

From paper-based to electronic: enhancing information extraction from meat inspection records

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Introduction and objective

The Kenyan Meat Inspection Act requires that meat inspectors keep daily records of the animals slaughtered, and any reported condemnations, at the slaughterhouses within their jurisdiction.

These records are currently hand-written (Fig. 1), making it hard to easily access or summarize these data.

The objective of this study was to assess the feasibility of developing an electronic recording system to enhance information extraction from meat inspection records in western Kenya.

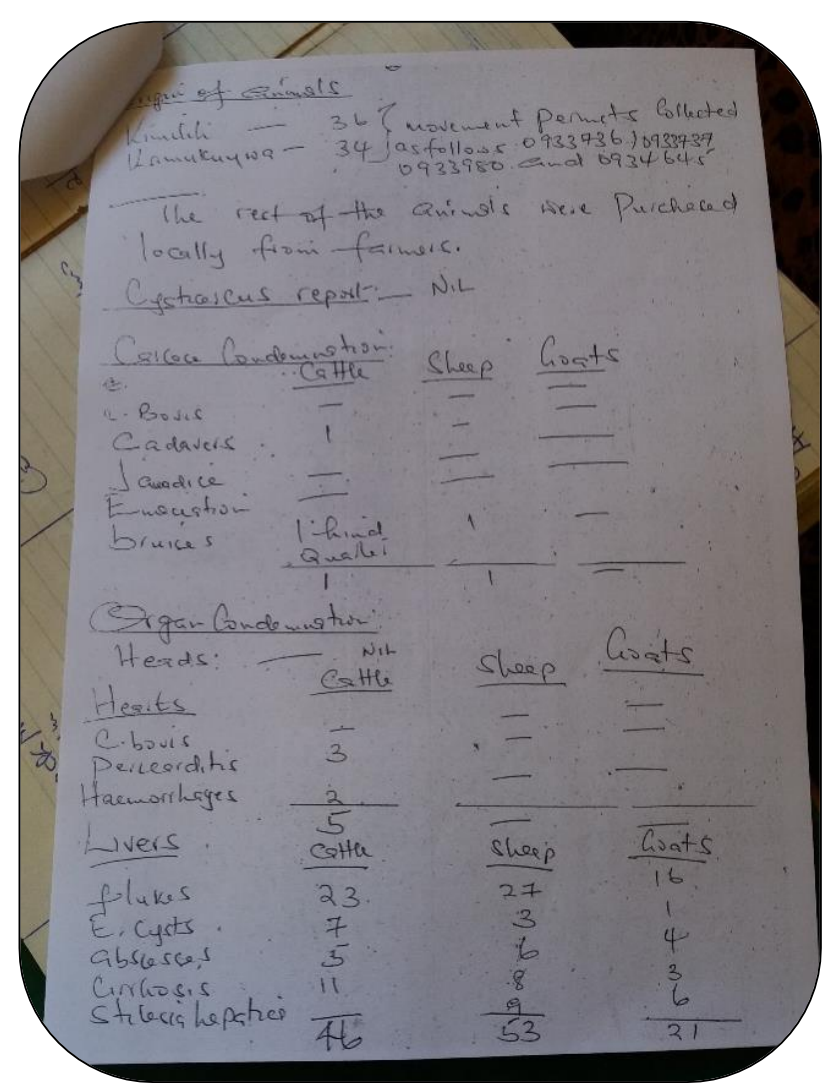


Fig. 1: Paper-based records of condemnations

Methods

Two ruminant slaughterhouses in Bungoma county, western Kenya, were purposively selected.

Meetings were held with the meat inspector to discuss which data they routinely collect or would like to investigate further.

This information was used to develop a digital form which captures both photos and information on the slaughtered animal and any eventual condemnation, including an estimate of the cost and weight of condemned parts.

This form was uploaded onto Android mobile devices.

Each meat inspector received a device (Fig. 2) and was asked to submit a form for every animal slaughtered at their facility.

These data reports are transferred directly into an electronic database and can be viewed in real-time.



Fig. 2: Our team member training a meat inspector on how to submit meat inspection records (right) using the electronic form (left)

Preliminary results

From 17th March 2017 to 1st March 2019, **13588** reports were submitted (**19/day**), with an overall decrease in the reports submitted over time (Fig. 3).

