

On-the-job assessment of practical skills performance: experiences from a feasibility study

A pilot exercise throughout one deanery during a whole training year has shown that the on-the-job assessment of practical skills is both feasible and acceptable to the wider health-care team. There was, however, a lack of exposure by trainees to a small number of specific procedural skills.

Introduction

Both the General Medical Council's (GMC's) transitional version of *The New Doctor* (2005) and the new foundation programme syllabus (Academy of Medical Royal Colleges, 2005) state that foundation year 1 (FY1) trainees should be competent and confident in performing a range of specified practical procedures. Although neither document is prescriptive in the assessment methodology to be used, the aim is to provide objective workplace-based assessment.

This article focuses on the experiences of introducing an on-the-job assessment of practical skills to preregistration house officers (PRHOs) throughout one deanery over a whole training year before the introduction of foundation programmes.

Background

Although medical students graduate as competent in a range of practical skills, the assessment of these skills can only confirm that they are competent to perform them under supervised conditions. This does not reflect the context in which these skills will be performed by trainees post graduation, i.e. in a busy ward environment. Evidence suggested that by the end of this PRHO year and at the time of entry to the medical register, many trainees had failed to acquire the necessary skills for clinical practice (Fox et al, 2000).

In response to these concerns, a new appraisal and assessment system was developed that was to include an on-the-job

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assessment of practical skills (Hesketh et al, 2005). Such an assessment would provide 'hard' evidence of a PRHO's ability to perform specific skills in practice. A pilot study was carried out.

Aim of the study

The aim of the feasibility study was to develop the practical skills assessment tool and explore the:

- Practicalities of implementing the system throughout a deanery
- Exposure of trainees to specific skills – were the skills appropriate for PRHO assessment?
- Profession of the raters used for the assessment – who was well placed to assess such skills?

Method

Identification of the practical skills to be assessed

The first stage in the development of the assessment tool was the identification of core practical skills required by PRHOs, the project taking place before publication of the foundation curriculum. A convenience sample of 10 postgraduate deaneries throughout the UK was used to identify which practical skills were most commonly assessed. Ten practical skills were selected along with an additional five skills from the GMC's *The New Doctor* (1997).

The list was approved by the project team, which consisted of an associate postgraduate dean, the postgraduate tutor with responsibility for the PRHO year, an education development officer, a training and research officer and three senior clinicians. The 15 practical skills identified were:

1. Venepuncture or cannulation
2. Arterial blood sampling
3. Preparation and administration of intravenous, intramuscular and subcutaneous drugs
4. Safe administration of oxygen
5. Correct use of a nebuliser

6. Perform basic respiratory function test, i.e. peak flow
7. Insert a chest drain
8. Bladder catheterization
9. Monitor and manage fluid balance
10. Pain management
11. Insert a nasogastric tube
12. Perform and interpret an electrocardiogram (ECG)
13. Perform a lumbar puncture for diagnostic purposes
14. Complete discharge letters with the appropriate level of detail
15. Suturing.

It was acknowledged that few PRHOs would have an opportunity to perform suturing in practice. Attendance at a formal teaching session in the surgical skills centre was considered sufficient for this study.

Design of the tool for the assessment of practical skills

A number of assessment methods were considered and rejected by the project team as either time-consuming or labour intensive, e.g. check lists that were currently being piloted, or impractical to administer because of the number of assessment episodes required to provide evidence of competence, e.g. longitudinal evaluation of performance (Prescott et al, 2002). There was, however, one theme running through these assessment methods – each required the assessor to make a professional judgment. With this in mind an assessment tool based on professional judgment was developed.

A PRHO assessment tool developed by the South West Deanery and Bristol University (2002), although more detailed than required for the authors' simple assessment process, incorporated a useful grading scale and grade descriptors. The 4-point grading scale provided a detailed description of the performance level achieved:

1. Fully competent, with several outstanding features

2. Shows competence with no significant weakness
3. Satisfactory, but room for improvement in one or more areas
4. Unsatisfactory, practice demonstrates significant weakness.

Assessors would directly observe performance, make a professional judgment using these grade descriptors and record this on a 'record of assessment of practical skills'. To confirm competence, each skill would be assessed on two separate occasions. The tool consisted of three A4 sheets, each designed to fold into one-third of its original size for ease of transport. An extract of the documentation used is shown in *Figure 1*.

Implementation

All 93 PRHOs in the East Deanery participated in the pilot. The process was introduced as part of their formal hospital induction programme. No guidance was given regarding who should assess their performance and complete the assessment record other than it should be an appropriately experienced member of the multi-disciplinary team.

