Antimicrobial usage in farm animal veterinary practice in the UK: A mixed methods approach

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Background

- Antimicrobial resistance (AMR) is both an animal health and public health problem.
- Responsible use of antimicrobials (AMs) in animals is an important component of strategies to reduce the emergence and spread of AMR.
- Understanding the extent and patterns of AMs usage in farm animal practice is crucial for monitoring AMs Usage and policy making to tackle AMR.

Objectives

◆ **Quantitative**

1. To estimate the prevalence of AM usage at farm level.
2. To describe:

- The clinical indications and demographic characteristics of farm animals receiving AMs.
- The risk factors associated with receiving overall AM treatment.

◆ **Qualitative**

1.Mapping stakeholders to investigate their influence in reducing AMs usage and their perceptions about the extent of the problem. (Fig.1)

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Mapping of stakeholders (Fig.1)

Methods

VetCompass data

◆ **Current status**

- Farm animal and mixed practices across UK participating in VetCompass[1] have been recruited for this study (25 clinics, 15,766 farm animals clinical records).
- More practices will be recruited over time based on their group participation in VetCompass.

◆ **AM treatment events**

- ➢Item name (active substance, formulation)
- ➢Amount prescribed / dispensed
- ➢Clinic ID, farm ID and partial postcode.
- ➢Associated clinical notes.

Challenges for the use of farm clinical records

- Multiple species may be treated in one visit.
- The exact number of animals treated is sometimes missing.
- AMs in prescribed in the herd health plan are in separate records.

Quantitative study

Farm level prevalence of AMs usage will be evaluated for:

- Overall AMs usage.
- Critically important antimicrobials and (CIAs) and highest priority CIAs usage.

Main clinical indication for AM therapy for a random sample of AM events and the demographic characteristics of animals receiving AM will be described by exploring the clinical records in further detail.

- Risk factors associated with receiving AM treatment and CIAs in particular will be evaluated using hierarchical logistic regression models.
- Clustering within clinic, farm and postcode will be explored.

Qualitative study

Review of relevant national and local policies will be undertaken in a systematic manner.

Intrinsic factors related to previous experience as well as extrinsic factors related to workplace, pressure and expectations will be pre-defined based on a literature Review of existing evidence.

Semi-structured qualitative interviews with:

- Farm vets and veterinary support staff.
- Farmers and milk processors.
- Other stakeholders.

Themes in the dataset will be explored using thematic analysis.

References

1. VETCOMPASS. 2017. *VetCompass: Health surveillance for UK companion animals [Online]. London: RVC Electronic Media Unit. Available: http://www.rvc.ac.uk/VetCOMPASS/ [Accessed January 24th 2017].*