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# Assessing Competence of NHS Consultants: Challenges and Possible Solutions

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## Abstract

Even a mention of formal assessment of senior clinicians can be a contentious issue, to say least, when revalidation is said to be firmly in place in NHS-UK for almost half a decade. Since revalidation is accepted as a standard modality of assessment of performance, some colleagues in NHS wonder 'stir up a hornets' nest,' when the authors allude to limitations of revalidation because poorly performing senior NHS clinicians may 'slip through the net.' NHS consultants have clinical as well as training roles. Fundamentally, this assessment (revalidation) is meant to ensure the safety of the public and mitigates the risk of disciplinary action by the GMC. Unfortunately, a disciplinary action is often the first sign of underperformance. In fact, the Bristol and Shipman inquiries have underscored the importance of the non-clinical and behavioural skills like communication, teamworking, personal organization and leadership are as important as clinical skills. Rather than considered an assessment tool, an annual appraisal is aimed to facilitate and improve the way NHS consultants work and provide services. The authors have to wait for five years, to assess the efficacy of the system that was introduced with much 'fanfare' since it was projected as a panacea for poor performance by 'bad doctors.' The objectives of this article are to contextualize the issue of the underperformance among senior clinicians in the current NHS environment and to conceptualize the idea that their performance as trainers is directly related to their performance as clinicians. It is worth identifying the underlying factors of that are related to, or even better, can predict underperformance and will help evolve a strategy to help those consultants who are underperforming.

**Keywords:** Assessment; Competence; NHS; Consultants; Challenges

# Background

The patient management, teaching, and training are the key responsibilities, a senior clinician in the NHS is expected to be, not only, a role model for the trainees and medical students, but also be a mentor to younger consultants. There is a strong relationship between the performance of clinicians and their effectiveness as trainers and teachers. Clinical competence is identified as the most significant cognitive quality of a good clinical teacher [1,2]. Good teachers are universally expected to be not only clinically competent but also to demonstrate exemplary teaching and training skills [1,3]. Good clinicians should be endowed with sound up-to-date knowledge and have slick clinical skills that make them command respect from trainees. 'Mimicry is the best form of flattery' (even though flattery is not the correct description of trainees' feeling of adulation for those consultants who set a great example) is most applicable in specialties where the 'consultants of tomorrow' learn technical skills by apprenticeship.

An underperforming senior clinician, not surprisingly, would have a negative impact on the image public beholds them. Sub-optimal patient management by senior clinicians (clinical performance) would through an adverse effect adversely affect trainees' behaviour and would decimate the confidence of each and every member of team. The Bristol and Shipman inquiries have addressed the importance of the non-clinical and behavioural skills like communication, teamworking, personal organization and leadership alongside with the clinical skills [4].

Assessment of trainees is well established, reliable, objective, standardised, scrutinised and structured system in the form of an annual review of competence progression (ARCP). Trainees know when their assessment must be conducted and who all have the responsibility to affect that. They know it's crucial importance for their career progression and, therefore, prepare the necessary documents required for the evaluation (e-portfolios and logbooks). The process to review and respond to concerns is also in place that is well described in 'Gold Guide'. Any concerns that surface would trigger a package of educationally based initiatives to support trainees who are underperforming. Doctors in training have given clear goals through the document 'global objectives' that is a 'deanery-specific' and 'specialityspecific' document and learning objectives that are determined between trainee and assigned educational supervisor. Although some trainees find the process stressful and uncomfortable, they appreciate its worth. This is perhaps not quite the same for more senior colleagues, where for some, the introduction of performance assessment for trainers/senior clinicians based upon appraisals and revalidation is still unclear [5].

Senior clinicians in the UK have regular annual appraisal, which is supportive and educational rather than an assessment of their performance or their competence. This appraisal, in some occasions, identifies areas of concern or underperformance, but there is no standard validated algorithm in place designed to address concerns. There is no well-established mentoring service for senior clinicians, and comentoring is almost unknown. Performance issues are complex and multifactorial [6].

They are divided into two broad categories:

1. Clinical: Based on the knowledge and skills.

2. Non-clinical (behavioural): Like communication, team working, personal organization, teaching, and leadership.

It is critical to understand the impact of underperformance in the broad context of organizational well-being.

