



**Sarah Williams** BSc(Hons) PGCert(VetEd)  
FHEA RVN

Sarah graduated from the Royal Veterinary College in 2011 with a BSc(Hons) degree in Veterinary Nursing. She then worked in general practice for two years before returning to the RVC to work in the Queen Mother Hospital's surgical and neurology wards. She is a clinical coach and chairs the Patient Welfare Group. Working with the students and running CPD sessions at the Queen Mother Hospital sparked her interest in teaching and this year she gained a Post Graduate Certificate in Veterinary Education.  
Email: sj-williams@live.co.uk

# Assessing nursing skills in the clinical environment

**Sarah Williams** BSc(Hons) PGCert(VetEd) FHEA RVN

Queen Mother Hospital for Animals, Royal Veterinary College, Hawkshead Lane, Hatfield, Hertfordshire AL9 7TA, UK

**ABSTRACT:** Assessment is essential to encourage learning and ensure that students are achieving a minimum standard (May & Head, 2010). There are two types of assessment, formative and summative; both will be discussed with regard to assessing practical skills. Objective Structured Clinical Examinations (OSCEs) will be the main focus of the article. The pros and cons of this style of assessment will be discussed in addition to providing a brief overview of other assessment options.

## Assessment methods

### In-practice/formative assessment

Formative assessments focus on student development, rather than on an outcome (Schuwirth & van der Vleuten, 2014). Detailed feedback is always given to aid the progression of the student towards greater depth of learning. This feedback is often directed towards improving the student's performance for summative assessments (May & Head, 2010; Wood, 2014).

### Summative assessment

Summative assessments are those that evaluate a student's performance at the end of a teaching period to formulate a pass/fail or grade (Schuwirth & van der Vleuten, 2014). Feedback may or may not be provided.

### Miller's pyramid

Both formative and summative assessments can be structured using Miller's pyramid. For assessing general practical skills, Miller's pyramid (**Figure 1**) is a useful framework. Miller describes how a student should move through the stages "knows, knows how, shows how, and does", rather than only being able to recall information, which historically was the focus of assessment (May & Head, 2010; Miller, 1990).

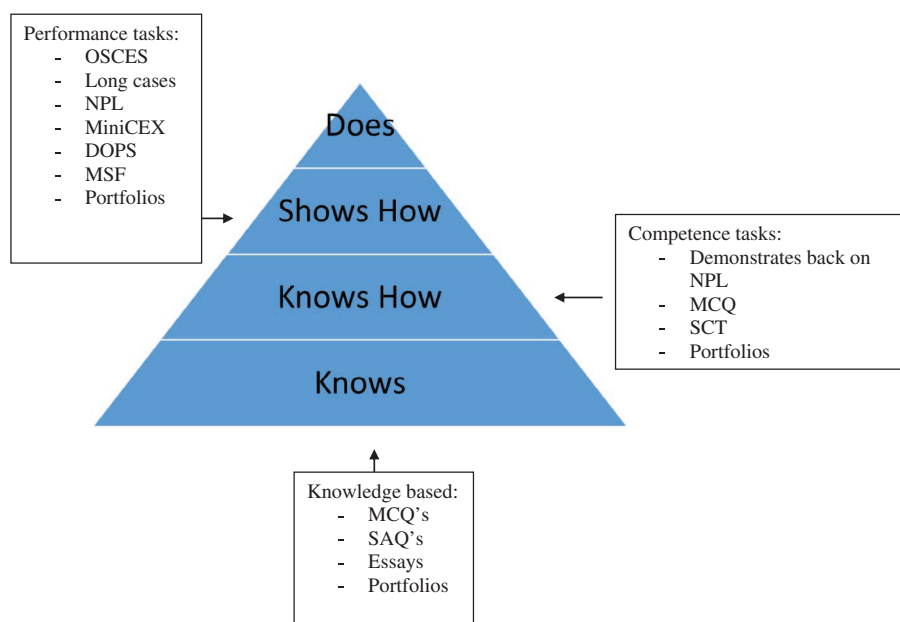
An example of Miller's theory in practice is the Nursing Progress Log, which

requires students to demonstrate skills to their clinical coach before logging and claiming competence (RCVS, 2010). Miller's pyramid allows students to familiarise themselves with a skill and, as they reach the "does" section of the pyramid, they may naturally start to develop their own methods of performing the skill (Miller, 1990).

