Epidemiology of Brucellosis at the Human-Livestock Interface in Uganda

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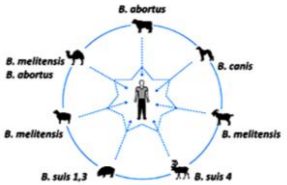
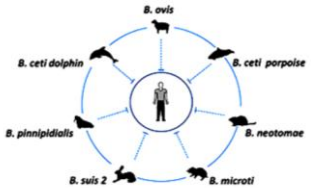
INTRODUCTION

- Brucellosis: a foodborne and occupational zoonosis



Zoonotic brucellae



Non-zoonotic brucellae

- Ample Serological evidence that disease is endemic in Uganda and a PZD
- Scanty information on species and biovar involvement
- Disease is difficult to treat- Treatment failure relapses predictor of AMR events

OBJECTIVES

General objective:

To characterize Brucella infections in slaughter livestock, and slaughterhouse workers at the point of slaughter

Specific Objectives:

1. Seroprevalence in cattle, shoats and pigs at point of slaughter.
2. Seroprevalence and associated factors among slaughterhouse workers
3. Brucella species, biovars circulating in slaughter livestock and slaughterhouse workers and their epidemiological interrelatedness.
4. Resistance of Brucella to first line antimicrobial agents (rifampicin and streptomycin)

Species	Sample Type No.	Analysis			Results
		Serology	Bacteriological	Molecular	
	Serum (695) Spleen (695) Lymphnodes (695)	Standard RBT + NH-GD test	-Culture (CITA media and TSB) - Urease + Oxidase tests	-DNA extraction -Speciation with Bruceladder - Biovar typing (-WGS (MiSeq 2x300pb RUN platform) -Phylogenetic tree construction (EDGE, MEGA X) - Screening for the K42R mutation in the rpsL encoding for Streptomycin and several mutations in the rpoB gene that encode for Rifampicin resistance	Sero-Prev -Risk factors -Species & biovars - Phylogenetic relationships - Resistance genes for WHO first line antibiotics present/absent
	Serum (915) Spleen (915) Udder tissue (915) Lymphnodes (777)	Modified RBT	As above		
	Serum (741) Spleen (741) Udder tissue (629) Lymphnodes (741)	Standard RBT	As above		
	Whole blood (461) Serum (461)	IgM,IgG LFiC, BrucellaCapt, RBT	-Culture (BACTEC MYCO/F LYTIC medium) + TSB -Urease + Oxidase		

OUTPUTS

- Information for public health action
- Information to enrich the national brucellosis control strategy e.g.

- The vaccines to promote
- The geographical areas and livestock species to target

OUTCOMES

- Safer Food
- Improved Occupational health
- Improved livestock productivity and incomes of all value chain actors

ACHIEVEMENTS AND NEXT STEP

- Scoping visits to study areas
- Ethical clearances obtained
- Sample collection- mid Oct 2021

SUPERVISORS

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