World Health Organization

GUINEA-WORM DISEASE: COUNTDOWN TO ERADICATION

GUINEA-WORM DISEASE (DRACUNCULIASIS)

Guinea-worm disease, also known as dracunculiasis, is on the verge of eradication.

The World Health Organization (WHO) and its main partners, The Carter Center and the United Nations Children's Fund, are advocating capacity-strengthening to support the remaining endemic countries and previously endemic countries that have not been certified free of transmission to strengthen surveillance and response systems and ensure prompt detection and containment of cases.

In countries where transmission still occurs, the disease places a major economic burden on people in affected villages. The cost in lost revenue for individuals and the community can be very high.

Almost 97% of guinea-worm disease transmission now occurs in newly independent South Sudan. There, progress continues to be reported and transmission rates are declining (by almost 95% since 2006 when a full-scale programme was launched). Lack of safe drinking-water, insecurity and population movements remain major impediments to interrupting transmission.

Advocacy campaigns for capacity strengthening aim to bolster the surveillance system in Ethiopia, Ghana, Mali, Chad, Côte d'Ivoire, Kenya, Niger, Nigeria, South Sudan and Sudan, and enable prompt detection and containment of reported and rumoured cases.

Of the 20 countries that were endemic in the 1980s, guinea-worm cases occurred in only 4 countries in 2011 (Chad, Ethiopia, Mali and South Sudan).

Many countries have successfully implemented measures to eradicate guinea-worm disease. Ghana which counted 180 000 cases in 1989, reported its last case in May 2010 and has now become the most recent country to have interrupted transmission.

In Chad, a country in the pre-certification stage, where zero cases had been reported for almost 10 years, an outbreak in 2010 generated 10 indigenous cases from five districts in four different regions. Measures to control transmission are being implemented. The outbreak was the result of lapses in surveillance of the disease. Efforts are now in place to interrupt transmission.

RESOURCES

Eradicating a disease is not simple. It is even more challenging when no medication or vaccine is available to treat or prevent the disease.

The basis for eradicating guinea-worm disease is surveillance and case containment, behavioural change, vector control and the provision and access to safe-drinking water for communities that live in almost inaccessible areas. As the disease has an incubation period of between 10 to 14 months, any uncontained infection could lengthen eradication efforts by at least one year.

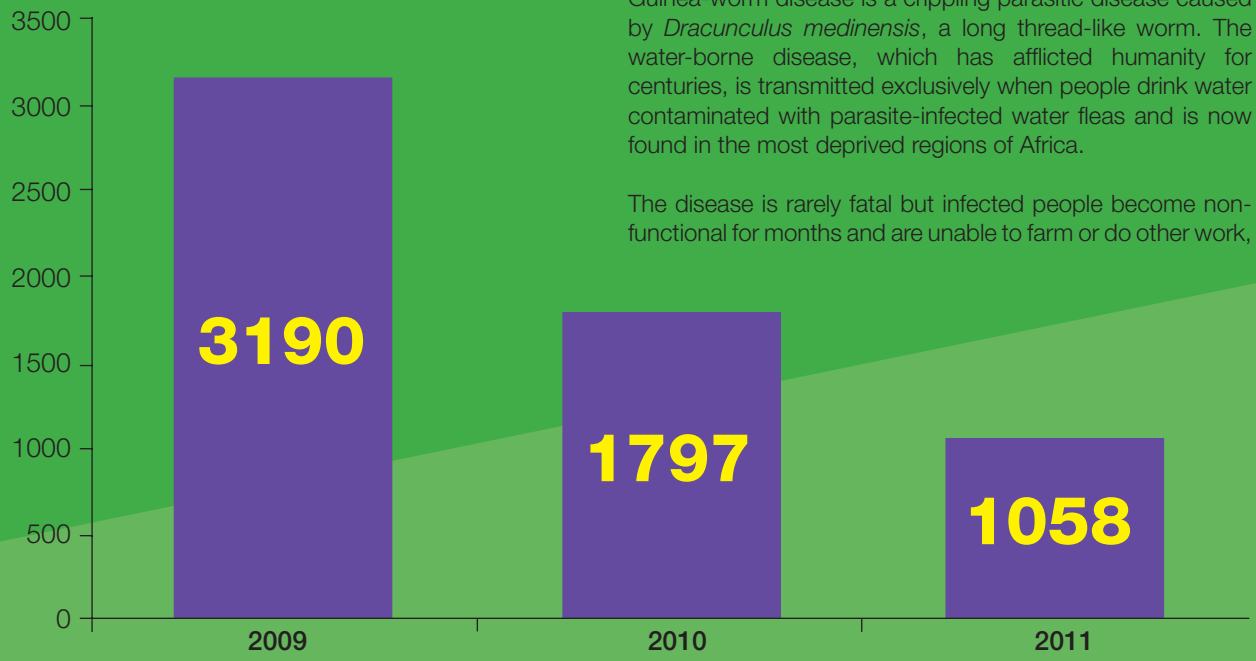
The greatest challenge now is South Sudan where the majority of all cases are occurring. Ensuring adequate funding is important as it will allow a greater focus on eradication activities in South Sudan and the remaining countries yet to be certified free of the disease.

