DISEASE ERADICATION

Plan to end yaws disease queried

Bid fails to account for wild primates as hosts of infection.

BY LUCAS LAURSEN

Global health officials are intensifying efforts to eradicate yaws, a disfiguring skin disease that infects more than 64,000 people a year in 14 African and south-east Asian countries. But some critics say that the plans could fail, because they don't take into account discoveries in the past few years that wild primates harbour the bacterial infection.

Public-health officials met in Geneva, Switzerland, last month to discuss how to expand the eradication programme in 6 of the 14 countries in which yaws is endemic. But they did not discuss the part played by wild animals. "Even if this is not the main cause of re-emerging yaws nowadays, it would jeopardize global eradication," says Sascha Knauf, who studies neglected tropical diseases at the Leibniz Institute for Primate Research in Göttingen, Germany.

Five years ago, the World Health Organization (WHO) committed to eradicating yaws by 2020, motivated in part by the discovery that it can be treated using an easy-to-administer oral antibiotic, azithromycin. The WHO estimated that the initiative would cost at least US$100 million. At the time, public-health officials thought that the disease occurred only in humans. Eradicating a disease that affects only people is much easier than one that also occurs in wild animals.

However, Knauf reported in 2011 (ref. 1) and 2013 (ref. 2) that gorillas, chimpanzees, baboons and smaller primates in several West and Central African countries were infected with the same bacterium that causes yaws (*Treponema pallidum pertenue*).

Epidemiologist Michael Marks at the London School of Hygiene and Tropical Medicine says that scientists have not yet shown that humans can catch the disease from primates. Even so, "it would be remiss not to pay attention to it", he says.

The WHO is still waiting for such proof, says its medical officer for the disease, Kingsley Asiedu. In the meantime, Asiedu says, "we are not taking that into account, because there has not been proof of an epidemiological link between those yaws-like cases that have been found in primates and in humans". ■

1. Knauf, S. *et al. Vet. Pathol.* **49,** 292–303 (2011).
2. Knauf, S., Liu, H. & Harper K. N. *Emerg. Infect. Dis.* **19,** 2058–2060 (2013).

The MeerKAT array of radio dishes will soon double its capacity.

MUJAHID SAFODIEN/AFP/GETTY

DATA HANDLING

South Africa readies for data deluge

Nation seeks to retain control over its information.

BY SARAH WILD

Data scientists in South Africa are preparing to be inundated by a flood of information that is due to crash over them when the country's biggest radio telescope doubles the scale of its operations in March.

A terabyte-an-hour data deluge, which would fill more than three DVDs a minute, will flow from a network of radio dishes called the MeerKAT array. Currently consisting of 32 operational dishes, the array will expand to 64 next month.

The impending flood of data is just a trickle compared with what will arrive after 2020, when international astronomers begin to expand MeerKAT to form part of the Square Kilometre Array (SKA). That will be the world's largest radio telescope, and astronomers are trying to develop the expertise to handle torrents of data ahead of its full opening in 2026. South African data scientists also want to transfer their expertise to areas such as Earth observation and bioinformatics.

"We are building a system that empowers scientists, so that they can be part of processing the data — a system that allows the researchers to work with the data itself and work with the analytics, as if it was on their desktops," says astronomer Russ Taylor, who divides his time between the University of Cape Town in South Africa and the University of the Western Cape in the same city.

The MeerKAT array is designed to collect relatively weak radio signals from space and combine them to extract more information. To convert it into the first phase of the SKA, engineers will initially add another 136 dishes to the MeerKAT site in the Northern Cape province of South Africa, and connect them to 130,000 antennas scattered across Western Australia.

NUMBER CRUNCHING

Data from the SKA will be shared with scientists from ten partner countries. But for now, South Africa is keen to retain control of its MeerKAT data rather than exporting them to other countries that already have data-processing infrastructure, says Taylor.

This is partly because distributing data is very expensive. "Fibre optics to connect two points in urban areas cost thousands of US dollars per mile," says Ugo Varetto, acting executive director at Australia's Pawsey Supercomputing Centre in Perth, which crunches and stores data from existing radio telescopes dotted over Australia. "In extreme environments or underwater, that's hundreds of thousands of dollars."

