Assessment of competence

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SUMMARY
While it is essential that professional competence should be maintained, it is equally important that entry to the specialist ranks should be conditional on the demonstration of an acceptable level of competence. Multiple-choice papers and videotaped consultations are two parts of a multi-format approach to assessment which also includes a trainer’s report and an audit report. The number of doctors identified as unsatisfactory at the recertification stage could be reduced by these methods, and the system could also provide a template for the introduction of recertification procedures.

Keywords: professional competence; summative assessment; recertification.

Introduction
There is an assumption by the public, shared to some extent by the medical profession, that doctors entering unrestricted practice, either as general practitioners or as consultants, are of proven competence. In recent years, there has been an increasing emphasis on the maintenance of this professional competence, including suggestions that there should be regular recertification for all doctors.\(^1\),\(^2\)

While it is essential that professional competence should be maintained once attained, it is equally important that entry to the specialist ranks should be conditional on the demonstration of an acceptable level of competence.\(^3\) In this paper, we will describe the development of an instrument for assessing competence for entry to general practice, and discuss the related issues of validity and reliability. We would suggest that this has relevance for other specialties.

Historical perspective
In 1975, the Joint Committee for Postgraduate Training for General Practice (JCPTGP) was set up with responsibility for conferring the right to independent practice. The JCPTGP contained representatives from the General Medical Services Committee (GMSC) and the Royal College of General Practitioners (RCGP), with nominees from other bodies, such as the universities. By 1979, doctors had to complete a year as a trainee in general practice to achieve certification, and by 1982 it had become necessary to complete 2 years of approved hospital posts and a trainee year. For each of these posts, the responsible trainer had to complete a statement of ‘satisfactory completion’. The meaning of this term was not initially clear, and it was suggested that ‘satisfactory’ could mean simply completing the appropriate time in the post. The situation was clarified in 1990\(^4\) by the chairman of the JCPTGP, the GMSC and the RCGP who stated that the doctor should have reached an acceptable standard of competence.

The assessment of competence
Although the above statement made it clear that the trainee had to be competent at the end of training, two questions were left unanswered: (1) What is an acceptable level of competence? and (2) How do we measure it? The General Medical Council (GMC) has defined what a competent doctor is in general terms, but not in sufficient detail to permit accurate assessment. The Royal Colleges, in their membership or fellowship exams, use a peer-referenced approach in which a given percentage of candidates fail the exam. There is little published evidence concerning the relationship between passing the various membership exams and clinical competence, and very little concerning the reliability of the various exams. A fair assessment method for assessing minimum acceptable competence should, if at all possible, be criterion-based rather than competitive, on the principle that, since all candidates may be of acceptable competence, it should be possible for all to pass. This approach adds another dimension of difficulty to developing an assessment instrument.

Methods of assessing competence
The type of competence being assessed will vary depending on the medical specialty involved, but the required attributes of the assessment process remain the same in all specialties. The method should be reliable, valid and feasible. A reliable method will consistently produce the same results at different times, using different assessment materials and using different assessors where applicable. Validity is probably one of the most abused words in the language of medical education. Fundamentally, it means that the assessment method should be measuring something which is important in terms of the doctor’s ability to carry out his job. To paraphrase, it could be said that reliability is about counting what you can measure whereas validity is about measuring what counts.

Any assessment process must be feasible, not simply in the sense that it can be done, since almost anything can be done given sufficient time and money, but in the sense that it can be done with an input of time and resources which is in some way proportional to the outcomes of the process.

The development of valid and reliable assessment methods
The ideal assessment instrument would predict actual clinical performance. This goal has not yet been reached.\(^5\) Considerable work has gone into establishing the validity and reliability of assessment methods, particularly in the USA,\(^6\) where legal challenge can occur, but also in Australia,\(^7\) Canada, Holland\(^8\) and the UK.\(^9\) There are broadly two types of assessment in use. The first involves written material, the second in engaging in some form of assessed clinical work. The written material may consist of multiple-choice question papers in their various forms, essays of various types or patient-management problems. The assessed clinical work ranges from routine observation in the clinic or operating theatre, to the use of standardized simulated patients, or the structured assessment of doctor–patient interactions in real-time or on videotape.