# Personality, Health and Wellbeing

Doctors are not different from the wider population where performance relates to well-being (physical and mental) as well as to skills and knowledge. There is a clear relationship between personality, health and wellbeing and doctor's performance [7]. Stress in health professionals is 28% above the threshold compared to 18% of workers as a whole in the UK. Between 10 and 20% of doctors in the UK become depressed at some time during their career and the risk of suicide is raised compared to the general population [8]. Evidence from Switzerland suggests that levels of burning out among doctors are high [9]. Alcoholism also affects a large proportion of doctors compared to other professional groups and along with drug dependency is an increasing problem [10]. Evidence of the relationship between personality and performance suggests that industrial psychology has a vital role to play in understanding the patterns of behaviour associated with underperformance [11]. Paice (2003) described a behavioural

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pattern among underperforming undergraduate consistent with low conscientiousness and psychiatric personality trait characterized by instability, anxiety, aggression, and insight failure [12]. Factors like high workload, lack of team working and deficient leadership adversely impact doctors' performance. It is paramount that occupational psychologists and health professionals work together to identify the behavioural and health elements of underperformance.

#### Knowledge, Skills and Work-Based Assessment

Medicine and medical knowledge are in continuous evolution and perpetually expanding. In the UK, there are no clear guidelines or structured methodology how to assess the depth of knowledge of a senior clinician directly, but we assume satisfactory knowledge if no performance issues based on work-based assessment discussed below. If 'does' is satisfactory, in theory, 'knows' and 'knows how' may be expected (or likely) to be satisfactory based on Miller's pyramid (Figure 1).

Continuous medical education points (CME) are just proof of attendance rather than demonstrating the knowledge gained. It may or may not reflect on the practice of the consultant and also may be irrelevant to the subspecialty (plastic surgeon attending a lecture on management of rare brain tumour). We cannot accurately evaluate the impact of the CME on the doctor's performance. In the USA, the American Board of Medical Specialities (ABMS) introduced the concept of recertification in 1969. The goals of recertification are to improve the care of patients, to set standards for medical practice, to encourage continued learning, and to reassure patients and the public that doctors remain competent throughout their careers [13].

The examination for recertification itself may consist of one or more parts. Traditionally, an exhaustive written examination is required of all candidates for board certifications in any specialty. While written tests are adequate measures of basic knowledge, they do not test the mastery of skills or the application of knowledge. Many specialties have over the decades attempted to evaluate skills through practical examinations using actors or by observing the physician candidate in a clinical environment. The practical examination has been criticized for being subjective and irreproducible even in the hands of an experienced examiner. As a result, computerized animatronic human patient simulator based examinations are now being adopted. The traditional written exam is also rapidly being replaced by computerbased testing similar to written part of driving test. The frequency of recertification as per ABMS varies from specialty to specialty between 7 to 10 years.

# Work-Based Assessment

Miller in 1990 [14] proposed a model for assessing competence.





At the bottom of the pyramid is knowledge followed by knows how (management), shows how (competence) and finally does (performance) which reflects what happens in real day-to-day practice rather than in artificial situation (Figure 1).

Work-based assessment targets the top of the pyramid (performance) and assesses the performance of doctors in their usual practice. Workbased assessment can be applied to the whole range of clinicians and trainees ranging from undergraduates to senior clinicians. For trainees and undergraduates, the lower levels of the pyramid can be assessed by written exam and MCQs. 'Shows how' is evaluated by OSCEs (Objective Structured Clinical Examination) which is a test condition rather than the day-to-day practice. For senior clinicians in the UK, the situation is slightly different. When using Miller's pyramid as a model of competence, the work-based assessment would presume professional knowledge to be good enough, if performance as a clinician is deemed to be good (the top of the pyramid).

In the UK, the Postgraduate Medical Education and Training Board (PMETB) has set explicit standards for the quality assurance (QA) of assessment programmes for trainees who could also apply to trainers. In its document "Principles for an assessment system for postgraduate medical training" and work-based assessment specific guidance is available [15,16] and clearly stipulate that work based assessment should be integral component of a comprehensive evaluation programme.

