

Vets and medical doctors should team up to tackle diseases transmitted from animals to humans, study suggests

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A new study at the Institute of Tropical Medicine (ITM) in Antwerp analyses the impact of animal brucellosis and bovine tuberculosis (BTB) on animals and people in urban, peri-urban and rural Niger. The World Health Organization (WHO) ranks them as major zoonoses, infectious diseases transmitted between species. The research maps risk factors for transmission of these diseases from animals to humans, indicating that closer collaboration between medical doctors and veterinarians is required.

Interviews with the local population identified the main risk factors for transmission; consumption of unpasteurised milk, lack of hygiene in households, presence of coughing animals in the herd, and absence of quarantine.

"Milk is an important source of protein in Niger. Animals graze in rural areas, but are brought to the city when lactating in order to be as close as possible to the consumer. Mapping these kind of dynamics provides vital information about the diseases and how they are transmitted," said Abdou Razac Boukary about his doctoral research at ITM and the University of Liège (Ulg).

The study concludes that it is crucial to address the interlinks between humans, animals and the environment to control animal brucellosis and BTB. They are both an economic and a [public health threat](#). While

contagion is extremely unlikely in [industrialised countries](#), the largest part of the world's population lives in areas where animal brucellosis and [bovine tuberculosis](#) are not under control. Hence, ITM calls for increased collaboration between animal and human health specialists in a so called "One Health" approach.

"We should not forget that more than 60% of [human pathogens](#) originate from animals. But raising awareness about these relatively unknown diseases is also crucial from an economic perspective. According to an African saying, if livestock die so does the village," said ITM scientist Eric Thys, co-promoter of the thesis.

Abdou Razac Boukary, an agronomist and advisor to the government of Niger, brought together a group of human and animal health specialists for his PhD research. Boukary studied brucellosis and BTB in over 1100 households keeping livestock. He collected nearly 5000 blood samples for brucellosis and tested almost 400 cattle for BTB. Such a large scale approach involving animal and human health specialists is still a rarity.

Results show that around 13% of herds included animals infected with brucellosis. It was found that animals below the age of one were more likely to fall ill than [animals](#) aged 1-4 years.

Around one in hundred cows were found to be infected with BTB. Analysis of samples taken at the abattoir of Niamey showed that cows were significantly more affected by BTB than other categories of cattle. The research also characterised a new profile of *Mycobacterium bovis* bacterium (SB1982) which has never been reported before.

Human brucellosis and tuberculosis from animal origin

In humans, brucellosis induces undulating fever, sweating, weakness, anemia, headaches, depression, as well as muscular and bodily pain, testicular inflammations in men and spontaneous abortion in pregnant women. Human tuberculosis from animal origin can affect the lungs but is often located in others part of the body. While contagion is extremely unlikely in industrialised countries, the largest part of the world's population lives in areas where animal brucellosis and bovine tuberculosis are not under control.

Future studies at ITM will analyse the impacts of these diseases in humans in more detail.

Abdou Razac Boukary defended his thesis at the University of Liège (Ulg) on 22 April 2013.

More information: Boukary, A., Thys, E. and Rigouts, L. Risk factors associated with bovine tuberculosis and molecular characterization of *Mycobacterium bovis* strains in urban settings in Niger, *Transboundary and Emerging Diseases* (2012), 59(6), 490-502

Link to the doctoral thesis and other research of Abdou Razac Boukary:
bit.ly/14s6dtw

Provided by Institute of Tropical Medicine Antwerp

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