

Independent and supplementary prescribing

What are the best ways of assessing pharmacist prescribing students to ensure they have appropriate knowledge and skills to prescribe?

This is the first of two papers looking at pharmacist prescribing student assessment and at keeping knowledge and skills up-to-date. This article looks specifically at the assessment of pharmacists undertaking the independent prescribing course at Leeds University. The second paper in the next issue of *Pharmacy in Practice* will consider continual professional development and reaccreditation of prescribers.

Supplementary prescribing

We are all aware what supplementary prescribing is. This radical, but overdue, enhancement of the pharmacists' role involves team-working with a medic or dentist. The relationship remains hierarchical in as far as the independent prescriber (in this context the medical practitioner or dentist) sets the boundaries of the prescribing through the clinical management plan (CMP) — the core of supplementary prescribing. As anyone who is currently a pharmacist prescriber knows, this boundary can be set very widely and can encompass large sections of the *British National Formulary (BNF)*.

The supplementary prescriber can prescribe anything that is covered by the CMP and which the pharmacist agrees to prescribe. The relationship is also voluntary and all pharmacists are expected to work within both their own abilities and the *Code of Ethics for Pharmacists and Pharmacy Technicians of the RPSGB*.¹

The full definition of supplementary prescribing is: 'a voluntary partnership between an independent prescriber (a doctor or dentist) and a supplementary prescriber to implement an agreed patient-specific clinical management plan with the patient's agreement'.² This was discussed in detail in the first article in the *Supplementary prescribing* series.³

Independent prescribing

In August 2006 the new outline curriculum and competencies were developed for pharmacists to prescribe as independent prescribers in their own right. The definition that has been accepted for this activity is: 'prescribing by a practitioner (for example, doctor, dentist, nurse or pharmacist) responsible and accountable for the assessment of patients with undiagnosed or diagnosed conditions and for decisions about the clinical management required, including prescribing'.²

Notice that independent prescribing can be carried out with *or* without a diagnosis. Many pharmacists have expressed

some concern at the level of 'patient assessment' they have had before beginning the course. It is with this in mind that I am looking into the assessment of pharmacists during and at the end of their course through written examinations, objective structured clinical examinations (OSCEs), a portfolio and a case-based discussion. This latter method has been used extensively in medicine and we have adapted it at Leeds University to cover the basic aspects of patient assessment and management.

The 26-day independent prescribing course at the University of Leeds, covers all of the required topics as listed in the outline curriculum, which has more emphasis now

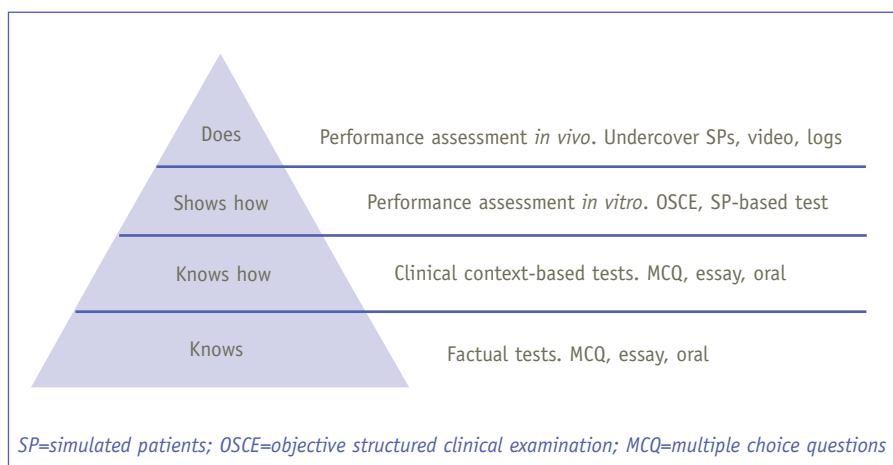


Figure 1. Miller's pyramid of competence

on the use of appropriate diagnostic aids and patient assessment. Nevertheless the way we assess the students is important to ensure they have appropriate levels of both knowledge and skills. The latter are introduced on the taught course and developed in the 12 additional clinical days.

