

Acknowledgments

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BRUCELLOSIS SERO - PREVALENCE STUDY KIAMBU 2012

DISSEMINATION OF RESULTS KIAMBU COUNTY



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

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INTRODUCTION

The 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 health interface. One of the strategies of ZDU is to reduce the burden of zoonotic diseases in Kenya and enhancing capacity to respond to 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 infections 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 Kiambu county were randomly selected to represent the whole of the county 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 PDA(Personal Digital Assistant).
- ◆ 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 514 households were visited and included in the study. From these households, 1,320 persons were interviewed and 2068 animals sampled (cattle=1303, goats=310, sheep=455)

Prevalence of brucellosis

- ◆ Only 3 in every 50 households had at least one person positive for brucellosis antibodies
- ◆ Only 1 in every 50 individuals sampled were positive for brucellosis antibodies
- ◆ About 3 out of every 50 herds sampled had an animal(either a cow/goat/sheep) that was positive for brucellosis antibodies

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

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.

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 Kiambu County is low. However, laboratory and hospital records report high number of cases. This mismatch is likely due to insufficient capacity to diagnose brucellosis in health facilities and the high index of suspicion of brucellosis among febrile patients by health workers using clinical presentation for diagnosis.
- ◆ 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.

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.