / 1107	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1651 / 2719
% CONTAINED	61	61											61

* 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

Distribution by Country of 63,609 Indigenous Cases of Dracunculiasis Reported during 2001

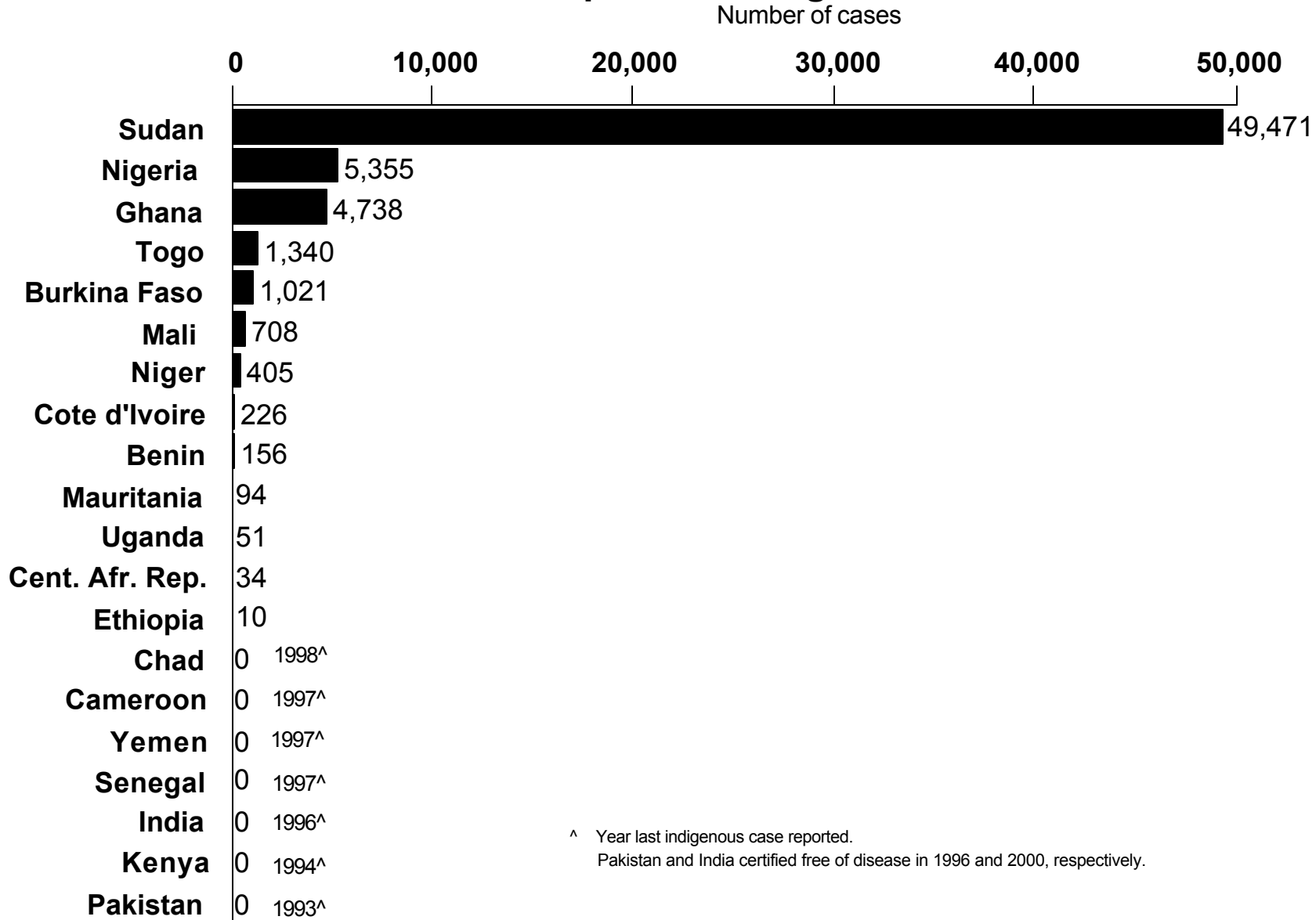
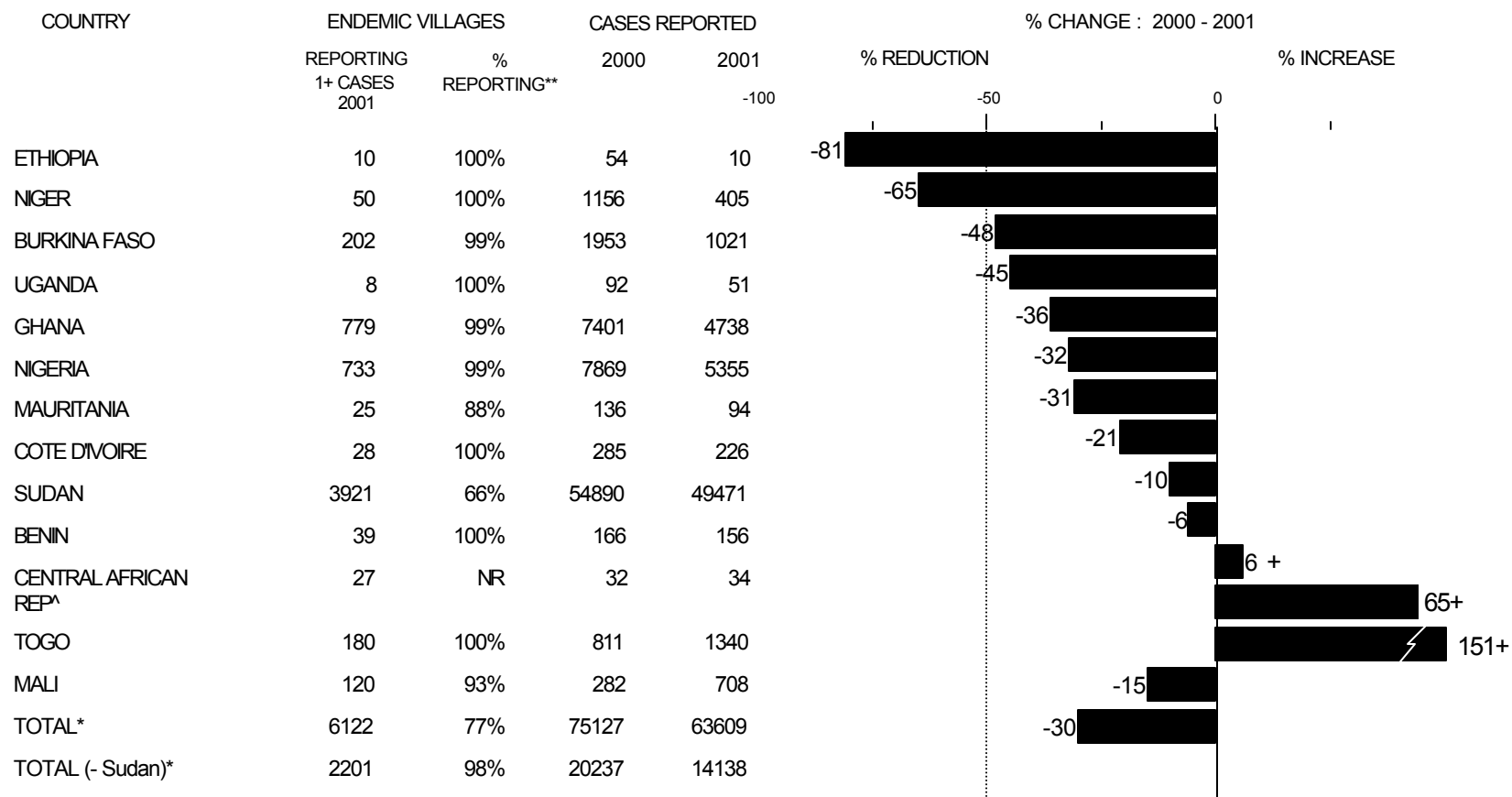


