November 2017 - **In Madagascar, where a severe plague epidemic has unfolded since August 2017, the number of new infections is finally in decline. WHO is supporting health authorities to respond to the outbreak, from setting up specialized plague treatment units in health centres, to distributing medicines across the country. A particularly effective action has involved training teams to find people who have been in contact with a plague patient – a system known as "contact tracing" – to help ensure these contacts are protected from falling sick themselves.**

A sudden sickness

Rakoto,* a 17-year-old man from Antananarivo, began feeling sick one day in October. Although he was coughing and spitting up blood for several days, Rakoto was reluctant to go to a health centre. The plague outbreak was in the news every day, and his family was concerned that he might be infected. When he eventually collapsed while visiting his aunt, Rakoto's father took him to a clinic.

Clinical analysis confirmed that Rakoto was indeed sick with plague. He was infected with the pneumonic form, which affects the lungs and can spread to other people if they come into contact with infected sputum. He was put under treatment.

Understanding Rakoto's movements before his arrival at the clinic became of primary importance. The fact that he was symptomatic for several days increased the number of people who may have become exposed.

Retracing steps

Health workers spoke to Rakoto and his family to get exact details on where he had been in the week leading up to his admission to the clinic. They learnt that he had been mostly at home, but had visited relatives. He had also been to church for a healing ceremony as he searched for relief from his symptoms.

The health workers passed the information along to the contact tracing team in their area, headed by WHO epidemiologist Harena Rasamoelina. They worked together to build a list of

people who had been in close contact (i.e. under 2 metres) with Rakoto while he was symptomatic. These people became “contacts” who would need to take medication to ensure they did not fall sick as well.

In Madagascar’s capital, Antananarivo, there are nine teams of contact tracers headed by WHO epidemiologists. The teams work with two community health workers in each of the city’s roughly 900 sectors. These teams and similar ones in other districts followed over 1 000 contacts each day during the peak of the epidemic.

Since WHO began supporting the Ministry of Health to establish the system in October, over 7 000 people have been identified as close contacts. Some 99% of them were provided with counselling and sufficient antibiotics to eliminate the plague bacteria in their system in case they had been infected. Follow-up teams visited them twice a day for a week to ensure they were still feeling well, that they were taking medication, and to answer any questions they might have.

"It is encouraging that out of the over 7 000 contacts identified across the country, only 11 developed symptoms," said Dr Ngoy Nsenga, who leads the WHO team responding to the plague outbreak. "This is because we found them quickly and they received preventive treatment right away. Pneumonic plague can spread between people in close proximity. Contact tracing is one of the best tools to stop transmission in its tracks."

Training to trace

As the plague epidemic spreading quickly through September, WHO identified contact tracing as one of its most urgent interventions. By mid-October, nearly 4 000 contact tracers and team supervisors had been trained across the country.

"The Ministry of Health teams were overwhelmed. They did not have enough staff to follow up on all the cases to identify contacts," said Freddy Banza, WHO’s regional field coordinator for Antananarivo. "We needed to expand the pool of contact tracers."

WHO developed a training course to explain how contact tracing works, and the specifics of a pneumonic plague outbreak. WHO then rolled out the training across the affected regions.

"We trained as many community workers as we could because we do not know where the disease will strike next," said Dr Nsenga. "We now have increased capacity for the next plague outbreak, or for any disease where contact tracing may be required in the future."

On average, for each patient ten contacts should be traced and provided with preventive treatment. Because Rakoto moved around so much while he was symptomatic, there were over 20 contacts to follow. Of these, none had developed symptoms by the end of their treatment.