

Scottish One Health Antimicrobial Use and Antimicrobial Resistance in 2024

**An Official Statistics
statistical release for
Scotland**

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Antimicrobial Resistance & Healthcare Associated Infection (ARHAI) Scotland

An NHS Scotland Assure Service

Public Health Scotland

About this release

This is a joint release by Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Scotland part of NHS National Services Scotland (NSS) and Public Health Scotland (PHS).

This report reflects some of the key work delivered by ARHAI Scotland and PHS to tackle antimicrobial resistance (AMR) during 2024, including progress against the strategic objectives outlined in the UK AMR National Action Plan (2024-2029).

Data are provided on antibiotic use and resistance in humans in Scotland during 2024. The report also provides information on antibiotic resistance in animals, using data from Scotland's Rural College (SRUC).

Main points

Antibiotic use in humans

- Total antibiotic use in humans increased by 5.5% between 2023 and 2024. The rate was 5.2% higher in 2024 compared to 2019.
- In 2024, 83.5% of antibiotic use occurred in primary care, and 16.5% in secondary care.
- This report includes Scotland's progress against new human health target data for the [UK NAP 2024-2029 'Confronting antimicrobial resistance 2024 to 2029'](#).
- The UK AMR NAP 2024-29 target to reduce total antibiotic use in human populations by 5% from the 2019/20 financial year baseline is not yet on track, as 2024 levels remained above the baseline.
- The UK AMR NAP 2024-29 target to achieve 70% of total use of antibiotics from the Access category (new UK category) across the human healthcare system by 2029 is not yet on track. Access antibiotics (recommended for first line treatment) accounted for 63.7% of total antibiotic use. This decreased from 65.2% in 2023, however this is higher than in 2019 when compliance was 61.7%. Further improvement is needed to meet the UK NAP target of 70% of total use of antibiotics from the Access category by 2029.
- In 2024, the UK AWaRe list was updated, reclassifying several first-generation cephalosporins to the Access group and moving a small number of other agents

between categories. These updates were applied retrospectively to the data in this report.

- Antibiotic use in primary care, increased by 6.3% compared to 2023 and was 5.9% higher than in 2019.
- In 2024, 31.8% of the Scottish population received at least one course of antibiotics in primary care (excluding dental).
- Shorter, evidence-based treatment courses became more common, with increased prescribing of 3-day (trimethoprim, nitrofurantoin) and 5-day (amoxicillin, doxycycline) regimens.
- In 2024, antibiotic use in acute hospitals increased by 4.1% compared to 2023 and was 3.1% higher compared to 2019.

Antimicrobial resistance in humans

- In 2024, 17.9% of bacteraemia in select priority organisms of public health importance were resistant to at least one key antibiotics, equating to an estimated 1,576 resistant cases. Of those, Gram-negative bacteria accounted for 88.9% resistant bacteraemia. The most common organisms causing drug resistant bacteraemia were *Escherichia coli*, *Klebsiella pneumoniae* and *Enterococcus faecium*. In 2024, 26.9% of *E. coli* bacteraemia cases were resistant to at least one key antibiotic.
- The UK AMR NAP 2024-29 includes a target which aims to prevent any increase in a specified set of drug-resistant infections in humans from the 2019/20 financial year baseline. In 2024, Scotland reported 772 resistant bacteraemia, higher than the target of 678 in the financial year 2019/20, meaning the target is not currently on track.
- In 2024, the overall incidence of bacteraemia among five key Gram-negative pathogens in Scotland remained unchanged between 2023 and 2024.
- Resistance of *E. coli* bacteraemia to co-amoxiclav was lower in 2024 compared to 2019. The resistance of *K. pneumoniae* bacteraemia to ciprofloxacin, cefotaxime/ceftriaxone and ceftazidime was higher compared to 2019.
- *E. coli* was the most frequently reported organism in urinary isolates, with 171,132 episodes reported in 2024.

- Between 2023 and 2024, resistance of *E. coli* urinary isolates to key antibiotics increased, including amoxicillin/ampicillin, cefotaxime/ceftriaxone, ceftazidime, ciprofloxacin, nitrofurantoin, and trimethoprim. Resistance to co-amoxiclav decreased.
- In 2024, there were 223 cases of carbapenemase-producing organisms (CPO) reported in Scotland, compared with 157 in 2023. The incidence of CPOs was 42.0% higher between 2023 and 2024 and was 81.6% higher compared to 2019.
- In 2024, 91.5% of CPOs identified were carbapenemase-producing Enterobacterales (CPE). The most frequently detected carbapenemase genes for CPEs were oxacillinase (OXA)-48-like and New Delhi Metallo-beta-lactamase (NDM).
- Vancomycin resistance was reported in 29.1% of *E. faecium* blood isolates. Vancomycin resistance has remained unchanged in *E. faecium* blood isolates between 2023 and 2024.
- In 2024, the annual *Streptococcus pyogenes* (Group A *Streptococcus*) bacteraemia incidence was 4.2 per 100,000 population, 36.3% lower compared to 2023 and 14.8% higher compared to 2019. Comparing 2024 to 2019, there was no change in resistance to clindamycin. Resistance to penicillin has not been reported in *S. pyogenes* blood isolates in any years between 2019 and 2024.
- In 2024, the AMR Early Warning System continued to report instances of unusual AMR phenotypes. Additionally, *Candidozyma auris* continues to be detected sporadically in Scottish hospitals. ARHAI Scotland are collaborating with Public Health Scotland on national guidance for *C. auris*, including advice on screening.

Antimicrobial resistance in *Salmonella*

In humans, resistance to key antibiotics remained unchanged between 2023 and 2024.

In animals, resistance to ampicillin, streptomycin, sulphonamides and tetracycline increased between 2023 and 2024. Resistance to ciprofloxacin remained unchanged compared to 2023.

Antimicrobial resistance in animals

The percentage of multi drug resistant (MDR) *E. coli* isolates reported in healthy livestock was unchanged compared to 2023 and remained higher in poultry and pigs than in cattle and sheep, in which MDR is low.

Among high priority critically important antimicrobials (HP-CIAs), resistance to co-amoxiclav in *E. coli* isolates from healthy poultry decreased in 2024, compared to 2023. Among non HP-CIAs, gentamicin resistance in *E. coli* isolates from healthy poultry increased in 2024, compared to 2023.

Background

Antimicrobial Resistance (AMR) arises when microorganisms, such as bacteria, develop the ability to withstand antimicrobial treatments making infections harder to treat which could result in severe disease and potentially death.

Antimicrobial use and spread of infection in humans, animals and the environment contribute to the development of resistant infections. A 'One Health' coordinated cross sectoral response is needed to address the threat from AMR.

The purpose of this report is to present the outputs of ARHAI Scotland and Public Health Scotland's role in providing intelligence to support optimisation of antimicrobial use and containment and control of AMR across all sectors through development of epidemiological evidence on trends in antimicrobial use and resistance. This is intended to inform local and national initiatives and interventions in human and animal health.

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Further Information

Find out more in the [full report](#). Data and background information from this publication are available from our web page. The next release of this publication will be November 2026.

Public Health Scotland and NHS National Services Scotland and Official Statistics

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