## Assessment of practical skills

The most effective method of assessing practical skills is to assess students performing those skills in the workplace (May & Head, 2010). However, the level of student involvement and supervision, the supervisor delivering the feedback and the variety in caseload will vary between placements; therefore, it is not possible to create a consistent level of assessment for everyone. Thus, the need to ensure standardisation of assessment has resulted in the creation of practical examinations (May & Head, 2010).

A common examination format for summative practical tasks is the "dreaded" OSCE. Why do we dread them so much? They are generally used to assess clinical competence in practical skills that are performed on a daily basis, at a point in the student's progress when they can reasonably be assumed to be competent, (Boursicot, Roberts, & Burdick, 2014).



**Figure 1.** Miller's pyramid (May & Head, 2010) (with kind permission of Stephen May). This figure highlights the various assessment methods achieved in relation to Miller's pyramid, with regards to whether it is a cognitive/knowledge targeted assessment or a behaviour/skill targeted assessment and whether the behaviour/skill is performed in a simulated or practice environment

However, as we all know from experience, when undertaking such tasks with clammy hands while struggling to undertake the simplest task such as putting on gloves, all pre-existing confidence and experience flies out of the window.

So why are we put through this process and are there other options?

## Positives

### For the student

- OSCEs are fair – everyone undertakes the same examination in the same time frame with standardised equipment, and graded by examiners who have been trained to the same standard (Davis, Ponnampuruma, McAleer, & Dale, 2006; May & Head, 2010).
- There is an absolute standard, which is unambiguous, and the students are aware of the marking structure prior to undertaking the exam (Boursicot et al., 2014).
- Despite the fear element, OSCEs are highly valued and generally accepted by students as it is clear that they imitate the common day one practical skills that will be performed once qualified (Boursicot et al., 2014; May & Head, 2010).

- Students can gain relevant and timely feedback if global rating scales are used to help promote learning (see below) (Boursicot et al., 2014; Schuwirth & van der Vleuten, 2014).

### For the teaching practice

- The student is assessed by an independent examiner – May and Head (2010) discuss how difficult it can be to create an objective view of a student with whom you are working closely, as we do our student veterinary nurses.
- We can use OSCEs as both formative and summative exercises in the teaching institution or placement practice due to their flexibility and reflection of gold-standard practice (Davis et al., 2006). They can be used by the assessor in practice to structure a formative assessment and allow the student to experience this style of exam in their day-to-day environment. The marking criteria are readily available and can be accessed via the RCVS website (RCVS, 2015).

### For the teaching institution and awarding bodies

- OSCEs are widely accepted by all stakeholders as the absolute standard ensures

the safety and welfare of the patient and all those around the student (Boursicot et al., 2014; Davis et al., 2006).

- OSCEs have an outcome-based approach: thus, the student is required to be able to perform particular skills and these are the skills that are tested (Davis et al., 2006).
- The short time-frame of each OSCE task allows for multiple testing stations, this allows an assessment of the student's overall clinical competence to be gained in a controlled environment (Boursicot et al., 2014; Davis et al., 2006). This improves the validity of the assessment method as a broader view of a student's ability will help demonstrate how they will react in practice to a range of tasks, rather than just one skill (Boursicot et al., 2014; Schuwirth & van der Vleuten, 2014).
- OSCEs also address the poor reliability of in-practice assessment methods, as multiple examiners use a standardised checklist or grading scale to assess competence in a variety of controlled scenarios (Schuwirth & van der Vleuten, 2014).

