Introduction

- The science and skills of surgery are often difficult to teach and evaluate in the compact veterinary curriculum.
- It is highly desirable that veterinary students be well trained in surgery since most veterinarians are expected to perform surgical procedures upon graduation without further specialty training.

Objectives

- To evaluate the design and use of a Likert-type scale instrument in veterinary medical education.
- To examine the effectiveness of two surgical techniques courses for improving the surgical skills of veterinary students using this instrument.

Methods

- A Likert-type scale instrument was designed based on two instruments previously validated for the assessment of human medical trainee surgical skills (Figure 1).
- Students were observed and assessed by four DVM evaluators during two week-long elective courses in order to obtain start and end surgical skill scores:
  - Equine Surgical and Anesthetic Techniques (VTMED 6528)
  - Food Animal Surgical and Anesthetic Techniques (VTMED 6529)
- Students registered for both courses were enrolled in the study on a volunteer basis.
- Upon conclusion of the courses, enrolled students completed a survey from which their opinions on their improvement as well as their desire for feedback were obtained.

Methods, continued

- A voluntary student debriefing meeting was held at the end of the study during which the students were given feedback on their performance and during which student feedback was also obtained.

Results

- Of 17 eligible students, 16 (94%) volunteered and were enrolled in the study, 4 (25%) of which were 3rd years and 12 (75%) of which were 4th years.
- All evaluators found the assessment instrument itself easy to use. The fact that the observed procedures varied in level of difficulty did create some challenges in performing the actual assessments, however.
- In particular, the evaluators had difficulty scoring skill 9 (hemostasis). As a result, this skill was eliminated from the study and the maximum possible total surgical skill score for each student dropped from 60 points to 55 points (Figures 1 and 2).
- As groups, 3rd year students, 4th year students, and all students combined had significantly higher total skill scores at the end of the courses compared to the start of the courses (Figure 2A).
- The mean difference in start and end surgical skill scores was significantly higher in 3rd year students compared to 4th year students (Figure 2B).
- Students showed significant improvement in all skills except skill 1 (surgical preparation: student) and skill 12 (knowledge of specific procedure) (Figure 2C).
- Individually, 10/16 students (63%) showed significant improvement in surgical skills as a result of their participation in the courses: 4/4 (100%) of 3rd year students and 6/12 (50%) of 4th year students.

Results, continued

- Student survey responses revealed a strong desire for feedback as well as support of formal assessment methods.
- Only a weak agreement was found between student opinions on their improvement and the authors’ assessment scores.

Discussion

- Veterinary surgical skill assessment instruments such as the one designed and described in this study are useful both for evaluation of students and for providing students with the feedback they need to improve.
- Formal assessments are also necessary for the objective evaluation of students as veterinary college accreditation requirements continue to become more stringent regarding learning outcomes for students.
- Additional work needs to be performed to determine the most efficient way to incorporate these assessments into the curriculum.
- Additional work also needs to be performed to determine how surgical techniques courses can be used most effectively to improve veterinary student surgical skills. While the results of this study suggest that these courses are more effective earlier on in the curriculum, this may not be generalizable to all courses.

Conclusion

- Formal assessment is critical to student surgical skill development and for use in consistently informing and improving the veterinary curriculum.

Acknowledgement: This work was supported by the Cornell University BBS Graduate Research and Teaching Fellowship.