**Resident Education – Cadaver Lab**

Orthopaedic residency programs across the country use methods such as cadaver lab, Orthopaedic In-Training Examination and board preparation, surgical experience, feedback and evaluations, and surgical simulation to educate their residents. However, there is no consensus on the ways to optimize each of these educational practices. With this in mind, the AAOS Resident Assembly set out to identify unique and high-performing practices for each of these methods. Through a **Nationwide Resident Survey** and the **Resident Education Forum** at the 2017 Annual Meeting, we have identified ways in which residency programs can improve how residents are educated. At the end of this “two-pager,” you will find summative highlights of the best practices for the topic of this document: cadaver lab.

Cadaver lab is one of the oldest and most fundamental methods of teaching gross anatomy to medical students and residents. In residency, cadaver labs are used to teach gross anatomy and surgical approaches, and also serve as rotation-specific supplements for practicing particular surgical skills. With the increasing integration of electronic teaching resources into medical education, however, the role of cadaver lab has been changing and some medical schools have abandoned the practice completely.

Despite this increasing reliance on electronic teaching resources, residents continue to see cadaver lab as essential to their education. It was rated as extremely important or very important by 76% of residents in our **Nationwide Resident Survey**. Additionally, cadaver lab was rated as the most effective means of augmenting intraoperative surgical training, higher than simulation training, online resources, and even didactics (Infographic). The survey results also indicated that residency programs often have room to improve their cadaver lab curricula, as cadaver lab was one of five topics that had a higher importance rating than accomplishment rating.

At the **Resident Education Forum**, reasons why programs do not achieve optimal educational value from their cadaver labs were identified and discussed. One of the identified barriers is a lack of cadaver lab access – due to limited protected time, limited physical space, or too high of a resident to cadaver ratio. Another barrier was a lack of consistency in the labs. Many programs do not have a singular, specific faculty member who is in charge of the cadaver lab curriculum, which makes their labs highly variable and disjointed. A large majority of residents reported that their cadaver lab curricula take place over the summer months. Lastly, residents report often feeling a lack of accountability, which limits the educational value of each lab.

Conversely, many factors were reported to be associated with high-performing cadaver lab practices. Residents found that the labs led by senior residents or attendings are much more effective than simply being given written dissection instructions. Additionally, integrating cadaver

Andrew R. Jensen, MD
Co-Chair, 2017 AAOS Resident Education Forum
labs with the curriculum, such as the didactic lecture series or specific rotations, is more educational than simply reviewing all cadaver labs over a short time period, such as the summer. Residents universally recommended that there be a structured curriculum overseen by a single faculty member for continuity’s sake. Multiple residents reported that pre-readings and post-tests were helpful supplements to their educational experience.

The University of Massachusetts residency program recently switched from a summer-only cadaver lab curriculum to a year-round curriculum that is interspersed with and compliments their weekly lecture series. There are associated pre-readings and a post-session quiz that ensures resident engagement and optimal learning from each lab. At the Resident Education Forum, we were told that residents find this new curriculum highly educational and a significant improvement over their previous cadaver lab practice. They do not find these quizzes onerous, but rather a way to reinforce their learning and identify gaps in their knowledge.

The Mayo Clinic residency program has another unique cadaver lab setup that is highly regarded by its residents. The curriculum, which is overseen by a single faculty member, takes place over six months during the PGY2 year, with multiple labs per week occurring during protected lab time. A faculty member who specializes in the dissected area attends each lab. Both general dissections and surgical approaches are performed. On days without cadaver lab, residents spend time in lectures and surgical skill workshops related to the body part being dissected that week. Additionally, knowledge is reinforced through exams before and after the six-month curriculum, as well as through evaluation metrics during the individual labs. Residents rate the curriculum highly, and senior residents often return to the lab to practice new techniques and prepare for complicated cases.

In conclusion, cadaver lab is a common and still highly regarded educational tool in the orthopaedics residency armamentarium. While often undertaken over a short period of time during the summer months with minimal continuity, there are a number of simple ways of improving the educational value of these labs (Summative Highlights), which have been identified through the National Resident Survey and the Resident Education Forum. We hope that residency programs can use these ideas to find ways to improve their own cadaver lab curriculum and, in doing so, improve resident education.

**Summative Highlights – Cadaver Lab**

1. Identify one dedicated faculty member in charge of the cadaver lab curriculum
2. Incorporate pre-lab reading and self-graded post-lab quizzes to reinforce learning and identify gaps in knowledge
3. Develop a structured curriculum that compliments the didactic lecture series
4. Ensure protected time and easy physical access to the lab
5. Have attendings or senior residents lead dissections in labs related to their specialty

If you would like to share a unique practice for any educational topic, please contact the AAOS Resident Assembly at residentassembly@aaos.org.

Andrew R. Jensen, MD
Co-Chair, 2017 AAOS Resident Education Forum