GMC, in its consultation paper, proposed new arrangements for the recognition and approval of trainers. It recommended using seven areas originally set out for postgraduate training by the Academy of Medical Educators to provide a structure to identify, train and appraise trainers by the local education providers [17]. These standards are:

- 1. Ensuring safe and efficient patient care through training
- 2. Establishing and maintaining an environment for learning
- 3. Teaching and facilitating learning
- 4. Enhancing learning through assessment
- 5. Supporting and monitoring educational progress
- 6. Guiding personal and professional development
- 7. Continuing professional development as an educator.

Postgraduate Deaneries and medical schools would then use that information to demonstrate to the GMC what local arrangements are in place to meet these standards.

# **Good Assessment and Quality Assurance**

Key features of proper assessment include clarity of purpose, formative feedback, transparency, credibility, cost efficiency and robust ongoing quality assurance [18]. van der Vleuten's utility model provides a useful framework for quality assuring assessment [19]. This model is mainly designed to ensure comprehensive assessment for trainees, nevertheless, can be applied to trainers. It proposes that the overall utility of an evaluation methodology is a product of the following items:

### Reliability

A reliable assessment means a consistent and reproducible. Reliability coefficient is used as an accuracy indicator. A comprehensive, reproducible assessment has reliability coefficient of 1.0. In light of vital role of trainers/clinicians, a high coefficient is required (greater than 0.8) to ensure the accuracy of the assessment tools and subsequently the safety of the public and the quality of training.

# Validity

The word "valid" is derived from the Latin validus, which means strong. The validity of an assessment tool (for example, clinical and non-clinical skills) is considered to be the degree to which the instrument

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measures what it claims to measure (fit for purpose). Validity is a hypothesis and cannot be expressed as a coefficient. Validity should not get mixed up with reliability; both terms are different. A particular assessment tool may be valid but not reliable and vice versa (Figure 2).

## Cost

The availability of the assessors, the venue, allocated time in the job plan, and the infrastructures put in place to support underperforming senior can cause financial constraints and, thereby, may influence the feasibility of the assessment.

## Acceptability

The idea of assessment should also be acceptable for all parties involved in the assessment. The assessment package should be designed to mirror and drive the educational intent. The goals should be defined to avoid any misconception 'help rather than struck off'.

## **Educational impact**

The proposed system must provide rigorous, reliable and valid formative assessment of performance that would enhance achievements without allowing the summative function to dominate the scene.

# Feasibility

Even though practical issues have been well considered to maximize the feasibility of a proposed system, the cost-effectiveness and acceptability must be addressed. It is better to acknowledge 'feasibility' as a separate entity due to the massive assessment burden and the implications of the outcome of this assessment on trainers/ senior clinicians' job plans.

# How To Judge The Performance?

John Norcini (2003) provided a useful classification scheme for work-based assessment, which can be implemented in my own specialty [20]. He categorized the basis for judgment of work based assessment into three groups; outcomes, volume, and process.

# Outcomes

Patients' outcomes are the best measures of the quality of doctors for the public, the patients, and the doctors themselves. The outcome does not only mean mortality and morbidity but also include other important endpoints (patient satisfaction, functional status, and cost effectiveness). For the public, outcome-based assessment is a measure of accountability that provides reassurance that the doctor is performing well in practice. For individual patients, it supplies a basis for which doctor to see. For doctors, it offers reassurance that the assessment



Figure 2: Schematic representation of the difference between validity and reliability adapted from heat absorption and colour [20].

reflects their own practice and is based on real work performance. For the training and teaching, an underperforming doctor cannot be a good trainer or teacher. While outcomes have major attractions as a basis for judgment, there are some challenges with this approach. Data availability, case mix and the number of cases are challenging. Attribution at the level of the individual doctor can be tricky given that the outcomes are usually a product of multidisciplinary team-based care rather than a single individual. This adds safety to the public, but does not test the cognitive and behavioural skills in making decisions. The lack of uniformity in case mix can reduce the usefulness of using patients' outcome parameters as a measure of doctors' competence. For example, young patients have a high rejection rate of their transplanted kidneys due to their potent immune response compared to elderly patients, subsequently, we cannot consider rejection rate as an outcome measure. The same applies for complexity and co-morbidity. Care is delivered in teams, so judging a doctor's performance through outcomes is not realistic. For example, the renal transplant patients are looked after by a team of nephrologists, surgeons, and nurse practitioners. It is not possible to link crude mortality (rather than morbidity -adjusted outcome data) to the performance of a particular surgeon or physician with 100% confidence.

