Educating future skull base surgeons: Simulation and competency.

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Most medical education systems are rooted in 100 plus year traditions, including a “time based” model. Most residency training programs are built on a basic clinical year (e.g. PGY1), junior residency (e.g. PGY2-5) and senior residency (e.g. PGY4, PGY5/6). Simple or complex in-training evaluation reports (ITERs) of residents, in-training exams, oral exams, national specialty practice exams and other forms of assessments are dutifully tabulated based on a system of rotations of various lengths of time. The program evaluates all of this information to compile some form of final in-training evaluation to determine if the resident has reached a certain level of competence to be able to “challenge” the final certification exam.

Many senior physicians have a “gut feeling” about when a resident/fellow (“learner”) has actually achieved competence; sometimes this is due to a halo effect. However, it is rare that instructors have ever actually watched a resident complete a task from start to finish.

It is not just about performing procedures, but also about cognitive competence in how residents or fellows assemble information, make diagnoses, formulate treatment plans, engage patients and families and order appropriate tests. Hospitals and licensing bodies need to rely on specialty leadership and certifying organizations that the resident/fellow is competent to perform the skill sets that they are being credentialed for.

Education research has shown that time based systems are not always optimal for meeting the education and assessment needs of future physicians from residency through to retirement. It would be impossible not to have some form of a time element in a comprehensive medical education system, however, there is a growing trend, and shift towards a more balanced approach with emphasis placed on regular assessment of performance. With the increasing scrutiny from payers, government regulatory agencies, the public and the significant shift towards quality and safety, the old hierarchy of competence—“see one, do one, teach one” is no longer valid.

A common approach to competency based education is to list the skills and attributes (milestones) that presumably taken together define competence. A milestone is an expected level of achievement or competency that must be demonstrated and evaluated before a resident may progress further. It is a defined, observable marker of an individual’s ability along a developmental continuum. Entrustable professional acts (EPAs) are responsibilities or tasks in the clinical setting that an individual can perform unsupervised. Disciplines identify EPAs that residents must be able to perform within each stage of training which are clinically relevant and specific to the discipline.

Programs will require a variety of options to assess competence which are still in the development phase. Possible solutions will be discussed but the assessments must become more learner driven, learner focused and formative with feedback, reflection, guided self-assessment and simple but effective documentation. Constructive feedback will need to be timely and incorporated within the framework with early identification of learners in difficulty and appropriate opportunities for remediation. Success should ideally be determined by meaningful demonstration of competent performance on each of the components and should no longer be determined by average or combined performances. A weak performance in a key area of competence should preclude success until competence in that area has been achieved or demonstrated.

Change is under way in medical education in which measurement of competence will take a much more prominent role. Challenges with the current training and evaluation models will be discussed and the role of simulation in teaching and assessment of competence will be discussed.