

# Script

## Paediatric

An eLearning programme to improve prescribing  
competency in paediatrics

A Guide for Specialist Paediatric Trainees



Health Education England

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## 1.0 BACKGROUND

There are an estimated 237 million medication errors occurring in England every year<sup>1</sup> and approximately one in ten patients are harmed while receiving hospital care. Medication errors can be defined as **“a failure in the treatment process that leads to, or has the potential to lead to, harm to the patient”**<sup>2</sup>. Medication prescribing errors are those that have specifically occurred during the prescribing process, where there is a failure to order the right drug at the right dose at the right frequency for the right patient. In the UK, medication errors account for 10–20% of all adverse events in the National Health Service (NHS), and the estimated cost of 'probably avoidable' Adverse Drug Reactions (ADRs) is £1.6 billion per annum<sup>1</sup>.

Medication errors are common in the paediatric hospital setting<sup>3</sup>, with one study reporting an overall error rate of 13.2% in paediatric inpatients<sup>4</sup>. Prescribing in this setting poses many unique challenges:

- Paediatricians are required to prescribe for a wide range of specialities.
- Doses are required to be calculated based on weight or body surface area, and this can vary widely and change rapidly during a course of treatment.
- It is common practice to prescribe unlicensed or off-label medicines, and the evidence to guide therapeutic choices is limited compared to adult medicine.
- Prescribing decisions must be family-centered.
- Selecting and prescribing the correct formulation of a medicine is crucial for the patient and their relatives/carer.

Doctors are taught pharmacology and prescribing as a component of the medical undergraduate curriculum; however, paediatric prescribing is generally poorly represented. The majority of training in paediatric prescribing is at postgraduate level and takes place within the clinical environment, which can be variable and does not consistently cover all areas.

In a survey<sup>5</sup> of specialist paediatric trainees in the West Midlands (n=100), just over two thirds reported that they felt underprepared to prescribe for neonates and children. The majority of trainees (90%) said they had been directly involved in an error, and 30% in a prescribing-related incident. This under-preparedness to prescribe is also observed in trainees undertaking START (Specialty Trainee Assessment of Readiness for Tenure) in ST7, prior to obtaining their Certificate of Completion of Training (CCT) in ST8. When asked whether an eLearning programme could support their practice, 80% agreed that this could have a positive impact on their prescribing competence. In view of the unique challenges faced by prescribers in paediatrics, the Royal College of Paediatrics and Child Health (RCPCH) has identified prescribing as a key area for improving training and competence.

### 1.1 Background to SCRIPT

SCRIPT was first developed in 2011 by a team of clinical pharmacists and clinical pharmacologists working in both education and healthcare in the West Midlands. Commissioned by Health Education England's West Midlands Team, the aim of the project was to provide an eLearning programme to improve the prescribing competency of Foundation trainees in the region. The resource is now accessed by trainees across England, Wales and Northern Ireland and is also available in many academic institutions to support undergraduate education in prescribing and therapeutics. Owing to the success of this web-based platform, a team of Paediatric trainees supported by the Head of the School of Paediatrics (Helen Goodyear), applied for funding in 2013 to develop a variant specifically aimed at doctors undergoing specialist paediatric training.

<sup>1</sup> Elliott RA, Camacho E, Campbell F, Jankovic D, et al. Prevalence and Economic Burden of Medication Errors in the NHS in England. Policy Research Unit in Economic Evaluation of Health and Care Interventions. Sheffield, United Kingdom: University of Sheffield and University of York; 2018.

<sup>2</sup> Ferner RE, Aronson JK. Clarification of Terminology in Medication Errors: Definitions and Classification. *Drug Safety*. 2006;29(11):1011-22.

<sup>3</sup> Kaushal R, Bates DW, Landrigan C, McKenna KJ, et al. Medication Errors and Adverse Drug Events in Pediatric Inpatients. *JAMA*. 2001;285(16):2114-20.

<sup>4</sup> Ghaleb MA, Barber N, Franklin BD, Wong ICK. The incidence and nature of prescribing and medication administration errors in paediatric inpatients. *Archives of Disease in Childhood*. 2010;95(2):113-8.

<sup>5</sup> Hay, E., et al. G87 (P) Assessment of trainees prescribing confidence and competence; a prospective questionnaire survey. (2016): A49-A51.

