Assessing Clinical Competency: Reports from Discussion Groups

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ABSTRACT

This report describes proposed new models for assessment of eight of the nine clinical competencies the American Veterinary Medical Association Council on Education requires for accreditation. The models were developed by discussion groups at the Association of American Veterinary Medical Colleges' Clinical Competency Symposium. Clinical competencies and proposed models (in parentheses) are described.

Competency 1: comprehensive patient diagnosis (neurologic examination on a dog, clinical reasoning skills); Competency 2: comprehensive treatment planning (concept mapping, computerized case studies); Competency 3: anesthesia, pain management (student portfolio); Competency 4: surgery skills (objective structured clinical examination, cased-based examination, ''super dog'' model); Competency 5: medicine skills (clinical reasoning and case management, skills checklist); Competency 6: emergency and intensive care case management (computerized case study or scenario); Competency 7: health promotion, disease prevention/biosecurity (360° evaluation, case-based computer simulation); Competency 8: client communications and ethical conduct (Web-based evaluation forms, client survey, communicating with stakeholders, telephone conversation, written scenario-based cases). The report also describes faculty recognition for participating in clinical competency assessments.

Key words: clinical competencies, veterinary education, competency assessment

INTRODUCTION

Following didactic presentations at the 2008 AAVMC Educational Symposium (see other reports in this issue), attendees were assigned to groups (with preference given where possible) to develop assessment models for eight of the nine Clinical Competencies required by the American Veterinary Medical Association Council on Education (AVMA COE) for accreditation. The ninth competency, ''Strong appreciation for the role of research in furthering the practice of veterinary medicine,'' was not considered. Proposed assessment models follow, with one or more reports for each competency. During these small-group discussions, many participants also noted the importance of providing appropriate recognition to faculty for the time and expertise required to develop new and effective assessment tools. A section at the end of this article briefly addresses recognizing faculty members' efforts in developing new assessment methods.

COMPETENCY 1: COMPREHENSIVE PATIENT DIAGNOSIS (PROBLEM-SOLVING SKILLS), APPROPRIATE USE OF CLINICAL LABORATORY TESTING, AND RECORD MANAGEMENT

Assessment A: Check-Off List Using Standardized Rubric of Individual Neurologic Exam Components

What Skill or Knowledge is Being Assessed? – Performance of a complete neurologic exam on a dog.

Assessment Description – Assessment would consist of digital (or videotape) observation and capture of a student who performs a neurologic exam on a dog while the dog is being held by a technician as mock owner (or use of standardized clients to incorporate evaluation of history-taking and client communication skills into the assessment). The faculty member would review the tape using a check-off list to assess the overall skill based on a standardized rubric of individual neurological exam components. The faculty member would review with the student his or her performance, then proceed to ask the student questions that extend the assessment to potential abnormalities that may be encountered in patients with neurological disease.

Who is Being Assessed? – Senior students on the clinical neurology or appropriate internal medicine rotation/clerkship.

When is Assessment Administered? – Near the completion of the appropriate rotation.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – During this and other clerkships, as well as during labs earlier in the curriculum.

How Often is Assessment Administered? – Once, near completion of the designated rotation.

What Resources are Needed? – Faculty and technician time (approximately 1 hour per student); recording equipment.

How is Information Shared with Faculty, Students, and Staff? – The supervising faculty in the clerkship would receive direct feedback from each student interaction. The student would receive direct feedback during the faculty/student review meeting. Faculty and technical staff on appropriate rotations would receive the year-end summative data reports.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – Year-end summaries of student performance are distributed through the school's or college's existing mechanism(s) for sharing assessment data.

Will Improved Student Performance be Tied to Student Advancement? – No conclusion was reached.

Assessment B: Graduated Case-Based, User-Friendly Template to Assess Clinical Reasoning Skills from Problem Diagnosis to Cost Estimates for Clients

What Skill or Knowledge is Being Assessed? – Clinical problem-solving skills, knowledge base, appropriate use of diagnostic testing, and diagnostic approach in the context of the financial circumstances of the client (may also assess competency in client communication).

Assessment Description – The focus of the cases developed would include clinical reasoning skills addressing a broad range of clinical problems. The student's diagnostic approach would address patient presentation and would also need to prioritize the tests chosen, taking into account client financial considerations. A series of competency-based cases would be developed by faculty at cooperating institutions. The level of complexity of the cases would vary by year, increasing through each year of the curriculum in which the tool is used. During the fourth year, clinicians would continue to assess clinical reasoning skills through clinical cases presented to the rotation. An emphasis would still be placed on prioritizing tests based on clients' financial constraints.

