WORLD HEALTH ORGANIZATION

FIFTY-SEVENTH WORLD HEALTH ASSEMBLY A57/33
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Supplementary agenda item: Eradication of dracunculiasis

Report by the Secretariat

1. Dracunculiasis, or guinea-worm disease, is a painful and disabling parasitic disease caused by *Dracunculus medinensis*, the largest nematode known to infect human tissue. Although recognized since antiquity and previously widespread, the disease was largely confined during the past two centuries to poor rural communities lacking access to safe water sources. Human beings are the only definitive host of *D. medinensis*, and consumption of contaminated drinking-water is the sole route of infection.

2. The transmission cycle, which closely depends on characteristics of the water source, requires ingestion of water contaminated with a suitable species of tiny predatory crustaceans (copepods), which are the intermediate host. Contamination of water sources, usually ponds and shallow wells, occurs at the time when the mature female worm, measuring 0.6–0.9 metres in length, begins to emerge from its human host, causing an intensely painful swelling, a blister and then an ulcer, with accompanying fever, nausea and vomiting. When the person immerses the affected part of the body, usually the leg or foot, in water to relieve the pain, the worm releases hundreds of thousands of first-stage larvae. The cycle continues when larvae are consumed by the copepod, in which they develop further, and human beings ingest the infected copepod in drinking-water.

3. Each infection lasts about one year and confers no protective immunity. People may be simultaneously infected with several worms. There is neither vaccine against the disease nor treatment that can kill the parasite before its emergence. Removal of the worm, traditionally by winding it on a stick, is slow and painful. However, measures for preventing infection, including filtering of drinking-water, are simple, effective and easily targeted, owing to the close association of the disease with characteristics of the water sources.

4. Research in disease-endemic countries has documented a strong link between dracunculiasis and impaired socioeconomic development, expressed as adverse effects on agricultural productivity, food security, nutritional status, and school attendance. The emergence of the worm has a seasonal pattern which often coincides with peak agricultural activity. The associated symptoms leave most patients, including schoolchildren, temporarily crippled for at least a month. As infected persons have great difficulty walking to health-care facilities, secondary infections are a common complication.

5. Because of the close link between the disease and unsafe water sources, activities undertaken during the International Drinking Water Supply and Sanitation Decade (1981–1990) provided an opportunity to eliminate dracunculiasis; progress in doing so was considered a highly visible and measurable indicator of progress in improving rural water supplies. In 1986, when globally there were an estimated 3.2 million cases, the goal of eliminating dracunculiasis was formally expressed in 1986

in resolution WHA39.21, which set out a combined strategy of provision of safe drinking-water sources, active surveillance, health education, vector control, and personal prophylaxis.

6. Implementation of the elimination strategy brought considerable progress, and by the end of the Decade, the disease had been largely eliminated from Asia. In 1991, the Health Assembly adopted resolution WHA44.5, calling for the global eradication of dracunculiasis by the end of 1995; a process of country-by-country certification of elimination was initiated in order to lay the foundation for the eventual declaration of the attainment of the goal of global eradication.

7. One of the most effective interventions has been health education with the aim of motivating communities to use safe water sources or, where these are not available, to use simple cloth or nylon filters to remove the copepods from drinking-water. Health education has also been successful in persuading communities to prevent persons with emerging worms from having contact with water sources. Another key strategy has been the use of trained village-based volunteers for active surveillance and early detection and management of cases, to maintain case registers, and to provide monthly reports. These volunteers have also played an instrumental role in health education of communities. Activities such as rapid detection and management of cases and avoidance of behaviours that contaminate water sources become particularly important as the number of cases dwindles and opportunities for interrupting transmission increase.

