**JOB DESCRIPTION**

This form summarises the purpose of the job and lists its key tasks

It may be varied from time to time at the discretion of the College in consultation with the postholder

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| **Job Title: Postdoctoral researcher in Infectious Disease Dynamics** | **Job ref no: PPS-0247-24\_A** |
| **Grade: 6** | **Department: Pathobiology and Population Sciences** |
| **Accountable to: Dr Jayna Raghwani** | **Responsible for:** |

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| **Job summary:**  The postholder will be responsible for managing and delivering a major component of the inter-disciplinary US-UK EEID collaborative project on “Integrating metaviromics with epidemiological dynamics: understanding rodent virus transmission in the Anthropocene.  This project aims to develop a generalizable framework to infer transmission dynamics and zoonotic hazards from wild animal populations using increasingly affordable genomic techniques to survey multiple viruses simultaneously. We will combine tractable small-mammal field systems in the UK and Uganda with cutting-edge sequencing technologies, detailed environmental and ecological data, and mechanistic epidemiological models to determine the impact of environmental change on viral community transmission dynamics. This approach will enable broad insights into how different natural and anthropogenic drivers - from seasonality to species diversity to landscapes - can be incorporated to understand virus transmission in changing environments and devise strategies to reduce future zoonotic risk.  The postholder will lead the development of a new computational framework for linking epidemiological models with metaviromic data to identify seasonal drivers of virus transmission in wild rodent populations. Depending on interests and experience, there is also scope for the postholder to contribute to activities relating to genomic quality control, bioinformatics, and metaviromic data analysis.  Key objectives include:   1. Investigate the relationship between virus abundance from metaviromic data and epidemiological processes using theoretic models.      1. Develop and apply statistical approaches to infer epidemiological dynamics from virus abundance data from metaviromic datasets obtained from longitudinal surveillance of wild rodent populations.   The postholder will work in the Department of Pathobiology and Population Sciences and report to Dr Jayna Raghwani.  Where necessary, the post holder will provide day-to-day supervision for research students, and the post will involve close collaboration with other members of the project based in the UK, US, Kenya, and Uganda.  The postholder may be required to represent the group at meetings in the countries in which the project operates (US, Uganda, and Kenya). These events may include providing training for local researchers at workshops. |
| **Competency: Analysis & Research**  **Key tasks:**   * Using computational simulations, develop the underlying theory linking metaviromic data with models of epidemiological dynamics. * Build a statistical framework to infer epidemiological dynamics from metaviromic data generated from longitudinal surveillance of wild rodent populations sampled across spatial and temporal scales. * Apply a new framework to assess impact of seasonal and anthropogenic environmental change on viral incidence and epidemic growth rates. * Develop research questions within the context of pathogen dynamics and project activities, conduct individual research, analyse detailed and complex qualitative and/or quantitative data from a variety of sources, and generate original ideas by building on existing concepts. * Regularly write research articles at an international level for peer-reviewed journals, book chapters, and reviews. Present papers at national and international conferences, and lead seminars to disseminate research findings. |
| **Competency: Knowledge & Experience**  **Key tasks:**   * Use knowledge from previous experience in disease ecology/infectious disease, data analysis, computer programming and/or modelling to conduct the research on the project. |
| **Competency: Teamwork & Motivation**  **Key tasks:**   * Agree clear task objectives, organise, and delegate work to other members of the project and coach other members on specialist methodologies or procedures. * Effectively work as part of a team and motivate other team members. |
| **Competency: Communication**  **Key tasks:**   * Represent the research team and RVC at external meetings/seminars, either with other members of the group or alone, including project meetings, workshops, and other events in member countries; compose original materials for such events (e.g. epidemiological modeling training practical’s and course materials). * Carry out collaborative projects with colleagues in partner institutions, and research groups. * Communicate effectively with all relevant team members (technicians, PhD students etc) * Attend regular meetings with the project supervisor. * Participate in College activities such as seminar series, training workshops, lab meetings and journal clubs. |
| **Competency: Initiative and Problem Solving**  **Key tasks:**   * Overcome problems that arise during development and implementation of statistical framework with support from the project team. * Contribute new ideas to the project |
| Flexibility: To deliver services effectively, a degree of flexibility is needed, and the post holder may be required to perform work not specifically referred to above. |