Prescribing Simulator: new tool to develop prescribing skills

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Gaining sufficient expertise on medicines and prescribing takes practice, which is ideally done in an environment that doesn’t involve actual patients. This is the function of the recently launched Prescribing Simulator, an e-learning project from the British Pharmacological Society. This article takes a look at this new initiative, how it works and who might benefit.

All medicines have the potential to cause harm if used inappropriately. The British Pharmacological Society recommends that healthcare professionals who prescribe should do so based on the following 10 principles, which underpin safe and effective use of medicines:

1. Be clear about the reasons for prescribing
2. Take into account the patient’s medication history before prescribing
3. Take into account other factors that might alter the benefits and risks of treatment
4. Take into account the patient’s ideas, concerns and expectations
5. Select effective, safe and cost-effective medicines, individualised for the patient
6. Adhere to national guidelines and local formularies where appropriate
7. Write unambiguous legal prescriptions using the correct documentation; be aware of common factors that cause medication errors and know how to avoid them
8. Monitor the beneficial and adverse effects of medicines
9. Communicate and document prescribing decisions and the reasons for them
10. Prescribe within the limitations of your knowledge, skills and experience

Table 1. Ten principles of good prescribing
grounding in the principles of clinical pharmacology and use of medicines more generally”, testing user knowledge with multiple-choice questions, plus, at the end of each session, a self-assessment section, in which students apply their learning to a realistic case study scenario.

The commercial assessment and learning arm of the BPS – BPS Assessment – is also active in the education arena, and has recently crafted various online prescribing ‘box sets’ for specific audiences or institutions – an example being the hypertension box set, which is currently being rolled out by the British and Irish Hypertension Society (BIHS) to its members.

What’s different about the Prescribing Simulator?

It is to this suite of products that the Prescribing Simulator is being added – free to use and on the e-LfH platform. Described as “a formative assessment tool for all prescribers to develop their prescribing skills at any time or in any place”, it went live in March 2019. But where does it fit in and why is it needed?

According to Professor Simon Maxwell, Medical Director of the Prescribing Simulator and Professor of Student Learning and Clinical Pharmacology at the University of Edinburgh, this new education tool is aimed mainly at medical undergraduates, for whom there were previously no existing realistic virtual environments where they could practice without potential clinical consequences.

“Immediately after graduation, new doctors are expected to prescribe many times each day in increasingly busy clinical environments,” explains Professor Maxwell. “Yet medical students are not able to practice prescribing as much as would be ideal and are often not confident about their ability to prescribe at the point of graduation. This applies even more so now, as they are no longer able to work ‘student locums’, plus new graduates may not get sufficient dedicated supervision time in busy clinical environments.”

“New foundation training programmes for junior doctors require familiarity with prescription charts – still the most common system for prescribing in UK hospitals – from day one of postgraduate medicine. The Prescribing Simulator gives students plenty of practice with these charts.”

Professor Maxwell adds that the simulator is also a natural evolution from Prescribe. “Prescribe covers basic knowledge, understanding and principles of using medicines in clinical practice, while the Prescribing Simulator is a tool that aims to ensure that those principles can be put into practice when it matters, ie when treating patients, but doing so when no one is harmed if a poor decision is made.”

Good preparation for the Prescribing Safety Assessment

Though it can be used more widely, the Prescribing Simulator has been deliberately designed to provide targeted practice for students who are gearing up for their Prescribing Safety Assessment exam.

Lee Page, Head of Education and Engagement at the BPS says: “The PSA system only allows a limited time for students to use the practice papers, and we recognised there was a need for students to be able to practice a lot more.

“The platform we are using for the Prescribing Simulator is very close to that of the Prescribing Safety Assessment exam. We are using the same clinical areas and prescribing question type – a case presentation in which the user has to choose a prescription form.”

He adds that even the writing of the questions for the Prescribing Simulator was led by an experienced Prescribing Safety Assessment author team. “The way the process worked for the 77 or so questions currently in the simulator is that one expert would author a question before handing it over to be reviewed and checked by a second author. The two independent writers would then need to agree that the item seemed sensible and that the feedback was appropriate for all the possible answers.