Figure 3

Percentage of Endemic Villages Reporting and Percentage Change in Number of Indigenous Cases of Dracunculiasis During 2000 and 2001*, by Country



* % endemic villages in 2000 reporting monthly

[^] 26 unconfirmed cases of GWD were reported during the NID in Nov. 2001

NR No Report

IN BRIEF:

Benin's minister of health, Dr. Yvette Céline Seignon Kadissounon, visited the highest endemic village in the country, Tchetti, in Collines Department (formerly part of Zou Department) on February 2, 2002. Collines Department reported 80% of Benin's cases in 2001 as a result of an explosion of cases in November and December 2001. Benin began using containment houses to isolate patients with emerging worms (average stay: 13 days, at a cost of US \$37 per patient) in October. In November, Benin began joint Abate treatments in border areas with staff from Togo's Guinea Worm Eradication Program. Filter coverage has been increased to 85% (from 71%) and Abate coverage to 90% (from 65%) between 2000 and 2001.

Burkina Faso held its national review meeting in Kaya on February 5-7. Participants included representatives of the ministries of health, education, water and environment. Four external partners (The Carter Center, UNICEF, U.S. Peace Corps and World Health Organization) were also represented at the meeting, which was chaired by the secretary-general of the ministry of health. Interventions have been put in place for the 2002 peak transmission season, including preparations to implement eleven "Worm Weeks" in endemic areas in collaboration with U.S. Peace Corps.

Ethiopia The Dracunculiasis Eradication Program (EDEP) held a Program Review Meeting in Addis Ababa on February 11-12, 2002. Participants from the Ministry of Health, Administration for Refugees and Returnees Affairs (ARRA), Regional Health Bureaus (RHBs), Gambella Regional Water Bureau, Zonal Health Departments, South Omo Council Bureau, Woreda Health Offices, UNICEF, WHO, and The Carter Center attended. Only 10 indigenous cases of dracunculiasis were reported (all from Gambella Region) during 2001. A total of 19 additional cases were imported from Sudan into both Gambella and South Omo Regions during 2001. The EDEP conducted searches for active cases of dracunculiasis in Southern Nations, Nationalities and Peoples Region (Kuraz, Hammer, and Salamago Woredas), Gambella Region (Jor Woreda), and Benishangul-Gumuz Region (Kurmuk, Komosha, Sherkole, Guba, Sirba, Abay, and Mao Komo Woredas) and found no evidence of local transmission. Meeting participants recommended searches for active cases in Bench Maji Zone, South Omo Region, and in Dimma and Godere Woredas of Gambella Region during 2002. Participants also recommended that dracunculiasis be included in the list of weekly reportable diseases of the integrated national disease surveillance system. Unfortunately, continuing insecurity in endemic Akobo Woreda of Gambella Region precludes the EDEP from completely halting transmission during 2002.

Mali. In February, The Voice of America began broadcasting Guinea worm Public Service Announcements in French, which were recorded by General Amadou Toumani Toure. General Toure, who recently announced his candidacy for the Malian presidency, also announced the beginning of a national reward system for reporting of dracunculiasis cases in Mali.

Mauritania has reported less than 100 annual cases for the first time in 2001. Health education coverage of endemic villages increased to 92% (from 45%) between 2000 and 2001.

Niger. In Zinder Region, Mirriah District, which was the highest endemic district in the country in 2000, reporting 726 of the 1,166 cases of dracunculiasis that year, reduced its reported cases by 80%, to 145 cases in 2001. The Guinea Worm Eradication Program has completed six new wells in 5 endemic villages of Zinder Region, with the financial assistance of The Carter Center/Global 2000. These five villages (Garin Lawan 2, Katchen, Gafaey Chirya, Gafaey Ibra, Katchar Peul, Adoua Koukoki) had a total of 6 cases in 2001. Former Village Volunteers for the Guinea worm program have been used for activities against leprosy and diarrhea since 1997, for malaria since 2000, and for trachoma since 2001.

