Background: During the 2013-2015 Ebola epidemic in West Africa, the WHO published an Ebola Response Roadmap, pledging to accelerate the development of vaccines against Ebola virus disease (EVD) [1]. The UK has been at the forefront of international efforts to expedite testing of candidate vaccines. The delivery of phase 1 vaccine trials in the context on an infectious diseases emergency could offer lessons for future epidemic preparedness.

Methods: We setup the first phase I, randomised, observer-blinded clinical trials designed to assess the safety and immunogenicity of a prime-boost vaccine combination of two viral-vectorised vaccines expressing Ebola glycoproteins (Ad26.ZEBOV [Crucell, Netherlands] and MVA-BN-Filo® [Bavarian Nordic, Denmark]). Using an independent, multidisciplinary team of doctors, nurses, laboratory technicians and trial administrators we were able to expedite delivery of this ‘first-in-human’ study. Recruitment methods included poster advertisement, direct mail out, media engagement and web-based self-screening.

Results: Setup of trial, including protocol development, document preparation and staff training was completed within 3 weeks. Following expedited submission and review, regulatory approval was granted within eight working days by the Medicines and Healthcare products Regulatory Agency (MHRA) and within ten days by the Research Ethics Committee (NRES Committee South Central - Oxford A). Within 7 weeks we screened 168 volunteers and vaccinated 87 participants. Concurrently, daily safety reviews of clinical and laboratory participant data, continued eligibility assessment and immunological testing of samples occurred. The vaccines were well tolerated and demonstrated persistent antibody responses up to 1 year post-vaccination [3,4].

Discussion & Conclusions: Our response to the Ebola outbreak is our second test of expedited vaccine evaluation in the last decade [2] and demonstrates the capacity to respond quickly in an epidemic. Researchers in the UK have arguably benefitted from a robust and flexible research environment, with critical support across the relevant government departments, and dependent on an experienced multidisciplinary team. Remarkably, 4 out of the 5 Ebola vaccines that entered clinical trials in West Africa had their first-in-human dose given in Oxford. Together with the publics willingness to participate in such studies, the expedited delivery of this trial and the responsive UK research infrastructure and approvals processes, we have demonstrated a successful model for the conduct of rapidly responsive clinical trials. Preparedness for future epidemics could be aided by lessons learned from the EVD outbreak and the preemptive development of vaccine protocols for potential outbreak pathogens.

References: