



## WHO takes a new approach to Buruli ulcer

Improving diagnostics and care will help to tackle the disease in traditional hotspots, and in areas like Australia, where cases are on the rise. Rebecca Barksby reports.

WHO has committed to integrate the management of Buruli ulcer and other neglected tropical diseases (NTDs) of the skin. The announcement, made in late March at a meeting in Geneva, along with promising early research on new treatment regimens, could help to control the disease in west Africa and around the globe.

Buruli ulcer is a destructive cutaneous disease caused by the toxin mycolactone as a result of infection with *Mycobacterium ulcerans* and is characterised by painless nodules that eventually ulcerate, causing large wounds, scarring, and disability. Despite being relatively uncommon, Buruli ulcer presents many challenges for control efforts due to its late presentation, difficulties with diagnosis, and its unclear mode of transmission.

According to Michael Marks (London School of Hygiene & Tropical Medicine, London, UK), WHO has “been exploring the possibility of synergy and integration with other skin NTD programmes” for several years. The aim is to build on existing interventions to screen for multiple skin diseases such as leprosy, yaws, and cutaneous leishmaniasis at the same time. These diseases are often co-endemic, so improved, simultaneous, active case-finding and better training will help to diagnose more cases of each disease. This integrated strategy was widely accepted by the ministries of health in attendance at the meeting, says Marks. “It is clear that the integrated approach can contribute to skin health as part of the universal health care agenda”.

Integrating health-care for neglected skin infections in this way will involve strengthening primary health-care systems. WHO

and the International League of Dermatological Societies have created a comprehensive training manual to support health-care workers in the detection and diagnosis of skin NTDs. Training protocols are of particular importance for skin NTDs because the diseases share many characteristics, especially in the initial phases, making it difficult to tell which disease is present. Marks was involved in creating the manual and says that WHO is now thinking about how training can be tailored to different health-care workers in west Africa.

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The treatment of Buruli ulcer was also a theme of the meeting, where preliminary research on shortening treatment regimens was presented. In vitro studies of candidate drug targets for tuberculosis and  $\beta$ -lactam combination therapies have proved promising and could be used to reduce treatment time for patients with Buruli ulcer (currently 8 weeks of antibiotics). Shorter treatment regimens should cut costs and place less of a burden on patients.

The latest WHO figures show that 2217 new cases of Buruli ulcer were reported worldwide in 2017, with the highest burden in west Africa— notably Benin, Côte d’Ivoire, and Ghana. However, in recent years, there has also been a large rise in cases in southeast Australia.

According to the Victoria Department of Health and Human Services, the annual number of cases

in and around Melbourne has risen steadily from 35 in 2008, to 340 in 2018. Multiple explanations have been proposed. “The environmental reservoir and amplifier for *M ulcerans* in our local environment appears to be the local possum populations” says Paul Johnson (University of Melbourne, Melbourne, VIC, Australia). Johnson has shown that the mycobacterium is present in possum faeces from endemic areas and estimated that up to a quarter of possums have active Buruli ulcer lesions. This zoonotic element to Buruli ulcer transmission presents challenges for control. However, Johnson thinks that direct environmental contact is not sufficient for transmission. One theory is that biting insects might have a key role in mechanical inoculation of the mycobacterium into the skin, which has been supported by a study that exposed *M ulcerans*-contaminated mice to mosquitoes. However, studies in west Africa are less supportive of this theory, with no *M ulcerans* DNA being found in mosquitoes from Benin.

Poor understanding of the transmission of Buruli ulcer, coupled with late presentation and delayed diagnosis, makes life difficult for patients. Zhoë Jess was the first reported patient in the inner west of Melbourne; 18 months before her diagnosis, she travelled to the Buruli ulcer hotspot of Mornington Peninsula, in Victoria, for a period of less than 24 hours. Jess does not know how she contracted Buruli ulcer but says that the medical assumption was that it was related to a mosquito bite. She says that a lack of awareness of the disease among local clinicians meant that it was 5 more months before she was correctly diagnosed. Jess had to have her wounds dressed



Issouf Sanogo/Staff

every day by a nurse and take an 8-week course of antibiotics that caused side-effects, including nausea, headaches, a metallic taste in her mouth, and crippling lethargy.