Evaluation

The evaluation used three sources of information:

- Data collected from the assessment records
- An evaluation questionnaire
- Focus groups – one with the assessors; i.e. one consultant, one middle grade trainee and two senior nurses; and one with three PRHOs.

Results

Process and outcome data

Towards the end of the PRHO year all trainees submitted their record of assessment of practical skills for evaluation. The high number of assessments completed is illustrated in *Figure 2*.

A more detailed breakdown of each of the practical skills is shown in *Figure 3*. This illustrates the percentage of trainees who were assessed in each of the practical skills on one or two occasions. Two of the 15 skills, chest drain and lumbar puncture, stood out as ones that were not frequently assessed. The majority (8) of the remaining skills were assessed twice for all PRHOs with four being assessed twice for almost all the PRHOs. Suturing was assessed once off-the-job as described earlier.

As expected, data analysis of the grades achieved by PRHOs towards the end of their first clinical year showed that most had no performance problems. The majority (83%) of PRHOs achieved a 1 or 2 grade (fully competent, with several outstanding features/shows competence with no significant weakness).

Analysis also highlighted a small number (17%) of PRHOs who managed only a 3 grading (satisfactory, but room for improvement in one or more areas) in one or more

skills. All but one of these PRHOs improved their performance on the second assessment. No PRHO had a rating of 4 (unsatisfactory, practice demonstrates significant weakness). It was, however, accepted that if an unsatisfactory rating had been achieved, PRHOs would just ask to be assessed again at a later date. The skills that resulted in a 3 rating were arterial blood sampling, perform basic respiratory function test, i.e. peak flow, bladder catheterization, monitor and manage fluid balance, pain manage-

Figure 1. Extract from the record of assessment of practical skills.

11 Insert a nasogastric tube	1st Assessment Date:		Name:
	Grade:	Comments:	Signature:
	2nd Assessment Date:		Name:
	Grade:	Comments:	Signature:

Figure 2. Percentage of assessments completed across the group.

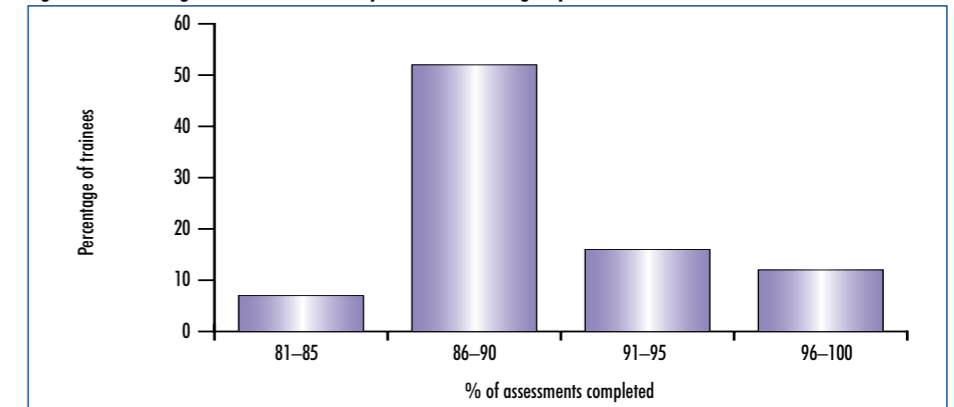
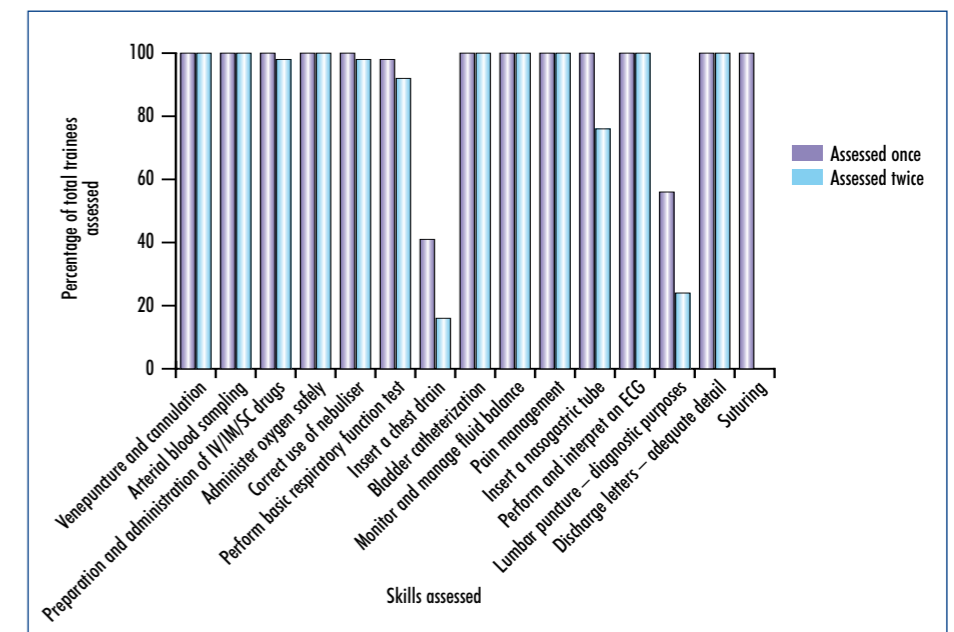