Designing assessment

Assessment should be deliberately designed to improve and educate student performance — not merely to audit it as most tests seem to do.⁴ In short modules, such as the prescribing course where the student

account and be more learning-outcome focused. The Miller pyramid⁵ shows which assessment method is used to assess which level of competence.

The *Framework for higher education qualifications in England Wales and Northern Ireland*⁶ states: 'Effective and appropriate assessment is essential'.⁷ To be effective, assessment will need to reflect programme content and will need to be valid, reliable and fair.

Choosing assessment methods for prescribing courses

In the prescribing courses in Leeds for nurses, midwives and pharmacists, the assessment methods currently used are OSCEs, multiple choice questions (MCQ), short answer questions, a professional practice portfolio and a case-based discussion. Each will now be described as a method of assessment. The practical test of prescribing was described by the RPSGB in its accreditation documentation as follows: 'Practical test of prescribing competence, usually implemented as a university-based OSCE with 2–10 stations, or a practice-based OSCE run by the designated medical practitioner (DMP) or an observed patient consultation assessed by the DMP'.⁸

Types of assessment

1. Objective structured clinical examination

The OSCE is a method of assessing a student's clinical competence, which is objective rather than subjective.⁹ In the Miller pyramid, shown in Figure 1, the OSCE demonstrates the 'Shows how' competence. The clinical competencies, which need to be achieved using the OSCE are broken down into broad components such as professionalism, ability to identify a drug interaction and gaining concordance. Each component is assessed in a 'station' and the students move around the examination room to the different stations. Bells, whistles and voice instructions are used to inform the student that the time allotted at their station is over and they must move on to the next. The time allotted is the same for each station and,

Assessment should be deliberately designed to improve and educate student performance — not merely to audit it.

therefore, the evaluations need to be designed with this in mind.

Types of OSCE

Harden and Gleeson⁹ describe the two types of OSCE. These are the 'procedure' OSCE where the student is being assessed in the way they perform a task, such as taking blood pressure or examining an abdomen and the 'question station' where the student has to answer questions usually on the basis of information obtained at a previous OSCE.

In the prescribing course at Leeds there has been a tendency to amalgamate these two OSCE types to produce a composite OSCE. This has meant that at one station the student will be required to question the 'patient' to gain information about, for example, their current medication, while at another station the 'patient' may ask what do to about some new symptoms. Overall, this seems to favour the question type OSCE, however, a third way, using a question, answer and response OSCE may be better.

In each station communication is essential. The student talks to the patient to gain insight into their condition or issue. This communication aspect of the OSCE is also assessed using a standard examiner's assessment sheet.

Using the OSCE in prescribing

The process of prescribing is broken into a number (currently 4) of stations to cover, medical and medication history-taking. This includes communication, patient adherence to prescribed doses, side-effects of drugs and potential drug interactions.

There are many more aspects that could be assessed using this method including the writing of the prescription, but we have



The OSCE method is used to assess a student's clinical competence using simulated patients

assessment comes at the end, the assessment seems to be in place to ensure the Institute of Higher Education (IHE) or the professional bodies can be satisfied that the student has achieved a satisfactory level of attainment. Whether this continues to help inform life-long learning achievement is not accounted for.

Assessment in health care

In practical subjects, such as pharmacy and nursing, performing procedures and demonstrating techniques may be the abilities we want to assess. Pharmacy in particular has always been highly scientific leading to good knowledge but less development of reflection skills. Assessment of practical subjects should take this into

Independent and supplementary prescribing



Students come from a variety of backgrounds so part of their assessment is through short answer questions on topics such as prescription-writing, which is tailored to their individual specialty or expertise

decided to include this in the short answer questions rather than OSCEs. The reason we decided to exclude the prescription writing is related to the variety of students we have. Some students are nurses, some pharmacists, some work in the acute trust others in primary care, and the way in which prescriptions are written and for what depend on their area of specialty.

Prescription writing must be understood by students, but I feel that the process is best assessed in the examination and the clarity and appropriateness is best assessed in practice. For independent prescribing assessment, the case-based discussion can be used to assess competence in patient management, and use of diagnostic tools and techniques.

