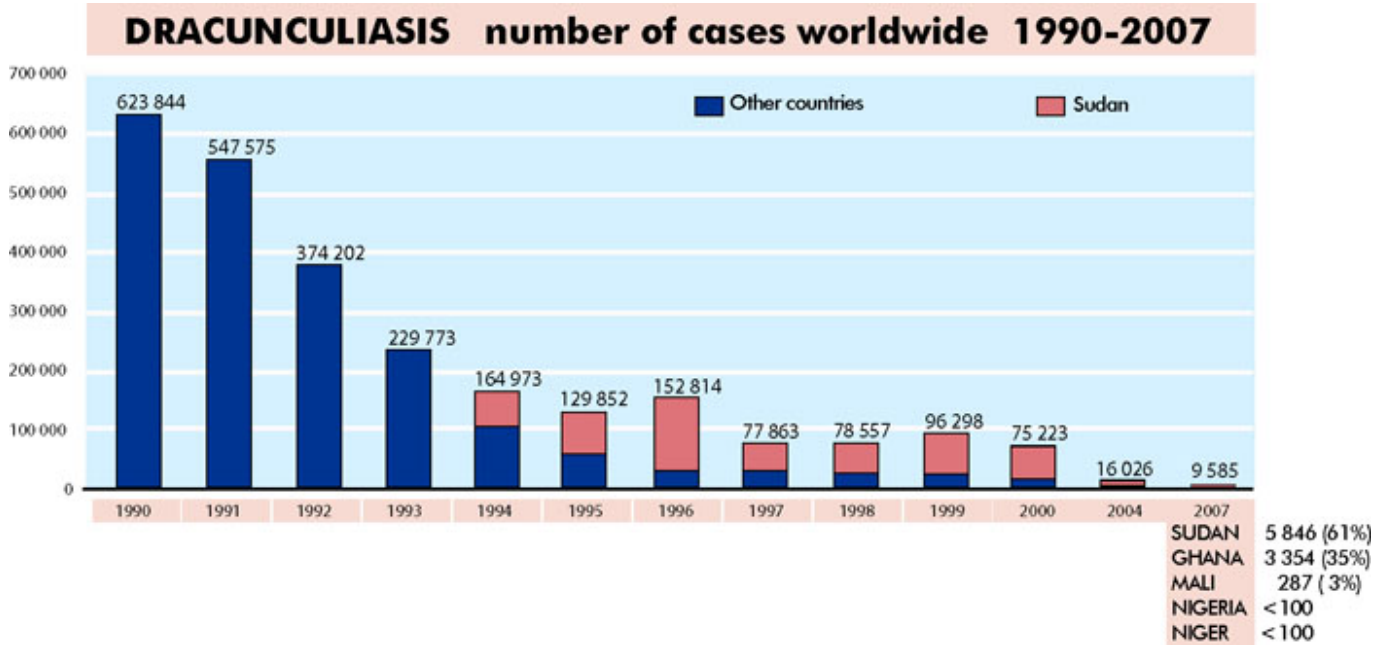



Graph showing the decrease in number of cases 1990-2007. Copyright ITM

*Dracunculus medinensis* or Guinea worm, is a nematode that was distributed in the past in several African countries north of the Equator as well as in Central Asia, India and the Arabian Peninsula. During the slave trade cases were introduced into the New World but subsequently the disease disappeared spontaneously. In 1986 the total number of active cases was estimated to be around 3,500,000 and the infection occurred in 20 countries. In 1993 there were 23,735 cases. The last foci in India and Yemen were eradicated in 1996 and 1997, respectively so the disease is now only found in Africa. In 2004, a total of 16,026 cases were reported. Southern Sudan, Northern Ghana and eastern Mali (regions Mopti, Kidal, Gao and Timbuktu) are the three last strongholds of the disease.




Map of the area endemic for Guinea worm.
Year after year, the map changes due to progress in the eradication programme.



Guinea worm



Guinea worm removal




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Guinea worm (Dracunculus medinensis), life cycle

Humans acquire the infection by drinking fresh water containing infected small water fleas (*Cyclops* sp). After several moults in the water flea, infective larvae are produced. When humans drink water containing infected copepods, the vector is digested in the stomach. The infective larvae penetrate the stomach or the intestine and start maturation in the peritoneum. After 3 months copulation occurs. The male dies and the female grows further to reach her adult length of 60 to 100 cm after approximately 1 year. The long maturation period of approximately one year is required to coincide with the annual peaks in *Cyclops* numbers.

A female worm tends to be localised subcutaneously and causes a painful blister on the skin, usually on the lower legs or feet. The lesion occurs as a result of toxic secretions from the papillae around the parasite's mouth. When the blister bursts it creates an ulcer. When the human host wades in fresh water, the female parasite discharges several hundreds of thousands of larvae. Each time the ulcer comes into contact with water, the female slides out further and releases more larvae a process that repeats itself over a number of weeks until the whole worm is "used up". This process is slow, painful and disabling. The pain is alleviated by contact with cold water. This can be seen as a mechanism for promoting the survival of the parasite as a species because the victim looks for water to relieve the pain. The adult worm dies approximately 3 weeks after its emergence. After its death it will calcify and become visible on an X-ray, for example as an irregular calcified coiled string of about 2 mm diameter which should be distinguished from vascular calcifications.

The best approach is to remove the adult worm in its entirety. The adult worm can be coiled around a stick and one turn made daily. To accelerate expulsion, it is best to keep the wound constantly moist, for example with wet compresses. This however requires approximately 14 days. Surgical removal under local anaesthesia has been described.

Prevention is based on three approaches: safe drinking water, health information (people with wounds should not enter the water) and control of the vector (temephos (Abate®) is an organophosphate harmless to humans but kills the vector *Cyclops*.