

Coping with COVID

Ferner, Robin; Mason, Julie; Vallance, Hannah; Choudhary, Tanvi; Marriott, John; Coleman, Jamie; Pontefract, Sarah

DOI:

[10.1111/bcp.15153](https://doi.org/10.1111/bcp.15153)

License:

Other (please specify with Rights Statement)

Document Version

Peer reviewed version

Citation for published version (Harvard):

Ferner, R, Mason, J, Vallance, H, Choudhary, T, Marriott, J, Coleman, J & Pontefract, S 2021, 'Coping with COVID: preparing prescribers during the pandemic', *British Journal of Clinical Pharmacology*.
<https://doi.org/10.1111/bcp.15153>

[Link to publication on Research at Birmingham portal](#)

Publisher Rights Statement:

This is the peer reviewed version of the following article: (see citation), which has been published in final form at <https://doi.org/10.1111/bcp.15153>. This article may be used for non-commercial purposes in accordance with Wiley Terms and Conditions for Use of Self-Archived Versions. This article may not be enhanced, enriched or otherwise transformed into a derivative work, without express permission from Wiley or by statutory rights under applicable legislation. Copyright notices must not be removed, obscured or modified. The article must be linked to Wiley's version of record on Wiley Online Library and any embedding, framing or otherwise making available the article or pages thereof by third parties from platforms, services and websites other than Wiley Online Library must be prohibited.

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

TITLE PAGE

Coping with COVID: preparing prescribers during the pandemic

Robin E Ferner¹, Julie Mason², Hannah K Vallance², Tanvi Choudhary², John F Marriott²,
Jamie J Coleman¹, Sarah K Pontefract²,

¹Birmingham Medical School, Institute of Clinical Sciences, College of Medical and Dental Sciences, Medical School Building, University of Birmingham, Edgbaston, B15 2TT

²School of Pharmacy, Institute of Clinical Sciences, College of Medical and Dental Sciences, University of Birmingham, Edgbaston, Birmingham, B15 2TT

Corresponding Author:

Dr Sarah Pontefract MPharm, PhD

School of Pharmacy, Institute of Clinical Sciences, College of Medical and Dental Sciences,
University of Birmingham, Edgbaston, Birmingham, B15 2TT

Tel: +44 (121) 121 414 8074 Email: s.k.Pontefract@bham.ac.uk

Running head title:

NHS staff eLearning during the pandemic

Key words: Education, Learning, Internet, Drug Therapy, Drug Prescriptions, COVID-19,
Health professionals

Word count main text: 1085

Table Count: 1

Figure Count: 2

What is already known about this subject:

- eLearning is an effective teaching method to reach large cohorts to standardise education.
- Short eLearning modules can significantly improve prescriber knowledge and confidence.

What this study adds:

During the COVID-19 pandemic, many healthcare professionals undertook roles in unfamiliar areas of practice. We report the national deployment and use of eLearning for prescribing and therapeutics knowledge to support healthcare professionals during the first year of the pandemic.

ABSTRACT

In response to the COVID-19 pandemic, Health Education England (HEE) and the University of Birmingham provided National Health Service (NHS) staff free access to SCRIPT—a national eLearning programme for safer prescribing and therapeutics. The eLearning was particularly for those returning to work or being redeployed. In the year March 2020–21, 3412 users registered to access portfolios, and opened an aggregate of 17,198 modules. Each user completed a median of 2 (range 1–50; interquartile range (IQR) 1-7) assessed learning modules. Marks improved from pre-test to post-test by a median of 2 (IQR 0–3) marks out of 10. The most frequently selected modules were ‘Adherence and Concordance’ (1109 users), ‘Fluids’ (981 users), and ‘Diabetic Emergencies’ (818 users). 878 users accessed the unassessed COVID-19 module. The SCRIPT modules provided standardised education in core principles relating to prescribing and therapeutics and were used by professionals from many healthcare disciplines.

