ARHAI Scotland
Antimicrobial Resistance and Healthcare Associated Infection

NHS National Services Scotland

Scottish One Health Antimicrobial Use and Antimicrobial Resistance report 2021

An Official Statistics statistical release for Scotland

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About this release

This release by Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Scotland provides data relating to antibiotic use and resistance to antibiotics in Scotland during 2021. The report also provides information on antibiotic use and resistance in animals, using data from Scotland's Rural College (SRUC), the Small Animal Veterinary Surveillance Network (SAVSNET) and the Scottish Environmental Protection Agency (SEPA).

Main points

The ongoing COVID-19 pandemic has had an impact on antibiotic use during 2021, which will affect the reported numbers. Further information can be found in the **ARHAI Scotland 2021 Annual Report.**

Antibiotic use in humans

- Total antibiotic use in humans has decreased by 16.9% since 2017.
- In 2021, Access antibiotics (recommended first line narrow spectrum agents) accounted for 62.4% of total antibiotic use in humans and this percentage has increased year-on-year over the last five years.
- The majority of antibiotic use in humans occurs in primary care.
- Antibiotic use in primary care has decreased by 18.8% since 2017.
- 23.0% of the Scottish population received at least one course of antibiotics prescribed in primary care.
- Antibiotic use in acute hospitals has decreased by 8.6% since in 2017.

- Use of Watch and Reserve (restricted) antibiotics in acute hospitals has decreased by 20.6% since 2017.

Antibiotic use in animals

- Antibiotics are essential medicines in animal health to ensure high standards of animal welfare and support production of safe food.
- Among the small number of participating veterinary practices, the percentage of consultations for companion animals resulting in the prescription of at least one antibiotic has decreased over the last five years.
- The percentage of antibiotics prescribed for companion animals which were Highest Priority Critically Important (HP-CIAs) has decreased over the last 5 years.
- Trends in AMU suggest that there has been increasing awareness of prescribing guidelines among veterinary clinicians contributing to surveillance in Scotland.
- **Scotland's Healthy Animals website** has been extensively revised and upgraded and continues to offer guidance for vets and animal keepers on disease avoidance and antibiotic stewardship.

Antimicrobial resistance in humans

- Gram-negative bacteria are a common cause of serious infections in both healthcare and community settings.
- Antimicrobial non-susceptibility in Gram-negative bacteria significantly contributes to the overall burden of AMR.
- In 2021, *Escherichia coli* (*E. coli*) was the most common cause of Gram-negative bacteraemia in Scotland with 4,292 cases reported and an incidence of 78.5 per 100,000 population. This incidence has decreased year-on-year over the last five years.
- Non-susceptibility in *E. coli* blood isolates has remained stable between 2020 and 2021 except for a decrease in non-susceptibility to co-amoxiclav.

- In 2021, 743 cases of *Klebsiella pneumoniae* (*K. pneumoniae*) bacteraemia were reported in Scotland with an incidence of 13.6 per 100,000 population. The incidence has remained stable over the last five years.
- Non-susceptibility in *K. pneumoniae* blood isolates remained stable between 2020 and 2021.
- In 2021, 516 cases of *Enterococcus faecalis* (*E. faecalis*) and 276 cases of *Enterococcus faecium* (*E. faecium*) bacteraemia were reported in Scotland. The incidence of *E. faecalis* bacteraemia (9.4 per 100,000 population) and *E. faecium* bacteraemia (5.0 per 100,000 population) has remained stable over the last five years.
- Non-susceptibility in *E. faecalis and E. faecium* blood isolates has remained stable between 2020 and 2021.
- In 2021, 40.4% of *E. faecium* blood isolates were non-susceptible to vancomycin.
- Urinary tract infections (UTI) are commonly diagnosed in community, healthcare and hospital settings and antimicrobial non-susceptibility in urinary isolates significantly adds to the burden of AMR.
- *E. coli* is the most frequently isolated bacteria from urine specimens.
- Between 2020 and 2021, antimicrobial non-susceptibility of *E. coli* urinary isolates has decreased except for an increase in non-susceptibility to fosfomycin.
- In 2021, 55 carbapenemase-producing organisms (CPO) were reported with an incidence of 1.0 per 100,000 population.

Antimicrobial resistance in animals

- Monitoring of AMR in animals is a vital component of understanding and mitigating risk of AMR across the entire ecosystem.
- Intelligence relating to AMR in animals continues to be developed to inform the evidence base supporting a One Health approach to AMR.
- Animal stakeholder organisations in all sectors are working hard to improve coverage of surveillance systems.

Background

Antimicrobial Resistance (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 infection in humans, animals and the environment contribute to the development of resistant infections. A co-ordinated cross sectoral response is needed to address the threat from AMR. The **UK five-year national action plan** (NAP) 'Tackling antimicrobial resistance 2019–2024' acknowledges that a 'One Health' approach is required to mitigate the threat from AMR.

This report describes antimicrobial use and antimicrobial resistance and will support stakeholders across all sectors in the One Health ecosystem.

Since the beginning of the COVID-19 pandemic in 2020, there have been changes in healthcare delivery and treatment options. While more services resumed in 2021, routine hospital activity levels had not yet returned to pre-pandemic levels. This continued disruption to healthcare delivery and the changes in patient population risk factors makes comparisons with the years prior to the pandemic challenging and, for this reason, results presented in this report must be interpreted in the context of the pandemic.

For further information on how COVID-19 has impacted healthcare delivery please see the **ARHAI Scotland 2021 annual report.**

Find out more

Find out more in the **full report**. Data from this publication is available to download from our website.

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