Figure 3. Practical skills assessments. ECG=electrocardiogram; IM=intramuscular; IV=intravenous; SC=subcutaneous.



ment, insertion of a nasogastric tube, perform and interpret and ECG, and perform lumbar puncture for diagnostic purposes.

There were also some skills where the grading achieved by trainees was better in the first assessment than the second, although a satisfactory rating was still achieved. These skills were arterial blood sampling, bladder catheterization, monitor and manage fluid balance, pain management, insertion of a nasogastric tube and perform and interpret and ECG.

This may reflect the growing expectations of trainees as they progress through their training year.

Evaluation questionnaire

A total of 62 (67%) PRHOs returned the questionnaire. Their views on and experiences of the on-the-job assessment process are given in *Table 1*. The feedback on their performance was valued by most (71%) and just under half (47%) felt evidence of performance in practical skills should be a requirement for full registration.

There was a mixed response with regard to the practicalities and the process of having skills 'signed off'. Although just over half (55%) felt it was easy to get staff to do this, they also felt that staff were not able to take time to watch them carry out the skill (52%). As already highlighted from the process data above, the questionnaire confirmed that the majority of PRHOs (69%) were not exposed to all the procedures during their training year.

The PRHOs' views on whether or not they considered each of the 15 skills appropriate for assessment at PRHO level is shown in *Table 2*. Chest drain and lumbar puncture stood out as skills which PRHOs felt were inappropriate. The process data had already shown that these were skills in which the PRHOs were infrequently assessed. A small but significant minority

(<19%) felt the remaining skills were also inappropriate. The focus group results give further insight into this rating.

The PRHOs were also asked which health-care professionals they used to sign off their practical skills. Middle grade trainees were the most common group of assessors, used by all 62 (100%) PRHOs. Nurses were also frequently used by 76% of PRHOs and consultants only infrequently, by 15% of PRHOs. Only 5% had used a pharmacist and just 2% had used a phlebotomist.

Focus groups

East Deanery perceptions of and experiences with the tool

The concept of an on-the-job assessment of practical skills was considered by the

assessor group as 'a good idea'. Issues raised by them and the PRHOs themselves focussed on the implementation, the assessors and the actual procedures.

Implementation: Although the PRHOs recognized the form could be easily carried around for opportunistic 'signing off', they felt they were in a busy environment that was not conducive to stopping and finding an assessor to come and assess them. Both the PRHOs and the assessors reported that direct observation of practical skill performance did not generally occur.

'We [SHO and PRHO] just sat down on that one day and he said, well quite clearly you have taken bloods, you have done gases and signed them all off' (PRHO)

Table 2. Preregistration house officer (PRHO) questionnaire responses on skills considered inappropriate for assessment at PRHO level (n=62)

Skill	No. of PRHOs who considered assessment of skill inappropriate (%)
Venepuncture and cannulation	11 (18%)
Arterial blood sampling	8 (13%)
Preparation and administration of IV/IM/SC drugs	10 (16%)
Administer oxygen safely	10 (16%)
Correct use of nebuliser	12 (19%)
Perform basic respiratory function test, i.e. peak flow	10 (16%)
Insert a chest drain	30 (48%)
Bladder catheterization	2 (3%)
Monitor and manage fluid balance	2 (3%)
Pain management	4 (7%)
Insert a nasogastric tube	8 (13%)
Perform and interpret an electrocardiogram	5 (8%)
Lumbar puncture for diagnostic purposes	29 (47%)
Complete discharge letters with appropriate level of detail	5 (8%)
Suturing	11 (18%)

IM=intramuscular; IV=intravenous; SC=subcutaneous

Table 1. Preregistration house officer (PRHO) questionnaire responses: level of agreement with statements about the on-the-job assessment process (n=62)

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
It was easy to get staff to sign off my practical skills	5	29	6	18	4
Staff were able to take the time to watch me carry out a procedure	1	22	7	19	13
I was exposed to all the procedures during my time as a PRHO	3	13	3	29	14
Gaining feedback on practical skills on-the-job performance is valuable	5	39	9	7	2
Having evidence of on-the-job practical skills ability should be a requirement for full registration	6	23	10	14	8

