Detection of Equine Influenza but not Avian Influenza antibodies in the West Indies - a serosurvey in St Kitts, Nevis and St Eustatius

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Introduction:

Free roaming chickens and feral donkeys are common throughout the Caribbean and direct human interactions with these species is very common. Furthermore the location of the study is on a well-defined migratory bird route (Figure 1). Thus, in terms of influenza viruses, the Caribbean is a classical melting pot for viral transmission and manipulation and this raises public health concerns.

To date information on influenza virus exposure within the Caribbean is limited and this study sought to establish baseline date on the exposure of native free-roaming chickens to avian influenza (AI) and horses and donkeys to equine influenza (EI) viruses in 3 neighboring islands (St Kitts, Nevis and St Eustatius).

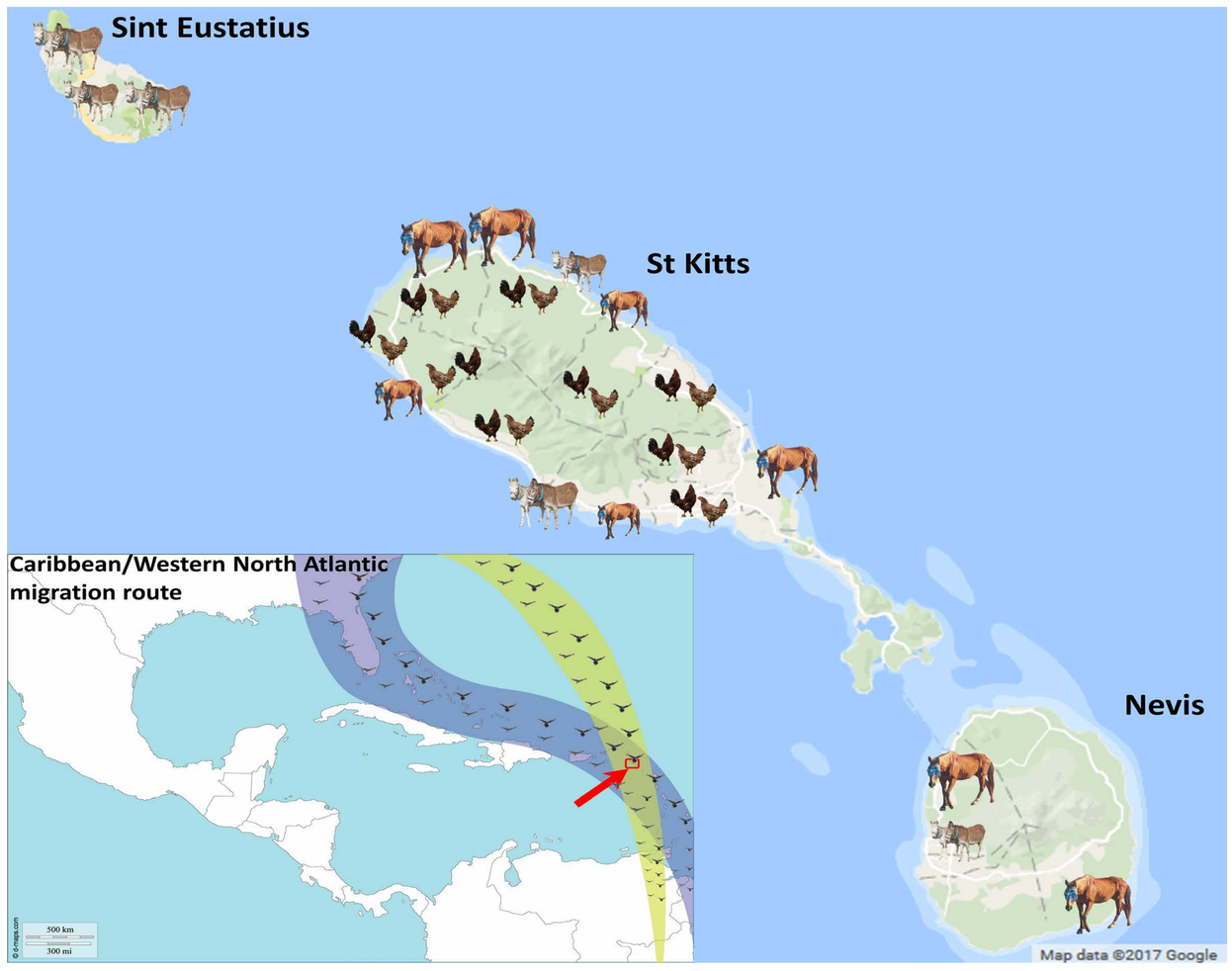

Figure 1: Study location and animal distribution; inset: Inset: origin of animal serum samples (red square indicated by the arrow) in the Eastern Caribbean, on the Caribbean/Western North Atlantic pathway of migratory birds (green and blue shades).

Methods:

178 **equine** samples were tested representing around 25% of the estimated equine population (convenient sampling) over 8 years from a combination of feral donkeys, donkeys and horses used in tourism industry, racing industry, farming, or for teaching at a veterinary education establishment.

81 serum samples were collected from free roaming **chickens** in St Kitts in a targeted fashion with nine parishes each represented by samples from nine chickens. Samples, represented a mixture of males and females, of different age groups, clinically healthy at the moment of sampling.

Serology testing using the following ELISA kits was used:

- for equine samples screening: EI-IDvet, FLUACA ver. 0914;
- for avian samples screening: IDEXX 99-09269; for both equine and avian confirmatory assay: IDEXX 99-53101.

