

Quarterly Newsletter on “Epidemiology, Ecology and Socio-Economics of Disease Emergence in Nairobi”

All Tweets #UrbanZoo

The study aims to determine the prevalence and distribution of pathogenic *E. coli*, *Salmonella* and *Campylobacter* serovars and antibiotic resistance patterns of the same isolates from livestock in selected households from Korogocho and Viwandani slum and the quantification of the risk factors known to spread the organisms. This activity also contributes to providing the main project with a large bank of bacterial isolates from the livestock in the low income settlements to complement the human data from the case control study. Additional human isolates from livestock keepers have been collected (return rate approx. 30%, see above).

The MSc students constitute:



James Macharia, Mercy Gachuiya and Maurine Chepkwony as seen above while in the lab. They are registered at the University of Nairobi. Field teams were from ILRI, UoN and

APHRC. The study targeted to sample 750 animals within 205 households. The study has come to an end and they have been able to visit 204 households (140 from Korogocho and 64 from Viwandani).

They have come to the end of a successful field work involving livestock keeping households in Korogocho and Viwandani slums.

"We have been to 204 households (140 from Korogocho and 64 from Viwandani) from where we conducted questionnaires to get data on risk factors that predispose to the contamination and spread of Salmonellosis, Campylobacter and Pathogenic *E. Coli* & development of antimicrobial resistance, as well as the remaining value chain data at the livestock keepers' level. We sampled 801 livestock (26 cattle, 85 goats, 44 pigs, 561 chicken, 28 doves, 36 ducks, 20 rabbits). We also collected 103 human fecal samples from the same households that are being processed at the KEMRI labs.

We have so far done the first phase of bacteriology (from enrichment to biochemical tests) and have stored them waiting typing and antimicrobial suscep-



Goats feeding at the Viwandani dump site

tibility testing..

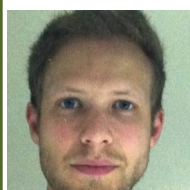
In conclusion, we are grateful to all members of the team who helped us get this far successfully."

"study aims to determine the prevalence and distribution of pathogenic *E. coli*, *Salmonella* and *Campylobacter* serovars and antibiotic resistance patterns of the same isolates from livestock in selected households from Korogocho and Viwandani slums"

Authors:

Chepkwony Maurine, Macharia James and Mercy Cianjoka Gichuyia.

Selected Students Profiles



James Hassell is a Veterinarian and a PhD student registered at the University of Liverpool. His research focus is on the role of peri-domestic wildlife in the emergence of zoonotic disease.



Maurine Cherotich is a Masters student at the University of Nairobi pursuing Veterinary Public Health. Her studies are on Campylobacter from livestock from Korogocho and Viwandani settlements.



Kelvin Momanyi is a recent Vet graduate from the University of Nairobi. He is currently an intern with the ESEI project mainly assisting in mapping the Dairy Value Chain within Nairobi.



Abdullahi Bulle is a Fifth Year Bachelor of Veterinary Medicine student at the University of Nairobi. During the summer break he spent 3 months as an intern within the ESEI project

Open Data Kit (ODK) is a free and open-source set of tools which help organizations author, field, and manage mobile data collection solutions. ODK provides an out-of-the-box solution for users to:

- ◆ **Build** a data collection form or survey
- ◆ **Collect** the data on a mobile device and send it to a server; and
- ◆ **Aggregate** the collected data on a server and extract it in useful formats.

Urban Zoo Team Training on ODK System:

A group of the urban zoo group members underwent the training on using the ODK system at ILRI and were tasked with ensuring that future data collection was electronic. Through this electronic medium, it replaces paper and other electronic formats we have been using previously.

ODK is deployed on either mobile phones or dedicated tablet computers using the Android operating system.

It has recently been used in our study areas and It will also be used in the upcoming 99 HH study for data collection at the household, environmental and Value chain level.

How to use ODK System

1. Developing the questionnaires
 - ◆ The questionnaires are converted into open data kit system
 - ◆ The questionnaires is tried in the field to determine its suitability
 - ◆ Changes are affected depending on the results of the trial, the changes are made after consultations between the questionnaire developer(s), the data management team and the field team.
 - ◆ The system of uploading the data to the server and the getting the data is

tested.