## 2.0 THE RESOURCE

The programme comprises 25 web-based eLearning modules relating to prescribing and therapeutics across all paediatric specialties. The modules have been authored by specialist paediatric consultants and pharmacists, with significant input from trainees. Each module has been externally peer reviewed to ensure accuracy and relevance to paediatric practice.

The 25 modules are divided into five categories:

- Principles of Prescribing in Paediatrics
- General Paediatrics
- Surgical Specialities
- General Therapeutics
- Advanced Therapeutics

The learning outcomes for each module are based on the RCPCH Curriculum<sup>6</sup>.

### 2.1 Structure of the modules

Each module has the same core components, commencing with a pre-test of 10 questions, designed to allow you to determine your baseline knowledge on the subject area. You will be given a score out of 10 at the end of the test, but will not be provided with feedback at this stage. The learning starts with a brief 'Module Overview', recommendations for any reading that may facilitate progress through the module ('Pre-requisites') and 'Learning Outcomes'.

In most modules, a 'Case Vignette' introduces some key concepts from the module content. In-module activities are included throughout the module to discuss complex patient scenarios and embed learning. Note that some of the key learning points may be provided within the feedback to these cases.

At the end of the module, you will sit a post-test of the same 10 questions presented in the pre-test. These will be asked in a random order, and as the resource develops, the post-test questions may be different for some modules. In order for the post-test to be activated, you must have viewed all content in the module. Guidance on this is given on the 'Post-Test' page in the 'Summary' section of each module.

### 2.2 Certification

Upon completion of the module, a certificate will be made available as a PDF stating:

- Your name.
- The module title.
- The learning outcomes of the module.
- The date and time the certificate was generated.

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<sup>6</sup>Royal College of Paediatrics and Child Health. General Paediatrics Training Curriculum. Available online at

<http://www.rcpch.ac.uk/training-examinations-professional-development/postgraduate-training/general-paediatrics-training/ge#curriculum>

## 2.3 The pre/post-test score

The pre/post-test is intended to help you determine your baseline knowledge on the module subject, and be a measure of knowledge acquisition. They also add an element of interactivity. The questions have not been reviewed by an examination board.

The SCRIPT team has not set a pass mark and the post-test score is not generated onto the module certificate. However, decisions may have been made at a local level about applying a pass mark for the modules. If applicable, this information will be communicated to you locally. Whether or not a pass mark has been set, your progress through the modules may be monitored by named individuals within your organisation, and consistently low scores throughout may call for modules to be re-set and for the test to be re-taken.

## 3.0 INTEGRATION INTO TRAINING

Commencing at ST1, the programme is designed to be completed gradually during training.

We expect you to have completed all modules by ST8 and we strongly suggest you complete SCRIPT prior to sitting the Specialty Trainee Assessment of Readiness for Tenure (START) assessment in ST7.

### 3.1 Level 1 trainees (ST1–ST3)

We recommend you complete the 'Principles of Paediatric Prescribing' and 'General Paediatrics' modules. The remainder of the modules should be completed as you progress through level 2/3 training (see Figure 1). You may choose to complete more modules at an earlier stage, especially if they support your current role.

### 3.2 Level 2/3 trainees (ST4/5–ST6+)

If you are beyond level 1 training in September 2019, we recommend you complete a minimum of six modules of your choosing per year. In reality this will mean that ST4 trainees will complete all of the SCRIPT modules by the end of their training.

