Developing the first national antimicrobial prescribing and stewardship competences

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Antimicrobial resistance is a national and worldwide threat to the future of healthcare. Educating both healthcare staff and the public in the prudent use of antimicrobials is an essential part of antimicrobial stewardship programmes that aim to contain and control resistance and preserve the usefulness of currently available antibiotics. Using current available evidence, regulatory documents and national antimicrobial stewardship guidance for primary and secondary care, five dimensions for antimicrobial prescribing and stewardship competences have been developed in England, through an independent multiprofessional group led by the Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) of the Department of Health (England). They are designed to complement the generic competency framework for all prescribers from the UK National Prescribing Centre (now part of National Institute for Health and Care Excellence) and are relevant to all independent prescribers, including doctors, dentists and non-medical practitioners. The antimicrobial prescribing and stewardship competences published jointly by ARHAI and PHE in 2013 are believed to be the first of their kind. Implementation of these competences will be an important contribution to the delivery of the UK government’s 5 year Antimicrobial Resistance Strategy.

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Introduction

Antimicrobial resistance is a recognized worldwide clinical and public health issue and a threat to the future of healthcare.1–3 Antimicrobial stewardship is essential in attempts to contain and control resistance, as evidence shows that resistance is linked to antibiotic use.1,2,4 Moreover, antimicrobials are unique in that their use not only affects the intended recipient but can also have consequences for others who may subsequently become colonized or infected with resistant bacteria as a result of inter-person spread. With the development pipeline for new antimicrobials at an all-time low, it is critical that efforts are made to conserve and make better use of existing antimicrobials. It is estimated that 25000 people per year die from infections caused by multidrug-resistant bacteria in Europe, leading to extra healthcare costs and productivity losses of at least €1.5 billion each year.5

Antimicrobial resistance is a particular threat to children, older people, those with weakened immune systems and patients undergoing invasive procedures, as such patients are at increased risk of infection and hence may require treatment with antibiotics. Bacterial resistance thus potentially complicates the management of patients in many different medical specialities. The importance of enhancing appropriate use of antimicrobials is recognized in the UK government’s joint 5 year Antimicrobial Resistance Strategy, which offers a framework to improve the knowledge and antimicrobial prescribing practice of professionals and increase public understanding of the harm of antimicrobial resistance.3

Antimicrobial stewardship

A robust antimicrobial stewardship programme has an important role to play in slowing the development of antimicrobial resistance. Antimicrobial stewardship is defined in the Chief Medical Officer’s Report as embodying ‘an organizational or healthcare-system-wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness’.2 The four major goals for antimicrobial stewardship are:6 (i) to optimize therapy for individual patients; (ii) to prevent overuse, misuse and abuse of antibiotics; (iii) to minimize development of resistance at patient and community levels; and (iv) to improve patient safety and outcomes. To maximize patient safety, any stewardship programme should align with infection-reduction programmes, including those that are healthcare associated.2,6 Educating the public and clinicians in the prudent use of antimicrobials as part of an antimicrobial stewardship programme is of paramount importance.
in order to preserve these crucial treatments and to help minimize the development of resistance. Improving surveillance and infection prevention and control are other key strategies.3

**Competence development**

Competences, or a competency framework, are sets of behaviours that are instrumental in the delivery of desired results.7,8 These behaviours support individuals and an organization in the attainment of organizational set objectives, in this case antimicrobial stewardship. In the UK, there are national prescribing competences that, if acquired and maintained, should help healthcare professionals be safe and effective prescribers.9 The multiprofessional Antimicrobial Prescribing and Stewardship (AMPS) competences were developed by a multiprofessional group led by the Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) of the Department of Health (England). They are designed to complement the generic competency framework10 for all prescribers from the National Institute for Health and Care Excellence National Prescribing Centre (NPC) and are relevant to all independent prescribers, including doctors, dentists and non-medical practitioners.