“Once we had all the items ready, we gave access to the 55 clinical pharmacology trainees in the country to trial the simulator and provide feedback, which we responded to before it became a live tool earlier this year.”

A trip around the Prescribing Simulator

After logging on and accessing the Prescriber Simulator via the www.e-lfh.org.uk website, users can choose either a timed session that includes a mixed bag of questions, or specific areas to be tested by selecting from a pulldown menu of therapeutic areas and clinical settings (age range is also a selectable variable). All the questions are based around filling in either a ‘regular medicines’ or a ‘once only’ prescription chart, exactly as it would appear in a real-life setting.

Figure 1 shows an example scenario from the “Medium Assessment 01-15 Questions” section; the prescriber deliberately answered with some errors (correct drug but the wrong dosage regimen), and also failed to sign the prescription.
form. This generated the feedback shown in Figure 2.

“The part of the simulator we’re particularly proud of is the feedback that users get, which was also the most difficult and time-consuming part to get right,” says Lee Page. “Users get marked for their choice of drug, dose, route of administration and other things like remembering to correctly date and sign the form, so there are several aspects that can be got right, wrong or somewhere in between. The process is done formatively so that after you have submitted your answers and clicked OK, it will tell you how you have done and you will get feedback as to where you made a mistake. If you get a close answer, it will give you some advice as to why the dose wasn’t quite right or the route of administration wasn’t quite right, so it’s quite complex.”

An evolving project
The Prescribing Simulator isn’t fixed in stone, and the team behind it is open to novel uses and user critique. Dr Lesa Kearney, a Clinical Teaching Fellow at King’s College London is a case in point. She liked the Prescribing Simulator but felt some of the questions were too advanced for medical students during the earlier stages of their course. Consequently, she sought permission to add some of her own simple scenarios to the simulator, which are now available as starter-level questions on the platform for first-year medical students.

“This tool allows students to practice prescribing skills, with feedback to guide their learning,” says Dr Kearney. “I have written some very simple scenarios for the simulator, which get students who are just starting out to practice the skills they have learnt in class, but which also offers an introduction to the concept of online prescribing.

“I am recommending our first-year students use it to complement the introduction to prescribing skills, which is part of their Clinical Skills module. I’m really keen to get the students to start thinking about and practicing prescribing skills from early in their course, so I’m hoping we can continue to use the application to supplement our teaching through the rest of the curriculum. Students say the online scenarios are really useful and that it is really helpful to get the feedback.”

If users have any issues with the way the simulator marks their answers and want to challenge the feedback, the Prescribing Simulator has a ‘Report an error’ feature.

“This is a live process within the tool that ultimately feeds back to the authors, who will sense check the clinical information to see if the challenge is right and whether we need to make changes,” says Lee Page. “I think actually we’ve only had to change one item in the four to five months since it’s gone live, but we’re happy to know that the validation process works.”

Plans for the future
Recent statistics pulled off for Prescriber by the Platform Team Lead at e-LfH show that in May 2019, close to 3000 scenarios (questions) were launched by users on the platform, and the trend is upwards (in these statistics, if a user launched the same scenario in the same month multiple times, it only counted once).

This data doesn’t show a breakdown of users, but the BPS says the tool isn’t just ideal for medical students, but also for experienced doctors looking to brush up their prescribing skills and for non-medical prescribers (like nurse prescribers and pharmacist prescribers) to practice areas of prescribing they may be uncertain about.

At the moment all the prescribing questions are hospital-based but are relevant to other scenarios, such as general practice, too. There are no current plans for other versions, such as one that is more closely primary care-focused, though this isn’t ruled out for the future. Plans that are approved and in the pipeline include increasing the number of cases and areas covered, and an upgrade that has more functionality.

“We’re going to be monitoring the tool quite closely and will continually review what’s best practice,” says Lee Page. “Certainly, every two years it will be necessary to have a very thorough review because the formulary that the marking scheme is based on will be constantly updated.
“It’s our plan to stay ahead and offer effective prescribing education to as many people as possible.”

References

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