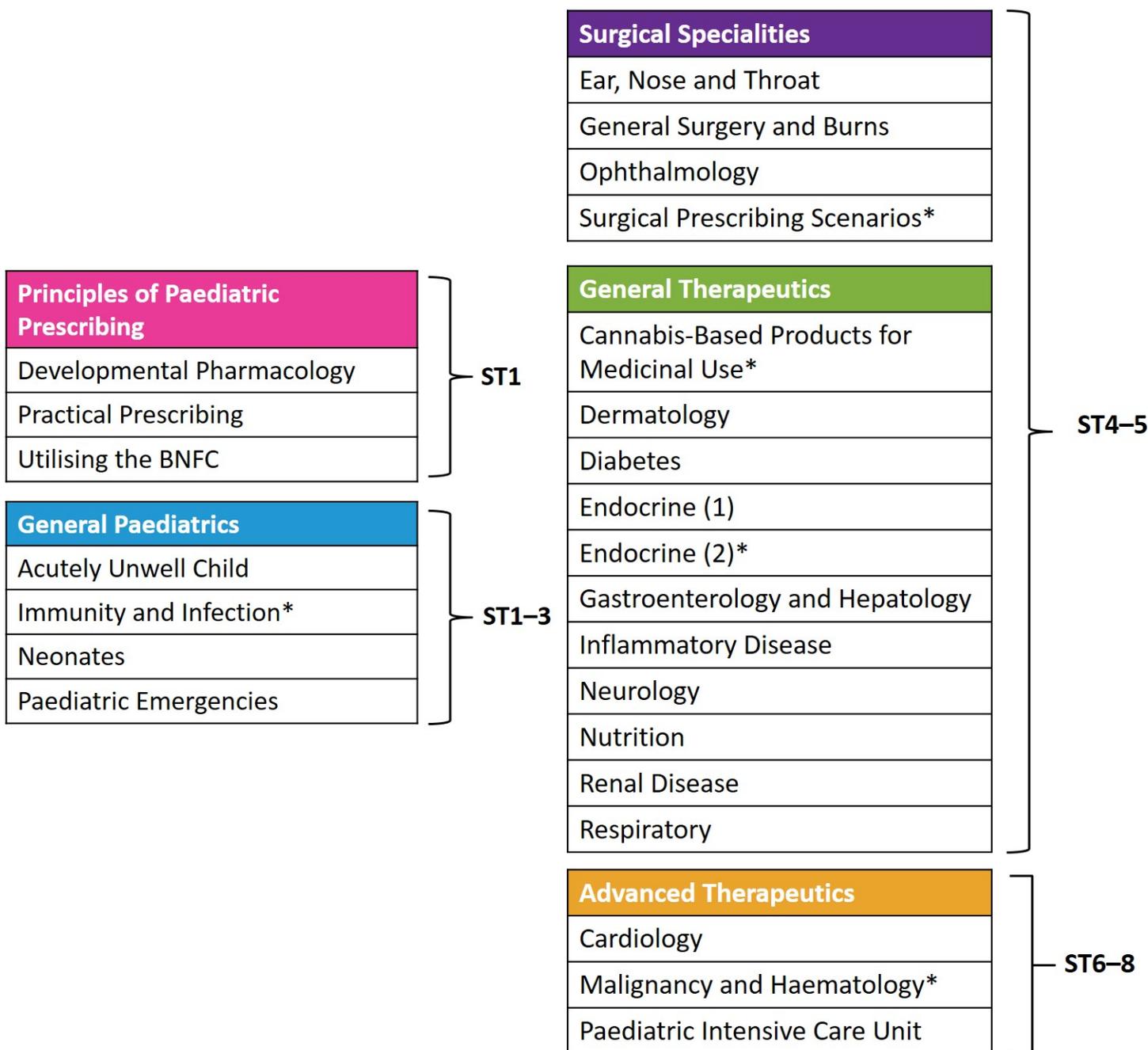


Figure 1: Modules and recommended year of completion during specialist paediatric training

\* modules still under development, expected Winter 2019

The modules will help you fulfil several parts of the paediatric curriculum on the ePortfolio, as well as prepare you for a successful outcome at START in the prescribing station. The module certificates can serve as evidence that you have completed training relating to prescribing and therapeutics.

### 3.3 How is my progress monitored?

SCRIPT eLearning has a dedicated management site that is accessed by named individuals in your organisation to monitor your progress through the modules. This serves two purposes:

1. Ensures that you are taking steps to develop your prescribing knowledge in postgraduate education.
2. Encourages discussion about prescribing in workplace education and during your appraisals.

The named individual will see the following information about your progress:

- When you have completed the modules (day of week and time of day).
- How long you spent on the learning.
- Your pre- and post-test scores.

### 3.4 SCRIPT and the ePortfolio

Some regions will require you to upload your module certificates to a folder labelled 'SCRIPT' on ePortfolio so that your progress can be monitored. These may be assessed during the progress review meetings, in addition to the information gathered from the SCRIPT management site.

### 3.5 Probity

Probity is at the heart of the medical profession. Probity means being honest, trustworthy and acting with integrity. The General Medical Council (GMC) Good Clinical Practice states: **"You must always be honest about your experience, qualifications and current role"** [Act with honesty and integrity; paragraph 66]<sup>7</sup>.