RECENT PROGRESS

8. The global campaign to eradicate dracunculiasis made important progress in 2003.[1] The total number of cases reported worldwide during the year was 32 193, representing a 96% reduction from the 892 055 cases reported in 1989, and a decrease of 41% when compared with 2002. Transmission is now confined to only 12 African countries: Benin, Burkina Faso, Côte d'Ivoire, Ethiopia, Ghana, Mali, Mauritania, Niger, Nigeria, Sudan, Togo and Uganda. Of the total cases reported in 2003, 143 were imported from another country; 47 originated in Ghana and 40 in Sudan.

9. Senegal and Yemen[2] were certified dracunculiasis-free by the International Commission for the Certification of Dracunculiasis Eradication during its fifth meeting in March 2004. Cameroon, Central African Republic and Chad reported no indigenous cases during 2003. However, many Sudanese refugees have settled in refugee camps in the east of Chad, posing a potential risk of re-introduction of disease to that area.

10. Civil conflict in southern Sudan remains the principal impediment to the success of the global eradication campaign. Since 1995, Sudan has consistently reported more than half the total number of cases worldwide, the proportion being 76% in 2002 and 63% in 2003. Epidemiological trends in southern Sudan cannot be documented for 2003, as monthly reports were received from only 66% of disease-endemic villages. Outside Sudan, Ghana and Nigeria were countries with the second and third highest prevalences, reporting 82% of the total number of cases, excluding those from Sudan.

[1] For full details, see: Dracunculiasis eradication: global surveillance summary, 2003. *Weekly Epidemiological Record* **79**(19):181-189, 2004.

[2] The two other disease-endemic countries in Asia, Pakistan and India, interrupted transmission previously and were certified dracunculiasis-free in 1997 and 2000, respectively.

REMAINING CHALLENGES

11. The challenge for all the remaining countries endemic for dracunculiasis outside Sudan is to interrupt transmission of the disease within the next three years. Eradication requires an extremely sensitive surveillance system to detect all cases, including imported cases, wherever they occur, and to ensure that all preventive interventions are fully implemented. Local health systems need to intensify monitoring of interventions, ensure that active surveillance is taking place, improve supervision, and motivate village-based health workers.

12. In the last phase before eradication, the costs required to detect and manage the last remaining cases become disproportionately high per case. Adequate resources need to be assured, particularly as interest in a disease tends to diminish when the number of cases becomes small and the persons affected live in areas that are increasingly remote and difficult to access.

13. Ministers of health in the remaining disease-endemic countries have expressed their political commitment, and this high-level commitment needs to continue.

THE ACHIEVEMENT

14. Apart from a reduction in the number of cases from 3.2 million in 1986 to 32 193 in 2003, efforts to combat dracunculiasis have already produced several lasting benefits. The eradication campaign pioneered the use of geographical information systems and health mapping as epidemiological and planning tools for rapidly identifying at-risk populations, mapping features of rural infrastructure, organizing the targeted delivery of interventions, and producing consistent monthly reports derived from community-based surveillance. These tools have streamlined the operation of eradication and elimination programmes for other diseases, including poliomyelitis, leprosy, lymphatic filariasis and onchocerciasis.

15. The campaign has produced networks of trained village workers, accustomed to supervision, and able to perform case detection, monthly reporting and simple topical treatment of lesions. These networks form an infrastructure that is being used by other disease-control programmes to reach populations that would otherwise be inaccessible.

16. When eradication of dracunculiasis is achieved, it will mark the first complete victory over a non-viral disease with no medical intervention to facilitate its control. Progress to date has already demonstrated the feasibility of behavioural change in poor rural areas and the capacity of health education, provided by village-based volunteers, to achieve this change.

17. Unlike other eradication campaigns, which have universal benefits in the form of an end to worldwide immunization, the benefits of dracunculiasis eradication will accrue almost exclusively to poor populations in some of the world's poorest countries. Support from the international community for dracunculiasis eradication has been a pro-poor initiative that acknowledges both the central role of health in socioeconomic development and the capacity of affected populations to participate in the betterment of their lives.

ACTION BY THE HEALTH ASSEMBLY

18. The Health Assembly is invited to note the report.

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