Results:

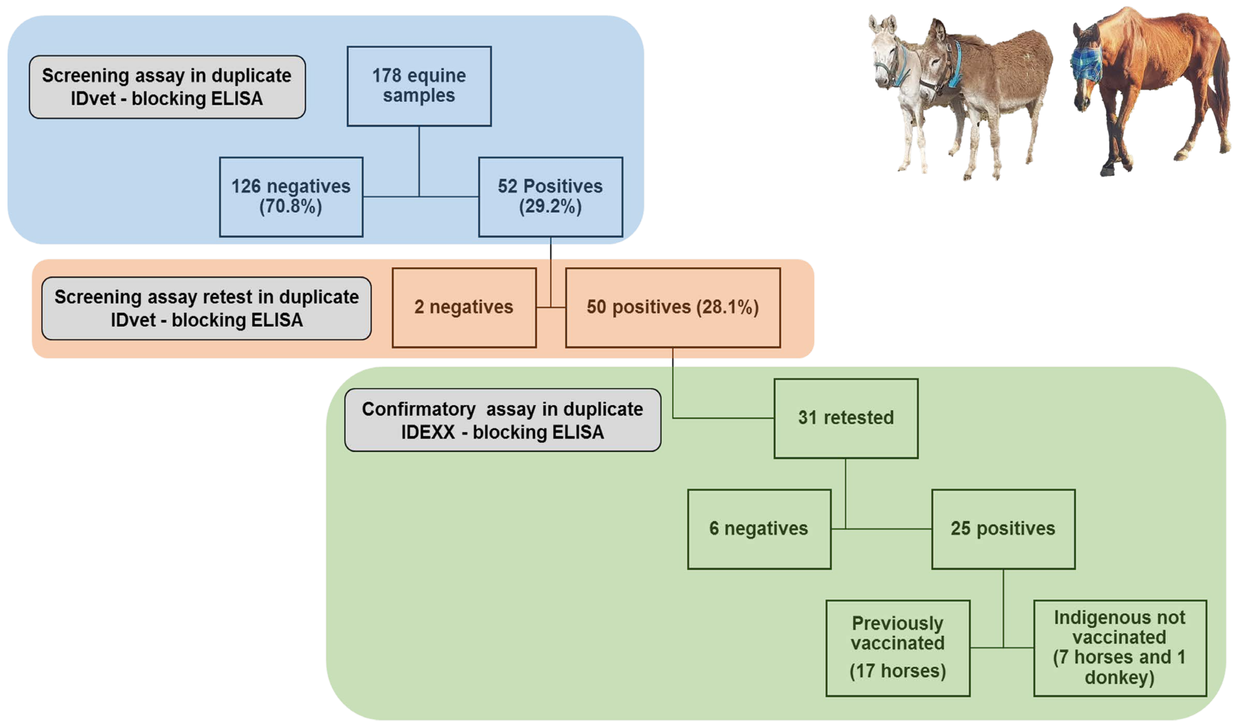

Figure 2. Testing steps and results for the Equine influenza serology

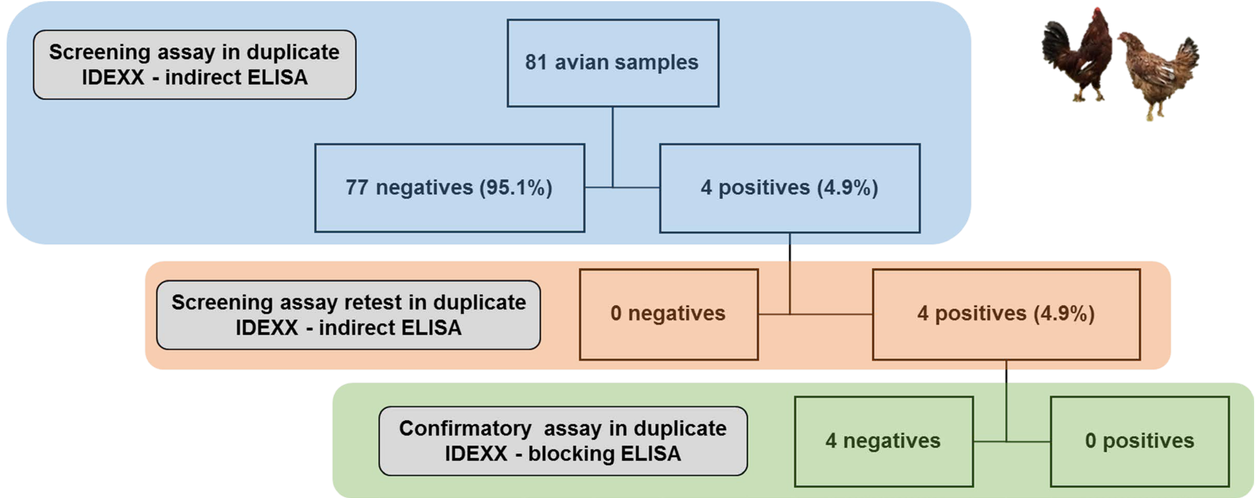

Figure 3: Testing steps and results for the Avian influenza serology.

Conclusions:

Even though we expected that the presence of migratory birds and their close interaction with free roaming chickens would result in some degree of exposure, **no antibodies were detected against AI viruses**. Besides the vaccinated **equines, 8 indigenous** animals, never vaccinated, from different locations on the islands, showed antibodies against **EI (1 donkey and 3 horses from Nevis and 4 horses from St Kitts**). We suggest that EI in the area was either imported at one point with some horses, or represents indigenous strains, originating from the common AI ancestor. Integrated future local surveillance and molecular characterization is needed to identify, monitor evolution and transmission of animal influenza viruses in the region.