Since SCRIPT was introduced into the Foundation training programme in 2010, we have monitored its use by users. This has been conducted for *quality assurance* and to ensure that users are using the resource as intended. Importantly, our research has informed how we integrate the learning into postgraduate education<sup>8,9</sup>. At the beginning of each module, you are reminded about the above statement of probity from the GMC. This is because we have found evidence of dishonest behaviours from Foundation trainees to work around mandated modules in order to progress through the Annual Review of Competency Progression (ARCP). These includes fraudulently creating certificates for modules that have not been completed, completing multiple modules simultaneously by opening a number of tabs on the computer, and rushing through modules in under 10 minutes (note: the average time to complete a module is 30 - 40 minutes).

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<sup>7</sup>General Medical Council (2013). Good Medical Practice. Available online at [http://www.gmc-uk.org/guidance/good\\_medical\\_practice.asp](http://www.gmc-uk.org/guidance/good_medical_practice.asp)

<sup>8</sup>Brooks, H. L., Pontefract, S. K., Hodson, J., et al. (2016) An evaluation of UK foundation trainee doctors' learning behaviours in a technology-enhanced learning environment. BMC Medical Education, 16: 133.

<sup>9</sup>Brooks, H. L., Pontefract, S. K., Vallance, H. K., et al. (2016) Perceptions and Impact of Mandatory eLearning for Foundation Trainee Doctors: A Qualitative Evaluation. PLoS ONE, 11 (12): e0168558.

## 4.0 REGISTRATION

1. Go to [www.safeprescriber.org](http://www.safeprescriber.org), and select '**Paediatric**'.
2. Click '**Signup**', then under member select '**Signup**' again.
3. Select the region you work in, then under '**Register**' enter your email address and click '**Get started**'.
4. During registration, you will be asked to provide the following information:
  - i. Name
  - ii. Email address
  - iii. Telephone Number
  - iv. Profession
  - v. Professional Number (e.g. GMC number)
  - vi. School
  - vii. Password
5. When you have entered your details, you will need to agree to the terms and conditions.
6. You will receive an email confirming your registration. When this is complete, you can login and access all the modules.
7. When you have completed a module, a certificate will be made available which you can upload to your ePortfolio.

Your registration information is not shared with a third party and is maintained on a secure server.

## 5.0 FREQUENTLY ASKED QUESTIONS

### 5.1 Technical problems

#### *What do I do if I have forgotten my password?*

On the login page, click to indicate you have forgotten your password. Enter your email address and click submit. You will receive an email that contains a link to change your password.

#### *What do I do if I have forgotten the email address I registered with?*

Email us at [info@safeprescriber.org](mailto:info@safeprescriber.org) or click 'Contact/Feedback' in the bottom right hand corner of the homepage. The technical team will respond accordingly.

### 5.2 Content queries and feedback

#### *Who do I contact if I spot an error on the site?*

Email us at [info@safeprescriber.org](mailto:info@safeprescriber.org) or click 'Contact/Feedback' in the bottom right hand corner of the homepage. The editorial team will review your query and respond accordingly.

### 5.3 SCRIPT and the Training Programme

#### *How long do the modules take to complete?*

Each module takes an average of 30-40 minutes to complete.

#### *Is there a pass mark for the post-test?*

The pre/post-test is intended to help you determine your baseline knowledge on the module subject, and be a measure of knowledge acquisition. They also add an element of interactivity. The questions have not been reviewed by an examination board. As such, the School of Paediatrics has not set a pass mark and the post-test score is not generated onto the module certificate. However, decisions may have been made at a local level about applying a pass mark for the modules. If applicable, this information will be communicated to you locally. Whether or not a pass mark has been set, your progress through the modules may be monitored by named individuals within your organisation, and consistently low scores throughout may call for modules to be re-set and for the test to be re-taken.

#### *How do I get the module certificate?*

A certificate is generated upon completion of all elements of the module. This includes the pre- and post-test.

#### *What should I do with the certificates?*

Some regions will require you to upload your module certificates to a folder labelled 'SCRIPT' on ePortfolio so that your progress can be monitored. These may be assessed during the progress review meetings in addition to the information gathered from the SCRIPT management site.