“Role of a Pharmacist in the Antimicrobial Stewardship of Food Producing Animals”

THE ETHICS OF ANTIBIOTICS USE IN ANIMAL FARMING

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OUTLINE

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BACKGROUND

- Scientific evidence suggests that non-therapeutic use of antibiotics in animal farming is one of the main contributors to Antimicrobial Resistance in human beings (Aarestrup 2015).

- By non-therapeutic, it is meant that antibiotics are routinely added to animal feed or drinking water to help animals gain weight faster and protect them from infectious diseases US Food and Drug Administration [FDA], 2013).

BACKGROUND CONTINUED

- This method of farming has been seen for many years as a safe way of limiting transmission of infections from animals to humans via the food chain.
- It is also a way of producing food very cheaply because farmers could use antibiotics and other means to promote growth and control infections within confined spaces for penned animals.
- Whenever antibiotics are used at sub-therapeutic levels, the chances of AMR development increase.

BACKGROUND CONTINUED

- Antimicrobial Resistance is "now recognised as one of the most serious global threats to human health in the 21st century" (Liu et al. 2016)

- The FDA in the past has approved the withdrawal of antibiotics known to cause resistant infections in human beings, for example, the withdrawal of Enrofloxacin for poultry in 2005.

- The FDA cited that it "caused the development of fluoroquinolone-resistant Campylobacter species in poultry" (FDA, 2005) and in human beings.

OBJECTIVES

- To evaluate the ethical and scientific implications of non-therapeutic use of antibiotics in animal farming.
- To critique O'Neill's (2016) Final Report on AMR.
- To argue for a ban of non-therapeutic use of antibiotics in animal farming in SA

METHODOLOGY

- Normative assessment and analysis of scientific evidence and ethical issues involved in farming with antibiotics making use of Mepham's Ethical Matrix.
- Electronic Databases used included: EBSCO, PubMed & SCOPUS
- Search words included: antibiotics, antimicrobial use in animal farming, agriculture, non-therapeutic use of antimicrobials in a farming, etc

O'NEILL'S REPORT PREVIEW

- "Tackling Drug-Resistant Infections Globally: Final Report and Recommendations"(O'Neill 2016)

- O'Neill's (2016) report is based on a series of interim published papers that looked at specific aspects of AMR over an 18-month long consultative process.

- The AMR review included analysing 280 published papers that addressed the antibiotic resistance issue in agriculture.

O'NEILL'S REPORT CONTINUED

- The review team found that an overwhelming 100 of 139 (72 %) academic papers reviewed **found that there was a link between antibiotic use in animals and resistance in human beings.**

- The overall objective of the report is to reduce the demand for antimicrobials in order to respond to the rapidly growing demand for antimicrobials because the frequency and quantities have a direct impact on resistance development.

- By restricting the use, the rate at which resistance occurs can be reduced.

MEPHAM'S MATRIX

- Mepham's Ethical Matrix is defined as a set of fundamental moral principles upon which to base reasoning in agricultural ethics.
- The matrix is based on the four ethical principles put together in 1994 by Beauchamp and Childress known as principlism.
- These four ethical principles are [non-maleficence, beneficence], autonomy, and justice.
- Three principles may be considered to correspond with the three major theories of ethics,
- Namely: Utilitarianism (Wellbeing), Kantianism (Autonomy), and Rawlsian Theory (Justice) (Mepham 2000)

MEPHAM'S MATRIX CONTINUED

- **Consumer Autonomy:** is a choice consumers have to make their own independent buying decision based on quality of ingredients and affordability.

- Labelling should clearly identify meat products coming from farms where antibiotics are used non-therapeutically.

- The consumer autonomy is infringed when it comes to meat products because antibiotic residues are not advertised as differentiators because that would likely turn consumers away.

FINDINGS

- Direct link between using Antimicrobials routinely in animal farming and AMR development in humans

- Inverse relationship between unit cost of producing farm animals and cost of treating infections in humans

- The research argues that intensive factory farming poses the greatest risk in the preservation of all classes of antibiotics because it is customary to use antibiotics where a large number of animals are kept in close proximity for example in pig and poultry farming

O'NEILL'S RECOMMENDATIONS

- **Five of Ten Recommendations:**
  - A global public awareness campaign
  - To promote the development of new antibiotics, and make better use of existing ones
  - To support the innovation and uptake of rapid point-of-care diagnostics
  - Improve global surveillance of drug resistance and antimicrobial consumption in humans and animals

CONCLUSION

- Not ethically justifiable for farmers to carry-on farming with antibiotics non-therapeutically

- An immediate ban on antimicrobials deemed medically important for humans in animal farming e.g. colistin, inline with abolishment of intensive factory farming

- Adoption of O'Neill's recommendations on tackling AMR
- Public Awareness Campaign is justified by the threat posed by AMR

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