Investigating practices and attitudes of poultry and pig farmers and vet drug suppliers towards antibiotic usages and alternative practices in Nan Province, Thailand

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ABSTRACT

Objective: Although antimicrobial usages (AMU) in veterinary medicine have brought about numerous benefits to animal health worldwide, their overuse and misuse have led to antimicrobial resistance (AMR) which is currently one of the most serious threats to global health. These poor practices are still done for different purposes in animal husbandry in Thailand including treatment, prevention of diseases, or enhancement of animal production. To achieve a more rational use of antimicrobials among farmers, it is important to understand on one hand the practices of use and on the other attitudes of farmers and drug sellers regarding the risk of resistance along with their beliefs regarding alternative practices.

Materials and methods: The study was conducted using a qualitative approach, the Q methodology which was divided into five steps: (i) generation of opinion statements; (ii) selection of the opinion statements; (iii) selection of participants; (iv) sorting of statements by participants (Q sorting) and in-depth interview; and (v) statistical analysis using principle component analysis and factor analysis.

Results: Regarding the diversity of practices and attitudes towards antimicrobials uses among two distinct populations; farmers and veterinary drug suppliers were categorized into different discourses which were influenced by variables such as production type and geographic location (for farmers) or education level and role/responsibility (for veterinary drug suppliers). Consensual points were identified through those discourses.

Conclusion: This study illustrated critical elements which influence farmers to use antimicrobials. Recommendations were generated for farmers to achieve a more rational use of antibiotics and in order to strengthen the health regulation to reduce inappropriate dispensing of antibiotics by suppliers. Moreover, some alternative practices and ethno-veterinary knowledge was identified as interesting to be promoted.

Key words: Q methodology, participatory epidemiology, antimicrobial resistance, livestock, qualitative analysis

Antimicrobial resistance in intensive poultry and milk production in South Africa: from historical data analysis to the monitoring of the use of antibiotics

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ABSTRACT

Objectives: The gross income generated by animal production industries in South Africa was estimated at R80.8 billion (US$6.86 billion) for 2012. The contribution from poultry meat was R30 billion with an addition of R8 million from eggs. The milk industry contributed for R11 billion. These industries represent more than 50% of the contribution of animal products to the gross income. Regular diseases outbreaks impact negatively the growth and development of these livestock industries. The incidence of specific diseases within South Africa plays a decisive role in the selection of antimicrobials to be administered and judicious use of antimicrobials is paramount. Avian pathogenic Escherichia coli causes major losses in the poultry industry and became the predominant bacterial disease due to the increased intensive confinement housing. In addition E. coli infections are often secondary to viral disease. Standard practices currently employed in South Africa are to start prophylactic treatment to prevent secondary bacterial infection whenever a sanitary problem occurs in poultry. In commercial dairy herds, somatic cell count higher than 400 000 cells/ml leads also to the treatment of sub-clinical mastitis involving mainly Staphylococcus aureus.

Material and methods: Time series analysis on E. coli and S. aureus resistance over a period of 10 years in relation with antibiotics use were performed Seasonal and geographical patterns were also highlighted for some specific antibiotics family using general linear mixed models.

Results: Various temporal trends have been highlighted according to the different antibiotics allowed us to better understand the farmers practices leading to these resistance. Seasonal and regional patterns may vary according to the antibiotics that could be related to climatic variation.

Conclusion: This better understanding of the trends and patterns of antimicrobial resistance in intensive farming in South Africa provided room for advising farmers practices on the monitoring of antibiotics but challenged also research in terms of antimicrobial resistance drivers.