## Negatives

### For the student

- Although they replicate practice, OSCEs are still held in a simulated environment (Boursicot et al., 2014; Davis et al., 2006).
- The students must follow a standardised method and attain key steps or fail the examination (RCVS, 2015). More experienced students may have created their own techniques which miss out minor steps and could be penalised because of this (Read, Bell, Rhind, & Hecker, 2015).
- It has been acknowledged that OSCEs are stressful (Muldoon, Biesty, & Smith, 2014). Whilst the time constraint is the basis of the OSCE's reliability, it does increase the pressure of the whole experience, which may be attributed to heightened nerves and fear of failure of the assessment (Boursicot et al., 2014; May & Head, 2010). Boursicot et al. (2014) argue that some leniency to the set time or varying times, depending on the task, may help to increase validity, whilst Davis et al. (2006) and May and Head (2010) suggest stations may be linked and cite an example,

used at the Royal Veterinary College, where the first station requires students to wash their hands, the second station to glove and gown and the third to demonstrate suturing. A less pressurised environment could enhance the reliability and validity of the whole process, as it is more reflective of the student's true ability. However, if one station does not go well this can have a knock-on effect upon the subsequent stations. It would also increase the logistical issues of the OSCE process and even increasing the time limit by two minutes extra on each task could amount to a significant increase in the overall time required across the examination period (Boursicot et al., 2014).

### For the teaching practice

- The student must take time away from practice to attend their examination.

### For the teaching institution and awarding bodies

- OSCEs are time-consuming and resource-intensive, from examiner training to equipment and design. Multiple members of staff are required and the examination building should ideally have multiple rooms for each station or if that is not feasible, a large enough room to hold multiple stations (Boursicot et al., 2014).
- Boursicot et al. (2014) believe that the reliability of OSCEs increases with the number of stations, Colliver, Willis, Robbs, Cohen and Swartz (1998) recommend over 30 stations just to reliably assess empathy! However, increasing the number of stations increases the time and resource pressures.
- OSCEs require excellent logistical organisation to ensure that they align with the curriculum and run smoothly as well as being an appropriate assessment method, which is globally accepted by the stakeholders (Boursicot et al., 2014).
- OSCE stations isolate skills: a student can learn the exact steps of the skill and pass the exam; however, this does not necessarily mean that they can use the skill competently in a clinical environment or apply the method to situations outside the checklist (May & Head, 2010).

### Pre-written and distributed handouts/global rating scales vs. checklists

A rigid framework can prevent adaptations of the method as the student must follow the set steps required for a pass grade. This can restrict students from developing their own techniques if they find the set method difficult and prevents new (and potentially improved) ways of conducting the skills being assessed, the use of global rating scales can be used to avoid the above issues (Boursicot et al., 2014). Global rating scales allow the examiner to rate a student from, for example, a "bad fail" through to a "good or outstanding pass", set by the teaching institution. Whilst they have been shown to increase reliability, they do require increased training for the examiner and their use is a relatively new concept that requires further research to ensure their appropriate use (Read et al., 2015).

Checklists are commonly used and are made available to students on the RCVS website prior to their undertaking the OSCE. The key pass points are highlighted to demonstrate to the student what must be achieved as a minimum in order to pass the exam (RCVS, 2015; Read et al., 2015).

There is an argument that this allows the student to memorise the steps prior to the exam and that they just learn what they need to in order to pass, rather than fully understanding the skill. However, Schuwirth and van der Vleuten (2014) argue that if taught the best practice, the student is more likely to follow this and, furthermore, the student will be assessed on these skills, thus inculcating high standards from the outset (Boursicot et al., 2014). Furthermore, providing a checklist ensures that students are aware of the absolute standard prior to undergoing the assessment, creating a fair foundation for all (Boursicot et al., 2014).

### Other options for assessing practical skills

There are various other ways of assessing a student's ability to perform a task in addition to OSCEs. Workplace assessments such as the Nursing Progress Log (NPL), Mini-Clinical Examinations

(Mini-CEX – short, observed, clinical encounters), Direct Observation of Procedural Skills (DOPS) and Multiple-Source Feedback (MSF) – feedback from individuals that have varying roles and professional relationships with the student, are conducted in practice and therefore boast higher validity (May & Head, 2010; Norcini, 2014). They can, however, have issues with low reliability, logistics and increased teaching times (Norcini, 2014). Portfolios such as the old-style veterinary nursing portfolio could be utilised to demonstrate all aspects of Miller's pyramid, as the "knowledge and understanding" sections addressed the "know and knows how" sections and the "shows and does" sections were reflected in the repetition of the skills to achieve the "performance criteria" and "scope" section. However, the degree of variation between student/placement/institution affects the validity and reliability of portfolios (Norcini, 2014). Furthermore, the old-style portfolio required large volumes of paperwork and did not allow a record of teaching to be made (RCVS, 2010a).

