The Scottish approach to enhancing antimicrobial stewardship

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In 2002, the Scottish Executive produced the Antimicrobial Resistance Strategy and Scottish Action Plan, which highlighted antimicrobial stewardship as a key objective in combating resistance. An important response, as a part of the Ministerial Healthcare Associated Infection Task Force work programme was the publication of ‘Antimicrobial Prescribing Policy and Practice in Scotland: recommendations for good antimicrobial practice in acute hospitals’ in 2005. This article briefly reviews the core components of the Scottish approach, reviews progress with some key goals and explores how many of these goals are being taken forward through a cohesive Scottish national multifaceted strategy, which incorporates primary and secondary care. Much of this will spring from the current review of the Scottish Action Plan. While recognizing the significant progress achieved by the Appropriate Antimicrobial Prescribing for Tomorrow’s Doctors Project Group in the education of undergraduate medical students, the article also reviews the NHS Education Scotland-supported Scottish National Antimicrobial Prescribing Project, aimed at foundation training doctors in Scotland. We hope that this experience can be shared and further developed with colleagues within the United Kingdom and European Union.

Keywords: prescribing, education, outcomes, Healthcare Associated Infection (HAI)

Background

In 2002, the Scottish Executive produced the Antimicrobial Resistance Strategy and Scottish Action Plan (ARSSAP).1 The three key elements of this strategy were surveillance, infection control and prudent antimicrobial use, the last of these being defined as the need to reduce unnecessary and inappropriate exposure of microorganisms to antimicrobials in clinical practice.

One strand of the response from the Ministerial Healthcare-Associated Infection Task Force work programme was the publication ‘Antimicrobial Prescribing Policy and Practice in Scotland: recommendations for good antimicrobial practice in acute hospitals’ (APPP) in 2005.2 This document was prepared on behalf of the Scottish Executive Health Department (SEHD) by a short-life working group of the Scottish Medicines Consortium (SMC), which has a well-established pharmacy and prescribing network with all Scottish NHS Board Drugs and Therapeutics Committees. It detailed the practical steps to be taken by acute Scottish hospitals to improve the quality of antimicrobial prescribing and thus reduce the risk of resistance. These are presented under six key areas:

- Establishing lines of responsibility and accountability in NHS Boards.
- Defining structures and responsibility for multidisciplinary and generic undergraduate and postgraduate training relating to antimicrobial prescribing.
- Defining the minimum dataset requirements and standard procedures for collecting information related to antimicrobial resistance patterns.
- Defining the minimum dataset requirements and procedures for collecting information related to antimicrobial consumption and quality of prescribing.
- Defining the key areas for acute hospital policy and recommendations for audit.
- Defining and developing performance indicators.

Enhancing antimicrobial stewardship in Scotland

A recent Cochrane systematic review has evaluated the effectiveness and potential benefits of a range of interventions to improve antibiotic prescribing practices for hospital inpatients.3 Many of these interventions are delivered most effectively by hospital antimicrobial management teams. The pivotal role of these multidisciplinary antimicrobial management or stewardship teams, with a dedicated lead clinician and pharmacist, in...
delivering and co-ordinating these interventions is recognized as a core component of the Scottish Antimicrobial Prescribing Policy and Practice (APPP) framework. The importance of this has also been highlighted by the recently published Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America Guidelines for Developing an Institutional Program to Enhance Antimicrobial Stewardship. The Scottish recommendations were formally communicated to all NHS Board Chief Executives for dissemination and implementation through a Letter from the Chief Medical, Nursing and Pharmaceutical Officers of the SEHD in September 2005. The designated responsibility and accountability of senior hospital leadership i.e. the Chief Executive and Medical Director in supporting the effectiveness of this strategy cannot be overemphasized. While there was an expectation that this policy would be embraced by the relevant hospitals and Boards, no specific time lines for implementation or outcomes of impact were given and, unlike in England with the Hospital Pharmacy Initiative, no new resource was made available to the NHS Boards. There was an expectation that the likely savings accrued from effective implementation of this policy would support in the long term the need for some extra resource such as dedicated time for the lead pharmacist and clinician. The SMC working group which formulated the policy had no ongoing remit to oversee the implementation of the framework, but this issue is being actively addressed in the current revision of the 2002 ARSSAP. Anecdotal information suggests that there has been some progress with the formation of the hospital antimicrobial management teams, though further action is clearly required in some areas.

