Bacterial zoonoses in East Africa: a major cause of human illness and economic burden?
Cleaveland, S.¹, Crump, J.A.²,³, Knobel, D.⁴, Shirima, G.⁵, Biggs, H.M.²,³, Kunda, J.⁶, Auty, H.¹, Halliday, J.¹, Allan, K.¹, Njenga, K.⁷ and Kazwala, R.R.⁸, ¹University of Glasgow, Glasgow, United Kingdom, ²Kilimanjaro Christian Medical Centre, Tanzania, ³Duke University Medical Center, North Carolina, USA, ⁴University of Pretoria, South Africa, ⁵Ministry of Livestock and Fisheries Development, Tanzania, ⁶National Institute of Medical Research, Tanzania, ⁷CDC/KEMRI, Nairobi, Kenya, ⁸Sokoine University of Agriculture, Morogoro, Tanzania; Jo.Halliday@glasgow.ac.uk

In sub-Saharan Africa, inpatient febrile illness and death is most commonly attributed to malaria, but malaria is over-diagnosed and there is growing evidence that many zoonoses are important causes of undifferentiated febrile illness. As well as direct impacts on human health, many zoonoses have economic impacts, reducing livestock productivity. We review data on three bacterial zoonoses, brucellosis, Q-fever and leptospirosis, generated through (1) human febrile disease surveillance; and (2) cross-sectional studies in linked human and animal populations, conducted in Tanzania and Kenya over the past 10yrs. Results from a febrile illness study in northern Tanzania indicated that, collectively, these zoonoses were the cause of 11 times as many cases as malaria, with leptospirosis diagnosed in 9%, Q-fever in 5% and brucellosis in 3% of febrile admissions. In a syndromic surveillance study in western Kenya, acute Q-fever was diagnosed in 3% of patients with acute respiratory disease and fever. In northern Tanzania, the seroprevalence of *Brucella* in humans (7-10%) was similar in pastoral and agropastoral settings, but differed in livestock (8-10% in pastoral, <4% in agropastoral areas). Very low livestock seroprevalences were seen in smallholder communities in Tanzania and Kenya. Bacterial zoonoses are likely to contribute significantly to the burden of human and animal disease in East Africa, particularly in pastoral and agropastoral communities. Efforts need to be made across medical and veterinary sectors to improve their diagnosis, treatment and prevention.