Sudan has reported a total of 85 indigenous cases in the northern states, plus 47 cases imported from southern endemic areas during 2001. All intervention indices improved for the country during 2001, except Abate coverage, which declined from 3% in 2000 to 2%. The percentage of endemic villages with filters in all households rose to 62% (from 28%), which reflected distribution of 848,576 such filters in 2001. An additional 7.8 million personal pipe filters were also distributed during 2001 in Sudan. Investigations during the recent cease-fire in the Nuba Mountains area have revealed almost no remaining cases of dracunculiasis in that formerly highly endemic district.

Togo plans to hold a “Day of Reflection” during the first quarter of 2002, with authorities from the national ministry of health, and district public health and political administrations, and major external partners to discuss the unexpected outbreak of 779 cases nationwide in October-December 2001. The program reported “no data” regarding health education activities in endemic villages during 2001 (Table 3), but it has requested a comprehensive report on such activities from each endemic district.

Uganda isolated 28 of its 55 cases reported in 2001 in containment houses, at an average cost of US\$30 per isolated patient. The reward for reporting of a dracunculiasis case was increased to the equivalent of US\$29 at the beginning of 2001.

NATIONAL COMMISSIONS FOR CERTIFICATION OF DRACUNCULIASIS ERADICATION

In addition to Uganda, which established its national commission for the certification of dracunculiasis eradication over a year ago, Benin, Cameroon, Cote d’Ivoire, Ethiopia, Mauritania and Yemen have recently established (Cote d’Ivoire) or plan to establish similar national commissions soon. This is an important step in the pre-certification process, in which endemic or formerly endemic countries prepare to document the eradication of dracunculiasis from their national territory, as well as evidence of having maintained adequate surveillance for the disease during the minimal three-year period required by the World Health Organization after indigenous transmission is interrupted.

STATUS OF INTERVENTIONS

The current status of interventions against dracunculiasis, as reported during the meeting of national program coordinators at Khartoum, is summarized in Table 3. Highlighted in **bold** are those indices that are significantly less than what they should be. Only Nigeria, Ghana, Burkina Faso, Uganda and Ethiopia reported no deficient levels of current interventions, and there is still room for improvement in each of those five endemic countries. We are now in Solzhenitzyn’s “Realm of the Final Inch.”

IMPORTED CASES

The final data on 108 dracunculiasis cases that were imported internationally during 2001 is summarized in Table 4. As the remaining endemic countries get closer to eradication, rapid detection, thorough investigation and rapid cross-notification of such cases is increasingly important to stopping all transmission everywhere. Lapses can be costly for the recipient country as well as for the country of origin. Similar steps should also be taken in response to all cases appearing in low incidence areas (such as all of Mali outside of Gao and Timbuktu Regions, for example), for the same reasons. Sudan and its neighbors should begin searching for any patterns regarding the geographic sources of cases imported from southern Sudan into the northern states of Sudan and into adjacent countries. Analysis of age, sex, occupation, and other personal data on patients at this stage of the program can also provide valuable insights to help sharpen targeting of surveillance and control measures.

Table 3

Dracunculiasis Eradication Campaign: Status of Interventions as of December 31, 2001