### Assessment of knowledge

OSCEs effectively target the "shows how" section of Miller's pyramid; however, the expense and planning required for OSCEs makes them unsuitable for the assessment of a student's knowledge (Boursicot et al., 2014). **Figure 1** depicts where the discussed examination methods sit on Miller's pyramid. Whilst it is not possible to provide an in-depth discussion of these methods in one article, they are summarised below.

Multiple-choice questions (MCQs), essays and short answer questions (SAQs) are assessment methods that assess a student's knowledge rather than their practical skill. MCQs are reliable and can be computer-marked; however, like other knowledge-based assessments, they only require the student to recall information. The questions can also be difficult to set as they require one clear answer and must not be leading in style. Essays and SAQs are time-consuming to mark and have limited reliability; however, they do allow the student flexibility in answering the question. Essays also allow the student to demonstrate reflection and synthesis of knowledge and to express individuality (Norcini, 2014).

MCQs and Script Concordance Tests (SCTs), the latter being a method of assessing a student's clinical reasoning ability, can be adapted to demonstrate the student's knowledge of how a task is performed (Norcini, 2014). Similarly, the NPL allows students to demonstrate their skills and knowledge of how to perform practical tasks to the clinical coach (RCVS, 2010b).

## Feedback and reflection

During and after the assessment the student should be encouraged to reflect. This should be structured by the facilitator and feedback should be given both to, and elicited from, the student to encourage reflection (Wood, 2014). Feedback should focus on how the student is currently performing and what they need to do in order to reach their goal. The student must then be able to act upon this information (Wood, 2014).

If a student is consistently underachieving, introducing frequent formative examination-style tasks will expose them to increased feedback and thus a greater chance of success in achieving their goals (Wood, 2014). This is the basis of the progress log that is implemented in practice, with the student logging these formative tasks as experiences until they are ready to claim competence. More information on feedback and reflection may be found in my previous article.

## Conclusion

An all-encompassing, valid and reliable assessment method that addresses all levels of Miller's pyramid is yet to be developed (May & Head, 2010; Wass, van der Vleuten, Shatzer, & Jones, 2001). For an assessment to be truly valid it must first be decided what the student should achieve, and then which assessment method would best suit this, weighing up the overall advantages and disadvantages. A good understanding of the assessment methods that our students are undertaking is an essential part of being their mentor and will enable us to help the student understand the relevance of the examination

that they are undertaking and the best way for us to support their revision. Feedback and reflection are also an essential part of supporting our students through their examinations and ensuring they continue to progress with regards to their knowledge, skills and patient care.

### Box 1. Glossary

**Direct Observation of Procedural Skills (DOPS)** – These examinations are used in medical education and are examinations that allow feedback to be given to the student in a structured manner (The UK foundation Programme Office, ND).

**Mini-CEX** – These are examinations based around observed encounters in a clinical environment and are commonly used in medical education. History-taking, physical examination skills, communication skills, critical judgement, professionalism, organisation, efficiency and overall clinical care are the main assessment points (The UK Foundation Programme Office, 2010).

**Script concordance test** – This is an examination in which the candidate's decision-making skills are tested when not all information is given or there is ambiguity in the question in relation to the decisions of an expert asked the same question (Jolly, 2014). This can show how a future clinician may undertake a work-up of a case.

**Reliability** – This is the measurement of how consistent the results of an examination are and whether the results are replicable (Professional Testing Inc., 2006).

**Validity** – this is the measure of whether the student is examined on the skill or knowledge base that was originally set by the curriculum (Professional Testing Inc., 2006).

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