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# Eradication of polio and guinea worm disease

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**P**oliomyelitis and guinea worm disease, two ancient scourges of mankind, will soon follow smallpox into extinction if World Health Organization campaigns underway are successful. (At this stage, any case or suspected case of either disease should be reported to appropriate public health authorities immediately.)

## ■ POLIOMYELITIS

Poliomyelitis, a viral infection, is spread mainly person-to-person. The incubation period is 1 to 2 weeks. Only about 1% of infected persons suffer symptoms, which are usually general (fever, headache, muscle spasms), and which sometimes are followed by flaccid paralysis of muscles in one or more limbs, throat, or chest. About 2% to 10% of persons with acute paralysis die. Since the 1950s, this disease has been entirely preventable by a series of three to four immunizations. There is no nonhuman reservoir of infection.

In 1988, the World Health Organization set the goal of eradicating polio by the year 2000. At that time, the disease still occurred worldwide, affecting more than 300 000 annually (about 30 000 cases were officially reported that year).

Using an aggressive strategy of routine immunizations, “national immunization days,” localized “mopping up” immunizations in high-risk areas, and sensitive surveillance of cases, the number of cases reported was reduced to less than 7000 in 1995. No cases have occurred in the Americas since 1991, and eastern Asia is on the verge of eliminating the infection as well.

The main endemic foci remaining are in the Indian subcontinent and central Africa.

The two major obstacles to eradicating polio completely are civil wars in Sri Lanka, Russia (Chechnya), Sudan, and Afghanistan; and the need for an additional \$500 million over the next 5 years.

Apart from ending forever the fear of polio epidemics and the tragedy of vaccine-associated cases, eradicating polio will save the United States alone more than \$200 million each year in costs of polio immunizations. Similarly, the entire \$30 million which the United States invested in the smallpox eradication program over 10 years has been recouped every few months since 1971, when routine vaccinations against smallpox and other measures were ended.

## ■ DRACUNCULIASIS (GUINEA WORM DISEASE)

Dracunculiasis is a parasitic infection that is acquired by drinking contaminated water.

A guinea worm emerging from a foot, Nigeria, 1985.



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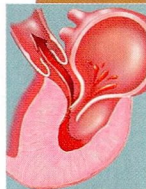
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After a 1-year incubation period, the adult female worms, each up to 3 feet long, emerge directly through the skin. The associated pain and disability prevent affected persons from farming, attending school, and other essential tasks for several weeks or months.

Humans do not become immune to infection, and there is no means of curing the infection once acquired. Each infection lasts 1 year, but people in affected areas are usually reinfected year after year. Humans are the only definitive hosts of this infection.

The infection can be prevented by boiling the drinking water or filtering it through a finely woven cloth, and not allowing an emerging worm to deposit larvae into ponds or wells that are sources of drinking water. Other preventive measures include providing borehole wells and using an insecticide (which is safe for humans) to kill the larvae in drinking water.

Although the World Health Organization targeted this disease for eradication by the end of 1995, it still occurs in India, Yemen, and 16 African countries. However, its incidence of infection has been decreased by more than 96% since 1986, when an estimated 3.5 million people were affected, to fewer than 130 000 persons affected in 1995. Half of the cases remaining are in Sudan, in which a civil war of 13 years' duration is hampering the eradication campaign.

## SUGGESTED READING

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