Who is Being Assessed? When is the assessment administered? – The assessment is for first- through fourth-year students, depending on the curriculum at the participating schools.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Students would be exposed to a series of progressively more complex cases from the case bank as they matriculate through the curriculum.

How Often is Assessment Administered? – The case bank would be available to all participants; how it is used would be flexible and institutionally based.

What Resources are Needed? – A national review panel would be developed for central assessment and standardization of case quality and standardization of costs of procedures. Other needs are faculty time for case development, with adequate Information Technology collaboration for a Web-based resource, and identification of an individual at each institution to be the central point for case development and implementation.

How is Information Shared with Faculty, Students, and Staff? – This would be a national or international resource available to participating institutions.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – Benefits to students include immediate feedback on diagnostic skills. It is hoped that students will develop clinical skills more quickly, increasing their confidence and their comfort level with the diagnostic approach in the context of financial literacy. The national review panel would coordinate schools with common clinical assessment goals and a standardized measurement tool.

COMPETENCY 2: COMPREHENSIVE TREATMENT PLANNING, INCLUDING PATIENT REFERRAL WHEN INDICATED

Assessment A: Concept *M*apping[1–5]

What Skill or Knowledge is Being Assessed? – Application and integration of knowledge of therapeutics, clinical reasoning, communication, and working in groups as related to making therapeutic and rational drug-use decisions.

Assessment Description – Use concept maps in small-group discussions with students from different levels of the program.

Example – Create a concept map of items important for rational antimicrobial use.

Step 1: Each early-stage student creates an individual concept map. Step 2: Early-stage students work in small groups of five to eight students to create a consensus map based on each team member's individual map. Step 3: Clinical students meet with early-stage students in small groups; clinical students bring a real case. Step 4: Theoretical consensus (group) map is tested with real patient case to see if it works; if it needs improvement, students work together to improve the map.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Students need training on basic concepts of how to construct a concept map. Early-stage students can do the work as part of their pharmacology or clinical pharmacology course. Involvement of clinical students can be via a didactic elective course focused on therapeutic competencies or via clinical pharmacology or other appropriate rotations.

How Often is Assessment Administered? – Frequency of assessment depends on each school's program and when information is presented in the curriculum.

What Resources are Needed? – Necessary software is available gratis on the Internet (see <http://cmap.ihmc.us/> for further information).

How is Information Shared with Faculty, Students, and Staff? – The whole process is a sharing of results, with many students, faculty, and staff involved. Rounds could be structured using the maps, with house officers and staff included.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – If parts of the map are repeatedly incomplete or incorrect, this would suggest a need to assess this area of the curriculum. If the concept map question involves integration from different courses, the program's vertical integration can be assessed.

Will Improved Student Performance be Tied to Student Advancement? – Clinicians would be surveyed to ascertain whether a student cohort having map experience is better than a cohort lacking map experience. It is anticipated that early-stage students would have increased motivation and that later-stage students would have improved self-confidence.

Assessment B: Computerized Case Studies with Increasing Levels of Treatment Complexity

What Skill or Knowledge is Being Assessed? – Comprehensive treatment planning, including patient referral when indicated.

Assessment Description – The student is given a case that already has the diagnosis; the student is then given 24 hours to do the following:

- Assess the diagnosis
- Develop treatment goals
- Review the treatment options. For each option do the following: surgical or medical, expected course with this treatment, cost, residues (food animal), evidence of selection for the treatment, side-effects or drug interactions, breed or species considerations, environmental or management considerations, referral options and when they might be indicated.
- Give the rationale for choosing among the options for the particular client.
- Translate the chosen treatment into an action plan: describe the veterinarian, staff, and owner role in implementing the plan. Write inpatient orders for the staff, if appropriate. Write prescriptions and discharge orders for the owner.
- Meet with simulated client and communicate the plan in a manner that will obtain maximum compliance.

Who is Being Assessed? When is assessment administered? – Students during all four years of the curriculum would be assessed, depending on the school's plan for incorporating cases into the curriculum.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Clinical cases seen during clerkships would provide opportunities to practice development of skills.

