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## FUNDAMENTALS OF GOOD MEDICAL PRACTICE: COMPETENCE AND PERFORMANCE

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### Preface

This is the third article in the series 'Fundamentals of good medical practice'<sup>1,2</sup>. In this paper I will discuss the definitions of 'Competence' and 'Performance', the distinction and relationship between the two areas, and the possible/suggested different aspects of their assessment for the purpose of assuring the competence of current and future doctors, in particularly surgeons in practice.

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### Introduction

Medical schools, postgraduate training programs, and licensing bodies set up regulations for conducting competence assessments of current and future medical practitioners to certify their competence to practice. Most of these institutions are also actively involved in the organization and evaluation of the postgraduate training programs at their different levels in addition to selecting candidates to such programs and assessing the adequacy of their curricula in achieving the highest standards of performance, which enable these practitioners to deliver a safe, satisfactory and beneficial service<sup>3-7</sup>.

### Definitions

The Accreditation Council for Graduate Medical Education (ACGME) (and its Residency Review Committees [RRC] for Surgery) and the American Board of Medical Specialties (ABMS) have developed a set of criteria that define competence in medicine. This includes six components: knowledge, patient care, interpersonal and communication skills, professionalism, (patient) practice-based

learning and improvement, and system-based practice<sup>3,5</sup>.

In 2001, the ABMS and ACGME issued a joint report on surgical competences<sup>8</sup>. The need for maintenance of certification had also been addressed. This includes: evidence of professional standing, evidence of lifelong learning and quality improvement, evidence of cognitive expertise, and evidence of practice performance.

In 2003, after consultation with the fellowship and the surgical specialty societies, the Royal Australasian College of Surgeons (The College of Surgeons of Australia and New Zealand) [RACS] identified nine competencies of a surgeon. The RACS confirmed that these competencies cover all aspects of fellowship training and also provide the framework to assess the performance of practicing surgeons. The College also identified that each competency is vitally and equally important to the achievement of the highest standards of surgical performance<sup>9</sup>. The College training and professional development programs contribute to certifying / recertifying surgeons across these nine competencies, something,

which the licensing bodies in Australia and New Zealand rely on before certifying new specialist surgeons and recertifying current specialist surgeons. The nine competencies are: medical expertise, judgment-clinical decision making, technical expertise, professionalism, health advocacy, communication, collaboration, management and leadership, and scholarship and teaching.

In the 2nd edition (June 2011) of "Surgical Competence and Performance - A guide to aid the assessment and development of surgeons" of the RACS<sup>7</sup>, the College affirmed that there is an important distinction between competence and performance. Competence is what we have been trained to do and involves acquiring and maintaining technical and non-technical knowledge, skills and attitudes. The process of developing competence is under the supervision of the RACS' Education Board. On the other hand Performance is what we actually do in day to day practice. It is understood that besides the gained individual competence, personal performance is also influenced by individual and system factors. Individual related factors include personality, health and family issues, while System related factors include issues that arise from the hospital or service such as workload, staffing, funding, competing demands for time, and resources. In this booklet the college listed examples of 'poor' and 'good' behaviors to each specific competence item followed by reference to 'resources and support'.

According to Satava et al<sup>10</sup> the term surgical competence is a global term composed of the six component competencies<sup>5</sup>, and surgical proficiency is the level of performance in each of the specific component competencies<sup>10</sup>. Therefore it is the outcome of the evaluation of overall surgical competence<sup>10</sup>.

Epstein et al<sup>11</sup> based on information from prior definitions 3-5 proposed that professional competence is the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and

reflection in daily practice for the benefit of the individual and community being served. Therefore, it is expected that competence will simply build up over time on a foundation of scientific knowledge, clinical skills and moral development, then utilizing these to solve real-life problems, and effectively communicating with patients and colleagues<sup>11</sup>. Experience does not necessarily lead to learning and competence, therefore cognitive (act of acquiring knowledge), and emotional self-awareness are necessary to stimulate medical practitioners seeking new information, question that information, and then judge and adjust their own biases<sup>11</sup>.