The use of written material is the most convenient in terms of resources, which is presumably why it forms the mainstay of most exams. Written material is also potentially reliable to an extent which is very difficult to attain with the assessment of

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clinical work. The coefficient alpha is the most used measure of reliability in this kind of material and basically relates to the ability of the test to produce consistent results. Written material, particularly multiple-choice papers, can be made reliable. The question is: how valid are they? This is vital since there is no point in having an extremely reliable assessment tool with no validity. Much work has been done in attempting to look at the reliability of written material, but much less in terms of validity. There appears to be only a modest correlation between performance in written tests and in clinical rating scales.

When we come to look at observation of performance, the problems of validity and reliability are reversed. If we watch a doctor at work, there is a prima facie case that the assessment is valid because we are looking at real performance. Clearly, we have to be sure that we are measuring adequate and appropriate aspects of performance, but provided we get that right, we can at least claim face validity. However, it is here that reliability becomes much more difficult to achieve, although there is good reason to suppose that reasonable reliability can be attained. There are several factors which tend to reduce reliability in tests of clinical competence. One factor is marker variance. This can be minimized by the use of well-defined marking schedules and intensive examiner training. An example of this is the oral examination for membership of the RCGP. A recent paper has described in detail the training of examiners and the development of marking schedules, but unfortunately it has produced very little data to support a resulting increase in reliability. Further problems are the apparent lack of consistency of candidates in performing different tasks and the need for large numbers of test items to deal with this.

The assessment of minimal acceptable competence for entry into general practice

Before attempting to decide on specific instruments, it is necessary to define the attributes to be tested, since it is clearly impossible to decide if a doctor is competent without first deciding what aspects of knowledge, skills and behaviour make up competence. This is particularly difficult in the area of general practice because of the wide-ranging nature of the job.

The JCPTGP set out the following basic attributes required in a doctor at the end of training:

- adequate knowledge
- adequate problem-solving skills
- adequate clinical competence
- adequate consulting skills
- adequate skills in producing a written report of practical work in general practice, and
- adequate performance of skills, attitudes and knowledge.

These criteria are not defined in absolute terms and require judgements to be made as to what is adequate in any given situation. It became clear that no single method would assess these attributes, and we proposed a multi-format approach containing the following components:

- a multiple true/false paper
- a trainer’s report
- submission of an audit report, and
- submission of videotaped consultations.

The development of a structured trainer’s report has been reported in detail elsewhere. The audit report is also discussed elsewhere. Therefore, we shall concentrate on the development of the multiple true/false paper and the assessment of videotaped consultations in this paper.

The multiple true/false paper

Multiple-choice papers provide a score for each candidate and confer the ability to rank candidates. For summative assessment purposes, we needed an additional step because it was necessary to derive a pass mark which equated with the minimum acceptable knowledge base. This process consisted of using the Angof and Hofstee techniques, in which a group of experienced GP principals analysed the paper question by question, and produced a figure for the percentage of trainees of minimum acceptable competence whom they would expect to answer the questions correctly. By this means, a preliminary pass mark was determined which could then be further modified. It would be simple to fail the bottom 5% or so, but this would be unfair, at least in theory, and probably politically unacceptable.

Consulting competence

The ideal method would involve assessment of performance in a situation where the doctor was unaware that the assessment was taking place. Work has been done in this area, particularly in Holland, using simulated patients, and it may become acceptable to assess doctors in this way for certification purposes in due course. Apart from political problems, there are difficulties with this method. Performance depends on such aspects as booked appointment lengths, which are not within the control of the trainee. In addition, there are difficulties caused by the fact that such a patient would have to be treated as a temporary resident in the UK. For these reasons, we decided to carry out the assessments with the knowledge of the trainees. A variety of methods were available at the time we commenced our work and more have become available subsequently. None of these scales had been designed specifically for the identification of the non-competent GP and most produced their results in a numerical format which then required a relatively arbitrary decision as to the cut-off point for minimum acceptability. For these reasons, we developed an instrument for summative assessment purposes based on broad criteria with a yes/no answer as regards competence. No trainee fails the process until their performance has been reviewed by at least six assessors, two of whom are from outside the local region. The reliability of the instrument has been tested in real patient consultations and found to be adequate, and 359 trainees have now been assessed with a failure rate of around 5%.