INTRODUCTION

The COVID-19 pandemic has challenged hospital systems in many countries, including the United Kingdom. The stress on the National Health Service (NHS) was especially severe in March 2020, when the first wave of infection resulted in a very substantial rise in admissions and deaths from SARS-CoV-2 virus infection and its complications. One response was to increase the number of trained staff as rapidly as possible, largely by redeploying staff onto medical wards and asking healthcare professionals to return to the NHS. However, there was a need to ensure that those who did not have up-to-date knowledge in prescribing, administering, and monitoring medicines could readily acquire it, while avoiding unnecessary contact that would inevitably spread infection. One solution was to use on-line (remote) learning as far as possible.

As part of this initiative, the SCRIPT eLearning team (University of Birmingham and OCB Media) elected to provide SCRIPT (1), a national eLearning programme for safer prescribing and therapeutics, to healthcare staff, including ambulance services, final-year medical students, doctors who wished to refresh skills before taking up front-line roles, and practitioners returning to the NHS. The learning was not mandated, nor were users directed to specific modules. Engagement was a personal decision for the adult learners, allowing them to select modules that would help in a specific role or personal development.

SCRIPT is an eLearning programme to improve safety and competency among healthcare professionals in prescribing, therapeutics, and medicines management. It consists of a series of eLearning modules, each approximately an hour long. The modules are designed to educate prescribers about prescribing in a variety of patient populations and situations. Modules include topics such as Prescription Documentation, Prescribing in Renal Dysfunction, and Adverse Drug Reactions. Each module is developed by a multidisciplinary team of healthcare professionals and updated regularly. A module comprises a set of multiple choice questions ('pre-test'), the main body of learning content, a repeat set of identical questions presented in a random order ('post-test'), and some suggested further reading. Following completion of the post-test, a certificate of completion can be viewed and downloaded by the user. A Learning Management System allows data collection, and makes it possible to analyse learner interaction by module (2). Different portfolios of modules are available for practitioners working in acute hospitals (Medicine and Surgery), Paediatrics, Nursing, Primary Care, and the Ambulance Service. Here we describe the outcome of this exercise, using data collected between 24 March 2020 and 31 March 2021.

METHOD

Each new user who had registered with the free web-based NHS portfolios between 24 March 2020 and 31 March 2021 and completed at least one module was allotted a unique identifier that allowed us to retrieve data from the Learning Management System of SCRIPT. We gathered data on every completed module for each user to provide insight into engagement with the platform: participant number, portfolio, profession, module, pre-test score, post-test score, and total time spent (minutes) on each module. We used descriptive statistics in Microsoft Excel[®] to examine the retrieved data. We included data on a specific COVID module that had no pre- or post-module test questions, and which we produced as an additional module to guide practitioners in the management of patients with COVID-19.

RESULTS

The SCRIPT programme made available 51 modules in one or more of five portfolios and a module on COVID-19 that differed from other modules because it contained no test questions.

A total of 3412 healthcare workers enrolled for least one module during the period. They included: 196 core trainee doctors, 408 nurses, 210 registrars (specialist trainees), 176 consultants, 284 pharmacists and pharmacist trainees, 209 medical students and 1929 ‘other.’ The last category included medical students working in the NHS to support the workforce, and other NHS staff such as ambulance paramedics and those returning to NHS service.

Altogether, users enrolled in 17,198 modules. Each user completed a median of 2 modules (range 1–50; IQR 1–7) [Figure 1]. The average time spent on each module was 47 (IQR 39–56) minutes.

In the 11,712 fully completed modules, the median post-test score was 8 (IQR 7–9) out of 10, a median improvement of 2 (IQR 0–2) points on the pre-test score. The modules for which the improvement in score was greater than 2.5 included those titled Rheumatology, Diabetes, Adverse Drug Reactions, Perioperative Prescribing, and Drug Allergy and Anaphylaxis.

[Figure 1 near here]

Users accessed modules most often in April and August 2020, corresponding to the module’s availability towards the start of the pandemic in England and Wales, and to the annual change-over of hospital staff.

[Figure 2 near here]

Over 500 participants used each of the 10 most widely used modules (Table 1).

By contrast, seven modules on subjects as diverse as ‘Cannabis-based Products for Medicinal Use’ (63 users) and ‘Introduction to Psychiatry’ (39 users) were accessed by fewer than 100 users.

