



Countries recommit to Guinea worm eradication by 2030

In a summit on March 23 the few remaining countries endemic for Guinea worm recommitted to eradicating the disease by 2030. But how straightforward is this goal? Talha Burki reports.

On March 23, 2022, six of the seven nations that have yet to be certified by WHO as free from Guinea worm disease (also known as dracunculiasis) reaffirmed their commitment to wiping out the nematode by 2030. Representatives from Angola, Cameroon (which has been certified as Guinea worm-free, but sees occasional cross-border cases), Chad, DR Congo, Ethiopia, South Sudan, and Sudan assembled for a summit on Guinea worm in the United Arab Emirates. The event culminated in the signing of the Abu Dhabi Declaration on the Eradication of Guinea Worm Disease. Mali, which is endemic for the disease, was unable to attend, although it is expected to endorse the declaration.

"We are more than 99% of the way towards consigning Guinea worm to history, but the last mile is the hardest, and the gains we have made can be easily lost", commented WHO Director-General Tedros Adhanom Ghebreyesus, who spoke at the summit in Abu Dhabi. "Our goal is tantalisingly close, but we need relentless political commitment, fidelity to science, more village volunteers, and sustained financial resources to finish the job."

The campaign against Guinea worm disease has been spearheaded by the Carter Center and WHO. 2021 saw a mere 15 human cases of the disease: eight in Chad, four in South Sudan, two in Mali, and one in Ethiopia. In 2020, there were 27 cases. In the mid-1980s, when the Carter Center first turned its attention to the disease, an estimated 3.5 million people were infected every year.

"The disease burden has been cut to just a handful of cases, without a vaccine, therapeutics, or any kind of diagnostic. They have used simple, non-medical interventions", said David

Molyneux (Liverpool School of Tropical Medicine, Liverpool, UK). These interventions include offering cash rewards to those who report Guinea worm disease, encouraging affected communities to only drink water from protected sources, ensuring a filtration system is used if water is consumed from an unsafe supply, and stopping individuals with signs of Guinea worm disease from immersing their limbs in sources of drinking water so that the nematode cannot discharge its larvae somewhere they are likely to be ingested. Larvicide has been applied to suspected sources of infection. No country that has been certified as free from Guinea worm disease has subsequently reported any non-imported cases.

DR Congo has not registered a case of Guinea worm disease since the 1950s (it plans to submit the information necessary for certification this year). Sudan has not seen an indigenous case of Guinea worm disease since 2002. That leaves a few countries, all in sub-Saharan Africa, with a few cases.

Molyneux is a member of the International Commission for the Certification of Dracunculiasis Eradication, which was established by WHO to make recommendations on whether individual countries should be certified as being free of Guinea worm disease. The commission will also advise WHO on whether to declare Guinea worm disease eradicated, in the event of zero reported human and animal cases for at least 3 years. 2030 has been targeted for eradication, which means the parasite cannot infect any human beings or animals beyond 2026. "There is no evidence that we cannot get to zero and achieve eradication", stressed Adam Weiss, director of the Carter Center's Guinea Worm Eradication Program.

Still, it is a huge task. The countries that require certification span a land mass equivalent to the size of the continental USA. There are cases of Guinea worm disease along a 400 mile stretch of the Chari river in Chad. The endemic portion of Ethiopia includes a forested region of 1250 square miles. Several affected nations contain conflict zones. There is a long-running jihadist insurgency in Mali. The eastern provinces of DR Congo are among the most violent places in the world. Getting into these areas and proving that a specific nematode is absent is a daunting proposition.

The Carter Center is accustomed to operating in unsettled circumstances. The centre's Guinea worm programme has partnered with its peace programme to bring together neglected tropical disease control and conflict mitigation and management. Short-term ceasefires have been arranged to facilitate the provision of health services.

"At the moment, there are only a couple of areas within the endemic countries that the national Guinea worm programmes do not have access to", Weiss told *The Lancet Infectious Diseases*. He added that even if programmes cannot venture into certain areas, the inhabitants of those areas can often venture out. "People will go to the market, even in the middle of a war; you can usually find ways to access people at some point in time", said Weiss. "I do not think accessibility is the Achilles heel of the eradication effort."

Last year saw 855 animal cases of Guinea worm disease in Chad: 790 cases in dogs and 65 in cats. In Ethiopia, baboons have been infected. Until 2012, Guinea worm disease was not thought to be zoonotic. But the discovery that dogs were likely responsible for maintaining transmission in Chad forced a rethink. The dogs probably

acquire the infection through eating raw or undercooked fish, although they may also be ingesting the larvae directly from water sources. Tethering dogs has proved effective, as has the system of cash rewards for notifying canine cases. Villagers have been urged to burn or bury fish entrails. The question is: does expanding the eradication drive to encompass animals mean that the 2030 deadline is unrealistic?