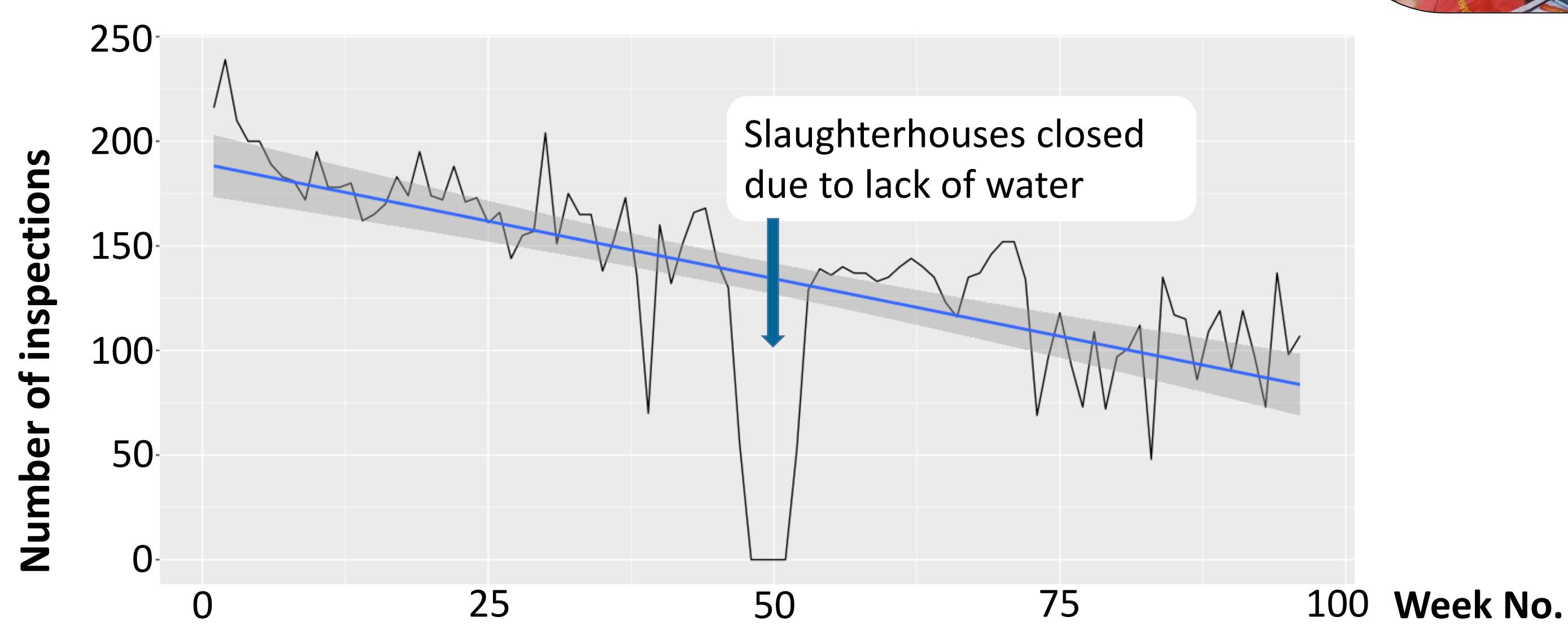


Fig. 3: Number of records submitted every week over the study period

Of all submitted forms, **3251 (24%)** reported a condemnation.

The most frequently condemned organs were livers (n=2006) and lungs (n=664). Foetuses were also frequently discarded (n=721).

	Liver	Lung
Main reasons for condemnation	Fasciolosis (47%) Cirrhosis (21%)	Hydatidosis (59%) Pneumonia (18%)
Average weight	2.2kg	3.8kg
Average cost	€6.70	€4.10

Discussion and next steps

The system has been well-received by the meat inspectors, generating a wealth of real-time information. However, the decrease in submitted forms needs to be investigated further.

Data have highlighted a relatively high frequency of condemnations, with fasciolosis and hydatidosis (Fig. 4) emerging as leading causes of condemnation.



Fig. 4: Liver flukes (right) and hydatid cysts (left)

These condemnations highlight important economic losses and a potential for transmission of zoonotic pathogens.

Additionally many foetuses were discarded during the study period, suggesting important reproductive losses.

We plan to extend the reporting system to other ruminant slaughterhouses and pig slabs in the study area, and are also in discussion with County veterinary officials to explore ways to make this reporting system sustainable in the long-term.

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