The students are given enough information at each station upon which to base their actions in that station. If we are expecting the student to obtain a full medication history then there is no further action required than obtaining the history. However, if there is a drug interaction or potential for drug interaction, the student is expected to offer an action plan.

Simulated patients

All of the OSCEs we have carried out in the School of Healthcare have used simulated patients — these are usually members of staff, although we also use actors. Manikins can also be used when examining body parts or structures.¹⁰

Examiners

The examiners in each station are qualified pharmacists or prescribing/senior nurses. These ensure the patient's story is consistent for all students. The staff are well briefed in advance. Students ask the patient questions and the responses are only given if the appropriate question is posed. If there is no answer to the question on their briefing sheet, the patient must not make up a response. Instead, a standard response of 'that information is not available,' is given to suggest this was not important rather than the answer was being hidden from the student. This ensures we maintain consistency.

Action for future use of OSCEs

Although OSCEs continue to be somewhat controversial in some areas, for example Jackson and colleagues suggest OSCEs can

be criticised for breaking clinical cases into fragmented checklists,¹⁰ their use is encouraged by professional bodies.

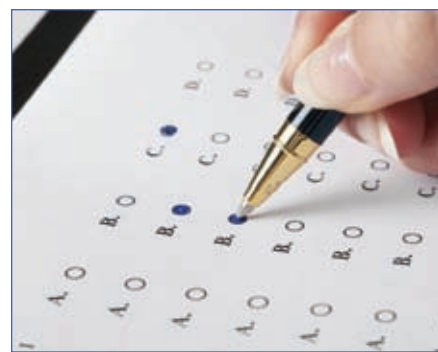
2. Multiple choice questions

Multiple choice questions are usually relatively straightforward to produce; cover the breadth of a subject; can be linked to learning objectives and are particularly easy to mark. For large groups of students these are a very useful tool in marking breadth, and certain types can check the depth — for instance, 'knows how' checks depth to an extent. This type of assessment examines the Knows and sometimes the Knows how of the Miller pyramid. They test factual recall. A number of formats exist including, True, False, single best answer and so on.

As part of the overall assessment, we have chosen 18 MCQs because they can be comfortably tackled in 30–40 minutes and can cover a very wide range of the topics taught compared with using short answer questions, which are often given 20 minutes each to complete. Others have used as many as 300 MCQs spread over time to cover a wide range of topics.¹⁰

Open book MCQ examination

Our prescribing assessment allows the use of the *BNF*. This is the most used source of information in all forms of prescribing. Allowing its use gives us the opportunity of testing the student's ability to find their way



MCQs form another assessment component

around the source in a reasonable time. The disadvantage is that MCQs cannot measure depth of knowledge although it is possible to include, for example, a calculation as a

MCQ with four similar responses of which only one is correct. The student must use their knowledge and the *BNF* to ensure the correct dose, for example, is selected.

The structure of the MCQ

Many textbooks discuss the effective writing of MCQs and there is a review in the area of radiology that describes these and the issues related to them.¹¹ One of the points raised by this paper is that written objectives to the construction of appropriate test questions are essential. The 'stem' or first statement from which the multiple choices are based, should be stated so that only one of the given options can be substantiated — and that option should be indisputably correct. The author of this paper states that: 'the best distractors (the incorrect answers) are a) statements that are accurate but do not fully meet the requirements of the problem and b) incorrect statements that seem right to the examinee. Each incorrect option should be plausible, but clearly incorrect.'¹¹

Most attention should be given to the stem of the question so that it is not ambiguous and does not have more than one possible response. Some suggest that MCQs should only ask for correct not wrong answers.¹¹ However, I feel it is useful to mix the questions so that in some, the students look for one correct answer out of four options, while in others they must find the wrong answer from the list of four. Following the stem, the best number of options is said to be three to five.¹¹ The difficulty for the question-setter is finding plausible distractors.

