

Scottish One Health Antimicrobial Use and Antimicrobial Resistance in 2022

An Official Statistics publication for Scotland

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About this release

This release is by Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Scotland part of NHS National Services Scotland (NSS). This report reflects some of the key work delivered by ARHAI Scotland to tackle antimicrobial resistance (AMR) during 2022.

Data are provided relating to antibiotic use and resistance to antibiotics in humans in Scotland during 2022. The report also provides information on antibiotic use and resistance in animals, using data from Scotland's Rural College (SRUC) and the Small Animal Veterinary Surveillance Network (SAVSNET).

Main Points

Antibiotic use in humans

- Total antibiotic use in humans has decreased year on year by 2.5% since 2018, however there was a 10.2% increase between 2021 and 2022.
- In 2022, Access antibiotics (recommended first line narrow spectrum agents) accounted for 64.3% of total antibiotic use in humans and this percentage has increased by 1.9% year-on-year over the last five years.
- Antibiotic use in primary care, where the majority of antibiotic use in humans occurs, has decreased by 1.4% year on year since 2018, however there was a 18.4% increase between 2021 and 2022.
- 27.3% of the Scottish population received at least one course of antibiotics prescribed in primary care in 2022.
- Antibiotic use in acute hospitals has decreased by 2.2% year-on-year since 2018, however there was a 4.3% increase between 2021 and 2022.
- Use of Watch and Reserve (restricted) antibiotics in acute hospitals has decreased by 16.1% since 2017.

Antibiotic use in companion animals

- Among the small number of participating veterinary practices, the percentage of consultations for dogs and cats resulting in the prescription of at least one antibiotic has decreased over the last five years.
- The proportion of prescriptions which were highest priority critically important antimicrobials (designated as critically important to human health) has decreased over the last five years for cats but has remained stable for dogs.
- **Scotland's Healthy Animals** website has been revised and continues to offer guidance for vets and animal keepers on disease avoidance and antibiotic stewardship.

Antimicrobial resistance in humans

- AMR in Gram-negative bacteria significantly contributes to the overall burden of AMR.
- In 2022, *Escherichia coli* (*E. coli*) was the most common cause of Gram-negative bacteraemia in Scotland with an incidence of 77.0 per 100,000 population.
- Resistance in *E. coli* blood isolates has remained stable between 2021 and 2022 except for a decrease in resistance to temocillin.
- *E. coli* is the most frequently isolated bacteria from urine specimens.
- Between 2021 and 2022, antimicrobial resistance in *E. coli* urinary isolates has remained stable except for a decrease in resistance to co-amoxiclav, nitrofurantoin and piperacillin-tazobactam.
- In 2022, 121 carbapenemase-producing organisms were reported with an incidence of 2.2 per 100,000 population.
- Resistance in *Enterococcus faecalis* and *Enterococcus faecium* (*E. faecium*) blood isolates has remained stable between 2021 and 2022.
- In 2022, 40.0% of *E. faecium* blood isolates were resistant to vancomycin.

Antimicrobial resistance in *Salmonella*

- Resistance to key antibiotics remained stable between 2021 and 2022 for humans and animals.

Antimicrobial resistance in animals

- The percentage of multi drug resistant (MDR) *E. coli* isolates reported was higher in poultry and pigs than in cattle and sheep where MDR was low and stable.

Background

AMR arises when micro-organisms, 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 micro-organisms 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'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 2024.



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