Overview of Antimicrobial Stewardship in Scotland

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What is SAPG?

National Antimicrobial Stewardship Programme

Representation from and engagement with health boards and key professional groups

- Antimicrobial Management Teams
- Primary and secondary care clinicians
- Professional groups: Infection control, SANG, ASAP, SMVN, Medical Directors
SAPG programme focuses on 3 main themes

**Informatics**
work with NSS to develop and use national datasets of antimicrobial use and resistance to inform practice and support research

**Quality improvement**
work with clinicians in boards to produce guidance on antimicrobial use and management of infections and interventions to optimise prescribing

**Education**
work with NES to develop and implement educational resources for health and care staff, patients and public
REALISTIC MEDICINE
CAN WE:

- PERSONALISE/INDIVIDUALISE
- BUILD A PERSONALISED APPROACH TO CARE?
- CHANGE OUR STYLE TO SHARED DECISION-MAKING?
- REDUCE HARM AND WASTE?
- MANAGE RISK BETTER?
- BECOME IMPROVERS AND INNOVATORS?

OPTIMISE ANTIMICROBIAL USE, IMPROVE OUTCOMES AND PROMOTE PATIENT CENTRED CARE

REDUCE VARIATION
In prescribing practice

REDUCE WASTE
Over Rx, redundancy

REDUCE HARM
CDI, AMR, Toxicity

PERSONALISE/INDIVIDUALISE
Risk based Rx, Penicillin allergy assessment
SAPG Guidance – practical, pragmatic and useful

Good Practice Recommendations
- Hospital AMS GPRs
- Antibiotic prophylaxis in surgery
- Antibiotics towards the end of life

Specific Infection Guidance
- Neutropenic sepsis
- COVID-19 AMS guidance
- Urinary tract infections
- *S. aureus* bacteraemia
- Dental prescribing
- OPAT SSTI pathway

Antimicrobial specific
- Use of gentamicin and vancomycin
- Penicillin allergy de-labelling
COVID-19

Antimicrobial Prescribing
AMS during the pandemic

Survey of antibiotic and antifungal prescribing in patients with suspected and confirmed COVID-19 in Scottish hospitals

Ronald A. Seaton, Cheryl L. Gibbons, Lesley Cooper, William Malcolm, Rachel McKinley, Stephanie Dundas, David Griffith, Danielle Jeffreys, Kayleigh Hamilton, Brian Choo-Kang, Suzanne Brittain, Debbie Guthrie, Jacqueline Sneddon

Impact of the COVID-19 pandemic on community antibiotic prescribing in Scotland

William Malcolm, Ronald A. Seaton, Gail Haddock, Lisaey Baxter, Sarah Thirwell, Polly Russell, Lesley Cooper, Anne Thomson, and Jacqueline Sneddon

Impact of the COVID-19 pandemic on community antibiotic prescribing in Scotland

23 November 2020

Dear colleagues,

Antimicrobial Stewardship during the COVID-19 pandemic

Advisory on management of people with respiratory infections presenting in the community during the COVID-19 pandemic

As the COVID-19 pandemic continues it is critical that local antibiotic treatment guidelines are followed and that unnecessary antibiotic use is minimal. Bacterial co-infection is uncommon and antibiotics are rarely indicated. Guidance is recommended for those hospitalised with severe COVID-19 and there is a need for evidence on suitable antibiotic regimens in community and care home settings.

Diagnosis of bacterial respiratory tract infection in COVID-19

- COVID-19 is characterised by predominently dyspnoea and abnormal chest X-rays in children.
- Low severity pneumonia or bacterial infection is rare (e.g. pneumococcal pneumonia).

Use of empirical antimicrobial treatment

- Antibiotics are recommended for severe cases.
- Antibiotics may be appropriate in bacterial respiratory infection in those without COVID-19.
- For both pneumonia and COPD exacerbations, antibiotics should be given for 7-10 days.

Specific advice on care of frail older patients

- COVID-19 mortality is 15-30% in hospitalised older patients. Practice should review vulnerable patients' summaries (SAPG) and ensure that all necessary care is in place.
- For frail patients, consider symptomatic relief before antibiotics are prescribed. See IDSA Care Guidelines.
- Avoid co-amoxiclav and flucloxacillin.
- Consider depression associated with COVID-19 and any symptoms as a cause of confusion on oxycodone.