3. Short answer questions

Short answer questions invite limited written responses, not normally more than one page in length and often less, which can be short notes or diagrammatic in nature. Response time is 5 to 10 minutes

per item.⁷ We try to ask questions that relate our lectures and to the practical setting of each student — the 'Knows how' of the Miller pyramid. We will expect facts to be included in the answers, but the examples and the emphasis will differ depending on the student and the specialty they work in.

Using the open book

We do use an open book approach — only the *BNF* is permitted. Because the questions relate to practice rather than facts it is of little additional value, but gives a sense of 'reality' because the *BNF* is available to all health care professionals. Fry and colleagues mention the difficulty of assessor consistency even with a marking schedule.⁷ Short answers have a second marker as moderator to try to overcome this.

Although Fry states that it is not easy to produce items that test at cognitive levels



Students are permitted to use the BNF during assessments, as they might use this in everyday clinical practice, but an open-book approach is not used

higher than simple recall,⁷ we have incorporated calculations into the short answer format successfully. There is some requirement for a written response after assessing biochemical results and then making a clinical decision about action. It does mean the question may not fully relate to each

Multiple choice questions are usually relatively straightforward to produce; cover the breadth of a subject; can be linked to learning objectives and are particularly easy to mark.

student's specialty, but the topic will have been covered in the lectures and tutorials.

4. The portfolio of clinical competence

A portfolio is a personal record of achievement and professional development to demonstrate achievement of competencies and a level of attainment.¹² It can be used to demonstrate skills, activities, knowledge and creativity.

Competencies in practice

Portfolios are a method of recording and reflecting on work in practice.¹³ The Royal Pharmaceutical Society of Great Britain (RPSGB) includes the requirement that the practice 12 days of the supplementary prescribing module is assessed by — among other methods — a portfolio. The RPSGB, the Nursing and Midwifery Council (NMC) and the National Prescribing Centre (NPC) have drawn up approximately 90 competencies that must be reached before the student can gain — in the case of pharmacists — a 'practice certificate in independent prescribing'. The competencies are met in the 12 practice days through contact with patients, observing a designated medical practitioner, carrying out question and answer sessions,

gaining witness testimonies and any other appropriate method.

Demonstration of competence

The portfolio is an integral part of a work-based learning (WBL) approach to development of professional competence.¹³ It

Independent and supplementary prescribing

A portfolio is a personal record of achievement and professional development to demonstrate achievement of competencies and a level of attainment. It can be used to demonstrate skills, activities, knowledge and creativity.

provides an appropriate vehicle for people who are in full-time employment, to develop and demonstrate professional competence in the context of their own workplace.

The portfolio is used to demonstrate the competence of an individual in a specific area. It is no surprise then, given the recent emphasis on demonstrating professional competence, that portfolios have been adopted by health professional groups seeking to find ways in which to document the skills, knowledge and understanding, or clinical competence gained as part of professional programmes.

Portfolios encourage a focus on professional practice by:

- encouraging students to value personal experiences
- promoting the idea that past experiences can be the basis for future learning
- providing a basis for reflective activities
- encouraging self-assessment.

An important part of the portfolio then, is the use of skills and processes of reflection on professional practice. Reflection is an intrinsic part of becoming a prescriber equipped to practice not only safely and competently, but also independently and accountably. Reflection is a key part of the prescribing course as a whole and has been defined as: 'a generic term for those intellectual and affective activities in which individuals engage to explore their experiences in order to lead to new understanding and appreciation'.¹⁴

We have noticed that pharmacists have not been as reflective as nurses on the

course. This might be related to their relative isolation, but is more likely to relate to the nature of the individual who becomes a pharmacist and to their education system, which does not easily lend itself to an exploration of feelings. Nevertheless, by the end of the course, each pharmacist produces four reflective pieces about cases they have dealt with in their clinical days.

