**Thank you for your interest to present your work at xMAP® Connect 2017!**

* Prepare a presentation title, the title included on the submission should be suitable for published material.
* Abstract text is limited to 3000 characters (approx 500 words).
* We ask to use 4 core elements: 1) background and aim, 2) methods, 3) results, 4) conclusions. We kindly ask you to use the format below.
* Please ensure the submission has been approved by all authors.
* By submitting an abstract, you agree to be present the 8th and 9th of November at the congress, should your abstract be selected.
* Please indicate if you would like to be a speaker or present a poster.

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| **Title:** Use of multiplex cytokine/chemokine assays for pathogenesis studies of emerging viral diseases |
| 1) Background and aim: Viral pathogens continue to cause major public health concerns to human populations. In order to rapidly be able to respond to these threats and understand more about the disease pathogenesis, the natural progression of infection and host response needs assessing. For this purpose, *in vivo* models have been developed, which subsequently have value in assessment of intervention strategies. Additionally, where feasible, patient material can be used. Due to the small sample size from rodent studies and the value of clinical material, xMAP technology allows increased analysis of parameters in a single, small volume sample. 2) Methods: Milliplex kits covering multiple arrays of cytokines, chemokines and acute phase markers have been used to assess samples derived from animal studies and clinical material form human cases of infection. Data has been collected on the Luminex-100, -200 and more recently, Magpix analysers.3) Results: During the spread of Zika virus into the Pacific and South America, Public Health England was one of the few facilities with access to the virus and experience of its growth. An animal model was rapidly developed; the first publicly shared with the scientific community. When the World Health Organisation declared Zika virus to be a Public Health Emergency of International Concern (PHEIC), work on Zika virus expanded. With two lineages of Zika virus being identified (African and Asian), the mouse model has been used to demonstrate differences between the two strains. Using the Milliplex murine acute phase and cytokine/chemokine panels, changes in these biomarkers are evident. Another viral disease of public health concern is Crimean-Congo Haemorrhagic Fever virus (CCHFV). As a tick-borne infection, it is geographically spreading into new territories with the expansion of its vector habitat. This virus also has a predisposition to cause nosocomial outbreaks in healthcare settings. With no widely approved vaccines or antivirals, handling of CCHFV requires Containment Level 4 facilities; thus research on this virus is limited. Due to the complexities of CL4 working practices, for analysis of samples outside of biological containment the assessment of inactivation techniques has been conducted and formaldehyde fixation of stained beads has been shown to be acceptable. Working with international collaborators in endemic areas, PHE is involved with a project to assess the kinetics of cytokine and chemokine release during human CCHFV infection.4) Conclusion: Experience from our laboratory show that luminex assays play an important role in the study of emerging viruses, and the technology is capable of being used for viruses which require the highest level of biological containment. |