# The process of care

The general process of patient care includes screening, preventive services, diagnosis, management, prescribing, education of patients, and counselling. For example, how many patients had DVT prophylaxis or antibiotic prophylaxis before any invasive procedure? How many young female patients had a pelvic scan to rule out pelvic pathology before an appendicectomy operation? Was the consenting process detailed? Did the patient have a signed and given a copy?

The process of care is more directly related to the senior trainer/ clinician in charge and not influenced by case mix. DVT prophylaxis should be offered to all patients, for example before hip operations, avoiding case mix. The consent should be detailed, and a copy should be given to the patient.

The disadvantage of the assessment based on the process of care does not always reflect on the outcome (doing the right thing does not necessarily ensure the best outcome). Also, it may be still affected by the case mix and complexity.

## Volume

The number of times a surgeon performed a certain operation is associated with higher quality of care and better outcomes for patients. There is a linear relationship between case volume and outcomes with a significant reduction in mortality [21].

# The Challenges of Work-Based Assessment

John Norcini (2003) summarized the assessment tools for trainees in the following steps (20). These steps may be challenging in the assessment of senior trainers/clinicians:

# **Data collection**

1. Clinical practice reports including external audits are valid and credible sources of data provided that they are complete and accurate. It may not reflect what happened in practice. Also, it is time and effort consuming. Electronic medical records can provide the ultimate solution.

2. The administrative database is used mainly for administrative purposes (clinic appointments, admission, and discharge) and also for invoicing reasons. They can be a source, but not the only source for information. They do not provide clinical data required for accurate judgment of performance.

3. The logbook can provide a valuable source of information provided that it is detailed and up to date.

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4. Observation by another senior trainer/clinician could be potentially embarrassing and may represent performance under a test condition. It is appropriate and acceptable for trainees to be monitored, but not yet for senior clinicians who have been working as a trainer for most of their working life. Videotaping operations and clinic visits on many occasions could shed some light on the trainer/clinician performance as suggested by the GMC but again it is subjected to sampling errors.

#### **Patient feedback**

Patient feedback forms might give valuable information regarding clinic visits and consultations about certain aspects of performance like behavioural skills (communication skills, attitude, and empathy). It does not provide long-term outcome data and cost effectiveness of the treatment received. Patient satisfaction may not also mirror good performance. For example, the patients with chronic renal failure may be satisfied after renal transplantation even if the organ is marginal with doubtful long-term graft survival just to get rid of dialysis even for a short period of time. This is called a success on the short-term but failure on the long-term.

# **360 Degree Feedback**

360 Degree Feedback is a system or process in which employees receive confidential, anonymous feedback from the people who work around them it measures:

1. Behaviours and competencies

2. Provides feedback on how others perceive an employee

3. It addresses skills such as listening, planning, and goal-setting

4. It focuses on subjective areas such as teamwork, character, leadership, and effectiveness

It does not measure:

1. Doctor's performance objectives

2. It is not a way to determine whether a physician is meeting basic job requirements

3. It is not focused on necessary technical or job-specific skills

4. It should not be used to measure strictly objective things such as attendance, mortality and morbidity rate.

Using a 360-degree feedback system for performance appraisal is a common practice, but it is not always a good idea. The method of sampling the responders would never pass the scrutiny test of a statistician! 360 degree. It follows the dictum: 'you scratch my back I scratch yours. It is always biased (personal experience) as we ask colleagues whom we have a good work relationship with them to evaluate our behaviours and competence. It is difficult to properly structure a 360-feedback process that creates an atmosphere of trust when we use 360-evaluation to measure performance. Moreover, it focuses on behaviours more than on basic skills, job requirements, and performance objectives. It is certainly possible and can be beneficial to incorporate 360-feedback into a larger performance management process, but only with clear communication on how the 360-feedback will be used. 360 degree just tests 'how popular that doctor is' that that too this report is replied by those who are most friendly.