DISCUSSION

The pandemic of SARS-CoV-2 infections has put the NHS under pressure and led to the recruitment of new staff and the redeployment of existing staff to unfamiliar roles. These include roles that involve the prescription, administration and monitoring of drug therapies, and the treatment of medical urgencies and emergencies, all areas in which staff may have lacked recent experience. The existing SCRIPT portfolios contained a wealth of material that provided teaching in many of these areas. Therefore, Health Education England and the University of Birmingham SCRIPT team made these modules freely available to NHS staff during the pandemic. Our results show that those healthcare workers who completed one or more of the SCRIPT modules did so conscientiously and spent a median of 48 minutes per module. That is, they did not rapidly skim through modules to obtain a certificate and move on. This contrasts with previous research where we found mandatory completion of modules as part of Foundation training led to sub-optimal engagement with module content [2]. The need for clinical staff and the subsequent rapid change in roles many faced were likely to motivate an assessment of learning needs and proactive approach to development. This aligns with adult learning theory—specifically the motivational model, where “*autonomy*”, “*competence*” and “*belonging*” are the needs to motivate and sustain the learning [3]. While many learners only undertook a small number of modules, over 500 users undertook 10 or more modules. Overall, the scores of learners who completed both pre-test and post-test improved by 20% after module study, although the median post-test scores were still less than the maximum score of 10.

NHS staff were motivated to engage with eLearning in SCRIPT, even though this was not mandated. The 10 most widely used modules concentrated on core principles (such as drug history and dosing and calculation) or important aspects of emergency medicine (such as the

management of anaphylaxis). This suggests that returning or redeployed staff were keen to reinforce their prior knowledge through eLearning.

CONCLUSION

The SCRIPT modules made available during the first period of the pandemic were used by a wide range of NHS staff. Users engaged with the learning diligently, as judged by the average time spent on each module, and the improvement in test scores after module learning. This diligence suggests that staff were able to identify gaps in their knowledge of prescribing and therapeutics, and take responsibility for further learning.

Conflict of interest statement

All authors are members of the SCRIPT eLearning team.

Funding information

The development and maintenance of all SCRIPT eLearning programme portfolios are funded by Health Education England. The initial development of the Nursing SCRIPT portfolio received funding from the West Midlands Academic Health Sciences Network.

Ethics

The use of data from the SCRIPT Learning Management System has been reviewed by the University of Birmingham Ethics Committee, with a favourable outcome [ERN_14-0746SF]. All users consent to the SCRIPT Privacy Policy upon registration, which states that usage (anonymised) data may be processed for the purposes of retrospective research and analysing the use of the website and services.

Data availability statement - In line with the 'Expects Data' policy, short reports should include a Data Availability Statement, in both the main text and in the submission form. For examples, see [here](#).

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions

REFERENCES

1. SCRIPT eLearning Programme. [Online] <https://www.safeprescriber.org/>. Accessed January 12.
2. Brooks, H.L., Pontefract, S.K., Hodson, J. *et al.* An evaluation of UK foundation trainee doctors' learning behaviours in a technology-enhanced learning environment. *BMC Med Educ* **16**, 133 (2016). <https://doi.org/10.1186/s12909-016-0651-z>
3. Taylor DC, Hamdy H. Adult learning theories: implications for learning and teaching in medical education: AMEE Guide No. 83. *Medical teacher*. 2013;1;35(11):e1561-72.

Table 1. The 10 most widely used modules by the number of learners, with mean improvements in score between pre- and post-test results.

Module	Number of learners	Average time spent on module (minutes)	Mean improvement in score (Post-test – pre-test)[†]
Adherence and Concordance	1109	32.9	0.6
Fluids	981	61.3	2.2
COVID-19	878	48.4	*
Diabetic Emergencies	818	42.7	2.2
Cardiac arrest	743	41.1	1.9
Drug Allergy and Anaphylaxis	695	61.6	2.6
Anticoagulation Part 1	681	45.7	1.8
Taking a Safe & Effective Drug History	650	49.9	0.7
Sepsis in Hospital	611	38.4	1.8
Dosing and Calculation	589	57.2	1.0

[†]Based on those users who completed both pre- and post-test. The maximum score for each test was 10 marks.

*There was no score associated with the COVID-19 module.

Figure legends

Figure 1. Number of modules attempted by each of the 1387 learners who completed at least one module.

Figure 2. Total number of modules completed by month from 24 March 2020 to 31 March 2021

