Use of abattoirs as sentinel points for surveillance of Rift Valley fever in Uganda

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Introduction

- Rift Valley fever (RVF) has been identified by WHO as one of the next likely pandemics due to its epidemic potential and global presence of its competent vectors.
- The mosquito-borne phlebovirus, is a threat to both humans and livestock due to its zoonotic nature and its ability to stay in mosquito eggs for a long time
- RVF has widened its ecozone since its discovery with cases intensifying with increased climate variability due to climate change.
- Most cases of RVF go un-noticed in countries with poor animal and human health surveillance systems.
- Uganda has experienced successive waves of RVF outbreak since 2016
- RVF is prevalent in most districts of Uganda as per the risk map (Fig 1) basing on national seroprevalence data
- Control and prevention of RVF requires an efficient animal and human health system with good surveillance systems
- National sero- surveys at farm level to update risk maps are however expensive for low-income countries like Uganda
- Sentinel surveillance at abattoirs provides a cheaper alternative to generate data to update risk maps and carry out contingency planning

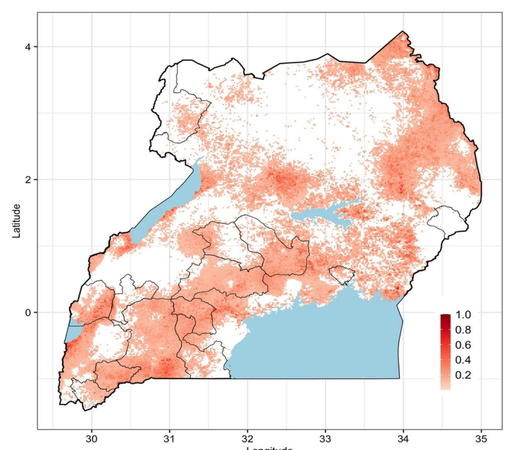


Fig 1: RVF risk map: Adopted from Tumusiime *et al*., 2022 https://www.biorxiv.org/content/10.1101/2022.05.12.491594v1.full

Objectives

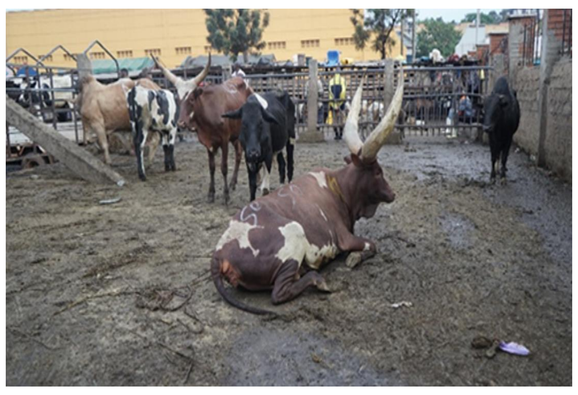
(1) To determine the prevalence of Rift Valley fever in animals brought for slaughter

(2) To determine the prevalence of Rift Valley fever in abattoir workers

(3) To identify RVF hot spots in Uganda

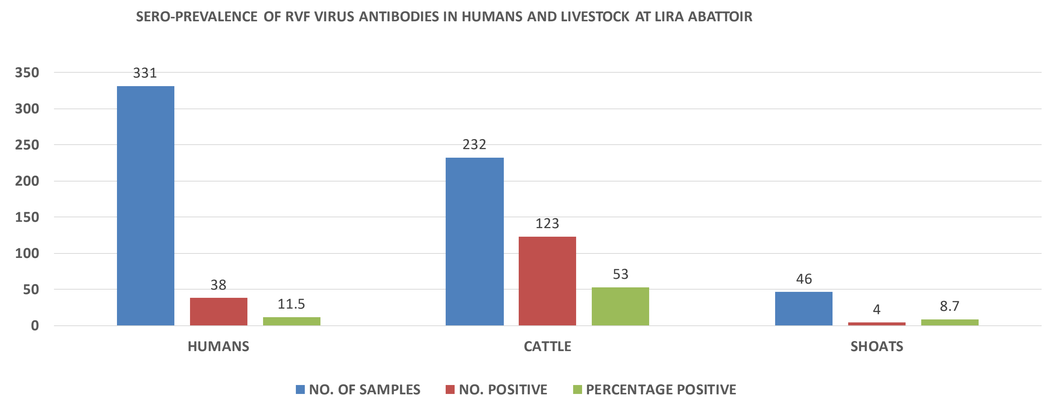
Methodology

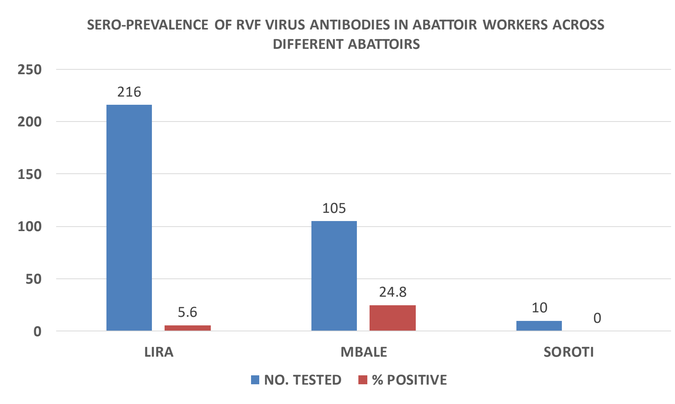
- Blood samples from abattoir cattle, goats, sheep and abattoir workers were collected from four major abattoirs that slaughter most of the animals from northern (Lira abattoir) , eastern (Mbale abattoir), central and western Uganda (Kalerwe and City abattoir).
- Accompanying metadata on the slaughtered animals like the region of origin, sex, breed, age were also collected
- Part of the sera (609 samples) has been analysed for presence of RVFV IgG/IgM antibodies at NADDEC using the ID Screen Rift Valley Fever Competition Multi-species kit (ID vet kit).



Key results

A total of 2144 serum samples have been collected from cattle (n = 887), sheep and goats (shoats, n = 926) and humans (n = 331) in abattoirs in Lira, Mbale, Soroti and Kampala. Collection of human sera in Kampala is still ongoing.





Conclusions

- Seroprevalence of RVF is high in both livestock and abattoir workers
- Cattle may be a major source of RVF infection to abattoir workers because of the high levels of exposure observed in this species?
- Mbale (Eastern Uganda) is an RVF hot spot in humans compared to Lira (Northern Uganda)

Limitations

The ongoing insecurity in Karamoja at the time of the study could have reduced the number of animals brought for slaughter to the abattoirs used in this study.

Contribution to Uganda's livestock development agenda

This information can be used in designing RVF control and contingency plans in Uganda.

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