Fortunately, her wounds did not require surgery, which is reserved for severe cases.

In the short term, increased awareness about Buruli ulcer and

documents such as WHO's training guide should help clinicians in endemic areas. However, to control Buruli ulcer in Australia, there needs to be a better understanding of why it has been increasing in this area. Johnson warns that "we are now observing the appearance of new endemic areas and currently there may be five or more active foci of disease transmission with different dynamics", but also points out that occurrence of Buruli ulcer has been known to fluctuate in Australia. In the 1990s, the disease was endemic on Phillip Island, off the south coast, but now no longer. No one knows why. WHO and local researchers will continue to monitor the disease in southeast Australia.

Rebecca Barksby



## Infectious disease surveillance update

For more on **Ebola in DR Congo** see <http://www.promedmail.org/post/6406092>

For more on **measles in Ukraine** see <http://outbreaknewstoday.com/rate-measles-ukraine-rising-35k-cases-reported-year-date-81902/>

For more on **MERS-CoV in Saudi Arabia** see <https://www.who.int/csr/don/29-march-2019-mers-saudi-arabia/en/>

For more on **salmonella in Canada** see <https://www.canada.ca/en/public-health/services/public-health-notices/2019/outbreak-salmonella.html>

For more on **Lassa fever in Nigeria** see <http://www.promedmail.org/post/6408268>

### Ebola in DR Congo

1107 cases of Ebola virus infection have been reported in North Kivu and Ituri provinces in DR Congo as of April 3. 289 suspected cases remain under investigation. A total of 695 patients have died from their illness while 339 people have recovered. Since vaccinations began on Aug 8, 2018, 94 791 people have been vaccinated with the rVSV-ZEBOV vaccine. The epidemic is not slowing. According to WHO, in the last week of March alone there were 72 newly confirmed cases and one new probable case. Between March 11 and 31, 57 health areas in 12 health zones reported new cases.

### Measles in Ukraine

During March 22–28, 2254 cases of measles were reported in Ukraine (1133 in adults and 1141 in children). 35 002 cases of measles have been reported since the beginning of the year as of April 1. 15 886 adults and

19 116 children have been ill, with 14 deaths.

### MERS-CoV in Saudi Arabia

Between Feb 1 and 28, 68 more cases of Middle East respiratory syndrome coronavirus (MERS-CoV) infection have been reported in Saudi Arabia, including ten deaths. 49 of the cases were reported in Wadi Aldawasir, including seven of the deaths. The remaining 19 were reported in regions including Riyadh and Al Qassim. From 2012 to Feb 28, 2019, a total of 2374 laboratory-confirmed cases of MERS-CoV have been reported worldwide, including 823 associated deaths.

### Salmonella in Canada

63 laboratory-confirmed cases of *Salmonella enteritidis* illness reported across six provinces in Canada are being investigated to determine the source of the outbreak. The cases were reported between November, 2018

and March, 2019, with patients ranging from the age of 1 to 87 years-old; 18 patients have been admitted to hospital. The cases were reported in several provinces, including British Columbia (23), Alberta (ten), Manitoba (ten), Ontario (ten), Saskatchewan (eight), and Quebec (two).

### Lassa fever in Nigeria

During March 25–31, 16 new confirmed cases of Lassa fever were reported across five states in Nigeria. During this period, two deaths were reported, one from Taraba state and the other from Bauchi state. Up to March 31, 2034 suspected cases have been reported across 21 states in Nigeria in 2019. Of those, 526 were confirmed as positive and 1693 negative, while the remaining 15 are classified as probable. Of the confirmed cases, there have been 121 deaths reported. 6489 contacts have been identified.

Ruth Zwizwai