

SCRIPT: Improving prescribing and medicines management education through eLearning

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Background

In the National Health Service (NHS), medication errors account for 10-20% of all adverse events¹, and preventable harm from medicines is estimated to cost over £750 million per year². Many factors contribute to medication errors, but a lack of knowledge is repeatedly listed as a cause by those involved. Poor prescribing competency among Foundation (junior) trainee doctors remains a key issue within medical education in the UK³.

The General Medical Council's 2009 EQUIP study⁴ found that Foundation trainee doctors prescribed with error rates of 8-10%. The authors found that many newly qualified doctors are poorly prepared for prescribing and highlighted serious weaknesses in existing educational approaches.

In response to these findings, Health Education England (HEE) (West Midlands team) commissioned the SCRIPT eLearning programme, to integrate and standardise learning relating to prescribing into postgraduate education.

Aim and Objectives

Aim:

- To develop a web-based eLearning programme to enhance pharmacology and therapeutics knowledge to improve prescribing competency for Foundation trainee doctors.

Objectives:

- To develop 38 modules (later expanded to 47) across a wide range of therapeutic areas that reflect prescribing practice in the NHS.
- To create an eLearning platform that Foundation trainee doctors can access easily for *just-in-time* learning.
- To fully integrate the learning resource into postgraduate Foundation training in the West Midlands.

Developing the Resource

- SCRIPT was developed by a collaborative team of clinical pharmacologists and pharmacists at the University of Birmingham, along with eLearning specialists OCB Media Ltd, with national steer provided by HEE.
- A scoping exercise was performed with key stakeholders to identify a list of module titles and learning outcomes.
- A multidisciplinary team of specialist healthcare professionals were invited to author content for each module, based on a pre-defined set of learning outcomes aligned to the Foundation Programme Curriculum.
- The eLearning platform was designed to be compatible with NHS IT systems and mobile devices, and provide evidence of module completion through certification.
- A management site allows educators to monitor trainee progress and provide feedback.
- A robust review process was put into place to ensure all module content is reviewed every two years, and updated immediately in-line with changes to prescribing guidance and patient safety alerts.

The Programme

The eLearning programme is accessible online at www.safeprescriber.org. The 47 modules provide an interactive blend of background pharmacological knowledge and patient-centred case-based learning for scenarios that Foundation trainee doctors are likely to encounter in practice. The modules are divided into seven categories (Figure 1).

The Principles of Prescribing
Prescribing in Medical Emergencies
Managing the Risks of Prescribing
Prescribing in Special Circumstances
Therapeutic Groups
Clinical Governance
Advanced Prescribing

Figure 1: SCRIPT module categories

Each module has the same core components, commencing with a pre-test of 10 questions, allowing the trainee to determine their baseline knowledge on the subject area. The main module content (Figure 2) takes 30-40 minutes to complete. Additional activities are presented throughout the module to embed learning.

At the end of the module, the trainee is presented with the same 10 questions (in a random order) and optional further reading. The pre/post-test is intended to help the trainee measure their knowledge acquisition on the module subject.