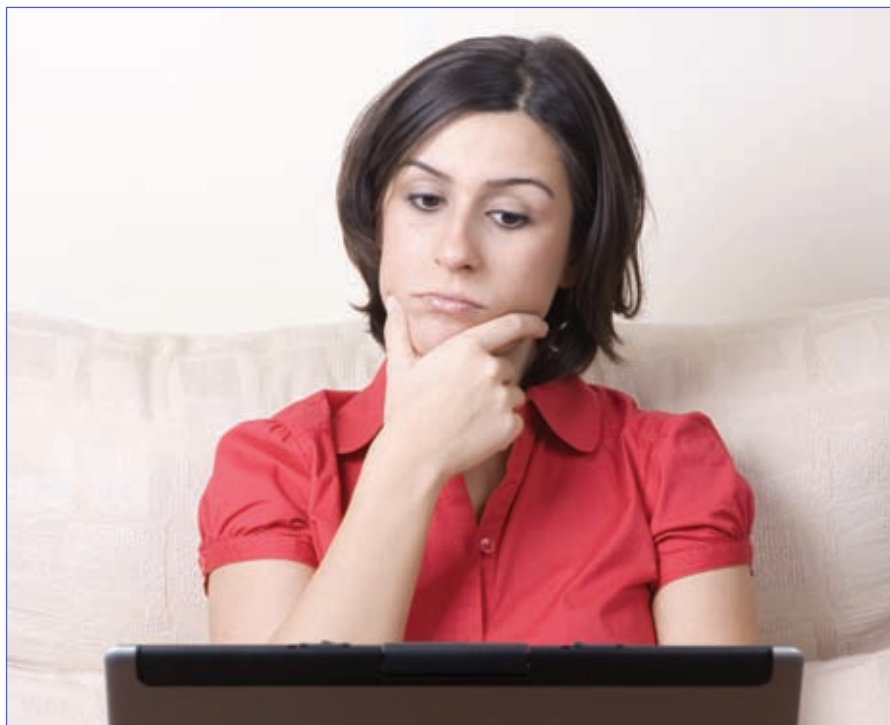
The first part of the portfolio comprises the patient contact sheets. We expect about 25 patient contacts to be submitted, written briefly but giving enough information to show what the prescribing (or non-prescribing) decisions were based on.

Claiming competencies

The second section is the patient evidence records. These are the cases, reflective pieces, witness testimonies and responses from question and answer sessions. They must be long enough to demonstrate that any competency claimed has been achieved. The designated medical practitioner signs this off to show the student has done what they said they had done. We assess this as an academic piece of work and as a professional piece ensuring patient safety and confidentiality has been maintained and the competencies have been achieved. In addition, there are a number of competencies that cannot be met using the cases and these are achieved through witness testimonies and question and answer sessions. These are printed out on headed paper and signed by a competent individual. Extra material such as local guidelines that are referred to in the portfolio may be appended to the students' work or submitted in a separate file.

5. Case-based discussion

The case-based discussion (CBD) is set in practice between a clinician and a student. The aim is to enable an assessor to provide systematic assessment and structured feedback.¹⁵ The case must be one that both pharmacist and clinician are familiar with. The student is then expected to offer comments on record-keeping; ability to use appropriate diagnostic aids; clinical assessment skills, including the ability to read biochemical results, necessary investigation



Reflection is a key part of prescribing and our experience is that pharmacists have not been as reflective as nurses — this may be one area that we need to encourage in our pharmacist students

© muhammad omer/istockphoto



© Viorika Prikhodko istockphoto

A portfolio is a personal record of achievement and professional development to demonstrate achievement of competencies and a level of attainment. It can be used to demonstrate skills, activities, knowledge and creativity.

variety of assessment tools and this reassures us that the students have been assessed for practice. ❖

Declaration of competing interests

The author declares that he has no competing interests.

and referral; choice of medication or other treatment options and follow-up and future planning. The case must be in the specialist area that the pharmacist has stated they are to work in as an independent prescriber. The student can also be assessed on their professionalism and overall prescribing judgement.

objective rather than subjective.

The CBD enables assessors to provide systematic assessment and structured feedback of a clinical case. The portfolio is a method of recording and reflecting on work in practice and is useful for the 12 days clinical practice. Overall, we use a

Barry Strickland-Hodge, senior pharmacy lecturer, School of Healthcare, Leeds University

Assessment using CBD

We have now run 50 sessions with pharmacists, clinicians and an academic supervisor. The student runs the session giving a brief overview of the case. This then leads into a question and answer session from the clinician and the academic supervisor. The questions centre on the points being assessed.

