

A Portable Diagnostic Test

Point-of-Care EVD Diagnostic Testing for Ebola Treatment Centres: Institut Pasteur de Dakar

The project is focussing on developing suitcase labs which can speed up testing. The portable labs are testing after death and producing results in between six to ten minutes which means that burials can take place faster and within culturally sensitive time frames.

Programme Name:

Point-of-care EVD diagnostic testing for Ebola treatment centres

Key information

Grant awarded: £509,646

Lead organisation:

Institut Pasteur de Dakar

Partnering organisation(s):

University of Stirling, Robert Koch Institute,
German Primate Center, TwistDx

Project length: Dec-14 to Dec-15

Health sector: Diagnostics

Study location: Senegal & Guinea

Principal Investigator(s)

Dr Amadou A. Sall

Purpose

Real-time RT-PCR is currently used as the standard method for Ebola virus (EBOV) molecular diagnosis but has some limitations in terms of cost, equipment, and turnaround time. In contrast, isothermal recombinase polymerase amplification (RPA) is six times faster than RT-PCR while yielding the same analytical sensitivity and specificity. In addition, the RPA assay uses smaller equipment and reagents which are cold chain independent, making rapid on-site testing feasible and affordable. This project investigates the use of RPA for EBOV point-of-care detection in Guinea treatment centres.

Expected outcomes

This project aims to optimise and evaluate RPA assay methods for EBOV testing and will focus on operationalising the use of RPA from the laboratory to the field. The aim is to develop a 15 minute portable diagnostics test for use in Ebola treatment centres. This solar-powered mobile suitcase laboratory will improve early detection of confirmed Ebola cases, while supporting patient management and clinical trials, potentially reducing transmission and mortality due to EVD.



Institut Pasteur de Dakar: Training health workers in Dakar on the use of portable solar powered Ebola diagnostic kit

Progress and outcomes achieved (April 2015)

Two lab-in-suitcases have been piloted, assembled and deployed to Guinea with trained ETC (Ebola Treatment Centre) teams. They have been testing after death initially, using saliva, with good correlation to full lab testing, taking just 6-10 minutes. This has relieved the distress of awaiting Ebola confirmation before burial when this takes 2-3 days. Blood sampling at earlier stages of the virus is still in testing process. Sensitivity is proving good, down to 10 copies of the virus, the same as full lab testing. Optimisation is 90% complete.

<http://www.pasteur.sn/>

<http://www.stir.ac.uk/news/2015/03/>

stirlingvirologistatfrontlineofresearchintoebolaepidemic/

<http://www.heraldscotland.com/news/home-news/stirling-based-scientists-pioneering-role-in-battle-against-ebola.120955411>

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