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DRACUNCULIASIS ERADICATION: DELAYED, NOT DENIED

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Abstract. By the end of 1998, Asia was free of dracunculiasis (Guinea worm disease), with Pakistan, India, and Yemen having interrupted transmission in 1993, 1996, and 1997, respectively. Transmission of the disease was also interrupted in Cameroon and Senegal during 1997. Chad reported only 3 cases during 1998. Dracunculiasis is now confined to only 13 countries in Africa. The overall number of cases has been reduced by more than 97% from the 3.2 million cases estimated to have occurred in 1986 to 78,557 cases reported in 1998. Because the civil war in Sudan remains the major impediment to eradication of dracunculiasis, the interim goal is to stop all transmission outside that country by the end of 2000. The most important operational need now is for national programs to improve the frequency and quality of supervision of village-based health workers in order to enhance the sensitivity of surveillance and effectiveness of case containment.

This paper summarizes the current status of the campaign to eradicate dracunculiasis (Guinea worm disease) as of July 1999. It updates the review that was published in this journal in 1997.

at knee or ankle joints. Patients acquire no immunity to the infection, and up to half or more of a village's population may be affected simultaneously. Since the Guinea worm season often coincides with the harvest or planting season of peak demand for agricultural labor, the disease has a severe adverse impact on agricultural productivity, in addition to reducing school attendance.

There is no cure for the infection, but each infection only lasts one year in humans. It can, however, be prevented, by teaching people to use cloth filters to remove the parasite from their drinking water, by boiling the water, or by applying Abate

® (American Home Products, Parsippany, NJ) (temephos) monthly to kill the intermediate host in contaminated sources of drinking water such as ponds. The ideal preventive measure, but also the slowest and most expensive, is to provide safe sources of drinking water, such as from borehole wells. This infection is only transmitted to humans by drinking contaminated water. There is no animal reservoir of *D. medinensis.*

The early phase of this eradication campaign has been described previously.[1,3] After originating in an initiative taken at the Centers for Disease Control and Prevention (CDC) in 1980, the then unpopular cause of dracunculiasis eradication was taken up in 1986 by former United States President Jimmy Carter and The Carter Center (Global 2000). Working closely with CDC, UNICEF, and the World Health Organization (WHO), The Carter Center has led the campaign ever since. By visiting all but two of the endemic countries to speak with political and medical leaders, writing political leaders, enlisting other major donors and allies, raising tens of millions of dollars, generating substantial publicity for the campaign, and negotiating a four-month long ''Guinea worm cease-fire'' in Sudan in 1995, former President Carter personally forged the ''Grand Alliance'' of people in endemic countries, development organizations, and private companies which now is poised to complete the eradication of this 3,000-year-old scourge.

Current status of the campaign. By the end of 1998, Asia was free of dracunculiasis, with Yemen having interrupted transmission of the infection in September 1997 (Figure 1).[4] Dracunculiasis is now confined to 12 or 13 countries in Africa, down from 19–20 countries in Africa and Asia seven years ago (Figure 2). Among those, Chad detected only 3 cases in 1998, and the status of the disease in Central African Republic and the northeastern part of the Democratic Republic of Congo is still uncertain because of inadequate investigation of suspect cases due to civil unrest and armed conflicts, respectively. Outside of Sudan, the number of endemic villages has been reduced from more than 23,000 in 1993 to just more than 3,200 in 1998 (Figure 3), while the number of cases reported outside of Sudan has been reduced from 218,071 to 30,546 during the same period. Since some 3.2 million cases were estimated to occur in 1986, the overall number of cases has been reduced by more than 97% (Table 1).[5]

Sudan remains the major challenge to eradication. It reported 61% of global cases in 1998, which was the fourth straight year that this worn-torn country reported half or more of all cases. The 10 northern states of Sudan, which are aiming to halt transmission of dracunculiasis by December 1999, reported only 132 cases (63 of which were not indigenous, i.e., were imported from southern Sudan) during January–July 1999, a reduction of 62% from the 349 cases reported during the same period in 1998.

