

## **Surgical Skills in Orthopedic Residency Training – A Simple Assessment Form**

J.L. Marsh for the Assessment Tools Subcommittee of COD

Surgical skill is one of the most important competencies in orthopedic surgical training although skills are not separately identified as one of the six core competencies by the ACGME. Due to remarkable surgical advances in the last decades Orthopedic Surgery has become an increasingly technical field which places increased demands on acquiring skills during training.

Orthopedic residents spend the majority of their time in the operating room. The program requirements for orthopedic surgery require that residents spend only a half day per week in the outpatient clinic. Preparing for and participating in surgical sessions in the operating room and learning surgical skills occupy most of the rest of their time. Residents consider that acquiring skills is one of the most important aspects of their training and many have tremendous anxiety about this competency. Orthopedic educators recognize that the pressure that residents feel to obtain skills and participate in surgical cases has increased as the total number of work hours has decreased with the advent of the eighty hour work week.

Against this background, it is unfortunate that the assessment of surgical skills has lagged behind assessment of other competencies perhaps because surgical skills were not labeled as a separate core competency. Residency training programs are required by the ACGME to have assessment tools and strategies for the six core competencies but not specifically for technical or surgical skills. The ACGME requires that residents in training participate in the web based case log system where they record their procedural experience using CPT codes. Some surgical specialties, through their residency review committees (RRC), have defined minimal procedural numbers that are required during the course of the residency. The RRC in orthopaedic surgery is currently considering similar minimum case numbers for selected orthopedic procedures. However these requirements relate only to the number of cases that a resident has logged in and do not provide or require any formal evaluation of surgical skill or resident assessment and feedback.

Few orthopedic residencies have developed a formal skills assessment program. Currently most orthopedic programs assess surgical skills using faculty global end of rotation evaluations. Most residents receive little other formal, formative or summative feedback on their progress in acquiring surgical skills. Many programs have developed surgical skills labs to assist residents in obtaining basic skills but the degree to which formal skills assessment is incorporated into these programs is at best uncertain.

Surgical skills evaluation forms have been used in other surgical specialties but there are only a few examples in the peer reviewed literature. Doyle et al reported using a Global Rating Index for Technical skills (GRITS) for general surgery cases and in a small sample of residents demonstrated that the tool was valid and reliable for general surgery

procedures (1). In orthopedic surgery, Van Heest et al used this same tool as part of a skills lab based experiment for carpal tunnel surgery (2). This tool scores residents in nine categories using a five point scale.

The Assessment Tools Subcommittee of the Council of Orthopedic Residency Directors (CORD) identified assessment of surgical skills of orthopedic residents as an important unmet need for orthopedic programs. We decided that a form that was simple, straightforward, and quick to fill out and that could be applied globally to all orthopedic procedures would be optimal. Early this year (2010) we modified the GRITS form by committee consensus to shorten it and make the categories more relevant to orthopedic surgery. Last spring the new form was field tested in the committee members programs and based on this experience; at the June 2010 meeting of the AOA we further modified the form. The major additional changes were to recommend on the form that residents should be evaluated as a standard against their peers by year in training and to change from a five point to a four point scale.

An important feature of a form with a four point scale is to use handles on the scale that indicate there are two satisfactory ratings and two unsatisfactory ratings which forces the evaluator to score the resident either favorably or unfavorably in each category. We have used this scale to assess residents as follows. Those with multiple evaluations with all favorable scores of 3 and 4 are making satisfactory progress in skills compared to their peers. On the other hand residents with more than a small number of scores of 1 and 2's are falling behind their peers. In this way the form will be used to detect outliers but not to discriminate between different levels of satisfactory skills. This is similar to the scale used for surveys of candidates to be certified or recertified by the American Board of Orthopedic Surgery in their peer review credentialing process.

Currently this form is being used by members of the CORD Assessment Tools Subcommittee. It has been loaded into at least two of our hospitals electronic evaluation systems, E-value and Med Hub. The committee finds that the form can be quickly filled out, is easy to use and is compatible with hospital wide evaluation systems. We are currently assessing whether the form succeeds in its major intent; detecting outliers defined as residents making poor progress in acquiring surgical skills. Our initial experience indicates that it does. When the form is filled out and shared with the resident directly after a case they seem pleased to have the direct feedback on their performance.

Further work is necessary to optimize how the form is used. For instance, the optimal index procedures that will best assess resident's skills need to be determined. The form needs to be validated against an independent measure of resident skills. The number of procedural assessments that provide optimal value for the residents and program directors needs to be defined and how to intervene for residents that are scoring poorly is an open question.

At this stage we are close to releasing the form for general use and it will be housed on the CORD website. An example of the form as it is reproduced in med hub at the

University of Iowa is attached. If you have interest in our experiences with this form please do not hesitate to contact myself or one of committee members.

**References:**

- 1) Doyle et al The American Journal of Surgery 2007 A Universal Global Rating.....
- 2) Van Heest et al JBJS 2009 Assessment of Technical Skills....