ITM MAGAZINE

8

SPRING-SUMMER 2019

P3 PATHOGENS PATIENTS POPULATIONS

MAKING LEPROSY A DISEASE OF THE PAST

BOUKE DE JONG & EPCO HASKER

INTERVIEW WITH RETIRING DIRECTOR BRUNO GRYSEELS

A GERMAN AND A SPANISH PROFESSOR SETTLE IN ANTWERP

NL

INSTITUTE OF TROPICAL MEDICINE ANTWERP

ITM NUMBER

Open Monument Day

1803

During Open Monument Day 2018 we welcomed 1803 people - a new record for this event. Together with our 20 enthusiastic volunteers they really made the day! It was a pleasure to guide the guests through our hallways, rooms and garden on that lovely sunny Sunday.

MAKING LEPROSY A DISEASE OF THE PAST

Colonies of severely deformed blind patients, often missing limbs, quarantine, exile, contagion, discrimination and shame - leprosy or Hansen's disease has these connotations. Although the World Health Organization (WHO) declared its elimination in 2000, the stigma and pain lives on with the disease continuing to be a significant public health threat in some parts of the world.

ITM and its partners are continuing their vigil to sustain elimination efforts with the start of a clinical trial that aims to screen over 140,000 persons on the islands of Comoros and Madagascar and will attempt to change the landscape of leprosy in these most-affected countries. P³ talks with epidemiologist Dr Epco Hasker and Head of Mycobacteriology Prof Bouke de Jong about leprosy in the world today, the WHO's current global leprosy strategy and their research.

CATIE YOUNG

You are embarking on a four-year journey to better understand how to protect people from leprosy. Why in this part of the world and why now?

BOUKE: Around three years ago our long-term partner, the Damien Foundation contacted us. They have a highly dedicated and amazing team of people working towards leprosy reduction on the Comoros Islands. They requested our help because they had a conundrum in their treatment of leprosy. They couldn't understand why the disease was so highly endemic in their part of the world, although they were strictly following the WHO leprosy control guidelines.

EPCO: Before joining ITM, I worked on tuberculosis and leprosy, so when the Damien Foundation asked me to contribute to a study on leprosy on the Comoros I was immediately very interested. Bouke and I first visited the Comoros in April 2016. The islands are beautiful with palm tree lined beaches where the Indian Ocean is always close at hand.

Unfortunately they have also been politically unstable and remain impoverished and despite the best efforts of our partners, leprosy continues. During door-to-door surveys in 2017, we found 2% of the population of four villages to be suffering from leprosy, which is enormous particularly as in the rest of the world it has been 'eliminated as a public health problem'. The WHO declared back in 2000 that worldwide the prevalence of leprosy had now been lowered to 1 in 10,000 people and that the disease had therefore been 'eliminated'. However this does not apply to individual countries, the Comoros even today has 5-10 times the WHO elimination rate.

BOUKE: And that's where the difficulty lies. This prevalence below 1 in 10,000 people may be true within the global population of 7.7 billion people but victory has been cried too soon for the pockets where it is still endemic. Unfortunately this declaration has meant that after 2000 funding for control programmes has decreased; training on diagnosis and treatment of the disease for doctors and health care workers has diminished; laboratory testing has been deemed unnecessary.

EPCO: Yes, I believe this success was mainly a result of treating the backlog of existing cases with a one-year treatment and not a life-long one. Once released from treatment you are no longer a leprosy patient, so the numbers were greatly reduced but the numbers of new leprosy patients found each year did not go down as much.

On top of this leprosy also still holds a lot of stigma, so households will often hide the disease. We can't forget either that in such impoverished communities contact with health care professionals is not a part of their lives. These are the main factors that allow continued transmission.

So, despite best efforts using the WHO recommended guideline, the number of new patients arising each year has not gone down much and has remained stable over the past five years. It's no wonder that when I asked the staff of the Damien Foundation 'in a perfect world, what could most help you in your fight against the disease?' they responded 'doing mass screenings of the population'.

© photos by Johanna de Tessières, Damien Foundation

“

Leprosy still holds a lot of stigma, so households will often hide the disease.

BOUKE: With this message in mind from the front line of the disease, we designed a clinical study for the islands that will allow us to screen hopefully some 140,000 people in order to research who will benefit most from the preventative effects of rifampicin – an antibiotic with many years of proven efficacy in leprosy treatment.

Rifampicin can be used as a 'post exposure prophylaxis' or PEP for short. Currently this method – meaning we treat those who have been exposed to contagious people – is seen as the most effective way to stop the chain of infection. We want to find out whether the effect of prophylaxis is confined to a person's household or a broader social context.

Another reason for our focus, is the WHO's call for more research into systematically tracing household contacts and finding the optimal way to administer PEP. This is for all-important cost effectiveness reasons. This is where our clinical study comes in.

