

Editorial

"In My Experience..The Challenges of Educating and Training Modern Residents and Fellows in Orthopaedic Surgery"

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The author discusses his experience on how the busy, overworked, academic orthopedic surgeon deals with the challenges of educating modern residents and fellows.

One of the educational casualties of the COVID pandemic is the variability in educational experience/competence among senior residents and fellows as a result of missed rotations during the pandemic. This has added to the already-present disparities among residents in terms of surgical abilities, knowledge base, and diagnostic acumen. We are concomitantly forced to teach in less than ideal work environments (financial pressures and soaring overhead costs, understaffed hospitals, less time and more to do), How does the busy, overworked, academic orthopedic surgeon deal with the challenges of educating modern residents and fellows? The key is intentionality.

Assumptions of what the "typical" resident should be able to do need to be reconsidered, given the variable experiences of some residents during the pandemic. Planning to accurately assess the resident's individual skills and intentionally teaching with a goal of rectifying any gaps in their training is paramount. It is not possible to treat all trainees the same, particularly in today's educational environment. The benefit of this approach extends beyond the Pandemic Generation. Most of the residents with whom we interact will not go into our subspecialty and are not all at the same skill level; by taking the time to understand their individual strengths, weaknesses, and goals, we become a valuable part of their education as well-rounded orthopedic surgeons. The era of simply taking great care of patients with a resident/fellow following along no longer translates into a polished final product for residencies and fellowships. As a former Residency Program Director for 10 years and now

Vice Chair for Education, I have several observations on what we can do as academic orthopedic surgeons to ensure we continue to turn the brightest medical students into excellent orthopedic surgeons in the era of work hour limitations and COVID deficiencies, while dealing with our own practice challenges, resulting in producing the next generation of well-trained orthopedic surgeons.

INTENTIONALLY ADDRESSING CHALLENGES AT THE RESIDENCY LEVEL

Establishing competencies in each subspecialty, including but not limited to the existing ABOS Milestones, is the first step in ensuring all residents reach a minimum level of competence across orthopedics. If you do not define what a resident should be able to do, it is very difficult to design a program to get them there. As importantly, it is imperative that the learner understand these goals. Metrics, methods of evaluation, and means of course correction should be clearly delineated as part of the "onboarding" process for every rotation. Resources for learner remediation can be provided to faculty, supported by the Department Leadership. Intentionally seeking specific areas of weakness, often through the department's Clinical Competency Committee, allows targeted focus on those areas via mentorship, education, and rotation scheduling.

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In addition to his clinical duties, Dr. Eberson served as the Program Director of the Brown Orthopedic Surgery Residency for 10 years, and is the current Vice Chair for Education for the department at Brown. Dr. Eberson believes that training the next generation of orthopedic surgeons is a tremendous responsibility and privilege. He has a passion for education, as has helped develop a Curriculum for Educators for members of the Pediatric Orthopedic Society, and has lectured on the topic to international audiences.

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INTENTIONALITY IN ONE ON ONE TEACHING

Diagnosing opportunities for improvement in the learner to focus an educational approach is the mark of teaching expertise. Meeting them at their level of skill is crucial, and as surgeons become more experienced, they often can't remember what it was like to not know how to perform simple tasks in the operating room. Breaking procedures into progressive steps that build upon each other is an important step in uncovering lagging skills that can be brought to the appropriate level. All open surgeries have the ability to allow progressive experience in basic skills like suturing, tissue handling, triangulation, drilling and hardware placement, and other basic skills that are applicable to many orthopedic procedures. After demonstrating competence in these areas, residents can be allowed to perform increasingly complex portions of the case.

In educational circles, identifying the learner's "Zone of Proximal Development"(ZPD) refers to determining what the resident cannot quite do yet and targeting their skill development towards meeting that goal and subsequently expanding their abilities. In practical terms, the preoperative discussion with the resident should include their understanding of the procedure and its indications, as well as what they think needs to be done in terms of specific surgical steps (cognitive phase of learning procedural skills). Identifying which skills sit in the ZPD and discussing the resident's role in the case is crucial. Residents view the inability to complete an entire case as failure; each case should be targeted to improve a specific skill or skills, and should build upon what was learned in past cases. Inherent in the process is robust feedback-If expectations are discussed prior to the start of the case, the resident knows exactly what they are expected to do, and post-surgical debriefing will reveal whether that goal was reached. Specifically, the learner should be asked their impression of their performance, helping to develop the skill of self-critique which will be crucial throughout their career. Attending to this routinely, in my experience, tend to receive the highest teaching evaluations from the residents, regardless of how much of the case they are allowed to perform. Today's learners are more engaged if they have an active role in the setting of educational goals.

We are all good at critiquing the resident's technique; we need to be intentional in assessing what skills are appropriate for each resident based upon their experience and level of training. This allows expectations to be set jointly and likely will result in greater progress. Asking "what do you want to learn on this rotation?" is an easy question which helps the teacher ensure the needs of the learner are met. Likewise, the astute teacher identifies gaps in the learner's education that need to be filled and adjusts the teaching accordingly. By providing ongoing feedback, the rotation is constantly adapting to the learner's progress towards mastery of the appropriate goals.

While myriad teaching styles exist among skilled surgical educators, all successful methods incorporate inten-

tionality in teaching. Formally meeting with the resident at the start of the day/week/rotation, determining an educational plan for the rotation that specifically is geared towards allowing the resident to progress in the program by addressing weaknesses and building upon strengths. Making time to discuss each case with the resident prior to the surgery allows the teacher to identify any cognitive gaps in the resident's understanding of the procedure, as well as the ability to determine which skill or skills will be stressed and what the resident is expected to do. Intentionally teaching skills in a manner which allows gradual progression and confidence in the learner (teach to the ZPD, not 5 steps ahead!), and providing frequent actionable feedback (what to do next time) allows relentless progress towards competence, and subsequently, excellence. Teaching each resident in the same manner ensures that struggling residents are not given the opportunity to specifically address their weaknesses and are simply passed on to the next service, or worse, are referred to the program director to be "fixed".

As Orthopedics surgeons, we already know how to approach a patient during a clinic visit with intentionality, how to diagnose their problem and design a treatment program specifically meeting their individual needs, involving all relevant treatment modalities. When surgery is necessary, we plan a set of procedural steps intentionally designed to solve the patient's problems. We need to be just as intentional as educators to be successful; we already possess the skillset, we simply need to apply it to our educational endeavors.

HELPFUL RESOURCES

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