2. Using the questionnaires

- ◆ The field team is then trained on how employ the tablets in the field for the purpose of data collection

3. Administration of questionnaire from the tablet

4. Procedure for uploading the form

- ◆ This is to be done with internet connection
- ◆ The form is sent to the server



Data management

- ◆ The data collected is stored at ILRI bio repository server
- ◆ This data as accessible by the team for analysis
- ◆ The data can be accessed and analysed in third party software.

Why ODK?

The urban zoo team opted for this data collection method because of

- ◆ Ease of use
- ◆ Data security is optimized
- ◆ No need for electronic data entry after collection
- ◆ Cuts on paper work
- ◆ Enhances quality of data collected especially set triggers
- ◆ Ability to collect GPS location
- ◆ Ability to take multimedia data e.g. pictures

For more information on ODK, log onto the website:

<http://opendatakit.org/>

Article Prepared by:

Maurice Karani and Patrick Muinde, Research Technicians

“ODK Collect is currently being used by the Urban Zoo Team for data collection and analysis. It will also be used in the 99HH study which is underway”

For more information on ODK, log onto their website:

<http://opendatakit.org>

“FROM FAECES TO PHYLOGENY” TRAINING WORKSHOP

Page 4

A workshop dubbed “From Faeces to Phylogeny” took place at ILRI between 16-17th June 2014. The training workshop which was organised by CIIE (<http://ciie.bio.ed.ac.uk/>) in conjunction with Eric Fèvre under the Urban Zoonosis Project <http://www.zoonotic-diseases.org/home/research/urbanzoonoses>, was facilitated by Dr. Melissa Ward, a CIIE Research Fellow.

The main objective was to take the participants on a journey of analysing pathogen genetic sequence data (e.g. as will be generated from faecal samples in the UrbanZoo project) using molecular phylogenetics to test hypotheses about the spread of disease. The workshop consisted of 4 half-day sessions over 2 days. Each session was an hour lecture, followed by a 1.5 – 2 hour com-



puter practical. By the end of the workshop, participants were required to be able to manipulate genetic sequence data, and produce and interpret phylogenetic trees from genetic sequences.

It was such an exciting moment for all 25 participants who were from various in-

stitutions including University of Nairobi, KEMRI and ILRI.

The participants are looking forward to putting the learning to practice and very grateful to the facilitator: Dr. Melissa Ward. :)

URBAN ZOO NEWS

- * ESEI's Newest Post Doc - John Kiiru, is based at KEMRI and currently working with the various teams in our project particularly so with the UoN and KEMRI Laboratories. Currently John is effectively ensuring that there is appropriate level of coordination between the two labs; that protocols are harmonized and that quality control mechanisms are in place. He is also developing scientific questions around bacterial diversity especially so for the 99HH study.
- * Gemma Chalonier - A University of Liverpool postdoc investigating *Campylobacter* isolated in Kenya in the first instance and assisting with the development of protocols for the 99 households.
- * Joselyn Atuhairwe the MSc student at the Liverpool School of Tropical Medicine, who did her study on “The Butchery fly project” in Nairobi submitted her Thesis by end of August. The Urban Zoo Team is proud of her and congratulates her for the effort!

www.zoonotic-diseases.org

UPCOMING EVENTS:

- ILRI value chain workshop in September 22-23rd, 2014. Deadline on submissions of contributions 1st September
- ESADA conference - 10th Africa Dairy Conference and Exhibition September 24th – 26th 2014
- 5th International Meeting on Emerging Diseases and Surveillance, IMED 2014, Vienna, Austria from October 31 to November 3, 2014.
- 3rd International One Health Congress in Holland in 2015 (<http://www.iohc2015.com>) - abstracts: 1 August 2014 Call for abstracts online at the website, start of submission of abstracts, 1 October 2014 Deadline of submission of abstracts, after 1 October 2014 review of abstracts
- 2nd ELS Meeting on leptospirosis and other rodent borne haemorrhagic fevers, Amsterdam 16 – 18 April 2015