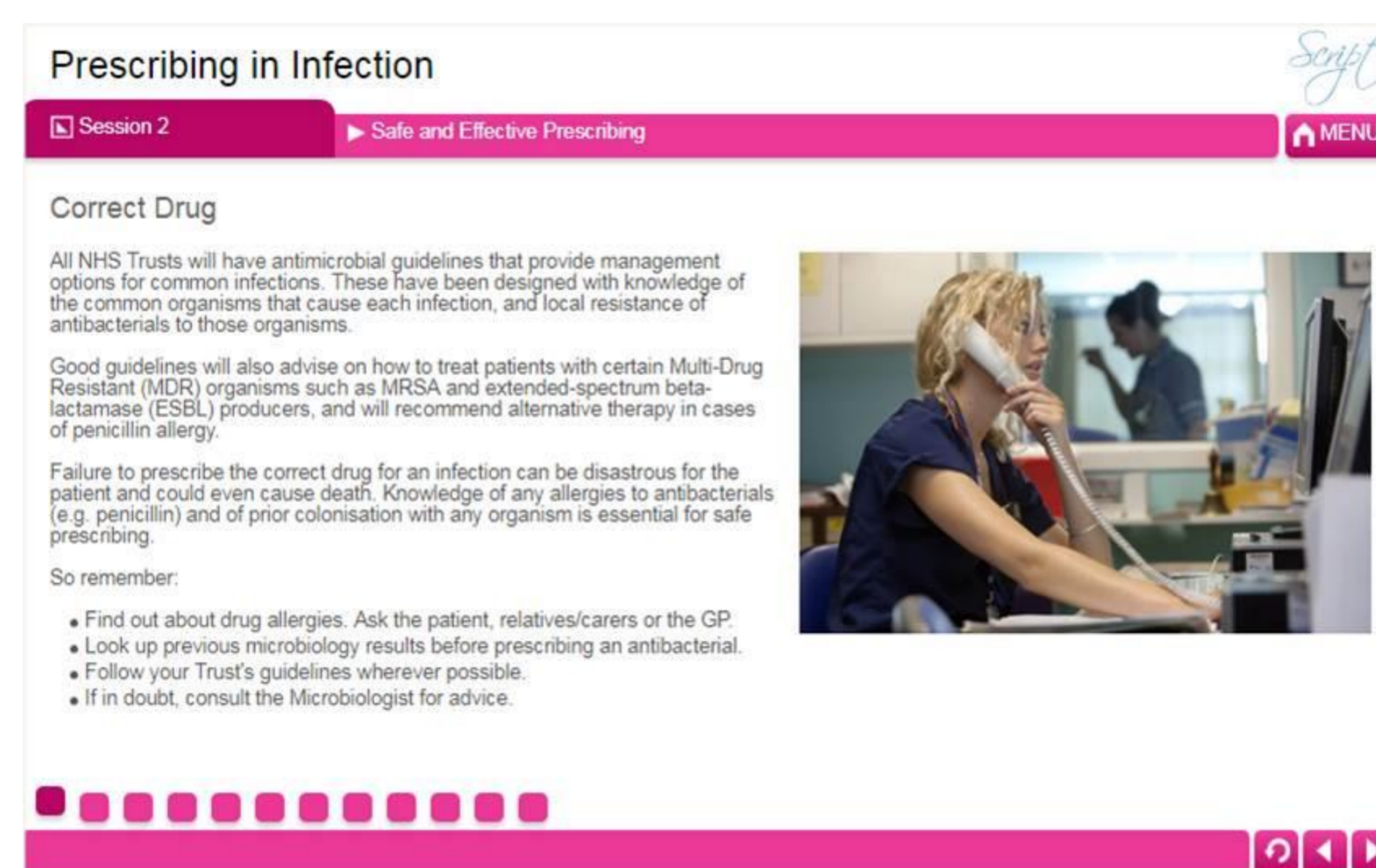


Figure 2: SCRIPT "Prescribing in Infection" module page

Implementation

In 2011, SCRIPT eLearning was fully integrated into the West Midlands Foundation training programme, providing learning to approximately 1200 trainees across 45 hospitals. Health Education England (West Midlands) requires trainees to complete 16 specified modules in their first year (F1) and 15 of their choosing in their second year (F2). The trainees meet with their clinical tutors twice a year to monitor progress.

Evaluation and Expansion

Evaluation

A multi-method evaluation of SCRIPT has informed programme development and how it should be integrated into postgraduate education. A quantitative analysis of user data⁵ found that some trainees exhibited suboptimal learning behaviours, including completing modules in bulk prior to biannual progression reviews, and completing modules in under 10 minutes. As a result of these findings, a minimum time for module completion was introduced and trainees were encouraged to adopt '*spaced-learning*' by completing two to three modules per month. In addition, Postgraduate Centre Managers were asked to facilitate the completion of modules during protected study time.

Findings from a qualitative evaluation⁶ of the programme suggested that trainees found SCRIPT useful, relevant and easy to use. Educators and users also reported that SCRIPT had a positive impact on prescribing behaviours in clinical practice, and that some trainees completed modules voluntarily beyond the requirements of their training programme. A randomised controlled trial conducted by independent researchers also found that SCRIPT improved prescribing knowledge amongst junior doctors⁷.

Expansion

SCRIPT was gradually adopted by Foundation Schools in other regions. Since August 2017, it has been available to all Foundation Schools in England, Wales, and Northern Ireland. It has also been implemented as a remedial resource for junior doctors who have failed the national Prescribing Safety Assessment⁸. In addition, 12 Medical Schools have acquired the programme to support their undergraduate teaching relating to prescribing and therapeutics.

