

ANIMAL HEALTH & VETERINARY MEDICINE

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A systematic review of current antimicrobial usage in global aquaculture

Laura Nathwani

University of Manchester, UK

Aquaculture is currently the fastest growing agricultural sector due to increased global demand for high quality protein with most growth in Asia, particularly China. It is also one of the most intensive farming practices and is as such susceptible to antimicrobial overuse. There are concerns that antimicrobial stewardship in these emerging economies is at best unknown and at worst insufficiently regulated and the risk is that antimicrobial usage may keep pace with aquaculture expansion. If this is the case, the impacts are huge. There is a growing body of evidence linking antimicrobial usage in aquaculture, through a complex web of other aquatic species and the environment, to antimicrobial resistance in people. Given the already substantial rates of infectious disease globally, especially in countries that can least afford them, adding an increase in antimicrobial resistance could result in a humanitarian crisis. The objective of this review was to collect and analyze the most current data on antimicrobial usage in global aquaculture. A comprehensive literature search was used to identify all countries where sufficient quantitative data was available, followed up by more country specific searches to locate the primary data or review. All available information about their antimicrobial usage in aquaculture was extracted and the data was compiled into a table. It was only possible to do descriptive comparisons between most countries as the data collected was of unproven validity and reliability and was neither collected using similar methods nor presented in a consistent format that would have allowed trends to be analyzed or comparisons or generalizations made. It was found that information on the methodologies used for data collection and analysis is severely lacking in the scientific literature. It also highlighted the dearth of countries that collect accurate antimicrobial sales data in aquaculture or monitor end-point usage. It is vital to ensure antimicrobial stewardship practices, are responsible now, before any potential problems burgeon. To do this a benchmark of current antimicrobial use is needed to inform priorities that need to be urgently addressed and to allow measurement of the impact of future programs. This is a preliminary report of baseline data which may be used by animal health industries to develop and measure success in, approaches to maximize the life of antimicrobials for animal health and welfare.

Biography

Laura Nathwani has been working in Humanitarian and Conflict Response Institute at the University of Manchester, UK.

laura.nathwani@icloud.com

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