

Transmission of AMR bacteria during the processing of chicken meat

Area of research interest: [Antimicrobial resistance](#)

Study duration: 2022-09-02

Project status: Ongoing

Project code: FS430817

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Background

The FSA has made a commitment in the AMR National Action Plan to strengthen the evidence base around the development and flow of AMR in the food chain. Central to this is monitoring the types and levels of AMR bacteria found in retail foods and over the recent years the FSA has funded several surveys of AMR in retail meats such as beef, pork, chicken, lamb and turkey.

This study will identify the critical points during meat processing where more stringent interventions (enhanced cleaning and disinfectants) may be required to reduce the AMR contamination on meats and the risk to consumers. This project will produce a report that assess how AMR bacteria are transferred from processing environment and equipment to chicken meat and products. It is anticipated that the study will consider two chicken slaughterhouses and will consider ESBL's and tetracycline resistance.

Objective & approach

Given that the FSA has made a commitment to strengthen the evidence around AMR and the food chain within the 2019-2024 AMR National Action Plan, we are funding a study to assess the transmission of AMR-E. coli and Campylobacter during the processing of chicken UK slaughterhouses and cutting plants. This project will track batches of chicken as they progress through the different stages in the slaughterhouse and cutting plants to improve our understanding of the transmission and flow of AMR in the food chain.

This study will consist of 7 phases:

- A systematic review of pertinent literature that will inform finalisation of the sampling strategy and analysis protocols will be carried out at the start of the study.
- Develop a robust sampling map for sample collection.
- Sample collection from slaughterhouses both carcasses and environmental sampling, and identification culture / preliminary antimicrobial susceptibility testing.
- Determine antibiotic resistance profiles in E. coli and Campylobacter isolates recovered.
- Undertake shallow shotgun metagenomics to identify diverse organisms present in the samples and their AMR genes, Mobile genetic elements and/or bacteriophages in samples taken from key points.

- Interpretation and dissemination of project findings nationally and internationally. A final report will be produced as well as Publication of research findings in peer reviewed open access literature and presentations at scientific conferences.

Relevant stakeholders include:

DEFRA, Environment Agency, VMD, APHA, UKHSA, DHSC, Academia, ACMSF working group on AMR, other scientific committees, consumers, food industry, farming industry.

The results from the project will be disseminated to relevant stakeholders by:

- A fully accessible final report will be published on the FSA's website (www.food.gov.uk)
- Presentation of the study to be provided at the FSA's AMR Research & Evidence Programme Review in Spring 2023.
- Presentation of key findings from the study to be given to the ACMSF working group on AMR when completed.