### Basic knowledge

Evidence-based medicine (EBM) involves three basics: generating an important answerable question, acquiring and interpreting new knowledge, and properly judging how to apply that knowledge in a particular clinical setting<sup>12</sup>. Others<sup>13</sup> argue that competence is defined by 'tacit' rather than 'explicit' knowledge. Tacit knowledge is what we know but unable to speak or explain easily. Although it might appear that assessment of EBM skills is difficult<sup>11</sup> others<sup>14</sup> feels that the well established systems by several colleges and boards like the American College of Surgeons SESAP (Surgical Education and Self-Assessment Program) learning tour successfully accomplishes knowledge acquisition and assessment process<sup>15</sup>. Also the RACS provides extensive knowledge-based training programs and continuing professional development programs for qualifying surgeons<sup>7</sup>.

Surgical decision making is an integral part of surgical practice. It is a skill, which is inseparable from the ability to perform surgical operation. Sound decision is achieved through (continuous) learning, building up experience and reflection<sup>16</sup>. Reflective practice refers to the practical steps of: time to think and reason about clinical problems, analyze

and reflect on clinical judgments, and finally review the outcomes of these decisions<sup>16</sup>. Marshall<sup>17</sup> identified that optimal surgical decision is reached through the integration of: evidence, inference (work out from evidence), and experience. Although the prime aim in surgical decision making is achieving the desired patient's outcome, a 'good' or 'bad' decisions often are recognized in retrospect and could be influenced by several factors and circumstances other than the sound individual knowledge.

### **Patient's care and Interpersonal skills**

Competence depends on using a reliable and expert scientific, clinical, and humanistic judgment to engage in a clinical scenario<sup>18</sup>. The level and quality of the patient-medical practitioner relationship not only affects the patients' recovery from illness, but also reduce costs and outcome of chronic illnesses by overcoming patients' anxiety and understanding their illnesses and needs<sup>19</sup>.

In practical scenarios we must accept that the surgeon is absolutely dependent upon everyone in the working health institute from the hospital telephone operators and all members of his/her team to the anesthetist and scrub nurse. Interesting, it looks so easy to convince all these people to work as a team because everyone wants to be on the side of a winning team. Therefore a mature surgeon must share all wins with others while he / she will personally accept any defeat. This attitude will very likely enhance the surgeon's stature and morally credited to his/her advantage.

Although it sounds that teaching and monitoring interpersonal skills is difficult, there are many serious efforts to overcome that by running / conducting different courses or seminars. The American College of Surgeons (ACS) runs an Interpersonal Skills and Surgeon Leadership, and Surgeons as Educators courses<sup>20</sup>. Both courses have proven to be popular and effective<sup>14</sup>. The RACS runs the following courses: Communication Skills

for Cancer Clinicians, Process Communication Model, Polishing Presentation Skills, and Making Meetings More Effective<sup>7</sup>, and the notes about 'Collaboration and Teamwork' mentioned in the guide to aid the assessment and development of surgeons referred to above<sup>7</sup>. In addition there are several other activities some of them are: 'The Calgary-Cambridge Guide to the Medical Interview-Communication Process'<sup>21</sup>, 'The SEGUE Framework for Teaching and Assessing Communication Skills'<sup>22</sup>, and 'NOTSS System Handbook'<sup>23</sup>.

### **Professionalism**

I tried to cover this important topic in the two previous publications<sup>1,2</sup>. I encourage the reader to kindly read them if he / she didn't have the chance to read them before. In short the permission, which we have as professionals from the society to practice mandates that we use our skills altruistically (unselfish concern for the welfare of others) and counts us responsible of self-regulation<sup>24</sup>. As an example to indicate the importance of professionalism, Griffen<sup>25</sup> worked with a chosen panel of six clinically active general surgeons who meticulously reviewed the charts and records of 490 cases of 'closed malpractice claims' already taken against surgeons. The group found that neither 'basic knowledge' nor 'clinical practice' was the prime reason for the malpractice but in almost 70% of instances; 'professionalism' was the competency factor that was breached<sup>25</sup>.

