

What makes a “great resident”: the resident perspective

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Abstract Orthopedic surgery residency training is a difficult endeavor, and the selection of residents that will perform well in a rigorous training program is challenging for residency program directors. Even defining a “great” resident is a difficult endeavor. However, there are certain qualities that anecdotally are associated with high-performing residents, which include being trustworthy, hard-working and efficient, self-directed learners, detail-oriented, and personable. These qualities are difficult to teach and are likely learned by an individual during their early years of education and groomed during college and medical school. Individuals possessing these characteristics are more likely to bring a high-level of professionalism to their work as residents and to perform well on objective measures of success in residency such as high OITE scores, good faculty evaluations, and peer-reviewed publications. We discuss the available, but limited, literature on what makes a “great” resident and share the resident perspective on this topic.

Keywords Resident · Residency · Professionalism · Selection criteria

Introduction

Orthopedic residency training is among the most grueling of all surgical training programs, requiring long hours, high stress levels, and the acquisition of an ever-expanding number of technical skills in a relatively short, 5-year period. Given the high demands in residency training, orthopedic residency program directors spend a lot of time and effort to choose the

best and the brightest medical students to admit to their programs. However, despite their best attempts to successfully filter out those applicants that do not have the tools for success in a difficult training program, not all orthopedic residents are able to perform their job duties with a high-level of skill, although most do at an “acceptable” level. Notably, however, there are a small percentage of residents that exceed expectations and are truly “great.” In our opinion, these residents share certain qualities and skills: they are trustworthy, efficient, self-directed learners, detail-oriented, professional, personable, and academically oriented. These qualities are the same for outstanding residents in any subspecialty and not limited to orthopedic surgery. These attributes usually (but not always) predict a resident who will be skilled in the OR and the clinic, have good standardized test scores, and be capable of contributing to the general body of orthopedic knowledge by performing original research and publishing papers. In this article, we discuss the resident’s perspective of how these attributes are essential to being a “great” orthopedic resident and discuss the literature that pertains to performance in an orthopedic surgical training program.

Trustworthy

Being trustworthy is perhaps the single most important quality in a junior resident and an absolute prerequisite to being a great resident. The reason for this is the hierarchical and progressive responsibility for patient care in residency training programs. In the vast majority of orthopedic residencies, the greatest percentage of in-house call and trauma consults are seen by residents in their postgraduate year (PGY) 2 or PGY-3 year and are then reviewed with more senior (PGY-4 or PGY-5) residents and the attending orthopedic surgeon. At night or on the weekend, this means that senior residents and attendings are entrusting the basic decision-making and care

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of patients that come into the emergency department (ED) as well as patients on the floor to the junior resident on-call, with backup typically available by telephone. This system only works if the resident is able to accurately and honestly relay clinical findings and patient care issues, if the junior resident can handle basic consults, and if the junior resident recognizes her/his limitations and calls for help from his/her senior resident or attending when necessary. As the junior resident develops more knowledge and skill, more and more independent care is entrusted to the resident. A “great” resident is able to perform most of his duties independently, but importantly, knows to discuss complicated cases with his senior resident and attending. Indeed, previous studies looking at trainees in emergency medicine, internal medicine, and anesthesia also stress the importance of a trainee knowing when to ask for help to provide optimal patient care, as this also allows their supervising attendings to trust them to provide more care independently [1, 2].

Efficiency

It goes without saying that one cannot be a great resident, or great in any line of work, without being a hard-working individual. However, being hard-working alone is insufficient to be a great resident. The adoption by the Accreditation Council for Graduate Medical Education (ACGME) in the US, of the 80-hour work week in the setting of increasing patient volumes, increased documentation requirements, and no change in the number of overall residents means that more work must be accomplished in less time. Despite these barriers, certain residents are nonetheless able to manage a large inpatient census, see numerous consults, and efficiently and accurately formulate and execute a treatment plan. In addition, they are capable of being prepared for challenging operative cases, and perform and publish original research. Importantly, they also make time to spend with family (spouse, children), get exercise, and participate in countless other activities to maintain a semblance of a “normal” life.

In the UK, the effect of the European Working Time Directive (EWTd), which has steadily brought down working hours for doctors in training to 48 hours in 2009 has had detrimental effects on surgical case exposure for residents [3] and resulted in difficulties in continuity of care for patients due to frequent handovers [4]. These challenges have meant that in order for a resident to succeed, the importance of time management, self-directed learning, and efficiency are now more critical than ever before. Data from a cardiac surgical training program has demonstrated that with the institution of focused training modules, surgical exposure for motivated residents was sustained despite limited working hours [5]. In addition to efficiency, the EWTd has resulted in some residents becoming innovative in their quest to maximize training

opportunities by utilizing orthopedic applications on their smartphones in the clinical setting. These include online textbooks and journals, live podcasts, and video tutorials [6]. It is likely that being adept with technology will play a larger role in defining the top residents of the future.

Efficiency is not an innate, but a learned skill that can be developed. It begins with understanding that although there are numerous tasks to accomplish in a given day as a resident, they can be prioritized in a manner that allows one to complete everything in a timely fashion. As residents transition to becoming an attending, they typically find that they only become busier with even more demands on their time making efficiency a critical skill for an orthopedic surgery resident.