Following the success of SCRIPT for junior doctors, between 2014-17 additional variants have been commissioned for other healthcare professionals. Modules are now freely available for Foundation Dentists (7 modules) and Paediatric Specialist Trainees (27 modules) in England. Qualified and student nurses in the West Midlands can access 18 modules relating to medicines management and medicines optimisation. A variant for General Practitioners (24 modules) is due to be piloted in the region in early 2018.

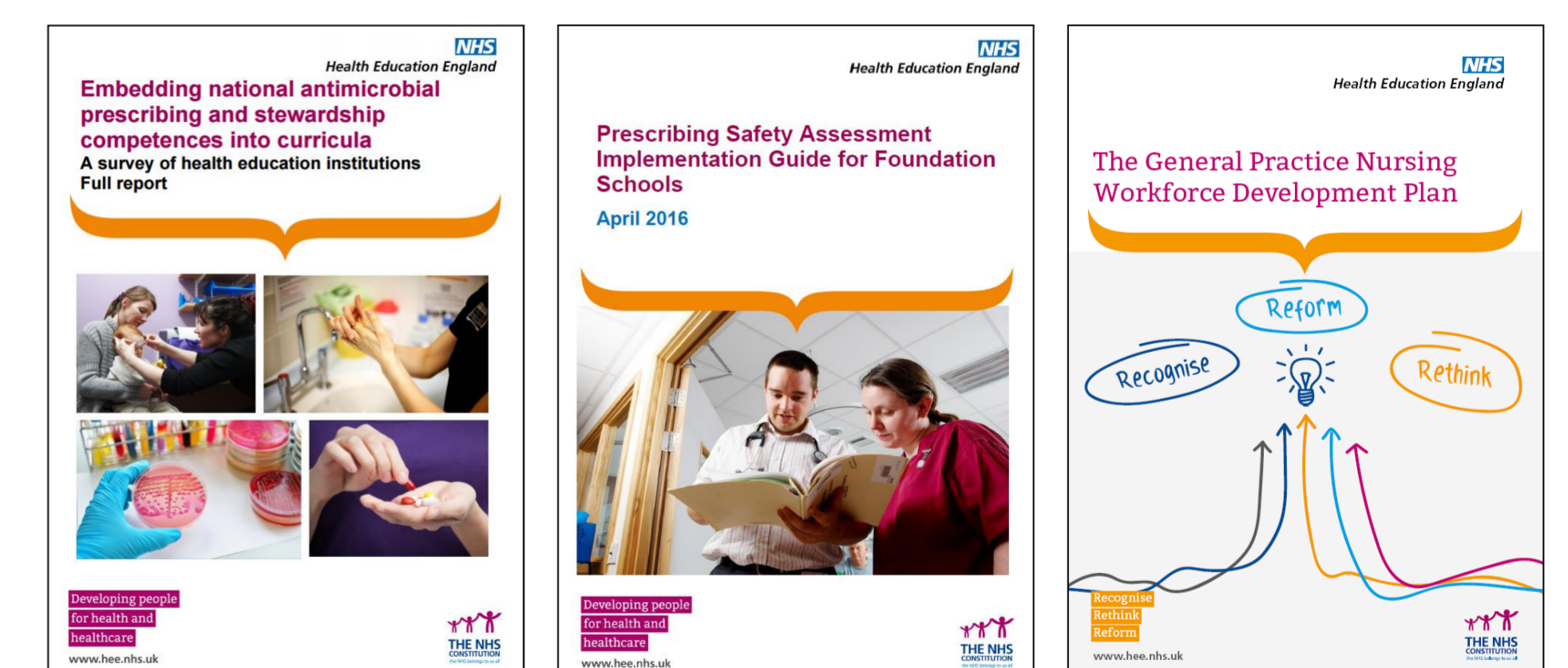


Figure 3: National guidance recommending SCRIPT

The modules are now available to over 20,000 trainees and 5,000 medical students in the UK. SCRIPT has also been recommended as a key resource in national policy and reports, including best practice guidance for junior doctors, practice nursing and antimicrobial stewardship (Figure 3).

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Conclusion

Over the past seven years, SCRIPT has established itself as a nationally recognised key resource within medical education. Evidence suggests that SCRIPT is having a positive impact and continues to meet its objectives to improve prescribing practice and patient safety. There are plans to expand the project internationally in the near future.

For further information, visit www.safeprescriber.org, contact us at script@contacts.bham.ac.uk or follow us on [@safeprescriber](https://twitter.com/safeprescriber)