

RESERVOIRS OF PATHOGENIC *LEPTOSPIRA* SPECIES IN UGANDA

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Introduction

Leptospira are spirochete bacteria, including pathogenic species that cause leptospirosis, a zoonotic disease endemic in the tropics. In Uganda, *Leptospira* seroprevalence has been reported among outpatients at three hospitals, with human-animal interaction implicated as source of human *Leptospira* exposures. However, corresponding animal *Leptospira* infection has only been demonstrated in cattle, leaving the status in several potential reservoirs like other livestock species and environmental sources unknown. The current study aims at determining the occurrence, and risk factors for *Leptospira* infection among livestock species and environmental sources in Uganda.

Method

From a nationwide cross-sectional survey in major livestock slaughter facilities, we performed a real-time PCR test on 2,063 livestock kidney samples from 844 cattle, 761 pigs, 341 goats, 117 sheep; and on 93 small mammals. Small mammals (rodents and shrews) were trapped at slaughter facilities and communities within a 500metre radius from slaughter facilities. Age, sex, breed and origin of each sampled animal were noted. *Leptospira* prevalence was estimated and risk factors for infection among livestock species determined using univariate logistic regression model.

Results

Leptospira infection was detected in 43 of 2,063 livestock samples tested (2.08%, 95% C.I = 1.52-2.80). Infection was highest in sheep (5.13% C.I = 2.25-10.80), 3.32% (95% C.I = 2.26-4.75) in cattle, 1.76% (95% C. I=0.77-3.70) in goats, and 0.39 (95% C.I = 0.10-1.13) in pigs. Pigs were significantly less infected compared to all other species (p-value= 0.0008). Indigenous livestock breeds were more infected (p-value =0.005) compared to their exotic and crossed counterpart. Additionally, older livestock species were significantly infected than the younger ones (p-value = 0.052). None of the small mammals tested positive.

Conclusion

Livestock in Uganda reserve pathogenic *Leptospira* species, with sheep and cattle especially of indigenous breed being more significant reservoirs. Small mammals may play a limited role in *Leptospira* maintenance and transmission in Uganda.