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

SAPG May 2021 update

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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
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

-33%
Results: Respiratory antibiotics

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

-48%
Aim

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

Data Source
• PIS data on all dispensed (paid) prescriptions
• HMUD data on antibiotic use issues to COVID assessment centres (CAC)
• Available 3 months in arrears

Total antibiotics

Key Outcome Measure
• Monthly antibiotic DDD in CAC as percentage of primary care (ex dental) antibiotic DDD
Results: 2020 Total antibiotic use Primary Care and Covid Assessment Centres (CACs)

<table>
<thead>
<tr>
<th>2020 Month</th>
<th>Primary Care</th>
<th>CACs</th>
<th>Combined</th>
<th>Percentage CACs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar</td>
<td>3,120,379</td>
<td>13,457</td>
<td>3,133,836</td>
<td>0.43%</td>
</tr>
<tr>
<td>Apr</td>
<td>2,620,204</td>
<td>28,966</td>
<td>2,649,170</td>
<td>1.09%</td>
</tr>
<tr>
<td>May</td>
<td>2,304,807</td>
<td>8,324</td>
<td>2,313,131</td>
<td>0.36%</td>
</tr>
<tr>
<td>Jun</td>
<td>2,301,699</td>
<td>359</td>
<td>2,302,058</td>
<td>0.02%</td>
</tr>
<tr>
<td>Jul</td>
<td>2,409,322</td>
<td>480</td>
<td>2,409,802</td>
<td>0.02%</td>
</tr>
<tr>
<td>Aug</td>
<td>2,365,356</td>
<td>1,720</td>
<td>2,367,076</td>
<td>0.07%</td>
</tr>
<tr>
<td>Sep</td>
<td>2,562,381</td>
<td>3,885</td>
<td>2,566,265</td>
<td>0.15%</td>
</tr>
</tbody>
</table>
Results: Total antibiotic use comparison, 2019 Primary Care against 2020 Primary Care and Covid Assessment Centres (CACs)

<table>
<thead>
<tr>
<th>Month</th>
<th>2019 Primary Care</th>
<th>2020 PC + CACs</th>
<th>Percentage Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar</td>
<td>17.19</td>
<td>18.50</td>
<td>7.6%</td>
</tr>
<tr>
<td>Apr</td>
<td>17.51</td>
<td>16.16</td>
<td>-7.7%</td>
</tr>
<tr>
<td>May</td>
<td>16.89</td>
<td>13.66</td>
<td>-19.1%</td>
</tr>
<tr>
<td>Jun</td>
<td>16.74</td>
<td>14.05</td>
<td>-16.1%</td>
</tr>
<tr>
<td>Jul</td>
<td>16.72</td>
<td>14.23</td>
<td>-14.9%</td>
</tr>
<tr>
<td>Aug</td>
<td>16.42</td>
<td>13.98</td>
<td>-14.9%</td>
</tr>
<tr>
<td>Sep</td>
<td>17.22</td>
<td>15.66</td>
<td>-9.1%</td>
</tr>
</tbody>
</table>
Method

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

Total antibiotics

Specific antibiotics
• Amoxicillin
• Metronidazole
• Phenoxyphenylpenicillin

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

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

- 2019
- 2020
- 2021

Graph shows the number of paid items from January to December for dental forms in Scotland. The graph indicates a significant increase of 50% in July compared to June, and a smaller increase of 27% in February compared to January.
Results: dental amoxicillin use

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

- 2019
- 2020
- 2021
Results: dental metronidazole use

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

- 2019
- 2020
- 2021
Results: dental phenoxyimethlypenicillin use

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

- 1,731% increase from February to March 2020
- 2,288% increase from September to December 2020
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
- Azithromycin
- Ceftriaxone
- Cefuroxime
- Clarithromycin
- Co-amoxiclav
- Co-trimoxazole
- Doxycycline
- Meropenem
- Piperacillin + Tazobactam

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

Total acute hospital antibiotic DDD comparison 2019 to 2020

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Results: Occupied Bed Days

Total Occupied Bed Days Comparison 2019 to 2020

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Results: total antibiotic use

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

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Results: specific antibiotics
Quarter 4 2019 v 2020

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>2019</th>
<th>2020</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin</td>
<td>226.29</td>
<td>176.81</td>
<td>-21.9%</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>16.49</td>
<td>14.02</td>
<td>-15.0%</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>11.33</td>
<td>12.66</td>
<td>11.7%</td>
</tr>
<tr>
<td>Cefuroxime</td>
<td>8.23</td>
<td>8.09</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Clarithromycin</td>
<td>105.47</td>
<td>65.92</td>
<td>-37.5%</td>
</tr>
<tr>
<td>Co-amoxiclav</td>
<td>159.01</td>
<td>142.91</td>
<td>-10.1%</td>
</tr>
<tr>
<td>Co-trimoxazole</td>
<td>59.50</td>
<td>68.15</td>
<td>14.5%</td>
</tr>
<tr>
<td>Doxycycline</td>
<td>188.09</td>
<td>175.32</td>
<td>-6.8%</td>
</tr>
<tr>
<td>Meropenem</td>
<td>12.71</td>
<td>11.88</td>
<td>-6.5%</td>
</tr>
<tr>
<td>Piperacillin + Tazobactam</td>
<td>17.89</td>
<td>19.94</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Results: Meropenem

Excludes NHS Borders, NHS Dumfries & Galloway, NHS Shetland, NHS Western Isles
Results: Piperacillin + Tazobactam

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Use of WHO Access antibiotics in Acute hospitals

2020 Q3 includes only partial data for NHS Borders (2% of Scottish Population), 2020 Q4 contains no data for NHS Borders (2% population), and NHS Dumfries & Galloway (3% of population), and 2020 Q4 contains only partial data for NHS Western Isles (0.5% population), and NHS Shetland (0.4% population).
Aim

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

Data Source
• Hospital Medicines Utilisation Database (HMUD)

Total Antifungals
Azoles
Fluconazole
Other Azoles
Echinocandins

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

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Results: fluconazole use

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Results: azoles (other) use

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Results: Echinocandin use

Echinocandins (J02AX) in Acute Hospitals

Excludes NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Aim

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

Data Source
- PIS data on all dispensed (paid) prescriptions
- HMUD data on all secondary care antibiotic use
- Available 3 months in arrears

Total antibiotics

Key Outcome Measure
- Monthly antibiotic DDD/1000 patients/day in 2020 compared with 2019
Results:
Total antibiotic use in humans

Excludes Secondary Care data for NHS Borders, NHS Dumfries & Galloway NHS Shetland, NHS Western Isles
Acknowledgements

Thanks to Polly Russell