



Combating antimicrobial resistance

Educational approaches for the responsible prescribing of antimicrobials

Executive summary

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Executive summary

Background

The education of prescribers on the appropriate use of antimicrobial and containment of antimicrobial resistance is critically important in view of the threats posed by antimicrobial resistance to the future of modern medicine (Chief Medical Officer [2013](#)). The Health and Social Care Act 2008 code of practice on the prevention and control of infections and related guidance (the Department of Health [2015](#)) states that providers should ensure that all prescribers receive induction and training in prudent antimicrobial use and are familiar with the antimicrobial resistance and stewardship competencies. National recommendations state that there should be mandatory core training in prudent antibiotic use for doctors, pharmacists and nurses. In addition to undertaking introductory sessions in this area as part of induction programmes, it is recommended that this is repeated every three years, with particular emphasis on those antibiotics that provoke C. difficile infection (CDI) (Public Health England and the Department of Health [2008](#); Public Health England [2011](#)).

Methodology

The objective of this work was to identify current learning materials and resources available to support prescribers on learning and education around antimicrobial resistance (AMR) across the system via a scoping exercise. A questionnaire was used to capture information around prescriber training based on national expectations and directives. Our aim was to use the findings to identify any gaps in education and training of prescribers to enable us make recommendations to address these gaps. We also set out to explore whether NHS organisations provide mandatory core training in prudent antibiotic use for doctors, pharmacists and nurses, on induction as recommended in national guidance and whether this is repeated every three years post-registration. The inclusion of national recommendations in various resources, namely [C.Diff how to deal with the problem](#); [Start Smart then focus](#); Public Health England (PHE) The Advisory Committee on Antimicrobial Prescribing, Resistance and Healthcare Associated Infection (APRHA) [antimicrobial prescribing and stewardship competencies](#); [NICE guidance on antimicrobial stewardship](#); and [PHE managing common infections: guidance for primary care](#) and/or [TARGET clinical toolkit](#) was also explored.

Results

We received 72 responses from various organisations with more than half confirming they had developed, supported, commissioned, delivered or recommended educational or training resources for prescribers or trainee prescribers on antimicrobial resistance. The most popular formats of these resources were training workshops. Videos were the least popular method. More than 75% of the resources were targeted towards the training of medical prescribers (of all grades in both primary and secondary care including dentists) whilst more than 50% of the resources targeted the training of non-medical prescribers (in both primary and secondary care and all professional groups). An average of 50% of these resources included information on national recommendations on infection management and antimicrobial prescribing and stewardship for training prescribers. More than half of Clinical Commissioning Groups (CCGs)

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and NHS trusts/organisations provided training covering mandatory core requirements for prudent antibiotic use, in addition to introductory sessions on each induction to all prescribers (both medical and non-medical).

Less than half of CCGs and trusts said they provided this to medical prescribers only. Fewer said that they extended this training to cover groups of staff such as pharmacists, all clinical staff, all staff, nurses or all allied health professionals. Less than half of CCGs and NHS trusts/organisations were able to confirm that prescribers within their organisations were familiar with and/or provide training that covers the [PHE/ARHAI antimicrobial resistance and stewardship competencies](#).

Conclusion

We identified that there are a number of educational / training resources currently available across the system to support prescribers with the responsible prescribing of antimicrobials . However, provider compliance with [code of practice](#) requirements to ensure that all prescribers receive induction and training in prudent antimicrobial use in addition to update sessions (at least [every three years](#)) needs to improve. Providers need to do more to ensure that all prescribers are familiar with the [PHE/ARHAI antimicrobial resistance and stewardship competencies](#). Reducing infections in the NHS is a [national priority](#), and the Government has outlined its desire to halve both healthcare associated Gram-negative bloodstream infections and inappropriate antibiotic prescribing in England by 2020. Together, we want to be a world leader in reducing prescribing of antibiotics by 2020. To help achieve these aims, we have set out a number of recommended actions targeted at ourselves, healthcare providers and other stakeholders.

Recommendations

Health Education England

1. We will create a sepsis educational package targeted at management and executive teams in 2107/18 (HEE [2016](#)). We should ensure that the relevant elements of infection prevention and control, antimicrobial resistance and antimicrobial stewardship will be included within this educational package.
2. Explore developing a guide to learning materials for antimicrobial resistance and infection, that signposts prescribers and other staff to available educational sessions that will help support learning in the system.
3. Explore the factors that promote or reduce antimicrobial in different healthcare environments, through educational interventions in the working environment, via a series of focus groups involving practice educators.
4. Investigate options for developing an individualised online formative assessment tool for health students and professionals on infection prevention and control and antimicrobial

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resistance and stewardship. This will support targeted individualised learning and education for all levels of practice (also mentioned in a previous report HEE [2016a](#)).