THE DISEASE

Guinea-worm disease is a crippling parasitic disease caused by *Dracunculus medinensis*, a long thread-like worm. The water-borne disease, which has afflicted humanity for centuries, is transmitted exclusively when people drink water contaminated with parasite-infected water fleas and is now found in the most deprived regions of Africa.

The disease is rarely fatal but infected people become non-functional for months and are unable to farm or do other work,

Number of dracunculiasis cases, 2009–2011



resulting in increased poverty. In addition children affected by the disease are often unable to attend school.

Guinea-worm disease is easily prevented through simple measures such as filtering all drinking-water and educating infected people never to wade into water, which perpetuates the life-cycle of the disease. The disease places a major economic burden on affected villages and the cost in lost revenue for individuals and the community can be very high.

During the mid 1980s, there were an estimated 3.5 million cases in 20 countries worldwide. The number of reported cases declined throughout the 1990s to fewer than 10 000 cases in 2007, 3190 cases in 2009, 1797cases in 2010 and 1058 in 2011; the annual incidence of the disease decreased by more than 99% from the mid 1980s.

PREVENTION

There is no vaccine to prevent infection from guinea-worm disease nor is there any medication to treat the disease.

However prevention is possible and it is through preventive strategies that the disease is on the verge of eradication.

Some of these strategies are:

- heightening surveillance to detect every case within 24 hours of the worm emerging;
- preventing transmission from each worm by, cleaning and bandaging regularly the affected skin-area until the worm is completely expelled from the body;
- preventing contamination of drinking-water by advising the patient to avoid wading into water;

- ensuring wider access to safe drinking-water supplies to prevent infection;
- filtering water from open water bodies through cloth or nylon mesh before drinking;
- implementing vector control by using the larvicide temephos (Abate®);
- promoting health education and behavior change.

CERTIFICATION

In 1995, WHO established an independent International Commission for the Certification of Dracunculiasis Eradication (ICCDE). The Commission meets as and when necessary at WHO headquarters in Geneva to evaluate the status of countries applying for certification of dracunculiasis eradication and to recommend whether a particular country should be certified as free of transmission.

A country endemic for guinea-worm disease reporting zero indigenous cases over a complete calendar year is deemed to have prevented transmission of guinea-worm disease and is classified as being in the precertification stage.

To be declared free of guinea-worm disease, a country that has stopped transmission of the disease must have reported zero indigenous cases through active surveillance for at least three calendar years. A national report should document all actions taken from the beginning of the programme, including the three-year period, to interrupt transmission and confirm zero occurrence of guinea-worm disease cases.

After this period, an international certification team visits the country to verify the information in the national report and assess the adequacy of the surveillance system and to review records of investigations regarding rumoured cases and

ERADICATION

In May 1981, the Interagency Steering Committee for Cooperative Action for the International Drinking Water Supply and Sanitation Decade (1981–1990) proposed the elimination of guinea-worm disease as an indicator of success of the Decade.

In the same year, WHO's decision-making body, the World Health Assembly, adopted resolution WHA34.25 recognizing that the International Drinking Water Supply and Sanitation Decade presented an opportunity to eliminate guinea-worm disease.

This led to WHO and the United States Centers for Disease Control and Prevention formulating the strategy and technical guidelines for an eradication campaign.

In 1986, The Carter Center joined the battle against the disease and in partnership with WHO and UNICEF has since been at the forefront of interrupting transmission in endemic countries.

In countries where guinea-worm disease transmission still occurs, the disease places a major economic burden on people in affected villages. The cost in lost school attendance for school-children, revenue for individuals and the community can be very high.

In a study supported by UNICEF in 1989, it was implied that rice farmers in south-eastern Nigeria were losing circa US$20 million per year in potential profits from sales of rice as a result of annual bouts with guinea-worm disease. Control of guinea-worm disease in that area would reduce these potential annual losses by rice farmers in that area. Using a project horizon of 1987–1998, the World Bank estimated that the economic rate of return, under conservative assumptions, is 29%.

In 2011 and to give eradication efforts a final push, the World