Real or simulated patients?

Much of the worldwide work on consulting and clinical assessment has been based on simulated patients. The main advantage of using this technique is that each candidate is presented with the same set of problems to deal with. This is particularly important if it is wished to rank candidates, since the candidates are competing over the same course. Impressive reliability figures can be produced using this system, provided there are sufficient cases used. However, simulations have been used to assess specific skills rather than overall competence in most cases and the validity of simulations in complex performance has been questioned. Some work has been reported using genuine consultations. Real consulting sessions have advantages over simulations in that the trainee can record the consulting session at a time of his or her choosing, and the stress of an exam situation is removed since the trainee can try again if the first session is unsatisfactory. The main concern when using real patients is that the case mix may be inappropriate for making judgements, with too many low-challenge consultations, for example, or too many of the same type. However, our results suggest that the skills of
listening, negotiating and making reasonable decisions at the
minimum competence level are generic rather than case-specific
since we are looking at basic communication and attitudinal
attributes rather than skills which are dependent on specific
knowledge. To avoid the possibility of a trainee submitting a
tape with few challenging consultations, we specify the attributes
to be assessed and instruct the candidates to ensure that these are
demonstrated on the tape.

Does the camera alter doctor or patient behaviour?
Concern has been expressed that the presence of the camera might cause trainees to behave inappropriately and that perfor-
mance would be impaired. Pringle et al have demonstrated that
the presence of the camera has no effect on doctor behaviour.34 35
However, it is a commonly expressed view that doctors are ini-
tially conscious of the presence of the camera. Frequent use of
video in formative assessment should remove any 'stage fright',
and the opportunity to try again if the doctor is unhappy with the
original effort should avoid excessive stress.

There has been considerable debate over the years on the
effect of the camera on patients and on their vulnerability to
correction. The GMC and has now set out guidelines for obtaining
informed consent. It has been suggested that consent rates of
4–10% are to be expected when coercion is removed. However,
these studies did not involve inviting patients to be videoed.
In one case,38 the authors asked patients to speculate on how they
thought they might feel if so invited. In the second study,39
patients were given leaflets inviting them to volunteer if they
wished to be videoed. The proportion of patients who did not
care one way or the other is included in the 90% who were
claimed to reject videotaping. Several writers have commented
that the 10% consent rate is misleading.40 41 42 We have demon-
strated that patient satisfaction is unaffected by the presence
of the video camera.43 This evidence, along with a consent proce-
dure which gives patients every opportunity to decline to take
part, should allay fears that videotaping causes any harm to
patients.

The results
The new system of summative assessment comes into force in
the Autumn of 1996 throughout the UK. The current system,
which requires certification of competence by the GP and hospi-
tal trainers, has produced a failure rate of 0.26%. The summative
assessment process has been operational in one region for the
past 3 years and 359 trainees have gone through the system. The
proportion of trainees failing this process is 5%.38 Although these
figures cannot be extrapolated automatically across the country
as a whole, it appears certain that there will be a considerable
increase in the failure rate with the video identifying the largest
number of doctors. Although the total number of unsatisfactory
trainees identified to date is too small to draw firm conclusions,
it would appear that problems arise in the behavioural area rather
than in the knowledge base.

The future
Within the next 3 years, 5000 trainees will have been through the
assessment process. This will give the opportunity to assess in
more detail the validity and reliability of the method. We will
also have identified a cohort of several hundred unsatisfactory
trainees. From these, we would hope to identify what characteris-
tics, if any, correlate with failure. It may then be possible to give
feedback to postgraduate advisers and the medical schools so
that they can attempt to identify students likely to run into prob-
lems. There may even be the possibility that information of value
to medical school admission procedures could be obtained.

We began this paper by discussing recertification. We would
hope that the system discussed should, if not render recertifica-
tion unnecessary, at least reduce the number of doctors identified
as unsatisfactory at the recertification stage. The system could
also provide a template for the introduction of such a recertifica-
tion procedure.

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**RCGP CHRISTMAS LECTURE FOR 15-18 YEAR OLDS**
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<th>Value</th>
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**Closing Dates**

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