Note: These guidelines are reviewed regularly and updated accordingly.
Prescribing for RTI at peak pandemic (non-critical care)

Seaton et al, JAC AMR 2021
Antibiotic use indicators

1. A 10% reduction of antibiotic use in Primary Care (excluding dental) by 2022, using 2015 as the baseline

2. Use of intravenous antibiotics in secondary care will be no higher in 2022 than it was in 2018

3. Use of WHO Access antibiotics greater than or equal to 60% of total antibiotic use in Acute hospitals by 2022
WHO “Watch”
e.g. Ciprofloxacin
Co-amoxiclav
Piperacillin-Tazobactam
Temocillin
Vancomycin

WHO “Reserve”
e.g. Caspofungin
Dalbavancin
Daptomycin
Linezolid
Meropenem

In Scotland, the target relating to use of WHO Access antibiotics in acute hospitals has already been met, and it is considered likely that targets (a) and (c) will also be met within the original timescale. However, given the service pressures caused by COVID-19 related activity, it is likely that some of the previously agreed HAI targets will not be met in 2022. In recognition of this, the previously agreed standards and indicators for 2022 will be extended by one year (to 2023).
Current SAPG working groups

**Paediatric AMS**
- Co-chair Paediatric ID consultant and Antimicrobial Pharmacist
- Focus on reducing prescribing variation, national guidance (Vanc, Gent, MDRGN, IVOST)
- Workforce planning and service development (POPAT)

**Dental AMS**
- Chair Dental academic microbiologist
- Focus on limiting antibiotic use
- National guidance switch from amoxicillin to Pen V

**Education sub group**
- Co-chair NES Educator and SAPG Lead

**Outpatient Parenteral Antimicrobial Therapy**
- Chair ID Consultant/SAPG chair

To be continued....
- PADL
- Antifungal stewardship
Dental phenoxymethylpenicillin use following introduction of national guidance
Development of education framework for antimicrobial stewardship

- AMS resources have been developed based on need -> duplication and gaps
- Scottish Government commissioned AMS educational framework
- Framework based on WHO AMR framework – competency based
- Knowledge, kills and attitudes
- Clinical staff in health AND Social care

AMS resources have been developed based on need, reducing duplication and gaps. Scottish Government commissioned an AMS educational framework based on the WHO AMR framework, focusing on competency-based learning. The framework includes knowledge, skills, and attitudes. Clinical staff in health and social care will be trained in antimicrobial stewardship.

SLWG formed
Delphi study to create framework content

### Antimicrobial resistance courses

<table>
<thead>
<tr>
<th>Category 1: All health workers*</th>
<th>Category 2: Physicians*</th>
<th>Category 3: Non-prescribers*</th>
<th>Category 4: Public health officers/ health service managers*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foundations that build awareness of antimicrobial resistance</strong></td>
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<tr>
<td><strong>Competency statements</strong></td>
<td><strong>Knowledge</strong></td>
<td><strong>Skills</strong></td>
<td><strong>Attitudes</strong></td>
</tr>
<tr>
<td>Health worker demonstrates that they have the knowledge and awareness of effective approaches to control AMR, and has the skills, attitudes to implement change according to role and level of training.</td>
<td>1. Understand the development and impact of resistant bacteria. 2. Understand the basic principles of infection prevention and control. 3. Understand the importance of effective use of antimicrobial therapy for treating infections. 4. Understand the importance of vulnerability, mortality and antimicrobial threat of resistant infections.</td>
<td>1. Assess the sources of infection and identify appropriate measures. 2. Obtain drug history, perform medication reconciliation, and record this in the medical record. 3. Contribute to a patient-centered focus in the clinical team, and monitor and communicate daily patient progress.</td>
<td>1. Advocate for patient safety and compliance in the perception and awareness of appropriate use of antibiotics. 2. Ability to select the appropriate use of antibiotics. 3. Contribute to antimicrobial stewardship.</td>
</tr>
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<td></td>
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<td><strong>Skills</strong></td>
<td><strong>Attitudes</strong></td>
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<td>Scottish Government commissioned AMS educational framework</td>
<td>1. Understand the role of individual nurses, physicians, and pharmacists in antimicrobial stewardship programs. 2. Demonstrate principles of microbiology in identifying pathogens from clinical samples. 3. Know the basic diagnostic role of the microbiology laboratory. 4. Understand local AMR, epidemiology, resistance, and susceptibility patterns and use of selective medications.</td>
<td>1. Advise patients and prescribers on the appropriate use of antimicrobials. 2. Provide safe disposal of unused antimicrobial medicines.</td>
<td>1. Advocate for patient safety and compliance in the perception and awareness of appropriate use of antibiotics. 2. Adequate knowledge of antimicrobial resistance and drug sensitivity. 3. Contribute to antimicrobial stewardship.</td>
</tr>
<tr>
<td><strong>Framework</strong> based on WHO AMR framework – competency based</td>
<td>1. Knowledge: Understand the significance of antimicrobial resistance, ellipse, and therapy in current antimicrobial treatment. 2. Knowledge: Know the basic diagnostic role of the microbiology laboratory. 3. Knowledge: Understand the role of individual nurses, physicians, and pharmacists in antimicrobial stewardship programs.</td>
<td>1. Ability to select the appropriate use of antibiotics. 2. Ability to communicate with colleagues on the appropriate use of antibiotics.</td>
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The Red Cross drafted into Scotland's biggest hospital as ambulances queue up

Volunteers were on hand at Glasgow's Queen Elizabeth University Hospital as paramedics struggled to keep up with demand. Ambulances were moved to different parts of the hospital to help.

Army to rescue strike-hit NHS

Military personnel have been drafted in after the UK government confirmed that a strike by NHS workers will go ahead. The Royal College of Nursing called for the strike to go ahead after talks with the government broke down.