"It is certainly possible to eradicate pathogens which have animal reservoirs, but it does make things more complicated", said Sarah Cleaveland, of the Institute of Biodiversity, Animal Health and Comparative Medicine at the University of Glasgow (Scotland, UK), and member of the International Commission for the Certification of Dracunculiasis Eradication. Cleaveland noted that there have not been any examples of countries certified as being free of Guinea worm discovering a cryptic animal reservoir. "In the past, eliminating human transmission has

typically been enough to completely eliminate Guinea worm", she said. But today, the situation is more challenging, and actually proving that animal transmission has ceased is another matter entirely.

"The commission has to be 100% certain that there are no infections in any hosts, if it is going to recommend that this disease should be certified as eradicated", said Molyneux. "We have had a situation in Mali where there were no human cases reported for four years, and then suddenly two new cases appeared, probably emanating from dogs. The number of canine infections in Chad are decreasing, but it is still not fast enough to be compatible with available time to prove there is zero dracunculiasis in the country."

"Once you have animal transmission, especially in wild animals, it is much more challenging to generate the kind of evidence you need to be confident that infections have ended", added Cleaveland. Then there is the example

of Angola, which lies more than 1000 miles away from the nearest endemic region. Seemingly out of nowhere, Angola reported its first case of Guinea worm disease in 2018. There were additional cases in 2019 and 2020. It remains unclear whether the disease was always present, but undetected, or whether these were imported cases.

"There remain a lot of unknowns with Guinea worm disease", concluded Molyneux. "The goal of eradication by 2030 may not be feasible given the current technologies and resources and the geographical extent of the infections." Whether or not this turns out to be the case, there is no doubt that the past 35 years or so have seen astonishing success. At least 80 million infections with Guinea worm have been avoided. A resurgence of the disease is unlikely. "This is already a fantastic victory for public health, and it should be celebrated as such", said Molyneux.

Talha Burki



Infectious disease surveillance update

For more on **leptospirosis in Fiji** see <https://www.fijitimes.com/fiji-reports-91-cases-of-leptospirosis-in-last-week-two-deaths/> and <http://outbreaknewstoday.com/leptospirosis-in-fiji-nearly-1400-confirmed-cases-to-date-cases-decreasing-42548/>

For more on **Japanese encephalitis in Australia** see <http://outbreaknewstoday.com/australia-japanese-encephalitis-update-53468/>

For more on **yellow fever in Kenya** see <https://www.who.int/emergencies/disease-outbreak-news/item/yellow-fever-kenya>

Leptospirosis in Fiji

Between March 26 and April 2, 91 confirmed cases of leptospirosis and two deaths were recorded in Fiji. Cases have been reported in all age groups but predominantly in people aged 10–39 years, with more cases in men than women and in people of iTaukei ethnicity. 134 cases were reported since the last update on March 23. Although a decreasing trend was reported in the last update, there is now an upward trend in cases due to an increase in laboratory-positive cases from the Western Division. There have been 1528 laboratory-confirmed cases of leptospirosis this year in Fiji, with 475 people admitted to hospital and 31 deaths.

Japanese encephalitis in Australia

As of March 31, the Australian Department of Health has reported

34 cases of Japanese encephalitis in Australia. 24 of these were laboratory confirmed: ten in New South Wales, two in Queensland, three in South Australia, and nine in Victoria. Ten are probable cases in which the person has either been linked epidemiologically or has symptoms of the disease and has laboratory-suggestive evidence. Three deaths have been reported. On March 4, Australia's acting chief medical officer declared the situation a Communicable Disease Incident of National Significance. It is not known how the virus reached mainland Australia, but the spread of this zoonotic virus might have been caused by infected mosquitoes or migratory waterbirds. In February, 2022, the virus was detected and confirmed in piggeries in Victoria, Queensland, and New South Wales. A national working group of experts has been established for mosquito surveillance and control measures,

identification of those at direct risk, and the rollout of vaccines.

Yellow fever in Kenya

Between Jan 12 and March 15, 2022, 53 suspected cases of yellow fever, including six deaths, were reported from Isiolo County, Kenya. An outbreak of yellow fever in this county was officially declared by the Ministry of Health on March 4. 47 (88.7%) cases were reported in men, and the average age of the cases was 28 years, ranging from 3 to 78 years. Of the 34 samples collected from suspected cases, two tested positive by RT-PCR and six were positive by ELISA at the Kenya Medical Research Institute. Suspected cases presented with symptoms of fever, jaundice, and muscle and joint pain. WHO reports the public health risk as high at national and regional levels.

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