As of July 1999, the endemic countries outside of Sudan, Nigeria, and Ghana have reduced their numbers of cases reported by 38% to 3,995, compared with 6,436 cases reported by the same countries in the same period of 1998 (Figure 4). Ghana and Nigeria have reported increases of

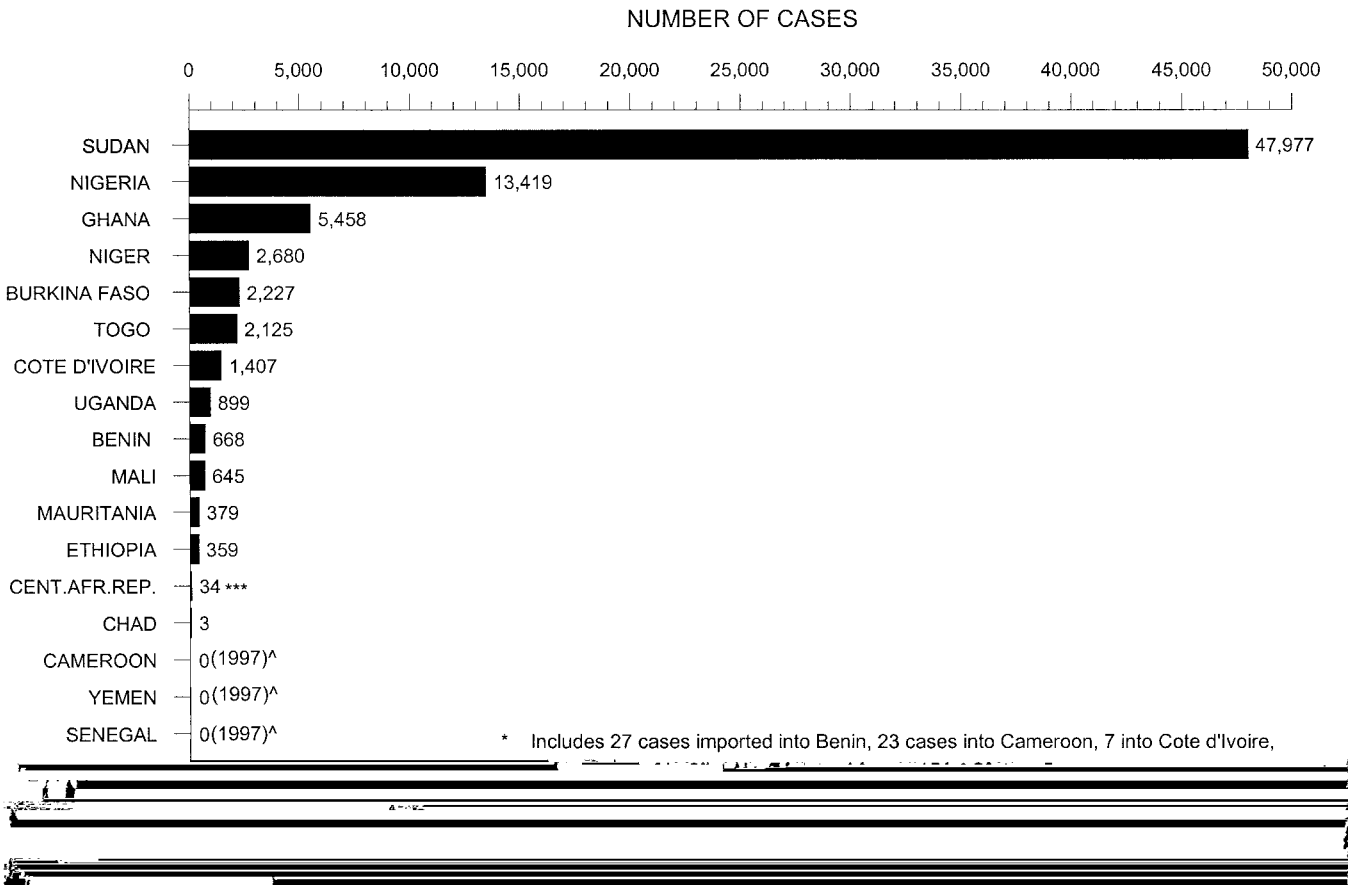

FIGURE 2. Distribution by country of 78,522* cases of dracunculiasis reported during 1998.**

the country during the peak transmission periods in 1994 and 1995, inadequate funding in 1994–1997, delayed funding in 1997–1998, shortages of Abate®, distraction due to introduction of a new surveillance system with an over-sensitive case definition (resulting in the program needing to check numerous unconfirmed case reports), inadequate supplies of filter material, great energy spent doing surgical extractions of worms instead of on less labor-intensive means of preventing infections, and poor supervision of village-based health workers. The Government of Ghana, The Carter Center, UNICEF and WHO began working to eliminate these problems in September 1998.

