BACKGROUND
The Scottish Management of Antimicrobial Resistance Action Plan (ScotMARAP) was published in June 2008 and expanded on the guidance document Antimicrobial Prescribing Policy and Practice in Scotland.2 The Scottish Antimicrobial Prescribing Group (SAPG) was formed in March 2008 by the Scottish Government Health Department (SGHD) to implement the recommendations of ScotMARAP. SAPG is a national multi-disciplinary clinical forum hosted by the Scottish Medicines Consortium with representation from all key stakeholders including all mainland Health Boards. The group’s primary objectives are to co-ordinate and deliver a national framework for antimicrobial stewardship to enhance the quality of antimicrobial prescribing and management in Scotland. SAPG is chaired by Professor Dilip Nathwani, Consultant in Infectious Diseases, NHS Tayside and two pharmacists are employed as Project Lead and Pharmaceutical Advisor to take forward the group’s four work streams.

The Stakeholders
- Medicines Consortium website.
- SAPG has a dedicated section on Scottish Medicines Consortium website.
- SAPG has a section on the Scottish Patient Safety Programme.
- SAPG work streams.

HOW DOES SAPG FUNCTION?
- SAPG meets every two months with 25–30 members attending these meetings.
- A communication network has been set up with Antimicrobial Management Team (AMT) Chairs, Antimicrobial Pharmacists, Infection Control Managers, Medical Directors and Directors of Pharmacy in all NHS Boards.
- AMT network events are held 3 times per year to allow AMT members from around Scotland to receive detailed information and education regarding the work of SAPG and provide a forum for sharing practice.
- SAPG has four work streams, each of which is lead by one of the key stakeholders.
- SAPG has a dedicated section on Scottish Medicines Consortium website.

ANTIMICROBIAL MANAGEMENT TEAMS
Antimicrobial Management Teams are key to NHS Boards delivering the recommendations of ScotMARAP.

ORGANISATION & ACCOUNTABILITY (NHS QIS)
Survey of Antimicrobial Management Teams (AMTs)
A baseline survey has been carried out to determine whether NHS Boards have a functioning Antimicrobial Management Team (AMT), details of AMT meetings and corporate reporting structures. Details about Lead Clinicians, Antimicrobial Pharmacists, antimicrobial policies, and education, and antimicrobial prescribing data also requested.
- Established AMT in 10 of 11 mainland NHS Boards.
- Membership of AMTs variable, but all include an Antimicrobial Pharmacist, Microbiologist and (with one exception) Consultant clinician input.
- ID physicians and microbiologists dominate the Lead Clinician role.
- Membership varies from two to 14 individuals.
- Reporting and communication lines are variable, but links with ADTCs, Infection Control Teams and Clinical Governance are broadly strong.
- All Boards have Antimicrobial Pharmacists in post, and plans to appoint more to new posts, funded by Scottish Government, or to create support posts.
- Primary care and hospital prescribing data widely used, but in differing ways.
- Six Boards assess hospital compliance with prescribing policies at least occasionally, but primary care compliance not audited anywhere.

Integration of antimicrobial prescribing into HAI agenda
Antimicrobial Prescribing will be integrated into the proposed Healthcare Associated Infection (HAI) inspection process which will ensure that NHS Boards are complying with the NHS Scotland Code of Practice for the Local Management of Hygiene and Healthcare Associated Infection.

INFORMATION MANAGEMENT (ISD/HPHS)
Prescribing
- Primary care prescribing data is available using the Prescribing Information System for Scotland (PRISMS) at NHS Board, GP Practice and Prescriber level.
- SAPG will develop standard ESAC-based Prescribing Indicators using PRISMS data to monitor prescribing trends within primary care.
- The Hospital Medicines Utilisation Database (HMUD) is under development and will provide a national picture of antimicrobial use across Scottish hospitals.
- HMUD will complement local data from Hospital Pharmacy computer systems.

Surveillance
- Antimicrobial prescribing integrated into mandatory Surgical Site Infection surveillance.
- Mandatory surveillance data on Staph. aureus bacteraemias and C. difficile from all NHS Boards.
- The Antimicrobial Resistance programme is being developed to include other alert organisms and will be integrated with prescribing data from HMUD.
- Local surveillance to support antimicrobial prescribing is also being developed to inform local prescribing policies.

Education (NES)
Education and training of all healthcare professionals is essential for improvement of antimicrobial prescribing and SAPG is tackling this in several ways:
- DOTS on line mandatory training in prescribing for all foundation doctors and integration of antimicrobial prescribing into medical undergraduate courses.
- Extension of DOTS to provide post-graduate learning for pharmacists and non-medical prescribers.
- E-Learning modules on antibiotic resistance and C. difficile available and package on colonisation in development.
- Bespoke study day for Antimicrobial Pharmacists (Feb 2009) and multidisciplinary study day planned (Sept 2009).
- Training for primary care staff on management of common infections in development.
- MSc modules on Infection Management being developed in collaboration with Higher Education sector.

Infection management
Key aims are to minimise risk from antimicrobial prescribing and improve quality in management of infections.
Individual projects lead by clinical specialists including clinicians, GPs, pharmacists, microbiologists and nurses.
- Guidance for hospitals on restrictive antibiotic policy to help control CDAD and CDAD management protocol.
- Standardisation of primary care antibiotic prescribing policies.
- Surgical prophylaxis guidance on choice of agent to support SIGN 104.
- Development of national consensus on gentamicin dosage and monitoring.
- Development of prescribing indicators to measure compliance with antimicrobial policies to support Scottish Government HEAT Target of 30% reduction CDAD by 2011.
- National pneumonia project (SNAP-CAP) to implement best practice using a Care Bundle approach and quality improvement methodology.
- National participation in ESAC point prevalence survey in sample of acute and continuing care hospitals.
- Participation in ESAC/PSE/ Nursing Homes study.

CONCLUSIONS
- SAPG is a national clinical forum with broad multi-disciplinary ownership.
- SAPG has four work streams each with key deliverables over specific time frames.
- The AMT clinical network provides national cohesion for antimicrobial stewardship and will work in close collaboration with Infection Control Teams towards a unified approach to HAI.

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