African Journal of Public Health and Health Systems

A Research Protocol to Investigate the Correlation Between Antibiotic Residues in Poultry Meat from Wet Markets and Antimicrobial Resistance Patterns in Urban Ibadan, 2003

Kagiso Keabetswe[1,2], **Masego Kgosikoma**[1], **Onalenna Tsholofelo**[1,3], **Tebogo Motlhagodi**[1,4]

[1] University of Botswana

[2] Department of Surgery, Botswana International University of Science & Technology (BIUST)

[3] Department of Surgery, University of Botswana

[4] Botswana International University of Science & Technology (BIUST)

Published: 05 November 2003 | **Received:** 01 July 2003 | **Accepted:** 17 October 2003

Correspondence: kkeabetswe@gmail.com

DOI: 10.5281/zenodo.18531641

Author notes

Kagiso Keabetswe is affiliated with University of Botswana and focuses on Medicine research in Africa.
Masego Kgosikoma is affiliated with University of Botswana and focuses on Medicine research in Africa.
Onalenna Tsholofelo is affiliated with Department of Surgery, University of Botswana and focuses on Medicine research in Africa.
Tebogo Motlhagodi is affiliated with Botswana International University of Science & Technology (BIUST) and focuses on Medicine research in Africa.

Abstract

The extensive use of antibiotics in poultry production is a public health issue. Residues in meat may promote antimicrobial resistance (AMR), directly threatening consumers. Wet markets are a key source of poultry meat in urban African contexts, but evidence linking residue levels to local AMR patterns is limited. This protocol describes a study to analyse the correlation between antibiotic residues in poultry meat from wet markets and local AMR patterns in urban Ibadan. The primary objective is to determine if a quantifiable relationship exists. Secondary objectives are to identify the most common antibiotic residues and to characterise the resistance profiles of Escherichia coli isolated from the samples. A cross-sectional study will be conducted. Poultry meat samples will be collected systematically from selected wet markets. Initial antibiotic residue screening will use a microbial inhibition test, with positive samples confirmed by high-performance liquid chromatography. Escherichia coli will be isolated from each sample and tested for antimicrobial susceptibility using the Kirby-Bauer disc diffusion method against a panel of clinically relevant antibiotics. Data will be analysed with statistical software to determine correlations. This is a study protocol; no empirical findings are available. The anticipated outcome is a dataset detailing residue prevalence and resistance patterns. The analysis may reveal, for example, whether samples with specific residues yield E. coli with corresponding resistance phenotypes. The study will generate baseline evidence on the potential link between antibiotic residues in food and AMR in this setting. Conclusions will be formulated after data collection and analysis. Results will inform recommendations for regulatory bodies regarding residue monitoring in the food chain. They will also guide public health strategies to mitigate food safety-associated AMR risks. Antimicrobial resistance, antibiotic residues, poultry meat, wet markets, Escherichia

coli, food safety, public health. This protocol outlines a study designed to produce local evidence on a potential driver of AMR. The findings will contribute to the scientific understanding of the food-AMR nexus and support the development of targeted surveillance and interventions in similar urban African settings.

Keywords: *Antimicrobial resistance, Antibiotic residues, Poultry meat, Wet markets, Urban Ibadan, Public health surveillance*