28 July 2016 - “Treating a yellow fever patient is reliant on having the right diagnosis. This is dependent on having the necessary laboratory capacity to quickly identify the disease,” says Dr Pierre Formenty, an expert in haemorrhagic fevers at WHO and Manager of the Emerging Dangerous Pathogens Laboratory Network.

Yellow fever is an acute viral haemorrhagic disease transmitted by infected mosquitoes. The disease is difficult to diagnose because it has similar symptoms as a range of other diseases, such as malaria and dengue. With more than 5000 suspected yellow fever cases and more than 400 deaths reported in Angola and Democratic Republic of the Congo, getting an accurate diagnosis is critical to saving lives and ending the outbreak.

Reliable and timely lab results are essential for decision-making in almost all aspects of health services, especially during disease outbreaks. Diagnosing yellow fever is challenging. Often times there are delays between when the sample is collected and transported to when it is analysed.

Diagnosing yellow fever is done by testing a blood sample to detect the virus. In later stages of the disease, this is more difficult to detect. In this case, more sophisticated blood tests (known as ELISA and PRNT) are needed and these can only be done in specialized laboratories.

Fast-tracking diagnosis

In order to strengthen and fast track diagnosis, WHO has supported the deployment of a mobile laboratory from the European Union to Democratic Republic of the Congo.

This mobile lab brings much-needed equipment and supplies for testing blood samples for yellow fever. Packaged into several boxes, the lab is portable and easy to set-up within any existing health facility or building.

The mobile lab will support the Institut National de Recherche Biomédicale by providing testing capacity in Kahembe in Kwango province for a period of 3 months. The team, consisting of 5 international and 2 national laboratory scientists, will save critical hours by testing the samples on-site, thus reducing the need to transport them over long distances. Between 50 to 100 patients can receive their results within a day.

The European Union mobile lab is supported by the European Civil Protection and Humanitarian Aid Operations (ECHO) Emergency Response Coordination Centre in collaboration with the Global Outbreak Alert and Response Network and the Emerging and Dangerous Laboratory Network.

Building local capacity for lasting results

In addition to the mobile lab, 2 laboratory experts from Institut Pasteur, Paris, arrived in Democratic Republic of the Congo on 17 July to provide additional technical capacity.

In Angola, WHO has been working with the Institut Pasteur and the US Centers for Disease Control and Prevention (CDC) to train laboratory technicians at the National Public Health Institute to strengthen yellow fever diagnostic capacity. This support includes establishing the more complex blood (ELISA) test, one of the key diagnostic tools used to confirm infection with yellow fever, and training 10 national staff to run the test.

From diagnosis to action

“Aside from getting patients on the right treatment, faster diagnosis helps to plan the response better, such as identifying where to conduct mass vaccination campaigns in the affected countries,” says Dr Formenty.

Mass reactive vaccination campaigns in Angola and Democratic Republic of the Congo have reached nearly 14.5 million people. The emergency vaccination campaigns have been crucial in slowing transmission of the outbreak.

http://www.who.int/features/2016/yellow-fever-labs/en/