### **Patient-based learning**

It is known that surgeons are not very patient and they want something to happen. Surgery is a discipline of commission – not omission<sup>14</sup>. Depending on several circumstances and patients' conditions we often are capable of proceeding with some form of therapy even before we have all the facts, therefore we commit errors, and senior surgeons are not immune. Making in-deliberate error is

acceptable, but repeating that error is not. Professionally mature and compassionate scientific approach analysis of error is '(practice) patient-based learning'.

Appropriately conducted morbidity and mortality meetings are an excellent opportunity to learn. The clinical material presented and discussed in these meeting is not text-book information, and what is initially taken as a painful process will eventually found to be more productive than reviewing a subject through the literature.

### **Systems-based learning**

Systems issues are those which exist in any established health institute where several parties are working together. Among many examples, are the management of major trauma case, the process of preparing and progressing with a surgical operative procedure from the surgical ward till postoperative patient recovery, and the resuscitative response to an emergency code. Although it is expected that every involved personal knows their role and the planned procedure will flow in a smooth and satisfactory manner there is always a chance that something different might happen. For example when the surgeon or associate marks the operative site with water-soluble marker, which is erased during the surgical skin preparation then that is system's problem. When the anaesthetist who pre-ops the patient is different from the anaesthetist who conducts the case then that is system's problem. When a recommended medication is not properly and timely given then it is system's problem. These and many others might come up any time. Taking a 'blame' stand is rarely a productive education. On the contrary it generates defensive responses rather than patient care solution. Again, in such circumstances the senior surgeon can, and must, act as a leader by seeking systems solutions<sup>14</sup>. In the 'Surgical competence and Performance— a guide to aid the assessment

and development of surgeons' of the RACS referred to above 7 there are notices regarding health advocacy in which one should identify and responds to the health needs and expectations of individual patients, families, carers and communities; management and leadership that includes providing direction, promoting high standards, matching resources to demand for services and showing consideration for all members of staff; and scholarship and teaching were surgeons are able to demonstrate a lifelong commitment to reflective learning, and the creation, dissemination, application and translation of medical knowledge.

### **Assessment of surgical competence**

Dryefus and co-workers taxonomy (classification) of levels of performance includes: novice (beginner), competent, proficient, expert, and master<sup>26</sup>. This means that the level of proficiency is progressive. Although this classification looks to be complete and practical it is considered to be subjective rather than objective<sup>10</sup>. Therefore, an attempt of adding specific description measures are expected will improve the objectivity of the field<sup>10</sup>.

The process of surgical care has four, broad components: diagnosis, plan of treatment, technical skills and performance, and postoperative management and care. Any assessment in this context should include: what is assessed, how it is assessed, and how this assessment could be utilized for future learning. The diagnostic ability is essential for all areas of clinical medicine. This is what we learnt during undergraduate and postgraduate studies and training stages. Once a diagnosis is established then a treatment plan can be recommended. However, the centre of surgical practice is the surgeon's technical skills, which is an essential aspect in judging competence.

When assessing technical skills the following aspects should be considered: the surgeon's judgment, knowledge, and dexterity<sup>27</sup>. The

term judgment is broad because it involves several stages of the patient's treatment process whether in the preoperative work up, during the surgical operation, or postoperatively. The knowledge refers to the basic knowledge learned and required to implement the decisions made as part of the judgment. The dexterity is basically means the psychomotor aspects of the task at hand that is required to execute the planned surgical procedure<sup>27</sup>.

There are several existing formats published by many colleges and societies to test the competency of medical practitioners, like those from the RACS<sup>28</sup>, the Royal College of Physicians and Surgeons of Canada<sup>29</sup>, the Royal College of Surgeons in the UK<sup>30</sup>, and in the USA<sup>3-6,8,10</sup>. Although it is generally accepted that these formats reliably assess core knowledge and basic skills, however, there remain some concern about the assessment of other aspects specifically the technical skills and performance<sup>10,11,27,31</sup>.

### Methods of assessment

The following are the traditional and newly evolved methods.