The APPP also made other key recommendations related to regular measuring of the amount and quality of prescribing (and providing prescribers with regular feedback of this information), documenting and collecting clinical information related to prescribing, resistance testing and surveillance, and the development and use of specific antimicrobial prescribing performance indicators. In all these areas, progress is again variable, with areas of good practice (often driven by enthusiasts or those with research interests in this area). A significant upgrading of completeness and comparability of antimicrobial resistance surveillance will be supported by the provision of funding by SEHD for automated susceptibility testing equipment across NHS Scotland. If we are to maintain the impetus created by APPP, a Scottish network of acute hospitals and NHS Boards working cohesively with national bodies responsible for co-ordinating national collection of information relating to prescribing, diagnosis and surveillance, education and quality improvement is an appropriate way forward. The revised ARSSAP 2002 (provisionally titled ‘Scottish Management of Antimicrobial Resistance Action Plan 2006’) will address many of these outstanding issues.

Educational Strategies to improve prescribing in Scotland

One area where such cohesion within Scotland is bearing fruit is education. In undergraduate medical education work undertaken by the Appropriate Antimicrobial Prescribing for Tomorrow’s Doctors (APT) Project, representatives from each of the Scottish medical schools together with members of the BSAC Undergraduate Education Working Party were included. Part of this work was supported by a SEHD grant. This web-based shared learning resource is based around clinical vignettes or scenarios and uses established learning outcomes to develop a coordinated student-centred teaching resource for prudent antimicrobial prescribing. This is covered in more detail elsewhere in this supplement but provides an excellent educational model that could be potentially transferred and adapted to other areas or disciplines.

There is an equivalent or probably greater need to ensure that trained (postgraduate) medical and other (nurses, pharmacists, dentists, etc.) prescribers develop similar skills and attitudes that will allow them to prescribe antimicrobials safely and effectively in the workplace. It is important that whatever knowledge prescribers need is the right knowledge, in the right place and at the right time. Embedding any such educational initiative within the NHS Knowledge Management Framework which aims to bridge the gap between knowing and doing is crucial to its long-term sustainability. One component of this framework is to use asynchronous e-learning and assessment (i.e. allows participants to access training materials 24/7, even when other students and/or the instructor are not present), and using a learning management system that can track the involvement of the participants with specific content. For example, it can track who has begun a programme, who has completed the training, and the participant’s test scores. NHS Educational Scotland (NES) plays a leading role in developing educational strategies and resources for healthcare workers in Scotland. It supports the existing education of healthcare workers in infection control by providing a range of tools and educational material and has supported the development of an e-learning tool for antimicrobial prescribing. The Scottish National Antimicrobial Prescribing Project (SNAPP) has adopted the APT vignette approach to provide mandatory on-line e-based training and assessment for foundation doctors in training in Scotland through the Doctors Online Training System (DOTS), which was also developed by NES as part of implementing modernizing medical careers in Scotland. The DOTS site is password protected and linked to the NES Healthcare Associated Infection portal. At any given time, there are more than 1600 foundation doctors in Scotland who will have to undertake this mandatory exercise and show evidence of satisfactory completion of this module. This programme revises, evaluates and then reinforces the principles and practices taught at undergraduate level for foundation doctors through use of clinical vignettes. The four vignettes, three reflecting common hospital-based scenarios and one based in general practice, encompass a range of competencies and learning-based outcomes. The competencies were developed informally although others have taken a more formal or consensus approach in other clinical areas. The competencies are divided into application competencies where doctors are asked to be able to apply these skills regularly in the workplace with minimal supervision or awareness competencies where foundation doctors would not be expected to have acquired the relevant skills but should be sufficiently aware to seek help. The programme provides the doctor with appropriate additional supporting information that should be available in the workplace. The on-line assessment also provides participants with feedback related to their responses. It is intended that this programme in the future will introduce some
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work-based assessment that will be supervised by the trainee’s educational supervisor and introduce assessment of attitudes and behaviours through the introduction of team skills and other non-technical skills. These aspects are clearly going to be very important when developing programmes for ‘non-medical’ prescribers, and underlines the governing principle that all interventions to improve prescribing must be multidisciplinary. An extension and probable further adaptation of this programme is proposed for more senior training and non-training grade doctors and other non-medical independent prescribers. We hope that this tool will evolve to meet the continuing education needs of all antimicrobial prescribers and its generic principles will be of interest to other healthcare organizations or systems. Ongoing evaluation of this programme will inform its further development and impact.

It is reassuring that the recently published US antimicrobial stewardship guidelines reflect many of the core components of the Scottish recommendations. Another dimension to this process is the plan by the European Centre for Disease Control and Prevention to coordinate a European work programme on antimicrobial resistance. The next stage of development and implementation of this process is already at an advanced stage in Scotland. Our emphasis on promoting a cohesive national education strategy for antimicrobial prescribing aimed at all relevant disciplines is we believe ‘doing the right thing’. As we now have single system working (primary and secondary care) in NHS Scotland, the need to encompass prescribing in primary care within this framework is also being actively considered. Many challenges lie ahead but much of the work undertaken to date in Scotland with close collaboration with our neighbours should stimulate a broad UK approach to antimicrobial stewardship.

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Transparency declarations

None to declare.

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