

Editorial

Antimicrobial Resistance in Human Originating from Poultry Derived Food Commodities

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Antimicrobial resistance (AMR) has emerged as one of the most significant global health crises in the current era. Once hailed as a miracle medicine, antibiotics are losing their effectiveness at an alarming level due to the microbes adapting to antimicrobial agents and genetically changing over time. While much attention has been pointed at the overuse of antibiotics in human medicine, another underappreciated significant contributor lies in our food chain—specifically, in meat and poultry products from intensively farmed animals. The regular and excessive use of antibiotics in livestock and poultry for disease prevention has created a pathway through which resistant bacteria and antimicrobial residues can enter the human food chain. There are several factors contributing to the spread of AMR through meat and poultry products, including antibiotic overuse in poultry and animal farming, multiple transmission pathways to humans, the presence of antimicrobial residue in food, and the negligence of regulatory authorities.⁽¹⁾

In many countries, antibiotics are used not only to treat sick animals but also on healthy ones for excessive profit by growth promotion and disease prevention, which has contributed to the emergence of resistant bacteria, as many of the antimicrobial agents used are similar to those used in human medicine, such as tetracyclines, macrolides, ciprofloxacin, erythromycin, and fluoroquinolones.⁽²⁾ Human exposure to antibiotic-resistant bacteria occurs through the consumption of meat and poultry contaminated with pathogens like *Salmonella*, *Campylobacter*, and *E. coli*, commonly detected in the retail market worldwide.⁽³⁾ Additionally, the use of manure from antibiotic-treated animals as fertilizer can facilitate the spread of resistance genes into soil, crops, and water sources, which may serve as vectors for broader contamination. Besides bacterial contamination, food products may contain antimicrobial residues. Moreover, significant global disparities and restrictions in antimicrobial regulation, economic liability, and infrastructural limitations cause the lack of harmonized international standards to combat AMR in the context of global food trade.

Addressing the role of meat and poultry in the human antimicrobial resistance crisis requires a mixed initiative approach such as advanced research, regulatory reform, responsible and controlled use, consumer engagement, and international cooperation. Improving the existing regulatory frameworks together with advanced research is essential, with

governments needing to ban antibiotics for growth promotion or overuse, mandate veterinary oversight for therapeutic and alternative use, and ensure no drug residues in food products, all managed by strict enforcement and surveillance mechanisms. Promoting the adverse effects of antimicrobial use among poultry farmers and veterinarians through education, training, and access to veterinary services is important, alongside the adoption of alternatives such as vaccines, probiotics, natural therapeutics, and improved farm biosecurity to reduce reliance on antibiotics. Improving surveillance systems to monitor antimicrobial usage and resistance patterns across poultry and human populations is critical, and such data should be standardized, transparent, and shared internationally to inform evidence-based policies. The link between meat and poultry production and the human antimicrobial resistance crisis is an established reality with serious implications for public health. Addressing this issue requires a One Health approach that recognizes the interconnectedness of human, animal, and environmental health. By reforming animal farming practices, strengthening regulatory oversight, and raising public awareness, together we can reduce the crisis of AMR and preserve the effectiveness of life-saving antimicrobials for future generations.

Ethics Approval

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Competing Interests

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