The antimicrobial prescribing competences can be used by prescribers to help develop their prescribing practice at any point in their professional development in relation to prescribing antimicrobials and can be used to plan continuing professional development in order to maintain and improve their competence. Competences can also provide clarity for regulators, education providers and professional bodies to inform standards, guidance and the development of training. The antimicrobial prescribing competences align with the guidance and resources in the Start Smart—then Focus10 guidance in secondary care and the Royal College of General Practitioners’ TARGET (Treat Antimicrobials Responsibly—Guidance and Education Tools) toolkit developed for primary care.11

**Methodology**

The competency framework for antimicrobial prescribing and stewardship used underpinning evidence already gathered and reviewed by the NPC for developing the national prescribing competences.9 A multiprofessional group was convened through the regulatory and professional bodies of all professions that are able to prescribe independently (Figure 1). Evidence available for the prevention of antimicrobial resistance and effective antimicrobial stewardship practice, including regulatory documents, was reviewed and used to propose a framework that was presented to the steering group for comments and additions. Each statement was considered during several meetings and e-mail iterations to reach a consensus concerning: (i) clarity, language improvement and multiprofessional focus; (ii) relevance to all prescribers of antimicrobials; and (iii) the structure of the framework to ensure complementarity with the national prescribing framework (facilitated by inclusion of a key member of that group).

**How can the AMPS competencies be used?**

As with the national prescribing competences, the AMPS competences can be used by any independent prescriber to help develop their prescribing practice in relation to prescribing antimicrobials, at any point in their professional development. To understand the level of competence, it is necessary for individuals to undertake an honest assessment of their current level of knowledge and skills and their ability to apply them in practice. The help of others (e.g. colleagues, peers and/or manager) can be sought in this assessment. Once there is a realistic assessment of knowledge, skills and competence, learning needs and how these can be met can be determined. It will be important to revisit the competences and ensure continuous assessment to identify progress in achieving all of the competences.

These competences can also be used by regulators, education providers and professional bodies to inform standards, guidance and the development of training.12 This can include: (i) the development of curricula for educational programmes; (ii) the design, delivery and validation of training courses and materials for continuing professional development; (iii) self-assessment, as a point of reference for portfolio writing and agreeing goals for personal development plans and individual appraisals; (iv) multidisciplinary discussions on relevant competences and possible organizational changes; and (v) useful resources to help design recruitment procedures, e.g. the initial testing, questioning and benchmarking of candidates.

**The competency framework**12

This consists of five dimensions, each of which includes statements that describe the activity and outcomes that prescribers should be able to demonstrate. The five dimensions comprise:

(i) *Infection prevention and control*—understand the principles and demonstrate competence in preventing and controlling infections (five statements).

(ii) *Antimicrobial resistance and antimicrobials*—understand the modes of action and spectrum of action of antimicrobials and the mechanisms of resistance (six statements).
(iii) The prescribing of antimicrobials—understand the key elements in prescribing appropriate antimicrobial agents for prophylaxis and treatment (eight statements).

(iv) Antimicrobial stewardship—demonstrate an understanding of antimicrobial stewardship in day-to-day practice (eight statements).

(v) Monitoring and learning—demonstrate continuing professional development in antimicrobial prescribing and stewardship (four statements).

Future steps

Plans for the future development and monitoring of these competencies have been taken forward by PHE through the English Surveillance Programme for Antimicrobial Utilization and Resistance (ESPAUR) and Health Education England. Part of Health Education England’s mandate is to work with universities, commissioners and employers to ensure that workforce capability and planning mitigate the risk of antimicrobial resistance as set out in the UK Antimicrobial Resistance Strategy. We have proposed to ESPAUR how these generic competencies should be considered and evaluated by the various professional and allied professional groups interested in antimicrobial stewardship, for use in writing/reviewing their own more detailed competencies.

To further support the UK Antimicrobial Resistance Strategy, it is essential that antimicrobial stewardship and the associated competencies are embedded in the curricula and training of all healthcare professionals so that they understand their individual contribution either as a prescriber or as a non-prescriber.

A concept that appealed to the AMPS group was exploring the feasibility of developing a ‘cross-roads’ site, which would comprise links to competency documents on members’ websites, syllabuses, learning outcomes and assessment methods for continuing professional development/courses and other agreed items. This would enable all to reflect on how others’ activities might benefit their own and demonstrate how much has been achieved over time.

In summary, we believe that these are the first national antimicrobial prescribing and stewardship competencies to be developed anywhere in the world, and that their implementation will be an important contribution to the delivery of the UK 5 year Antimicrobial Resistance Strategy.

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References


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