Impact of the COVID-19 pandemic on antibiotic use in Scotland

SAPG AMT Network
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Total antibiotic use

- There has been a **17.1% decrease** in antibiotic use between 2016 and 2020

Total breakdown of antibiotic use in 2020

<table>
<thead>
<tr>
<th>Primary care</th>
<th>Secondary care</th>
</tr>
</thead>
<tbody>
<tr>
<td>71.0%</td>
<td>28.0%</td>
</tr>
</tbody>
</table>

- **Primary care**
  - Medical: 4.2%
  - Nurses: 7.8%
  - Dentists: 1.1%
  - Pharmacists: 13.2%

- **Secondary care**
  - Acute hospitals: 2.6%
  - Non-acute hospitals: 1.1%
Antibiotic use in primary care

There has been a **20.9% decrease** in antibiotic use in primary care between 2016 and 2020.

22.3% of the Scottish population had at least **one course of antibiotics** in 2020.

76.8% of antibiotic prescriptions in 2020 were Access (first line) antibiotic items.
Antibiotic use in acute hospitals

There has been a **2.3% increase** in antibiotic use in acute hospitals between 2016 and 2020.

- **63.1%** of antibiotic use in 2020 was Access (first line) antibiotics.
- There has been a **10.4% decrease** in the use of Watch and Reserve group antibiotics between 2016 and 2020.
Aim

To evaluate trends in antibiotic use in the community in Scotland during the COVID-19 pandemic.
Method

Data Source
• PIS electronic prescription data
• Available two days after Rx generated

Antibiotic Grouping

Respiratory antibiotics
• Amoxicillin
• Azithromycin
• Clarithromycin
• Co-amoxiclav
• Doxycycline

Key Outcome Measure
• Weekly number of prescriptions for antibiotics in 2021 compared with number in 2019 and 2020
Results: Respiratory antibiotics
Results: Amoxicillin
Results: Clarithromycim
Results: Doxycycline
Results: Co-Amoxiclav
Results: Azithromycin
### Results: Items by Age Group (weeks 40 and 41)

<table>
<thead>
<tr>
<th>Age Band</th>
<th>2019</th>
<th>2021</th>
<th>Percentage Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>3,141</td>
<td>4,963</td>
<td>58%</td>
</tr>
<tr>
<td>5-14</td>
<td>1,942</td>
<td>2,672</td>
<td>38%</td>
</tr>
<tr>
<td>15-59</td>
<td>23,413</td>
<td>28,309</td>
<td>21%</td>
</tr>
<tr>
<td>60-74</td>
<td>13,544</td>
<td>12,460</td>
<td>-8%</td>
</tr>
<tr>
<td>75+</td>
<td>9,394</td>
<td>8,302</td>
<td>-12%</td>
</tr>
</tbody>
</table>
RSV rate per 100,000 population in 2021/22 compared to 2010/11, 2018/19, 2019/20 and 2020/21.
Source PHS

Activity level: Baseline (<1.71), Low (1.71-4.8), Moderate (4.8-6.22), High (6.22-6.97), Extraordinary (>6.97)


Source: PHS-ECOSS
Results: Respiratory antibiotics
Method

Data Source
• PIS data on dispensed (paid) prescriptions (all primary except dental)
• Available 3 months in arrears

Total antibiotics

Respiratory antibiotics
• Amoxicillin
• Azithromycin
• Clarithromycin
• Co-amoxiclav
• Doxycycline

Key Outcome Measure
• Monthly number of prescriptions for antibiotics in 2021 compared with number in 2019 and 2020
Results: total antibiotic use

Number of Paid Items for Primary Care (excl dental) - Scotland

-10%
Results: Respiratory antibiotics

Number of Paid Items for Primary Care (excl dental) - Scotland
(Respiratory Antibiotics)

-14%
Method

Data Source
- PIS data on dispensed (paid) GP14 dental prescriptions
- Available 3 months in arrears

Total antibiotics

Specific antibiotics
- Amoxicillin
- Metronidazole
- Phenoxythymethypenicillin

Key Outcome Measure
- Monthly number of prescriptions for antibiotics in 2021 compared with number in 2019 and 2020
Results: dental antibiotic use
Results: dental amoxicillin use

Number of Paid Amoxicillin Items for dental (GP14) forms - Scotland

-28%
Results: dental phenoxy methylpenicillin use

Number of Paid Phenoxy methylpenicillin Items for dental (GP14) forms - Scotland

- 2019
- 2020
- 2021

↑ 9,000%
Results: dental amoxicillin and phenoxyemethylenicillin use
Results: dental metronidazole use

Number of Paid Metronidazole Items for dental (GP14) forms - Scotland

- 23% increase in 2020 compared to 2019
Method

Data Source
• PIS data on dispensed (paid) GP14 dental prescriptions
• Available 3 months in arrears
• Dental Claims Data, MIDAS PHS

Total antibiotics

Key Outcome Measure
• Monthly items per claim for antibiotics in 2021 compared with number in 2019 and 2020
Results: Number of Dental Claims

Number of Dental Claims - Scotland

Number of Dental Claims

- 2019
- 2020
- 2021

Jan Feb Mar Apr May Jun Jul Aug Sept Oct Nov Dec
Results:
total dental antibiotic use
Results:

total dental antibiotic use

Items per Claim for dental (GP14) forms - Scotland
Aim

To evaluate trends in antibiotic use in acute hospitals in Scotland during the COVID-19 pandemic.
Method

Data Source
• Hospital Medicines Utilisation Database (HMUD)

Total Antibiotics
Amoxicillin  Doxycycline
Azithromycin  Meropenem
Ceftriaxone  Piperacillin +
Cefuroxime  Tazobactam
Clarithromycin
Co-amoxiclav
Co-trimoxazole

Excludes Health Boards: NHS Borders, NHS Dumfries & Galloway, and NHS Western Isles due to incomplete data

Key Outcome Measure
• Number of antibiotic DDD in 2021 compared with number in 2019 and 2020
Results: total antibiotic use

Total acute hospital antibiotic DDD comparison 2019, 2020, and 2021

*Excludes Health Boards: NHS Borders, NHS Dumfries & Galloway, and NHS Western Isles
Results: Occupied Bed Days

Total Occupied Bed Days Comparison 2019, 2020, and 2021

*Excludes Health Boards: NHS Borders, NHS Dumfries & Galloway, and NHS Western Isles
Results: total antibiotic use

Total acute hospital antibiotic DDD per 1,000 Occupied Bed Days comparison 2019, 2020, and 2021

*Excludes Health Boards: NHS Borders, NHS Dumfries & Galloway, and NHS Western Isles
Results: specific antibiotics

Q2 2019 v 2021

*Excludes Health Boards: NHS Borders, NHS Dumfries & Galloway, NHS Greater and NHS Western Isles
Results: Meropenem

*Excludes Health Boards: NHS Borders, NHS Dumfries & Galloway, and NHS Western Isles
Results: Piperacillin + Tazobactam

*Excludes Health Boards: NHS Borders, NHS Dumfries & Galloway, and NHS Western Isles
Indicator 3: Use of WHO Access antibiotics greater or equal to 60% of total antibiotic use in Scotland 2022

*2020 Q4 contains only partial data for NHS Western Isles, and Dumfries and Galloway, and 2021 Q1 contains no data for NHS Borders, NHS Western Isles, and NHS Dumfries and Galloway.
Acknowledgements

Thanks to Karen Gronkowski and Polly Russell