Self-directed learners

Orthopedic surgery is challenging because the fund of knowledge required is broad – one must master the surgical anatomy of the extremities in addition to the spine, as well as become knowledgeable about diseases and injuries in multiple subspecialties. One enters an orthopedic surgery residency knowing very little, and by the time that person has completed their chief resident year the hope is that they have learned enough to pass their board exams and become an independent surgeon. This learning occurs through a variety of means: reading chapters or review articles, listening to lectures, attending instructional courses and conferences, or even experiencing it with a patient in the emergency room or in the operating room. However, this learning is not passive—it requires active engagement to get the most out of a learning experience. The best residents use every patient and problem as a learning opportunity, and read before and after to fill any knowledge gaps. Poor residents expect someone else to teach things to them, or learn just enough to get through their call night. Self-directed learning is a skill that is of life-long importance for a physician, and the best residents learn this from very early in their training.

Detail-oriented

Another skill that is critical and necessary among high-performing residents is absolute and exacting attention to detail. In our anecdotal experience, the importance of this is difficult to impart on junior residents who do not already have this quality in other aspects of their life. This is so important given the complexity of modern medical care at an academic institution—there are hundreds of tasks that must be carried out daily by multiple care providers and each task that goes uncompleted has the potential to compromise patient care. The junior resident running the inpatient service should know to follow a basic tenet of surgical training, “trust no one.” This

means that he or she needs to follow-up on each of those tasks personally to make sure it is completed, which is time-consuming but highly important to providing optimum patient care. At the junior resident level, being detail-oriented also includes (but by no means is limited to) meticulous review and updating of the inpatient list, thorough evaluation of patients and any and all radiographs obtained on orthopedic consults, and completing absolutely all tasks necessary for each patient's care before passing off the pager to the incoming on-call resident. At the senior resident level, it includes thorough preparation and planning for operative cases, careful supervision of the inpatient care provided by the junior residents, and timely communication of any patient care issues to the attending surgeon as well as any other members of the patient care team. Being detail-oriented is a skill that is necessary not only as a resident but obviously also as an attending to provide optimal patient care and achieve the best possible surgical outcomes.

Professionalism

Unique to the category of professionalism as a surgical trainee are ethical standards and personal integrity. Similar to some of the other qualities we have discussed, professionalism is difficult to impart to a trainee who is already lacking in this attribute [7]. Professionalism scores have been shown to be associated with higher technical ability, knowledge, and conscientious behaviors therefore suggesting that professionalism is likely to produce overall enhanced clinical performance in a resident [7, 8]. In the current age of widespread social-networking, medical professionalism is paramount in preserving patient confidentiality and our profession's public perception. In a recent study of 431 graduating medical students applying for a residency in orthopedic surgery, 16 % of resident applicant's Facebook profiles contained unprofessional content as defined by the Accreditation Council for Graduate Medical Education guidelines [9]. Lower professionalism scores were associated with lower residency composite scores, once again underlining the importance of seeking the broad number of qualities that collectively define high professionalism, when selecting an applicant who has the potential to become a "great" resident.

Personable

There is a common saying that to be successful in medicine, one has to be "available, affable, and able." This is also true for being a great resident. Residents need to be personable to effectively work in a multidisciplinary team environment collaborating with nurses, physical therapists, social workers, as well as with their co-residents and other physicians to

provide optimal patient care. In fact, the American Orthopedic Association Steering Committee on Resident Selection all the way back in 1981 cited examples of residents that dropped out or were terminated from their positions because of poor attitudes [10]. Interestingly, previous life experiences that depend on teamwork for success like military service and participation in varsity sports seem to be correlated with higher performance by some metrics in an orthopedic residency program [11•]. Although there is not much data to support this personal observation, it is obvious that no one enjoys working with or helping residents who have poor attitudes, or have difficult personalities. These residents will subsequently have trouble accomplishing the multitude of different tasks in daily hospital duties and may suffer from a lack of camaraderie that is undoubtedly advantageous in making it through a grueling training program.

Academics

Involvement in academics and research gives a resident the opportunity to become both knowledgeable and a thought leader in their future subspecialty of interest. Another common piece of advice that has been passed down to residents over the years is "publish or perish." The American Board of Orthopedic Surgery requirements state that a residency in orthopedics must include involvement in research [12]. Producing a peer-reviewed publication during residency requires a combination of all the aforementioned skills in this article. Orthopedic residents that publish in a peer-reviewed journal during training have been shown to be more likely to publish as future practicing orthopedic surgeons [13]. Furthermore the number of medical graduates applying for orthopedic residencies, with previous experience in scientific research, remains small [14]. This observation presents an opportunity for orthopedic residents who pursue research to stand out from the crowd and truly prove themselves to be "great" residents providing they publish while maintaining high standards in the other critical attributes previously discussed in this article.

Conclusion

The determination of what makes a resident "great" is by its nature subjective, but anecdotal experience tells us that there are certain factors which all high-performing residents possess, which we have discussed in this article. Ginsburg and colleagues compiled a similar list of criteria that faculty attendings used to describe excellent residents at an internal medicine program in Canada [15]. Residents that have all of these attributes can be expected to perform well in measures that can be objectified such as high scores on the Orthopaedic In-Training Examination (OITE), good faculty evaluations,

number of publications, etc. Unfortunately, since the advent of the 80-hour work week, there has been an anecdotal shift in the mentality of residents that discourages, rather than promotes, the professional behavior that we hope for in the next generation of surgeons. Senior residents and attendings must be mindful that the behavior they demonstrate in their day-to-day activities seeing patients and in the operating room will be emulated by their junior residents; the so called “hidden curriculum” [16]. The goal in residency training programs should be to create an environment with a culture of excellence, so that more residents obtain the traits necessary to be “great.”

Compliance with Ethics Guidelines

Conflict of Interest Venu M. Nemani, Caroline Park, and Danyal H. Nawabi declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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