The Nigerian program has suffered in recent years from ethnic clashes, under-funding, inadequate supplies of filter material, and from fuel shortages, strikes, and official neglect associated with political disturbances over the past two

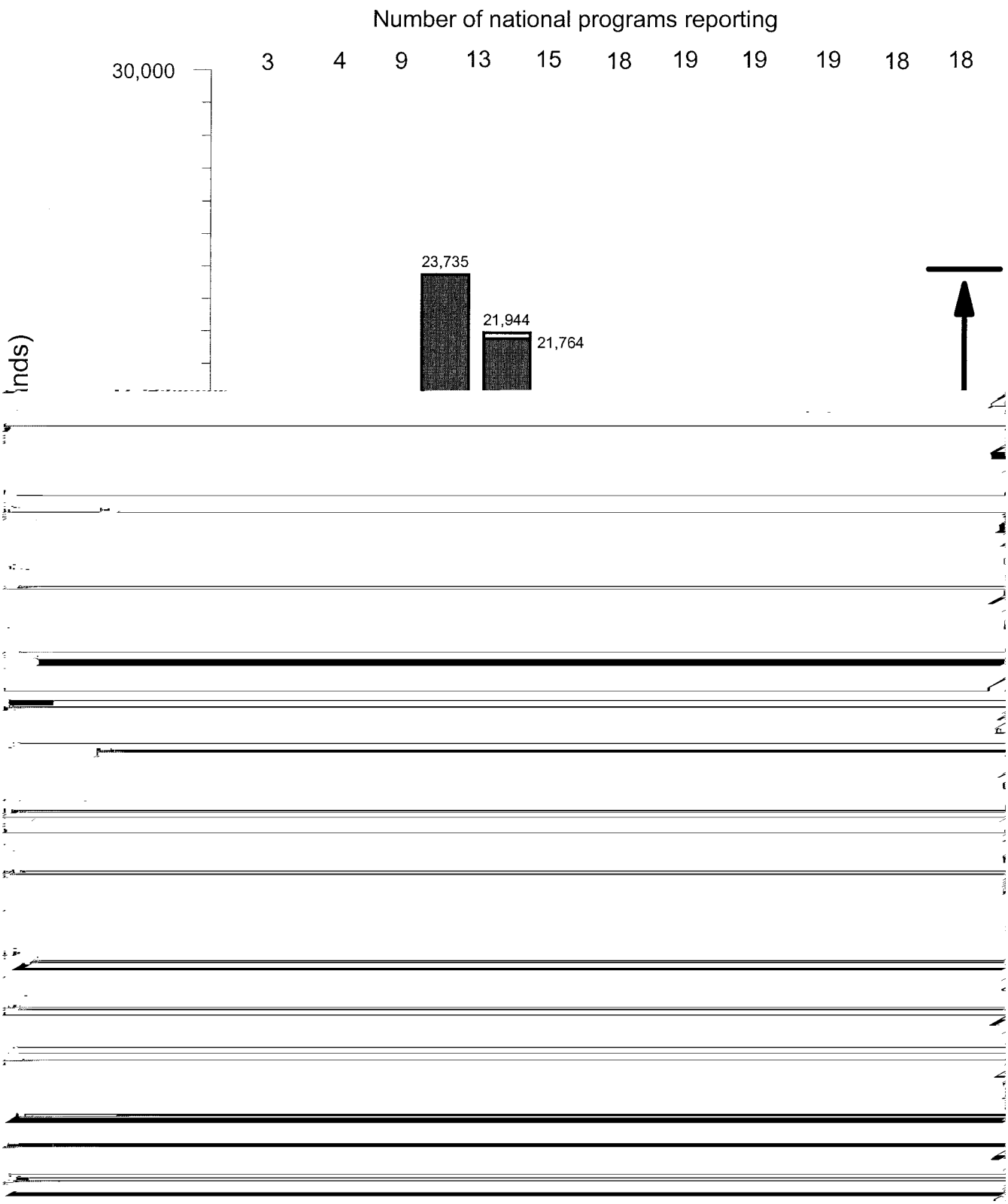

FIGURE 3. Number of national programs, and number of endemic villages reporting cases of dracunculiasis in 1988–1998. WHO = World Health Organization.

TABLE 1

need now is to improve the quality and frequency of supervision of village-based health workers, so as to help them improve active surveillance for cases and tighten case-containment measures. The next most important need is to advocate for a solution to the civil war in Sudan, so that the final battle against dracunculiasis can be intensified and extended to all endemic areas of that large country.

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