

moxifloxacin, and pyrazinamide in drug-sensitive tuberculosis and a 6-month regimen for MDR-TB.

Meanwhile, MSF's TB PRACTECAL trial is investigating how various combinations involving 6-month regimens based on bedaquiline, pretomanid, and linezolid perform in MDR-TB. Gillespie is confident about the prospects for success. "For these regimens the likelihood of resistance is very small", he told *The Lancet Infectious Diseases*. "If we could improve the side-effect profile and maintain the efficacy seen in the Nix-TB trial, then a BPAL regimen could turn out to be a very appealing option for all MDR-TB patients", adds Spigelman.

The cost of the BPAL regimen has yet to be established. Johnson & Johnson sells bedaquiline to the Global Drug Facility for US\$400 per course. Spigelman expects linezolid, which is a generic product, to be priced at around \$300 per course, but since the dose and duration will depend on how well

the drug is tolerated, the cost will vary from patient to patient. The producer of pretomanid is Mylan, who have yet to announce its price. "We do not think the cost of the regimen is going to be the limiting factor", stressed Spigelman. "Mylan is committed to affordability."

Much will depend on the results from the ongoing trials. "XDR-TB regimens cost so much mostly because the volumes are so low", explains Spigelman. "So using the same regimen for more patients could bring down production costs quite dramatically." An effective, short-course treatment would also incentivise programmes to make a concerted effort to track down undiagnosed cases, which in turn could help further push down the cost of the drugs. The 139 114 patients with MDR-TB who were enrolled on treatment in 2017 represented around a quarter of the total estimated burden.

If an effective, non-toxic regimen could be identified that treated all forms of tuberculosis, Spigelman

thinks that, depending on the drugs, the cost could hover at around \$100 per course of treatment. Chances are that this will not be the Nix-TB regimen; linezolid is likely to be more effort than it is worth for patients with drug-sensitive tuberculosis. "If we find a way to replace linezolid, we might have options for a universal regimen", said Gillespie. Restricting the duration of treatment to 4–6 months ought to be achievable, but there are still questions over how to give bedaquiline and pretomanid to children and the interaction between bedaquiline and some antiretroviral drugs. Gillespie is optimistic that the challenges can be overcome. "A few years ago a pan-tuberculosis regimen seemed a long way away; now it seems just round the corner", he said. "Such a regimen could simplify care, increase cure rates, and reduce mortality contributing to the End TB targets."

Talha Burki



Infectious disease surveillance update

Listeriosis in Spain

Three deaths have been reported in the biggest ever outbreak of listeriosis in Spain, which was first reported on Aug 16. As of Sept 6, 204 cases of listeria infection have been reported in Andalusia, with most cases reported in Seville (n=162). The outbreak has been linked to a pork product made by a company based in Seville. The factory has been closed and the pork products recalled from shops. Five women have also had miscarriages due to their illness.

Chikungunya in Brazil

Between January and July, 2019, 97 000 probable cases of chikungunya virus infection have been reported across Brazil, mainly in the northeast and southeast, in Rio de Janeiro, Rio Grande North, and Para states. 40 deaths have been reported with 34 in Rio de Janeiro state. 72 000 cases

were reported in the same period in 2018.

Leishmaniasis in Kenya

Between Aug 19 and 25, 65 additional cases of leishmaniasis have been reported by Kenyan health officials. 2314 cases have been reported in this outbreak since the beginning of the year up to Aug 25, including 28 deaths (giving a case fatality rate of 1.2%). Cases have been reported in Garissa, Mandera, Marsabit, and Wajir counties.

Cholera in Yemen

Between January and July, 2019, 536 000 suspected cases of cholera have been reported in almost all districts of Yemen, including 773 deaths. A quarter of patients are aged younger than 5 years. The government, with support from international organisations, has done a second round of oral cholera vaccination, reaching

more than 400 000 people, including 65 000 children. Since April, 2017, more than 2 million cases of cholera and acute watery diarrhoea have been reported in Yemen in the largest ever outbreak.

Syphilis in Canada

Health authorities in the Northwest Territories, Canada, have declared an outbreak of syphilis, following an increase in cases, as well as the first congenital case reported in almost a decade. Five cases were reported across the region in 2017, and 11 in 2018. As of Aug 24, 28 cases of syphilis have been reported in the province this year, mostly from Yellowknife (n=20). In response, health authorities have set up improved access to rapid testing for sexually transmitted infection, enhanced testing for all pregnant women, and use of targeted health messaging.

Ruth Zwizwai

For more on **listeriosis in Spain** see <https://www.promedmail.org/post/6662490>

For more on **chikungunya in Brazil** see <http://outbreaknewstoday.com/chikungunya-brazil-reports-nearly-100k-cases-through-july-94515/>

For more on **leishmaniasis in Kenya** see <http://outbreaknewstoday.com/kenya-leishmaniasis-cases-continue-to-rise-88833/>

For more on **cholera in Yemen** see <http://www.emro.who.int/yem/yemen-news/oral-cholera-vaccine-reaches-nearly-400-000-people.html>

For more on **syphilis in Canada** see <http://outbreaknewstoday.com/syphilis-outbreak-declared-in-the-northwest-territories-1st-congenital-syphilis-case-since-2009/>