Introduction

Antimicrobial Resistance (AMR) is the process by which microorganisms cease to be susceptible to antimicrobials (antibiotics), thereby becoming untreatable when they infect larger organisms (humans and animals). To defend against the threat of AMR, better conservation and management of currently used antibiotics, as well as innovation of new antibiotics, are both crucial steps to protecting our health.

India, which suffers from a heavy AMR burden, uses antibiotics unsafely in its livestock industry, and is expected to see major increases in antibiotic use as demand for animal-based food increases as GDP rises in India and in China (which imports large quantities of meat from India).

Objective of the Study

To determine the relative efficacy and sustainability of 'top-down' (governmental) and 'bottom-up' (citizen initiated) anti-AMR initiatives in India’s agricultural sector.

Methods

• Qualitative assessment of legislation, regulations, and reports produced by agencies of the national government
• Communication with stakeholders in the research and non-profit fields

Findings

TOP-DOWN

Department of Animal Husbandry, Dairying & Fisheries (DAHD)

• No budgetary spending on food safety over the past three years
• Has conceded to the presence of the issue in official reports, but has not formulated a response plan

Food Safety and Standards Authority of India (FSSAI)

• Recent CAG report found they have not been meeting their stated expectations
• Traces of dangerous bacteria have repeatedly been found in Indian food products

National Action Plan on Antibiotic Resistance (NAP)

• The Plan is notably underdeveloped, with unclear goals and unspecified means of reaching them

BOTTOM-UP

Producers

• At least five poultry companies have recently begun producing and selling antibiotic-free products, in response to popular demand

Research

• The Centre for Science and the Environment (CSE) has produced reports and hosted conferences on how to meaningfully implement the NAP
• Partner with farmers to determine best practices in the field

Advocacy/Activism

• Numerous animal welfare groups; though few focus on AMR, it has been an effective channel for change, and can be utilized to combat AMR as well
• Federation of Indian Animal Protection Organizations (FIAPO) has expressed interest in tackling AMR in India farms
• Already formed relationships with farmers and produced educational materials

Discussion

Beyond general bureaucratic hurdles, the major challenge for government agencies is the threat AMR-free products might pose to productivity, and profits, for low-income farmers; with high rates of poverty throughout the country, it can seem hard to justify efforts to cut back on food production, particularly in lucrative markets like dairy and meat products.

Questions

• How are the farming hotline receivers trained? What about drug retailers?
• In mapping an action plan, which region(s), based on production, consumption, and antibiotic use rates, should be prioritized for pilot programs?
• What are the specific costs for producing educational materials for farmers?

Conclusion

Preliminarily, so called ‘bottom-up’ approaches to combatting AMR in the Indian agricultural sector seem the most promising, and should be invested with both financial and human capital.

Acknowledgements

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Practitioner poster
Title Goes Here: catchy and concise

Introduction
- Describe the overall situation, using bullet points
- Keep text to a minimum size of 24
- This should frame your research so readers can understand why it is important for global health

Objective of Internship
A one sentence overview of your learning objectives in taking this internship

Reflection
- Explain how you contributed this summer
- Highlight what you learned during the internship
- Use the space wisely. Split, or trim down the results section if there is more information contained in other sections
- Pictures that feature you at work during the summer internship are a good choice
- Use short text boxes
- Highlight key aspects in bold
- Provide a logical flow for your results

Work profile
- Explain the overall organizational objectives
- Explain the role of your research project in that
- Use a new bullet point for each new concept
- Describe your role in the research project

Looking ahead
- Explain how your summer experience has impacted your future plans

Questions
- Are there questions that remain unanswered following your internship?

Conclusion
- Draw conclusions based upon the internship experience

Acknowledgements
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