## Portfolios

Portfolios are also attractive as assessment tools. They have a potential to assess clinical training and teaching performance over a period, constituting one form of authentic assessment (an assessment that looks at performance and practical application of theory). The portfolio might contain data on outcomes, process, or volume, collected through clinical record audit, logbook, or assessments by patients and peers. To compare between senior clinicians, all portfolios must contain a similar type of data collected. That should not lead to a situation where 'apples are compared to oranges'. The portfolios, if used judiciously, can provide senior clinicians/trainers with feedback for their career progression.

The work-based assessment suggested above does not assess knowledge. For trainees, knowledge is assessed by the various Royal College examinations. In my opinion, implementing the American recertification model (the knowledge part) in the assessment of senior clinicians in addition to work-based assessment may help to maintain a high standard of patient care. It is worth highlighting that implementation of the GMC proposal in assessing senior clinicians as educators enhances and maintains training at a high highest of standards.

# **Appraisal and Assessment**

An appraisal is a process of helping individuals to improve the way they work and the services they provide. It is a positive process to give feedback on performance, chart progress and identify development needs. It is "NOT an assessment".

Jonathan and Bridget Osborne [22] stated: "Harold Shipman would, of course, have passed any appraisal of fitness to practice with flying colours." Also Dame Janet Smith, in The Shipman Inquiry: fifth report [4] concluded that annual appraisal does not provide the information to fulfil the clinical governance function of a local primary care service because it is not an accurate evaluation or assessment of the full range of a doctor's performance and delivery of care. As such, she considered it to be an ineffective method for detecting physicians who are incompetent, dysfunctional or delivering care to a poor standard. It could be argued that it is not the purpose of appraisal to identify poor performance.

As mentioned above, assessment is the measurement of performance or progress against defined criteria. Assessment can provide the evidence necessary to inform the appraisal process. Appraisal and assessment are not synonymous.

# Revalidation

The GMC in 2000 introduced the concept of 'Revalidation'. It is a new system whereby each doctor would have their fitness to practice reviewed every five years and their license to practice renewed only if they satisfied the requirements of the review [23].

The GMC was undertaking the necessary groundwork to implement revalidation at the time that The Shipman Inquiry. Dame Janet Smith criticized the method to be used for revalidation as it was largely based on a record of satisfactory NHS appraisals that was departed from the original concept of revalidation and was not fit for purpose. This led the GMC to postpone the introduction of revalidation to late 2012 until further review.

Licensed doctors will need to maintain portfolios of supporting information drawn from their practice, which demonstrates how they are continuing to meet the principles, and values set out in Good Medical Practice Framework for appraisal and revalidation. Some of the supporting information needed by doctors will come from organizations' clinical governance systems provided by the employer.

Revalidation usually takes 3 weeks equivalent of a consultant's NHS time to fill the form and upload the required documents. In the revalidation, more reflection is needed on the doctors' practice based on the appraisal performed regularly. Nonetheless, it is not clear how revalidation can pick up underperforming consultant. Many consultants believe that revalidation is only a "box-ticking exercise" based on hospital database without proper analysis of skills and knowledge [24].

## Conclusions

A good clinical teacher has a potential to transform the future of medical education through hard-earned clinical and non-clinical skills.

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Medical knowledge with appropriate application of this knowledge is essential to ensure competence and professionalism. The assessment of senior clinician/trainer has raised many debates since the Shipman Inquiry. Unfortunately, there is no single cost-efficient and wellvalidated method to assess senior clinicians in the UK. We cannot assess the knowledge directly; we assume performing senior trainers must have the knowledge and competence required. There is no broad agreement on how a proposed assessment process will be good enough to reliably identify each and every poorly performing clinician, that is, fortunately, 'uncommon.' In spite of the strong criticism by Dame Janet Smith, the GMC is keen to use it for revalidation with clinical governance data.