How Often is Assessment Administered? – Frequency of assessment could be determined by each school.

What Resources are Needed? – Major time commitments are case development and grading. A video room would be needed, as well as an agreement on computer software to develop cases internationally. Ideally, a peer-review process would be developed, which would need some kind of administrative oversight.

How is Information Shared with Faculty, Students, and Staff? – The process for sharing information would be decided by each school.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – See next paragraph. If the exam were part of a requirement for competency in a course, students would be sufficiently motivated to meet competency standards of the assessment.

Will Improved Student Performance be Tied to Student Advancement? – Years 3 and 4 will be a "high-stakes" exam for the student.

COMPETENCY 3: ANESTHESIA, PAIN MANAGEMENT, PATIENT WELFARE

Assessment: Student Portfolio

What Skill or Knowledge is Being Assessed? – The portfolio can be used to reflect experiences and accomplishments during the curriculum for specific tasks in the area of anesthesia, pain management, and patient welfare.

Assessment Description – Data are entered by the student, who maintains a task booklet of skills, pre- and post-rotation examination results, pre-operative anesthesia plans/SOAPs (Subjective, Objective, Assessment, Plan information), standardized species-specific pain assessments, and anesthesia records. Students enter the number of times they have accomplished the task and document whether they observed the skill/task, tried the skill/task, or accomplished the skill/task. For each skill, each institution develops metrics for defining success for accomplishing the skill/task.

Who is Being Assessed? – Student practicing skills or demonstrating knowledge.

When is Assessment Administered? – Material is added to the porfolio on an ongoing basis. Assessment occurs when the student would most benefit from the assessment (e.g., when students enter a rotation and at the end of that rotation).

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Students would be expected to practice and develop skills. Faculty might need to direct students to practice certain techniques at home (e.g., performing a pre-anesthesia physical exam) or to pursue other resources (e.g., videos or images of behaviors indicating pain). Peer evaluation is also recommended.

How Often is Assessment Administered? – Frequency of assessment would be decided by the school.

What Resources are Needed? – A team approach must be developed to involve students, technicians, faculty, and house officers. Students should have instruction on peer assessment and on how to create their portfolio and gather information. Student feedback would be used as part of peer review (providing students with valuable feedback, which is not used as part of a formal grade). Faculty need instruction on how to use portfolios to evaluate the student's higher-order thinking and development of clinical reasoning. Also needed are tools for implementing the program (e.g., a computer-based system).

How is Information Shared with Faculty, Students, and Staff? – Students and faculty are given access to the aggregate data. Portions of the portfolio are restricted to student access only (to be used for self-reflection).

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – Students would take ownership of their learning experience. Aggregate data for faculty to evaluate

curriculum would be used by individual faculty, course coordinators, section chiefs, and the curriculum committee.

Will Improved Student Performance be Tied to Student Advancement? – Outcomes assessment would be used to validate an improvement.

COMPETENCY 4: BASIC SURGERY SKILLS, EXPERIENCE, AND CASE MANAGEMENT

Assessment A: Practical Examination/Objective Structured Clinical Examination

What Skill or Knowledge is Being Assessed? – The skill/knowledge needs to be defined; an example would be a skill assessed in the Clinical Proficiency Exam conducted by the Educational Commission for Foreign Veterinary Graduates.

Assessment Description

Structured assessment is the key to evaluation. Questions would be randomized.

Who is Being Assessed? When is Assessment Administered? – Assessment is sequential in the curriculum and is cumulative.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Labs, self-study materials such as videos.

How Often is Assessment Administered? – At least once per year.

What Resources are Needed? – Lab for surgery, supplies, models or live animals, time for examiners to develop rubrics and administer examination.

How is Information Shared with Faculty, Students, and Staff? – Faculty could receive statistics on the results; feedback would be provided to the faculty who teach the skills assessed.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – A consequence of failure is that students do not advance to the clinical year.

Will Improved Student Performance be Tied to Student Advancement? – See above.

Assessment B: Case-Based Examination

What Skill or Knowledge is Being Assessed? – Assessment of cases could be done with virtual reality or critiques (e.g., a video with errors). A cadaver could be used for chest-tube placement.

Assessment Description – There would be a rubric for scoring, including indications of ''fatal'' errors.

Who is Being Assessed? When is Assessment Administered? – The skills assessment could build through the curriculum (e.g., first year, terminology; third year, case management).