The price of Brexit: 4,000 fewer European doctors work in NHS

NHS doctors have warned that the loss of EU doctors was threatening the quality of care for patients. The number of EU doctors in the UK has fallen by 4,000 in the last three years.

NHS rescue package as doctors threaten to quit

The government has announced a new £20 billion investment package for the NHS as doctors threaten to quit. The package includes £10 billion to improve hospitals and £10 billion to pay for staff.

NHS pay dispute: first nursing strike dates announced

Nurses are set to go on strike for the first time in 32 years after pay talks broke down. The RCN has called for a 10% pay rise to bring NHS nurses up to the same pay level as nurses in other countries.
Nurses account for 12.5% of all antibiotic items in community with 4.8% year-on-year increase since 2017.
Promote Shorter duration therapy – primary and secondary care
Earlier IVOST appropriate for a growing number of indications including Gram negative bacteraemia, liver abscess, BJI/OM, Endocarditis, Vascular graft etc.
Figure 21: Non-susceptibility of *E. coli* bacteraemia isolates in Scotland, 2020 to 2021.

[Data source: Electronic Communication of Surveillance in Scotland (ECOSS)]
Tackling variation in prescribing practice in hospitals and community

Distribution of the Rate of DDDs per 100,000 Acute Bed Days

Co-trimoxazole – wide variation

Rate of DDDs per 100,000 Acute Bed Days

Total Acute Bed Days

Amoxicillin
Co-amoxiclav
Doxycycline
Fluoroquinolone...
Gentamicin
Co...
Clarithromycin...
Trimethoprim
Cephalosporin...
Pip-Taz
Clindamycin
Meropenem
Temocillin
Outpatient Parenteral Antimicrobial Therapy (OPAT)

SAPG OPAT group – August 2020

Role in COVID-19 – response and recovery
Promote best antimicrobial prescribing practice
National approach to recording/reporting of clinical activity
OPAT resource recommendations

SHTG OPAT Recommendations for Scotland – February 2021

SAPG / BSAC commission
Recommendations for HBs
Health economic review
Redesign of Urgent Care: Interface care

“‘Delivery of high-quality care for defined groups of patients, that safely provides an alternative to avoid hospital admission or leads to early front door discharge and reduces length of stay. ‘Interface Care’ will provide care for the complete patient journey, from point of contact to conclusion of need, optimising staff and patient experience.”
## Patient flow in and out of OPAT

### Supported discharge/ avoided admission

#### OPAT DATA COLLECTION TEMPLATE

On a weekly basis please add in required data in the green boxes

<table>
<thead>
<tr>
<th></th>
<th>Number of patients</th>
<th>SD/AA</th>
<th>New referrals</th>
<th>Stopped/Discharged</th>
<th>OPAT DAYS/IP DAYS Avoided</th>
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</thead>
<tbody>
<tr>
<td>Monday</td>
<td>52</td>
<td>4</td>
<td>6</td>
<td>1</td>
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<tr>
<td>Wednesday</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>0</td>
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<td>Thursday</td>
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<td>Friday</td>
<td>4</td>
<td>4</td>
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<td>1</td>
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<tr>
<td>Sunday</td>
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<td>1</td>
<td>0</td>
<td>2</td>
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<td>23</td>
<td>7</td>
<td></td>
<td>417</td>
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</tbody>
</table>

### OPAT DATA SUBMISSION TEMPLATE

Please provide your Board Name and the week number of the data being submitted (e.g. 7,8 etc)

<table>
<thead>
<tr>
<th>Board Name</th>
<th>Number of patients</th>
<th>SD/AA</th>
<th>Stopped/Discharged</th>
<th>New Referrals</th>
<th>Op at days/IP Days avoided</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG&amp;C</td>
<td>52</td>
<td>16</td>
<td>7</td>
<td>23</td>
<td>417</td>
</tr>
</tbody>
</table>
Increasing OPAT activity

- Embed within HB’s “virtual capacity” governance/ UUSC programme
- Ensure best AMS practice
- Develop national data set and benchmarking through established national audit

Since 17/1/22
- c.65,000 bed days avoided
- >2,500 patients
Electronic patient management and data visualisation – Trakcare virtual ward development

- Referral
- Vetting
  
  Workbench

- Clinical
- Questionnaire
  
  Virtual ward

- Outcomes
- Follow up
  
  Data dashboard

- Quality Improvement
  
  - Local
  - National
Looking forward

• Continue and maintain the national antimicrobial stewardship programme

• Be responsive to board AMTs, changes in healthcare delivery, emerging national and global AMS and AMR challenges

• Look forward, anticipate and plan for future challenges in AMS

• Workforce planning and multidisciplinary engagement including board level nursing leadership

• National resource for expertise in antimicrobial management and impact/implications across health and social care
Thanks to Fran Kerr, SAPG members, AMTs, members of steering groups and all PPS data collectors

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Scottish Antimicrobial Prescribing Group
Safeguarding antibiotics for Scotland, now and for the future