

Acknowledgments

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BRUCELLOSIS SERO - PREVALENCE STUDY KAJIADO 2012

DISSEMINATION OF RESULTS KAJIADO COUNTY



A collaboration between Ministry of Agriculture, Livestock, Fisheries and the Ministry of Health

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INTRODUCTION

The Kenya Zoonotic Disease Unit (ZDU) was formed in 2011 under the Ministry of Health and Ministry of Agriculture, Livestock and Fisheries, and charged with the mission of establishing and maintaining active collaboration at the animal, human, and ecosystem interface towards better prevention and control of zoonotic diseases. One of the ZDU strategies towards reducing the burden of zoonotic diseases in Kenya and enhancing capacity to respond to emerging and re-emerging infectious diseases is to conduct applied research to better understand mechanisms of maintenance and transmission of zoonotic infections.

Brucellosis is a priority disease for both ministries and is the most common bacterial zoonotic infection, that is associated with significant agricultural economic losses and human suffering. This brief summarizes the objectives, design and results of a study to determine sero-prevalence and risk factors of brucellosis infection in humans and animals in Kajiado county.

STUDY OBJECTIVES

- ◆ To determine the sero-prevalence of brucellosis in humans and animals in Kajiado and Kiambu County
- ◆ To identify risk factors associated with human and animal brucellosis
- ◆ To assess the knowledge of participants on brucellosis prevention and control

MATERIALS AND METHODS

- ◆ The study was a cross sectional survey conducted in November-December 2012. Sub-locations within the Kajiado county were randomly selected, and the number of households per sub-location determined proportionate to population size.
- ◆ The survey populations were individuals or animals in selected households. For humans, the survey population were all persons aged 5 years and above. In animals, the survey population included cattle, sheep and goats.
- ◆ For each selected household, a questionnaire was administered to the household head. Three individuals from the household were randomly selected; a questionnaire administered and blood sample taken from each individual. For animals, up to 15 animals per species were sampled in each selected household with animals. The questionnaires were administered using smart phones.
- ◆ Consent was obtained from the household head and individuals before interviewing them and sample collection.
- ◆ The blood samples were tested for brucella antibodies. Animal samples were tested at Central Veterinary Laboratories in Kabete while human samples tested at the KEMRI/CDC laboratories in Kisumu.

RESULT

A total of 308 households were visited and included in the study. From these households, 810 persons were interviewed and 3,513 animals sampled (cattle=984, goats=1,398 sheep=1,131)

Prevalence of brucellosis

- ◆ 1 in 3 households had at least one person positive for brucellosis antibodies
- ◆ 7 out of every 50 individuals sampled were positive for brucellosis antibodies
- ◆ About 1 out of every 50 animals sampled were positive for brucellosis antibodies
- ◆ In sub-locations which had at least 10 households selected, Sultan Hamud (Mashuru district) and Entarara (Oloitokitok district) had the highest prevalence

Factors associated with brucellosis

The following were factors associated with positive brucellosis antibodies in humans

- ◆ Consumption of raw dairy products like milk
- ◆ Close exposure to animals including milking, herding and cleaning barns
- ◆ Handling animal hides and skins
- ◆ Owning animals in household.

The following were factors associated with positive brucellosis antibodies in animals

- ◆ Introducing new animals into farm through purchase or gift
- ◆ Selling animals from farm
- ◆ Animals from farm intermingling with wildlife

Relationship between animal and human brucellosis

For the relationship between animal and human brucellosis, we determined the risk of having a human positive case in household with positive animal cases

The chances of a household having a positive human case given a positive animal case in the household was 2 times higher compared to households without positive animal cases. The chance was 2.5 times higher if the positive animal was a goat.

Knowledge on brucellosis

Questions to assess the knowledge and practices regarding brucellosis were administered to the household head.

- ◆ 1 in every 10 individuals reported that they had been treated for brucellosis before the study.
- ◆ 3 in every 4 individuals reported that they knew somebody (friend, family, self) who had been treated for brucellosis
- ◆ Only 1 in every 14 people knew how brucellosis is transmitted from animals to humans (using unpasteurized milk, contact with contaminated animal tissues, occupational)

CONCLUSION AND RECOMMENDATIONS

- ◆ This study is a good example of the added value of a closer cooperation between human and animal health for diseases affecting humans and animals
- ◆ The prevalence of brucellosis antibodies among the humans in Kajiado County is high. The relationship of human and animal cases provides useful information on how interaction between human and animals affect the burden of brucellosis.
- ◆ Knowledge on the transmission and prevention of brucellosis is low.
- ◆ In this study, brucellosis was tested using antibody based tests. This means that the results reflect previous infection with brucellosis and not acute brucellosis cases. To be able to fully understand the burden and impact of brucellosis in Kajiado County, it will be necessary to conduct a follow up study targeting new cases as well carry out a social economic impact assessment.
- ◆ The follow up a study will be conducted in two districts which had high prevalence: Oloitokitok and Mashuru.
- ◆ Health education to promote adoption of practices that reduce human infection from animals by consumption of pasteurized milk and using protective clothing when handling or assisting animals during births, abortions and removal of retained placenta is recommended.