Astronomers also highly value the data produced by their telescopes and don't want to send them elsewhere, says J. J. Kavelaars, group leader at the Canadian Astronomy Data Centre in Victoria, British Columbia. "All the effort of collecting the observations is expressed in those data files. Sending those data out of your jurisdiction is like shipping diamonds overseas for cutting," he says.

Because the astronomy data sets will be very large and will sit in geographically separate databases, scientists need to develop software tools to access them and bring them together in an efficient manner, says Mattia Vaccari, a data scientist at the University of the Western Cape. Taylor says he hopes that other African countries could use the same tools to develop their own cloud-based infrastructure.

EXPLORING APPLICATIONS

Within South Africa, others seek to take advantage of the data-crunching capabilities that the country is developing. These could be used for applications such as monitoring water resources or urbanization across the continent, says Val Munsami, head of the South African National Space Agency in Pretoria.

Health-care officials would also like to get involved. Glaudina Loots, director of health innovation in the South African government's Department of Science and Technology, says that her unit plans to "piggyback" on the astronomy investment and data infrastructure. "Part of that is earmarked for precision medicine. If you can't handle the data, and have to export it out of the country, then you start running into problems," she says.

"South Africa has one of the best hands in the game at this point," says Tony Beasley, an astronomer and head of the US National Radio Astronomy Observatory in Charlottesville, Virginia. "In terms of deployed science infrastructure, South Africa is way ahead." ■

POLICY

US agency targets sexual harassment

The National Science Foundation says institutions must disclose when grant recipients have violated policies.

BY ALEXANDRA WITZE

Any institution receiving grant monies from the US National Science Foundation (NSF) must now inform the agency if it finds that anyone funded by the grant proposal has committed sexual harassment. The policy will take effect once a 60-day public-comment period has ended.

Until now, "we haven't had a requirement on universities to report a [harassment] finding or when they've put someone on administrative leave" during a harassment investigation, says France Córdova, the NSF director. "We didn't have the channel to find out what's at the end of an investigation."

The reporting requirement comes in the wake of numerous sexual-harassment scandals in the sciences. It is a rare move among US federal research agencies, which generally do not require grant recipients or their employers to disclose sexual-harassment allegations or findings.

"It's a big step in the right direction," says Erika Marín-Spiotta, a biogeochemist at the University of Wisconsin–Madison who is co-leading a US$1.1-million initiative funded by the NSF to combat sexual and other forms of harassment in the sciences. But Marín-Spiotta says that agencies must do more to develop truly protective policies. Among other things, the NSF policy does not address what happens if an institution never completes an investigation.

"At the end of the day, if the employing institution doesn't do its job, those who are affected will still be in a very difficult situation," says C. K. Gunsalus, who specializes in research integrity at the University of Illinois at Urbana-Champaign.

The NSF notice, dated 8 February, is addressed to the heads of universities and colleges and other organizations that receive NSF funds. It requires them "to report findings of sexual harassment, or any other kind of harassment regarding a PI [principal investigator] or co/PI or any other grant personnel". And it requires the institution to report if the PI or co-PI is placed on administrative leave relating to a harassment finding or investigation.

The notice also says that the NSF expects awardee organizations to lay out clear standards for harassment-free workplaces, and processes by which students and others can report problems. Workplaces are defined to include conferences and remote fieldwork sites, where students and young researchers are often most vulnerable. The agency will solicit public feedback on the new rule in the coming weeks, through a posting in the *Federal Register*.

"If the employing institution doesn't do its job, those who are affected will still be in a very difficult situation."

Córdova says that the burden of investigating harassment complaints typically rests with the institution that employs the person in question. The NSF accepts voluntary reports through its Office of Diversity and Inclusion, but "we get vanishingly few complaints", she says.

Others note that institutions have differing policies on what constitutes sexual harassment; behaviour that might be ▶

MORE ONLINE

TOP NEWS

KATE JOHNSON, SDNHM

Critics attack study that rewrote human arrival in Americas go.nature.com/2ezc7cr

MORE NEWS

- Few UK universities have adopted rules against impact-factor abuse go.nature.com/2f1ohge
- Fish's sea-floor shuffle illuminates origins of walking go.nature.com/2f0a8ou
- Researchers describe their nerdy proposals go.nature.com/2f0alrk

NATURE PODCAST

Refocusing ageing research, a transportable atomic clock, and researching while pregnant nature.com/nature/podcast