

O0979 **The potential impact of hepatitis E virus vaccination strategies in refugee settings: a modelling study.**

Ben Cooper*¹, Lisa White¹, Ruby Siddiqui²

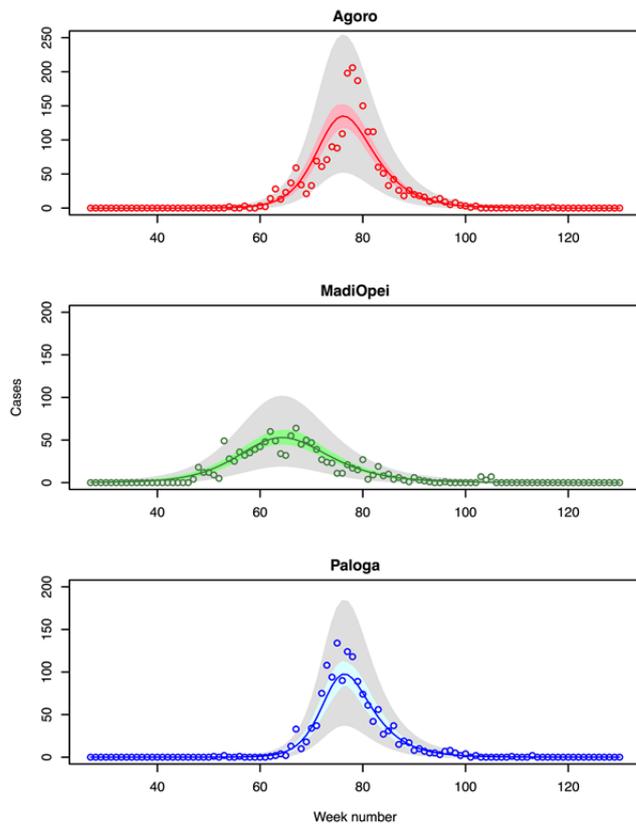
¹University of Oxford, Nuffield Department of Medicine, Oxford, United Kingdom, ²Médecins Sans Frontières-UK, London, United Kingdom

Background: Hepatitis E Virus (HEV) is an important cause of morbidity and mortality in emergency and refugee camp settings. Symptomatic infection is associated with case fatality rates of ~20% in pregnant women. However, its epidemiology is poorly understood and the potential impact of immunisation in outbreak settings uncertain. We aimed to estimate key epidemiological parameters for HEV and to evaluate the potential impact of both reactive vaccination (initiated in response to an epidemic) and pre-emptive vaccination.

Materials/methods: We analysed data from one of the world's largest recorded HEV epidemics, which occurred in refugee camps in Uganda (2007-2009). By fitting transmission dynamic models to data from three refugee camps, Agoro, MadiOpei, and Palogo within a Bayesian framework, we estimated epidemiological parameters and assessed the potential impact of reactive and pre-emptive vaccination strategies.

Results: Under baseline assumptions we estimated the basic reproduction number of HEV to range from 3.9 (95% CrI 2.8, 5.4) to 8.9 (5.4, 14.2). Mean latent and infectious periods were estimated to be 34 (28, 39) and 40 (23, 71) days respectively.

Reactive two-dose vaccination of those aged 16-65 years excluding pregnant women (for whom vaccine is not licensed), if initiated after 50 reported cases, led to mean camp-specific reductions in mortality of 10 to 29%. Pre-emptive vaccination with two doses reduced mortality by 35 to 65%. Both strategies were more effective if coverage was extended to groups for whom the vaccine is not currently licensed. For example, two dose pre-emptive vaccination, if extended to include pregnant women, led to mean reductions in mortality of 66 to 82%.



Conclusions: HEV has a high transmission potential in refugee camp settings. Substantial reductions in mortality through vaccination are expected, even if used reactively. There is potential for greater impact if vaccine safety and effectiveness can be established in pregnant women.