



Protecting and improving the nation's health

UK-PHRST Microbiology: An Overview

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Remit

The remit of UK-PHRST Microbiology includes:



- 1. Response to outbreaks
- 2. Research related to outbreaks
- 3. Capacity building



Priority Pathogens		
Tier 1	Tier 2	Tier 3
Influenza Bact Meningitis Ebola Marburg <i>B. anthrais</i> Lassa virus Yellow Fever Nipah CCHF Rift Valley Fever Plague	AFP agents Shigella SARS/MERS Orthopox (e.g. Monkey Pox) Respiratory (ARDS) Measles Whooping cough Q fever Dengue Chikungunya Zika Scrub typhus Typhus TBE	Leishmaniasis TB <i>Francisella tularensis</i> Malaria Leptospirosis Hantavirus

& Pathogens yet to be identified

Key requirements for Flight Case Laboratory

- 1. Flexible & Adaptable
- 2. Robust
- 3. Rapidly deployable
- 4. Fit-for-purpose
- 5. Good value-for-money









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Actual flight cases







Welcome to Terminal 4



Health and Safety in Labs – Perception of Risk



Health and Safety in Labs – Perception of Risk











Vov Fosturoe and Ronofite

Primary use: Sample reception







GateKeeper 20 Dimensions: 18'7" x 18'7" x 6'1" Useable area: 286 ft² Time under cover: 16 min Complete setup: 25 min Manpower required: 4 personnel

Early-stage / Low-level Deployment



Scaled-up / High-level Deployment



Main Tent

Investigation of Lassa-Negative Cases

Identification of pathogens co-circulating during an outbreak of Lassa in Nigeria that were clinically indistinguishable from Lassa Fever.

During the 2018 Lassa Fever season in Nigeria, over a thousand patients met the clinical definition for Lassa Fever but tested negative for the virus.

Working in collaboration with the Nigerian Centre for Disease Control (NCDC), UK-PHRST Microbiology was able to devise a research project that will help to address NCDC's main question: *What do our people have if not Lassa*?

This project employed a series of techniques (including use of TaqMan Array Cards and Sequence-Independent, Single-Primer Amplification (SISPA) MinION sequencing.

The results of this study are in their final phase of analysis but already we are seeing a fascinating constellation of pathogens that make-up the pathogenic landscape of Nigeria. Ultimately, we hope to use these data to help NCDC refine its diagnostic algorithms.



Martin Hibberd (LSHTM)



(Project took place in January 2020)

Monkeypox

A re-emerging virus of international concern

This virus has received significant media attention in the UK in recent months after the importation of 3 cases from Nigeria (and 1 nosocomial infection with in the NHS).

It is believed that this virus is starting to fill the ecological niche left by the eradication of the smallpox virus and the waning population immunity (due to the cessation of smallpox vaccination in the 1970s).

Nigeria has been experiencing an on-going outbreak of Monkeypox (not seen in the country for decades).

A joint collaboration between NCDC, UK-PHRST, and PHEs' International Health Regulations (IHR) Programme & National Infection Services (NIS) are working to not only help answer key questions about the genetic make-up of the virus but also provide NCDC with a <u>sustainable</u> platform that will enable NCDC to have the capacity to conduct this type of work in their own laboratories.





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Thank you!

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