5. Improve information sharing around antimicrobial resistance training focussing on the educational resources that can be made available to support the target to reduce Gram-negative health care acquired infections and inappropriate antimicrobial prescribing (the Department of Health [2016](#)).

6. Ensure that educational resources on the [e-learning for health](#) platform take into account national recommendations i.e. [NICE guidance on antimicrobial stewardship](#); [C.Diff how to deal with the problem](#); [PHE/ARHAI antimicrobial prescribing and stewardship competencies](#); 'Start Smart then focus'; [PHE managing common infections: guidance for primary care](#) and/or [TARGET clinical toolkit](#).

7. Ensure learning sessions for secondary care prescribers are updated to comply with NICE guidance on managing common infections ([2017](#)) once available.

8. Work with PHE to develop an e-learning package around prescribing for UTIs for primary care clinicians, to complement resources from [TARGET](#).

Healthcare providers

9. Ensure that all prescribers receive induction and training in prudent antimicrobial use in addition to update sessions (at least every three years).

10. Ensure that all prescribers are familiar with the [PHE/ARHAI antimicrobial resistance and stewardship competencies](#).

11. Consider the provision of mandatory core training in prudent antibiotic use for doctors, pharmacists and nurses as an introductory session on induction, in addition to update sessions.

12. Consider the role of an antimicrobial resistance education strategy that sets out the training requirements for staff based on national recommendations, and also includes monitoring and reporting arrangements.

13. Consider data reporting arrangements on the number of staff trained on antimicrobial resistance and prescribing to the infection prevention and control committee and/or medicines management committee. This information could be included in the organisation's annual statement on compliance with practice on infection prevention and cleanliness.

14. Ensure that educational resources take into account national recommendations i.e. [NICE guidance on antimicrobial stewardship](#); [C.Diff how to deal with the problem](#); [PHE/ARHAI antimicrobial prescribing and stewardship competencies](#); 'Start Smart then focus'; [PHE managing common infections: guidance for primary care](#) and/or [TARGET clinical toolkit](#).

15. Ensure learning sessions for secondary care prescribers are updated to comply with The National Institute for Health and Care Excellence (NICE) guidance on managing common infections ([2017](#)) once available.

16. Ensure the inclusion of antimicrobial resistance awareness as part of mandatory infection prevention and control training targeted for all staff on induction and at every update should also

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be considered. Staff should be encouraged to sign up as [antibiotic guardians](#) during these sessions.

17. Consider locally mandated and implemented staff training on antimicrobial resistance for areas that show poor audit compliance to the local antibiotic policy and national recommendations, in addition to increasing resistance patterns and antimicrobial consumption.

18. The appropriate use of antimicrobials should be included to job descriptions of all clinical staff in addition to compliance with practice on infection prevention and cleanliness.

19. Ensure protected learning time for educators and learners locally.

20. Consider targeted awareness training sessions for management and executive teams, for example, senior clinicians and clinical directors on antimicrobial resistance leadership and training.

21. Consider the role of local peer support networks for prescribers focused on improving individual antimicrobial prescribing habits through the use of prescribing [data](#), audit outcomes and resistance data.

22. Explore the role of inter-professional and interdisciplinary teaching as part of antimicrobial stewardship programmes.

Other stakeholders

23. Explore the role of education alongside other targeted interventions, such as behaviour change especially individual, team or organisational behaviour on the adoption of evidence based antimicrobial resistance practices.

24. Consider the use of frameworks that characterise interventions and policies and show how these link together to enable or support behaviour change.

25. Explore the role of collecting data on the number of staff trained on AMR as part of [local AMR indicators](#) to allow national benchmarking on how organisations are performing.

26. Encourage the adoption of an antimicrobial prescribing and stewardship educational strategy by inclusion as part of The Commissioning for Quality and Innovation /quality premium (QP), and assessment via a clear regulatory framework / checklist.

27. Ensure that educational resources take into account national recommendations i.e. [NICE guidance on antimicrobial stewardship](#); [C.Diff how to deal with the problem](#); [PHE/ARHAI antimicrobial prescribing and stewardship competencies](#); [‘Start Smart then focus’](#); [PHE managing common infections: guidance for primary care](#) and/or [TARGET clinical toolkit](#).

28. Structural leadership at local level via local community education provider networks or sustainability and transformation plan ([STP](#)) footprints to coordinate, monitor and support local action around antimicrobial prescribing and stewardship educational interventions should be explored.

29. Regional microbiology and antimicrobial pharmacist networks should be used to share examples of good practice on educational interventions that have resulted in successful outcomes.