Could you please tell us more about your study?

EPCO: A preceding study we are doing, funded by R2Stop, investigates why leprosy remains a persistent health problem on the Comoro island of Anjouan. In order to broaden this study and to include the other Comoro islands and Madagascar, we looked to the EDCTP*. We are very grateful for their funding, to which the Leprosy Research Initiative also generously contributed. This made the PEOPLE** trial a reality. Thanks to their help we can now study what is the most optimal approach to preventing leprosy in endemic areas.

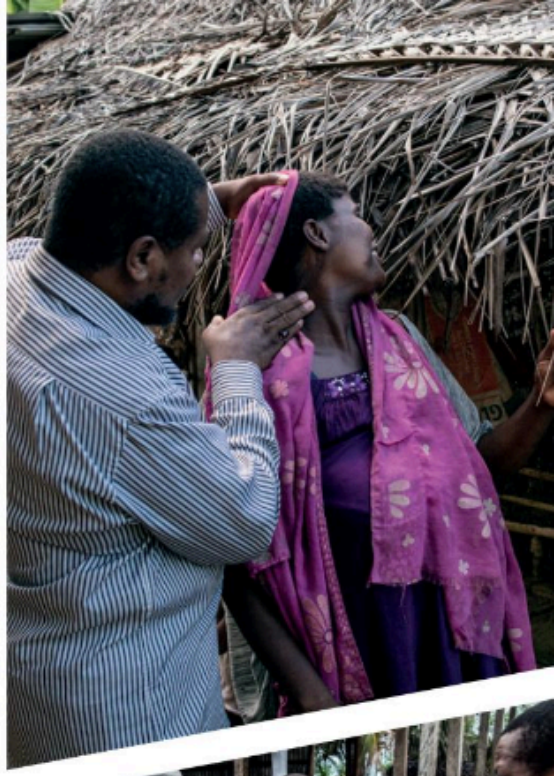
BOUKE: As per the PEOPLE trial: our hypothesis lies in the premise that PEP works better when given to household contacts as well as to neighbourhood contacts. Alongside this it is generally assumed that transmission of *Mycobacterium leprae*, the bacterium causing the disease, is sustained by people who carry high numbers of the bacteria but show no symptoms.

So what we want to prove is that we can effectively interrupt infection by giving PEP to people without symptoms but testing positive in a fingerstick blood test for antibodies against *M. leprae* – indicating infection with the bacterium. In addition, we will be using DNA fingerprinting of *M. leprae* from the same patient samples and social network to identify such highly infectious people and to additionally outline the transmission networks.

This is reflected in the four arms of the study. In all arms, with participant consent, we will provide annual door-to-door screening, we'll identify leprosy patients and treat them, and then each village will be offered one of four different approaches. Arm one is our control arm. We will continue as usual – treating the leprosy patients without preventive treatment of the household contacts who had been examined as leprosy-free. Arm two – we treat the leprosy patients and then give members of the same households preventive treatment. In arm three, every person living in a radius of 100 metres around a confirmed leprosy patient will be given PEP. In arm four, we give PEP to every member of the same household, plus to persons living in a 100 metre radius who test positive in the fingerstick blood tests.

Importantly, within each of the arms we will be assessing the social acceptability of the screening as well as performing costing of the different approaches.

You have many partners in this project – can you tell us about some of the capacities that will be built and what the future holds?



BOUKE: The PEOPLE team is made up of an impressive group of seven local southern partners and northern contributors. On the endemic islands, we have representatives who have been dedicated to leprosy patients for many decades. We are also pleased that there will be a South-South capacity building aspect with the very well rehearsed Damien Foundation team on Anjouan being able to share their knowledge and experience with our other southern partners, Fondation Raoul Follereau, in Madagascar. Thanks goes to all those involved so far for their endearing commitment.

EPCO: Indeed we are very grateful for the partnerships – both local and international and the prospect of our work together. We also have an excellent scientific advisory committee. Everything is geared toward assuring that the study is relevant to the greater good of helping people with leprosy in other continents.