We agree with the following statement by Dame Janet Smith, Chair of The Shipman Inquiry [4]. Revalidation, as proposed, would be 'expensive rubber stamping exercise that would have misled the public.' Revalidation is not a panacea for reliably assessing senior clinicians/trainers, but using the same scheme suggested by Norcini for trainees with knowledge based assessment (the American recertification model) may provide an objective assessment for senior clinicians/trainers. Implementing the new arrangements proposed recently by the GMC (Recognition and Approving of Trainers) will promote and enhance the value of training within the organizations that employ doctors involved in training. There is no doubt that this suggestion would raise many eyebrows in regards to its cost and acceptability. Until then, in the opinion of authors, the process of revalidation in its current form is very assuring at best, but seems to be 'an eye wash' in the opinion of authors of this article.

#### References

- 1. Masunaga H, Hitchcock MA. Residents' and faculty's beliefs about the ideal clinical teacher. Fam Med. 2010; 42:116-120.
- Buchel TL, Edwards FD. Characteristics of effective clinical teachers. Fam Med. 2005; 37:30-35.
- 3. Irby DM. Teaching and learning in ambulatory care settings: a thematicreview of the literature. Acad Med. 1995; 70:898-931.
- Cohen D, Rhydderch M. Making an objective assessment of a colleague's performance. Clin Teach. 2010 Sep; 7:171-174.
- Lewis M, Price C, Laugharne K, Pownceby P. CPD, Appraisal and Clinical Governance for General Practice: evaluating a system in action. Education for Primary Care. 2009; 20:205-266.
- Ray S, Nishimura R, Clarke S, Simpson I. Maintaining good clinical practice: publication of outcomes and handling of outliers. Heart. 2016; 102:1518-1519.
- 7. Scheepers RA, Arah OA, Heineman MJ, Lombarts KM. How personality

traits affect clinician-supervisors' work engagement and subsequently their teaching performance in residency training. Med Teach. 2016; 38:1105-1111.

- Firth-Cozens J. A perspective on stress and depression. In: Cox J et al., eds. Understanding Doctors' Performance. Oxon: Radcliffe. 2006; 22–25.
- Goehring C, Bouvier Gallacchi M, Ku nzi B, Bovier P. Psychosocial and professional characteristics of burnout in Swiss primary care practitioners: a cross-sectional survey. Swiss Med Wkly. 2005; 135:101–108.
- Ghodse H, Galea S. Misuse of drugs and alcohol. In: Cox J et al. Eds. Understanding Doctors' Performance. Oxford: Radcliffe Publishing. 2006; 38-45.
- Cohen D, Rollnick S, Smail S, Kinnersley P, Houston H, Edwards K. Communication, stress and distress: evolution of an individual support programme for medical students. Med Educ. 2005; 39:476–481.
- Paice E. Education, Training and Appraisal and CPD: Factors in the Prevention, Identification and Remediation of Poor Performance. London: London Deanery. 2003.
- Benson JA Jr. Certification and recertification: one approach to professional accountability. Ann Intern Med. 1991; 114:238242.
- Miller GE. The assessment of clinical skills/competence/ performance. Acad Med. 1990:S63-7.
- 15. PMETB. Workplace Based Assessment: A paper from the PMETB Workplace Based Assessment Subcommittee January 2005.
- 16. PMETB. Principles for an Assessment System for Postgraduate Medical Training. 2005.
- 17. Consultation on recognition and approval of trainers (2011).
- Norcini J, Anderson B, Bollela V, Burch V, Costa MJ, Duvivier R, et al. Criteria for good assessment: consensus statement and recommendations from the Ottawa 2010 Conference. Med Teach. 2011; 33:206-214.
- van der Vleuten C. The assessment of professional competence: developments, research and practical implications. Advances in Health Sciences Education. 1996; 1:41-67.
- 20. Heat Absorption and Colour.
- 21. Norcini JJ. Work based assessment. BMJ. 2003; 326:753-755.
- 22. Joynt K, Orav J, Jha A. The Association between Hospital Volume and Processes, Outcomes, and Costs of Care for Congestive Heart Failure. Ann Intern Med. 2011; 154:94-102.
- 23. Matthews S. To investigate how the NHS handled allegations about the performance and conduct of Richard Neale. Chairman: Her Honour Judge Matthews. Cmnd 6315. The Stationery Office, London. 2004.
- General Medical Council. Revalidating doctors. Ensuring standards, securing the future. General Medical Council, London. 2000.
- 25. MDU Journal. Reflection for revalidation (2017).