With the CBD, feedback is immediate. The observer in the CBD can be asked to say what went well and what went less well in the session. Both assessor and assessee can gain from this experience ensuring that comments, if appropriate, can be used to inform the next assessed session.

Conclusion

The style of MCQs that we use assesses breadth of knowledge and reading within the course and an ability to use the *BNF* as an open book to find answers. We chose short answer questions to measure some depth of understanding. The OSCE is a justifiable assessment of clinical skills, competence and communication, which is

References

1. Royal Pharmaceutical Society of Great Britain. *Code of ethics for pharmacists and pharmacy technicians*. Royal Pharmaceutical Society of Great Britain, London, 2007. Available at <http://www.rpsgb.org/worldofpharmacy/currentdevelopmentsinpharmacy/pharmacistprescribing/> [accessed 14/4/08].
2. Department of Health. *Improving patients' access to medicines: A guide to implementing nurse and pharmacist independent prescribing within the NHS in England*. Department of Health Gateway, reference: 6429 April 2006. [Accessed 14/4/08]
3. Strickland-Hodge B. The role of the pharmacist supplementary prescriber is being defined. *Pharm Pract* 2004; **14**(6): 174–8.
4. Wiggins G. *Educative assessment — designing assessments to inform and improve student performance*. Jossey Bass publishers, New York, 1998.
5. Miller GE. The assessment of clinical skills/competence/ performance. *Academic Med* 1990; **65**: S63–7.
6. *Framework for higher education qualifications in England Wales and Northern Ireland (2001)*. Available at <http://www.qaa.ac.uk/academicinfrastructure/FHEQ/EWNI/default.asp> [accessed 14/4/08].
7. Fry H, Ketteridge S, Marshall S. *A handbook for teaching and learning in higher education — enhancing academic practice* (2nd edition) RoutledgeFalmer, 2003.
8. Royal Pharmaceutical Society of Great Britain. *Outline curriculum for training programmes to prepare pharmacist prescribers*. Accessed at www.independent_prescribing_curriculum_final_aug_06.pdf 2006. [Accessed 14/4/08].
9. Harden RM, Gleeson FA. Assessment of clinical competence using an objective structured clinical examination (OSCE). *Med Ed* 1979; **13**: 41–54.
10. Jackson N, Jamieson A, Khan A (Editors). *Assessment in medical education and training — a practical guide*. Radcliffe Publishing, Oxford, 2007.
11. Collins J. Education techniques for lifelong learning — writing multiple-choice questions for continuing medical education activities and self-assessment modules. *Radiographics* 2006; **26**(2): 543–551. (The Department of Radiology, University of Wisconsin Hospital and Clinics, E3/311 Clinical Science Center, 600 Highland Ave, Madison, WI 53792-3252. Presented in the RSNA Faculty Development Workshop, October 2005. Available at <http://radiographics.rsna.org/cgi/content/abstract/26/2/543>. [Accessed 14/4/08].
12. Fry H, Ketteridge S. Teaching portfolios in: *A handbook for teaching and learning in higher education, enhancing academic practice*. 2nd edition RoutledgeFalmer, 2003.
13. Baume D. *Supporting portfolio development*. Continuing Development Series No 3. LTSN Generic Centre, May 2003.
14. Boud D, Keogh R, Walker D (Editors). *Reflection: turning experience into learning*. London: Kogan Page, 1985.
15. Department of Health. *Modernising medical careers — the new curriculum for the foundation years in postgraduate education and training*. The foundation programme. Department of Health 2005, latest update June 2007. Available at: http://www.dh.gov.uk/en/Aboutus/MinistersandDepartmentLeaders/ChiefMedicalOfficer/Features/FeaturesArchive/DH_4107830 [accessed 23/4/08].

Additional useful reading for pharmacist prescribers:

RPSGB. *Pharmacist's prescribing pack* (2008). Available at <http://www.rpsgb.org/pdfs/pharmprescriberpack.pdf> [accessed 14/4/08].