

EU Harmonised Surveillance of Antimicrobial Resistance (AMR) in E. coli from Retail Meats in UK (2020 - Year 6, chicken)

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

Study duration: 2019-11-01

Project status: Completed

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Conducted by: Animal and Plant Health Agency (APHA)

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Background

In accordance with European Directive 2003/99/EC on the monitoring of bacteria that can pass from animals to humans and cause disease, Member States are obliged to ensure that procedures are in place to monitor and report on the occurrence of antimicrobial resistance (AMR) in such bacteria. The UK continued to be subject to EU rules during the transition period up to the end of December 2020.

The requirements state that 300 retail chicken meats should be tested by culture for the bacterium *Escherichia coli*. *E. coli* bacteria are a normal part of the gut flora of mammals and as such can be useful “indicators” of AMR in gut bacteria. Whilst some strains of *E. coli* can cause disease, most strains of *E. coli* do not cause observable disease in healthy animals and humans.

Addressing the public health threat posed by AMR is a national strategic priority for the UK, which has led to both a [20-year vision of AMR](#) and a [5-year \(2019 to 2024\) AMR National Action Plan \(NAP\)](#).

Research approach

In total during 2020, 327 samples of fresh chicken were collected, of which 315 were eligible for testing. The 315 eligible retail chicken meat samples were collected from England (274), Scotland (20), Wales (11), and Northern Ireland (10) from ten different supermarket chains.

Sample collection was impacted by the coronavirus pandemic. Monthly sampling was suspended for 3 months from April to June 2020, resuming in July. Sample numbers were adjusted in subsequent months to reach the target of 300 samples. The types of chicken meat collected were whole chicken (127), chicken breast (113) and other cuts, including quarters, legs, thighs & drumsticks (75).

Of the samples collected, 58.7% and 41.2% had skin on or off respectively. Breast samples were the main sample type from which skin was removed. Of the 315 samples, 309 were stated as originating from the UK, five from Poland and one from Ireland

Results

Key findings included:

- 41 (13%) of the 315 samples analysed were positive for ESBL/AmpC-producing *E. coli*
- Three (0.95%) of all the samples tested were positive for the *mcr-1* transferable colistin resistance gene
- None of the 41 *E. coli* isolates were found to be resistant to the 'last resort' carbapenem antimicrobials
- Overall, between 2018 and 2020, the percentage of samples positive for ESBL/AmpC-producing *E. coli* remained almost identical at 13.6% and 13% respectively
- Between the 2016 and 2018 EU AMR surveys, there was a significant reduction in the proportion of chicken samples positive for ESBL/AmpC-producing *E. coli*
- This is the first time that retail chicken samples were found to be positive for *mcr* plasmid-mediated colistin resistant *E. coli*. A risk assessment was carried out and the risk was deemed very low. This was endorsed by the ACMSF AMR Working Group.

Report

PDF

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