Country	Number of cases reported in 2001		Number of villages		Percentage of Endemic Villages				% of all cases contained
	Number of cases reported in 2001	% Change from 2000	reporting one or more cases	reporting only 1 case each	with filters in 100% of households	using Abate	with 1+ sources of safe water	provided health education	
Sudan	49,471	-10%	3,921	649	62%	2%	61%	85%	49%
Nigeria	5,355	-32%	733	172	100%	55%	50%	96%	65%
Ghana	4,739	-36%	779	270	85%	72%	34%	100%	68%
Togo	1,354	65%	180	36	78%	76%	47%	ND	62%
Burkina Faso	1,032	-48%	202	103	98%	86%	75%	100%	73%
Mali	718	151%	120	39	99%	21%	15%	100%	51%
Niger	417	-65%	50		100%	78%	25%	100%	57%
Cote d'Ivoire*	226	-21%	28	13	61%	82%	100%	100%	55%
Benin*	156	-6%	39	23	85%	90%	74%	90%	95%
Mauritania*	94	-31%	25	12	100%	40%	76%	92%	52%
Uganda*	51	-45%	8	6	100%	97%	85%	100%	64%
Ethiopia*	10	-81%	10	10	100%	45%	39%	100%	69%
Total (- Sudan)	14,152	-30%	2,174	684	85%	65%	45%	98%	66%

* Indigenous cases only

Table 4

Dracunculiasis Eradication Campaign
Reported Importations and Exportations of Cases of Dracunculiasis: 2001

From	»»»	To	Month and number of cases imported													Number of cases exported
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.	Total	
Sudan	»»»	Ethiopia				1	3	6	1		4	2	2		19	Sudan = 30
Sudan	»»»	Kenya				1		1	1	4		1			8	
Sudan	»»»	Uganda							1	1	1	1			4	
Togo	»»»	Benin	5	1		1	1					1		6	15	Togo = 17
Togo	»»»	Cote d'Ivoire						1							1	
Togo	»»»	Ghana						1							1	
Niger	»»»	Cote d'Ivoire								2			1		3	Niger = 11
Niger	»»»	Burkina Faso		2		1									3	
Niger	»»»	Mali						2	1	1	1				5	
Ghana	»»»	Benin		1											1	Ghana = 18
Ghana	»»»	Burkina Faso	1				1								2	
Ghana	»»»	Cote d'Ivoire					1								1	
Ghana	»»»	Niger			1			1				1			3	
Ghana	»»»	Togo			1	2	2	3		1			2		11	
Ghana	»»»	Senegal										1			1	
Nigeria	»»»	Cameroon			1				1		2	1			5	Nigeria = 11
Nigeria	»»»	Niger				1	1	2							4	
Nigeria	»»»	Togo								1		1			2	
Cote d'Ivoire	»»»	Burkina Faso			1		2		1						4	Cote d'Ivoire = 4
Benin	»»»	Niger	2												2	Benin = 3
Benin	»»»	Togo						1							1	
Mali	»»»	Burkina Faso				1				1					2	Mali = 5
Mali	»»»	Niger				1				1	1				3	
Burkina Faso	»»»	Mali						2	1	1	1				5	Burkina Faso = 5
???	»»»	CAR											2	2	2	???
Total			8	4	4	9	11	15	10	8	14	10	4	11	108	

* Provisional

HOW NOT TO ERADICATE GUINEA WORM DISEASE

“The current surveillance system in the endemic villages and localities in ... is still not 100% active. [Health workers] in these particular zones continue to neglect their responsibilities to the GWEP. Recently several [village volunteers] have been refusing to report cases for fear of giving their village a bad name. In addition, others have categorically refused to apply bandages on victims. Discussions between [regional] supervisors and field agents have been held on numerous occasions to understand why they were tired of talking about Guinea worm. Others expressed that they were ashamed to report cases and did not want to ruin their case registers by writing victims names in their case registers... In the...[region],... it has been discovered that some Abate treatment agents just sign the [village volunteer’s] register indicating their passage and record a false number of ponds treated than were actually treated...” From a consultant’s report.

RECENT PUBLICATIONS

WHO, 2002. Dracunculiasis eradication in selected African countries. Weekly Epidemiological Record 77: 9-13.

*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 Dr. James H. Maguire, Director, WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis, NCID, 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 has changed to <http://www.cdc.gov/ncidod/dpd/parasites/guineaworm/default.htm>



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