

Rats sniff out tuberculosis in Tanzania. Prompt diagnosis for this serious disease.

According to World Health Organization (WHO) estimates, some 5000 people die of tuberculosis every day. Most cases are never diagnosed, because those affected live in some of the world's poorest nations, far from high-tech laboratories and sophisticated diagnosis equipment. But researchers have come up with a novel approach to a method that can be used almost anywhere to diagnose tuberculosis: They discovered that rats can smell whether or not someone is suffering from the disease. Plans to refine this method are now at hand.



Masterminding this project is the Belgian, Bart Weetjens, who actually came upon the idea of using rats in a totally different connection. He trained the rodents to sniff out landmines and make a sign whenever they found one. He and his colleagues from Belgium and Tanzania now hope to use the rats' exceptional sense of smell for the early detection of tuberculosis (TB). Initial studies have proved this to be possible. The rats can be taught to sniff out the characteristic organic compounds of TB bacteria in the patients' sputum.

Further trials are scheduled to take place in Tanzania, a country in which, according to WHO estimates, less than half of the TB cases are diagnosed. The current methods used are too expensive, unreliable or too slow to proactively track down those suffering from TB, e.g. through screening programs. Using rats on the other hand would be far cheaper and simpler, claims the project initiator. An example: A lab assistant can at best analyze some 30 samples per day, whereas a rat can manage that many in just 7 minutes.

The sooner tuberculosis is diagnosed, the better it can be treated. That is why it is so important to diagnose this disease in good time. One of the United Nations' Millennium Goals is to get tuberculosis under control by 2015. To this end the WHO initiated

a suitable strategy in 2006; an improved diagnosis is a key principle.

The method with the rats is now to be optimized to such a degree that it can be used for a nationwide TB screening program in Tanzania. The long-term goal of the researchers is to raise the TB diagnosis rate in Tanzania from 47 to between 60 to 70 percent. As the project involves Tanzanian scientists, UBS is also supporting research in a country of the South with this project. In future, the aim will be to set up local health organizations that together with existing institutions will actively track down people suffering from TB – with the aid of rats that are able to identify the disease earlier and more effectively than is possible today. This is the prerequisite to improve treatment that could help save thousands of lives.

Milestones:

- Train rats to better identify the smell of TB bacteria
- Detect TB earlier, using rats for screening
- Increase the TB diagnosis rate in Tanzania from 47 to between 60 to 70 percent
- Set up local health organizations that carry out TB screening using rats

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Thank you

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