* EDCTP: European & Developing Countries Clinical Trials Partnership

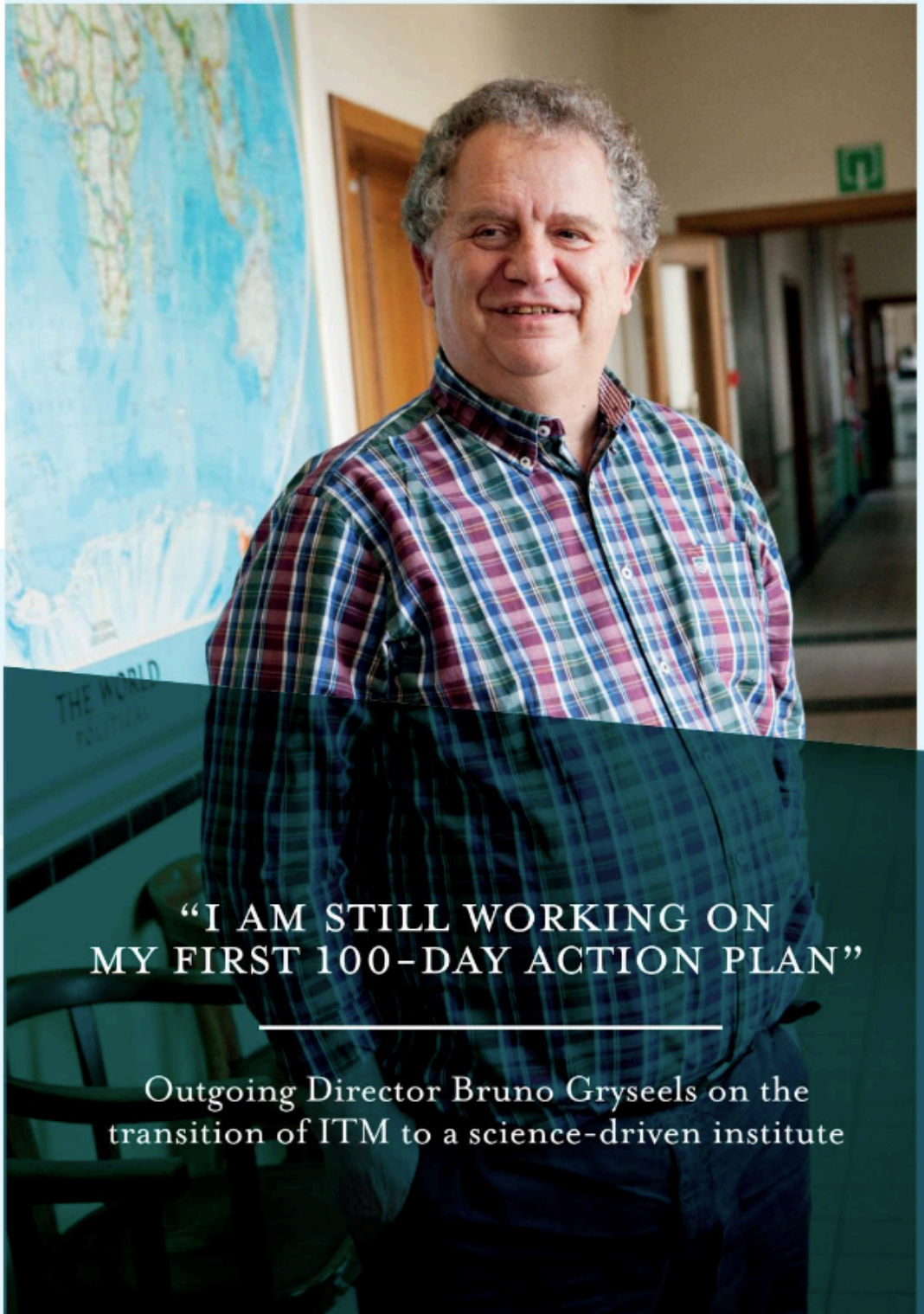
** PEOPLE: Post ExpOsure Prophylaxis in the Comoros and Madagascar

PARTNERS IN THE PEOPLE STUDY

- Institute of Tropical Medicine Antwerp (Belgium)
- Damien Foundation (Belgium, Comoros)
- Centre d'Infectiologie Charles Mérieux (Madagascar)
- Fondation Raoul Follereau (France, Madagascar)
- L'Institut National de la Santé et de la Recherche Médicale (France)
- Leiden University Medical Center (The Netherlands)
- Genoscreen (France)
- Fiocruz (Brazil)

LEPROSY

- Leprosy is caused by bacillus *Mycobacterium leprae – M. leprae*.
- Most individuals (95%) have sufficient immunity to directly kill the bacteria without developing an infection.
- In those in which it survives, M.leprae multiplies slowly with an average incubation time of five years, symptoms may occur in one year but can also take up to 20 to arise.
- Leprosy is curable with multidrug therapy.
- As a chronic disease people die with leprosy not because of it.
- People's limbs don't just 'drop off' because of the disease – people lose all sensation in areas where the bacillus thrives – namely certain nerve endings. This total numbness means patients cut and bruise themselves without noticing and superinfections with other bacteria set in easily. Limbs then need to be amputated because of infection of the bones.
- Up to 1996 leprosy patients in Japan were still quarantined and highly stigmatised until laws were repealed stopping the practice, most countries closed their leprosy colonies in the 1960's.



"I AM STILL WORKING ON MY FIRST 100-DAY ACTION PLAN"

Outgoing Director Bruno Gryseels on the transition of ITM to a science-driven institute