

Professor Dan Smeak, DVM, Chief of Small Animal Surgery and Professor in the Department of Veterinary Clinical Sciences at Ohio State University

The expectations are high for newly graduating veterinary surgeons right from the onset of their careers. They are expected to hit the ground running, understanding routine elective procedures as well as certain emergency techniques. It is not only the expectations placed upon the new veterinary surgeons but also the expectations that students have regarding the quality of their educational experiences that are leading to a host of changes in veterinary education. Speaking at the InterNICHE conference on alternatives in Oslo, Norway in May 2005, Dr. Smeak explained the progression of the changes that are taking place.

Do No Harm

Dr. Smeak discussed the fact that there is a growing number of veterinary students wanting careers where they can help animals without harming them during their educational pursuits, and the ramifications that this desire is having on curricular changes and animal care standards. Examples include the use of ethically sourced cadavers that are being utilized in place of live animal surgery labs, and the increasing implementation of models and surgical simulators. Additionally, added clinical rotations and elective courses are some of the alternative surgery experiences that are instilling the necessary skills that these graduating veterinary surgeons need.

Prior to the changes in the curriculum at Ohio State, Dr. Smeak said that he did not feel that students were getting the kind of surgical skills or practice they needed to enter the workforce or private practice. He said, “Most of my cases come from referral hospitals and I only get very specialized cases.” Because of this, “[m]y students don’t get the opportunity to do surgery on the more common procedures they might see in practice.

“Then you throw in the residents and interns to our curriculum and they get the more common cases that our students used to get.

“So our students then became less and less apt to do any kind of common surgeries or even assist in them. It was a crisis for us and clearly just increasing the number of live labs wasn’t the answer.”

This need for clinical experience led Dr. Smeak and his colleague Dr. Ann Johnson to introduce their students to simulators in the laboratory during the 1980s. Smeak and Johnson began designing computer simulations, autotutorials, and videos, with the initial goal of limiting the supervisory time they needed to spend with students, so more focus could be placed on faculty research. He said, “I wanted to see if I could build simple models that would accompany these autotutorials so that students would have something to practice on rather than just watching a procedure or a skill being performed.

“Unless you can do a skill, you’re not going to know how to do it.” He said that surgery is no exception. “We thought that models would be a better way than live animals to practice skills.”

Modern Veterinary Alternatives

Drs. Smeak and Johnson decided to create a process of isolating these skills, including hand/eye motor skills, which veterinary students need to do surgery, in developing the models. He added, “What was really interesting was the first experiment I did with student volunteers. They were having a hard time simply using their hand ties in placing a ligature around the blood vessel in the subcutaneous tissue. That is not a big deal to surgeons, but to them it was. What I did was create an autotutorial, then divide the students up into two groups.”

Dr. Smeak decided to train half the students with the autotutorial and gave the other students a simple model with a little red flap of slippery ribbon placed within this fake incision. Both groups of students performed the technique much better than those who merely watched the tutorial. An added benefit of this approach is that when a student practices on a model, s/he is able to go back to the autotutorial to review video footage to pick up information that s/he may have missed the first time around.

The success in the application of the model and autotutorial creation led Dr. Smeak to develop additional life-like models using pumps and tubing. He found that students who had model experience could translate that skill to the cadavers or live animals. These models were more accepted in the surgical community because they allowed for the isolation of a skill, while taking away the stress of an animal, the need for anesthesia, and other issues, allowing students to focus on one particular skill. Some of the beneficial results included the lessening of apprehension of students attempting live surgery and the fact that they were much more confident by the time they got to the live experience.

Dr. Smeak praised the application of models to veterinary education. He added, “To summarize, we can pretty much say that models are good because they’re less stressful to the student, they’re more controlled, they can be used time and time again, they enhance the technical skill of the students, and that there are specific skills oriented at laboratory methods—rather than looking at a procedure let’s look at the skills the students need first.”

“We make sure that they’re proficient in all of those skills and then work in the interim models that are more life-like, and finally go into cadaver teaching and the clinical situation.”

He explained the step-by step progression of non-animal alternatives in veterinary education. “From the model stage, students move on to the next level using ethically-sourced cadavers for early surgical training laboratories to learn tissue-handling techniques. More and more basic skills laboratories are incorporated earlier in the curriculum.

“The next step is to take instrument handling, suturing, and dissection skills earlier on in first year training. Right now we’re training students in anatomy in laboratories and they’re ill-prepared, they’re cutting things wrong and they’re learning the wrong technique.

“If we get started earlier they aren’t going to take their poor technique all the way into their third year when they begin with more involved procedures.”

Benefits to the Community

The same techniques should be applied to the spay and neuter procedure, which he feels is of great importance. “We should also think about perhaps doing spays and neuters time and time again----students trained in doing specific procedures; one procedure four times as opposed to four procedures once. The students would be just as good and even better.

“They would certainly be better at doing spays and neuters after performing it three or four times in a row rather than doing an ear surgery, intestinal surgery, abdominal wall surgery, etc.” In trying to accomplish this, Dr. Smeak asked local veterinary practices to identify the types of procedures that students would need to be proficient in when entering small animal practice.

Additionally, he stressed the importance of doing spays and neuters for humane societies in the community, and the importance of eliminating live animal non-survival laboratories from the curriculum. Dr. Smeak noted that Ohio State is planning to expand its shelter/Humane Society program to include cat elective surgeries for one additional week, and it is ready to expand this program pending a funding opportunity. He believes that this program will help tackle the overpopulation crisis in the United States. “What I’d like to see veterinary schools do is hire trained instructors to be out at these humane organizations. We have a faculty member at the local humane society and one other dog shelter.

“These people are trained the same way as our students are being trained so there’s a continuity of similar training throughout their career.

“Students go out to these humane organizations and do all the different basic surgeries as well as other surgeries such as kneecap dislocations, ‘cherry eye,’ and all these other procedures with people who are trained to do that surgery.

“Rather than ship our students out to shelters where the veterinarian is overwhelmed with too much to do to begin with and little interest in training students, we have an instructor who is based out of the university.” There are many more ways in which veterinarians and humane organizations can collaborate to provide hands-on practical experience students need, now that The Ohio State no longer offers non-survival live animal laboratories. Dr. Smeak concludes, “There are certainly many different avenues that can be used to train a surgeon to be proficient in a very ethical and moral way.”