'whenever they were due... they were going to the nearest SHO/Registrar going sign here please, can I do these things?...I know my house officer can take blood...I can't say I've stood over a house officer and watched them take blood but I have signed off saying they are fully competent after because the blood gets taken.' (SHO)

It was also felt that the time between the first and second assessments should have been clearer especially for basic skills:

'Chest drains and naso gastric tubes I think that's different but in terms of venepuncture/cannulation and ABGs [arterial blood gases], I would be amazed with all honesty if you could produce people who were properly assessed at different dates.' (SHO)

'for example your first assessment, which subjects do you do half way through your attachment and your 2nd assessment might be 2-3 weeks before you finish' (Consultant)

although this would be too rigid for some procedures.

'If the opportunity's there to do the lumbar puncture in the 1st month you're going to do it' (Nurse)

The PRHOs would have been happy to simply have a global judgment made on the skills rather than direct observation.

'...Would be much better if there's been an SHO or someone you've spent quite a bit of time with and they've seen you do the procedures, you can maybe sit down at 8 weeks period and go through the procedures and sign it off then.' (PRHO)

Assessors: Assessors and PRHOs agreed about the professions and grades who could assess PRHOs' practical skills performance.

'Naso gastric tube, something like that a nurse certainly could quite easily [do], but performing and interpreting an ECG...I don't know anything about ECGs...the SHO should be able to do that' (Nurse)

'A phlebotomist would be appropriate for blood taking' (Consultant)

'I think it's your SHO who's going to know' (Male PRHO)

'[getting nurses to sign-off] yes... giving injections and making up drugs' (PRHO)

Procedures: PRHOs perceived there was no need for signing-off basic skills:

'It was a wee bit menial too, for a

JHO to have taken bloods off when we've been doing them as students... having to come back and get it signed to say you can take bloods and you can put in venflons' (PRHO)

Inserting a chest drain was a procedure that might be difficult to get signed off:

'I worked in a respiratory ward so I had lots of chances to put one in, but other JHOs that would walk by once in a while and say I've got to do this... give me a call when you do have a chest drain, watch me do it and then get signed off' (PRHO)

Assessors had mixed opinions as to whether such skills were appropriate:

'Inserting a chest drain is something I would like house officers to do!?' [expressing surprise] (Consultant)

'Towards the end of your training I put them in as a house officer' (SHO)

although PRHOs recognized their inclusion could prompt them to do a less common skill:

'If you express an interest in doing a procedure and you are working on a chest unit then your SHO is obviously going to think of you if you've made it clear to them that you want to try and do the procedure' (PRHO)

Discussion

The implementation of on-the-job assessment of practical skills is feasible using the system described. However, it appeared that global professional judgments on the PRHOs' ability from observation over a period of time were frequently made, rather than direct observation of the performance of a specific practical skill. Despite this there was no obvious antipathy towards assessing practical skills and a recognition of the need for proficiency in such skills.

The data also showed that not all PRHOs were necessarily exposed to specific skills, e.g. chest drain and lumbar puncture, and therefore these may seem inappropriate for assessment. However, the qualitative data suggests the presence of such skills on the list could increase the likelihood of PRHOs getting the chance to perform them.

Some PRHOs felt there was no need for further assessment of other basic skills, e.g. venepuncture or peak flow, as these were assessed during their undergraduate programme. However, *The New Doctor* (GMC, 2005) and the foundation curriculum (Academy of Medical Royal Colleges, 2005)

rightly state these skills still have to be assessed as satisfactory performance needs to be demonstrated in the context of the wider responsibilities of being a PRHO.

It was pleasing to see a wide range of health-care professionals used as assessors. This was the first time nurses had been formally involved in the system of assessing qualified doctors. The middle grade trainees were the most obvious and convenient health-care professional for assessing many of the skills, however, the stage has been set for multi-professional involvement. The introduction of foundation programmes has also appreciated the value of including the wider health-care team in the assessment process. The experiences from this project show their willingness to participate.

A range of systems for assessing practical skills are now in place for the new foundation programme. The authors' experiences should help inform any further developments of the new foundation tools as they are implemented nationwide. **BJHM**

Conflict of interest: none.

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KEY POINTS

- On-the-job assessment of practical skills by the wider health-care team is both feasible and acceptable.
- A professional judgment on performance over a period of time was considered by trainees and assessors to be preferable to direct observation of a specific event.
- Training programmes must ensure trainees have adequate exposure to specified skills.