



# The Implementation of an Intern Surgical Curriculum at Penn



Nicole Zelenski, MD<sup>1</sup> and Nicholas Pulos, MD<sup>2</sup>

<sup>1</sup>University of Pennsylvania, Philadelphia, PA  
<sup>2</sup>Mayo Clinic, Rochester, MN

## Mandated change

Historically, general surgery rotations during intern year provided orthopaedic trainees with instruction in basic skills including soft tissue handling and knot tying. Changes in surgical education over the last fifteen years have limited the amount of hours residents are permitted to spend in the hospital. Additionally, increased supervision in the operating room and the shift from open to laparoscopic general surgery procedures has limited the utility of these rotations. As such, early exposure to surgical training has decreased. Though no studies have concluded that changes in work hour restrictions have affected case volumes or in training exam scores<sup>5,6</sup>, orthopaedic program directors have demonstrated concern that residents will not be adequately prepared for independent practice<sup>7</sup>. This prompted the Accreditation Council for Graduate Medical Education (ACGME) and American Board of Orthopaedic surgery (ABOS) to have 6 months of orthopaedic surgery rotations in their intern year as well as to complete a mandatory surgical skills curriculum<sup>1,2,3</sup>.

## Current requirements

On July 1, 2013, the ACGME mandated that orthopaedic surgery PGY-1 residents receive a surgical skills curriculum. The basic surgical skills training was designed to integrate with skills training in subsequent postgraduate years and prepare the PGY-1 resident to participate in orthopaedic surgery cases<sup>1,2</sup>. Suggested modules are published online with the goal to acquire and improve skills such as splinting, casting, and application of traction devices as well as basic operating skills such as soft tissue management, suturing, bone management, arthroscopy and use of basic orthopaedic equipment<sup>4</sup>. After an approximately two-year integration period, programs are now required to report the progress and implementation of the program to the ACGME.

## The Penn Experience

The Orthopaedic skills month may be implemented in a dedicated month long block or longitudinally and does not count against the current allowance for 6 months of orthopaedic service during the intern year. As such, we have worked with our general surgery, emergency medicine and anesthesia colleagues to try several iterations of the “Month” on their non-Orthopaedic blocks. This included a one-month block in October and April versus dedicating every Thursday after Grand Rounds to intern education. Residents underwent at least 30 three-hour sessions staffed by topic and expertise appropriate attending physicians, fellows, or chief-level

residents. This included 14 sessions in the human tissue lab and several guest lectures from physicians in the radiology, plastic surgery, and anesthesia departments.

Both the longitudinal, semester-long curriculum and the dedicated one-month curriculum have merit and the choice between the two was initially limited by the logistics of the year it was implemented. The longitudinal program was easier to facilitate with our non-orthopaedic colleagues and offered more sessions for the interns to meet to review the required modules. However two substantial scheduling difficulties arose: 1. topic and expertise appropriate staffing of the sessions could not always be achieved; 2. continuity of clinical care sometimes prevented interns from leaving for a single day in the middle of a standard week. A well-structured month-long curriculum allows interns to focus on the fundamentals of orthopaedic surgery without being overwhelmed by clinical duties on other services, while giving them time to adequately prepare for the sessions. It also offers the chance to build strong relationships among their class and with senior residents and junior faculty.

## Effect on OITE scores

There is significant improvement of OITE scores among interns who have undergone the Intern Skills Month. The in-training scores of interns who started on a non-orthopaedic block of rotations (GS) in the two years prior to the implementation of intern skills were compared to scores from interns who underwent the same rotations after the implementation of intern skills. These interns had directed





OITE preparation and question review led by senior residents as well as dedicated time for independent study. The OITE percentile scores increased nearly twofold for GS interns after initiation of the Intern Skills Month in the fall of 2015. Interns who began the year on the orthopaedic block and did not undergo the skills rotation had similar scores before and after the implementation of skills.

### Future of Intern skills at Penn

The mandates set forth by the ACGME and ABOS were designed to enhance the intern year and provide early exposure to orthopaedic surgery. The addition of the skills month has effectively increased the amount of specifically orthopaedic-relevant education during the intern year. The inevitable decrease in less orthopaedically relevant clinical time, which

could be seen as a detriment by some, should be valued as an increase in educational efficiency and effectiveness; indeed, learner feedback has been positive and the program has been well received by the interns. In our program, there has also been a secondary benefit of increasing OITE scores among the intern class—nearly doubling the average percentile. After trialing both the longitudinal model as well as a month-long block, the Department of Orthopaedic Surgery will use the Intern Skills Month model going forward. This will allow for a well-structured basic science, clinical and applied curriculum to supplement our residency program. Further study will hopefully demonstrate this to be a worthwhile endeavor, better preparing trainees for independent practice in a changing healthcare environment.

### References

1. **American Board of Orthopaedic Surgery, Inc.** 2013 Rules and procedures for residency education Part I and Part II examinations. Available at: <https://www.abos.org/media/590/2013rppart1.pdf>.
2. **Dougherty PJ, Marcus RE.** ACGME and ABOS Changes for the Orthopaedic Surgery PGY-1 (Intern) Year. *Clinical Orthopaedics and Related Research*. 2013;471(11):3412-3416. doi:10.1007/s11999-013-3227-9.
3. **Accreditation Council for Graduate Medical Education.** ACGME program requirements for graduate medical education in orthopaedic surgery.
4. <https://www.abos.org/abos-surgical-skills-modules-for-pgy-1-residents.aspx>
5. **Pappas AJ, Teague DC.** The impact of the accreditation council for graduate medical education work-hour regulations on the surgical experience of orthopaedic surgery residents. *J Bone Joint Surg Am*. 2007;89(4):904-9.
6. **Froelich J, Milbrandt JC, Allan DG.** Impact of the 80-hour workweek on surgical exposure and national in-training examination scores in an orthopaedic residency program. *J Surg Educ* 2009;66(2):85-8.
7. **Levine WN, Spang RC III.** ACGME duty hour requirements: perceptions and impact on resident training and patient care. *J Am Acad Orthop Surg* 2014;22:535-44.