International partnerships - Shining light on the neglected zoonoses

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Background

- Zoonoses are diseases that spread from animals to people e.g. bird flu and rabies
- Poor people in developing countries are the worst affected, with livestock owners and abattoir workers at particularly high risk
- The People, Animals and their Zoonoses (PAZ) project investigates zoonoses in western Kenya

Objectives
Determine exposure to zoonoses in people and animals

Outcomes
Identify risk behaviours for disease
Develop interventions for prevention and control

Methods

Study population
- 416 households
- 2113 people
- 983 cattle
- 93 pigs
- 129 bats and rodents

824 hospital cases

738 abattoir workers

Sampling procedure
Questionnaire
- Demographics
- Socioeconomic status
- Health and nutrition

Biological samples
Blood, faeces

Land cover mapping

Sample analysis
- Blood and intestinal parasites
- Milk fever (brucellosis)
- Pig tapeworm (cysticercosis)
- Sleeping sickness (trypanosomiasis)
- Rift Valley Fever
- Q fever

Data analysis
- Estimate percentage of people/animals affected (prevalence)
- Risk behaviours for disease
- Spatial relationships
- Food borne risk
- Compare new test to "gold standard"

Partners and roles

COORDINATING PARTNERS
- University of Edinburgh
- International Livestock Research Institute
- Kenya Medical Research Institute
- Department of Veterinary Services Kenya

FUNDING
Wellcome Trust, Biotechnology and Biological Sciences Research Council, MRC, Consultative Group on International Agricultural Research

DATA ANALYSIS PARTNERS
- Uni of Wisconsin
- Uni of Southampton
- Uni of Liverpool

DIAGNOSTIC PARTNERS
- Friedrich Loeffler Institute, Germany
- University of Florida
- Universidad de Navarra, Spain
- Children's Hospital Oakland Research Institute
- Association for Strengthening Agricultural Research in East and Central Africa
- Institute of Tropical Medicine, Belgium

SAMPLING PARTNERS
- National Museums of Kenya
- University of Nairobi
- Makerere University, Uganda

POLICY PARTNERS
- Zoonotic Disease Unit

Outcomes

Key Results	Significance
Brucellosis data	Used in national control policy
Cysticercosis data	Develop new diagnostic test (Fig A)
Trypanosomiasis	Atlas of human African trypanosomiasis
Rift Valley Fever	First time identified in this area
New bat parasite	First time identified (Fig B)
Abattoir standards	Contribution to national standards
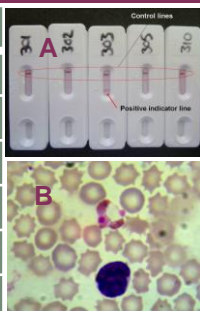
Additional benefits resulting from project
- BIOBANK – 25,000 samples stored for future projects
- Capacity building – 13 national and 12 international undergraduate and graduate students
- Treatment provided to 3000+ participants
- Some diagnostic tests validated in African setting for first time
- Collaboration with WHO to develop global eradication programme for cysticercosis

Conclusion

- Holistic approach to zoonotic disease investigation – first project to study animals and people concurrently
- Multidiscipline cross cultural team allows integrated approach to understanding zoonoses in this setting
- Outcomes of this project will allow development of evidence driven interventions for the prevention and control of zoonoses

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