Conventional written examinations is, in general, an effective approach to assessing basic knowledge but has limited application for assessment of decision making ability on a wider scale<sup>27</sup>.

Conventional Viva Voce examinations attain strength because the examiners have the opportunity of opening a variety of topics with the candidate, which could be an advantage to some of them while other candidates might feel that they are being intimidated. In addition the process of this examination is not standardised<sup>27</sup>.

Objective Structured Clinical Examination (OSCE) is based on a series of stations, each of which has a self-contained question / item<sup>32</sup>. Although this is a great advantage of examining a wide variety of material in a highly standardized way, however, its

disadvantages are the time constraints, which doesn't allow an in depth assessment, and the limited capacity it has to explore the candidate's understanding of complex issues<sup>27</sup>. Objective Structured Assessments of Technical Skills (OSATS) is an extension to the OSCE methodology, which was developed by Reznick and co-workers in Toronto<sup>33</sup>. OSATS is widely used by this group and elsewhere. The candidate performs seven operative competence tasks while he / she are observed by at least two assessors. These tasks includes: respect for tissue, time and motion, instrument handling, suture handling, flow of operation, knowledge of procedure, operative performance and final outcome. The only criticism about this methodology is that because the tasks are highly standardized then it doesn't allow assessing judgment<sup>27</sup>.

Imperial College Surgical Assessment Device (ICSAD)<sup>34</sup>, Operative Performance Rating Scale (OPRS)<sup>35</sup>, and Global Rating Index for Technical Skills (GRITS)<sup>36</sup> are seen as variations to the OSATS and have added further practical competencies such as interaction with assistants, communication, bimanual dexterity, depth perception and handling of unexpected events<sup>31,35</sup>.

The ICSAD, OSATS, GRITS may also be used to assess the surgeon's technical competency on procedure-based assessments (PBAs) scales or operative scoring systems<sup>27,31,34</sup>. These assessments are designed to be more objective rather than judgment of complex procedures.

Box trainers may be used to assess technical skills. Various objects were used to perform different tasks, which were able to differentiate the competences of surgeons based on their experience level<sup>37</sup>. These methods can also be used to judge objectively the operative procedure outcome, for instance by cross-section examination of the lumen area of the material used after vascular anastomosis and knot strength<sup>38</sup>. Virtual reality simulators although are now commonly used tools in

surgical courses, and it is possible to transfer skills learnt from simulators to certain procedures in the operating rooms but in addition to being expensive its major limitation is that they are mainly used for laparoscopic training while it had been found from previous surveys in the USA that in some 75% of all surgical residents' surgical procedures and 89% of general surgical residents' surgical procedures were performed by an open surgery approach<sup>39,40</sup>.

Video assessment is another mean for assessing performance but it has been found to have a mix feeling of being either valid<sup>41</sup> or has low inter-rating reliability<sup>42</sup> in addition to being time consuming.

### Closing remarks

In recent years there has been an increasing discussion about medical competence, especially so in surgery. Although surgeons need to possess two essential elements: the ability to make sound decisions and to perform surgery with rewarding patient's outcome, however, there are many other factors, which are also essential. These include the ability not only to learn but also to learn how to learn, communicate, and attain technical competencies. Care is effective when a team are working together, which often need, team

leaders. Competence is developmental, and competent medical practitioners should be able to judge their abilities and limitations when facing clinical presentations in particularly those, which look ambiguous. Errors in medicine may result from over certainty that the medical doctor's impressions are beyond doubt.

There are several ways and methods how surgical trainees could be taught and how established surgeons could continue their up-to-date knowledge and technical skills. Personal awareness and expectations are essential. Although it seems that assessing surgical competency is a complex issue but I tried to present above many attempts in their formulation and development. Colleges and societies will continue to explore, change and update the different, available ways and methods to validate objective tools, which should be sufficiently acceptable to the licensing bodies and public assurance.

Clearly, because of the different culture and societies, the available resources and accessibility to these resources around the world then I feel that the local colleges and societies in any particular country have a duty in selecting and establishing certain ways of teaching, training and assessment without compromise to the standard of competence and patient's safety.

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