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Mock exams; computer-based exams.

How Often is Assessment Administered? – Every semester.

What Resources are Needed? – Time for case development, scoring, training faculty, and conducting the exam.

How is Information Shared with Faculty, Students, and Staff? – Decisions on reporting deficiencies would be made by individual schools.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – From the student standpoint, compartmentalization would be decreased.

Assessment C: ''Super dog'' model to provide a very realistic, hands-on way to assess multiple types of surgical skills

What Skill or Knowledge is Being Assessed? – Ability to do an ovariohysterecomy (OHE) from start to finish. There are many skills in this procedure: skin incision, knowledge of surgical landmarks, identifying uterus and ovaries, placing ligatures, closure (including correct identification of layers and correct suture placement and pattern). Random ''errors'' or ''problems'' could be introduced during surgery (e.g., pedicle tears, bleeding, inadvertent ligation of ureters).

Assessment Description – Direct observation by a faculty member with live feedback or observation of video via use of a student head camera. There would be student self-assessment and peer assessment.

Who is Being Assessed? When is Assessment Administered? – Students would be assessed after basic surgical training (e.g., suturing, gowning and gloving) but before being allowed to perform a live-animal survival OHE. Assessment could also be used as a refresher in the fourth year if it has been some time since the student performed live-animal surgery.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – There could be multiple opportunities to use the model in a laboratory setting.

How Often is Assessment Administered? – Before and after OHE experience on survival dog; several months after community surgery or externship experience.

What Resources are Needed? – Outside expertise in plastics, computer modeling, and surgical models; faculty time for development and validation of the model. Considerable financial support would also be needed.

COMPETENCY 5: BASIC MEDICINE SKILLS, EXPERIENCE, AND CASE MANAGEMENT

Assessment A: Rubric for Assessment of Clinical Reasoning and Case Management

What Skill or Knowledge is Being Assessed? – Clinical reasoning.

Assessment Description – We envision that this assessment of case management would be used during clinical rotations on actual or virtual cases. The following *supporting competencies* would be assessed using this grading rubric for actual or virtual cases:

- Creation of the differential diagnosis list
- Development of a diagnostic plan
- Interpretation of diagnostic results and analysis of the case
- Development of a therapeutic plan

- Reevaluation of the case in light of therapeutic response
- Evidence of active learning and evidence-based medicine

The assessment described would be used in conjunction with a self-evaluation completed by the student. Faculty time is an important part of the formative portion of this assessment prior to assigning the summative grade. A grading rubric would be developed for each ''level'' of performance (including failure).

Who is Being Assessed? – Year 4 students on clinical rotations.

When is Assessment Administered? – Both during and at completion of the rotation. The student self-assessment is completed at mid-rotation and compared with the faculty or supervisor assessment.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Students can practice using case simulations during years 1–3 of the curriculum, prior to beginning clinical rotations.

How Often is Assessment Administered? – A summative assessment occurs at the completion of each clinical rotation. Time must be set aside during the rotation for formative discussion of the self-assessment with the student and comparison with the faculty assessment.

What Resources are Needed? – Where the case load is too low, faculty time would be needed to develop or obtain virtual cases from an electronic bank of cases. Completed virtual cases would be graded using the same rubric. An additional time commitment would be needed to train faculty, residents, and interns on student assessment and effective delivery of feedback. IT support would be needed for development of virtual cases and online submission of self-assessments.

How is Information Shared with Faculty, Students, and Staff? – Student rotation assessments should be shared regularly with all clinical faculty at department or section meetings. Direct feedback to students would occur at the mid-rotation point (formative) and at completion of the rotation (summative).

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – At the rotation or section level, student proficiency assessment results should be compared to rotation objectives. At the school level, these results should be used for program evaluation. For the individual student, the results are used to assure minimal competency for entry-level practice.

Will Improved Student Performance be Tied to Student Advancement? – Improved student performance would be evidence of success in preparing students to achieve competency at the pre-clinical and clinical levels.

Assessment B: Skills Checklist and Grading Rubric

What Skill or Knowledge is Being Assessed? – Clinical skills assessment.

Assessment Description – It is envisioned that this assessment would be used to evaluate proficiency in performing procedures in courses, laboratories, or clinical rotations. Students would be provided with a list of skills for which they are expected to demonstrate independent proficiency prior to completion of the course, laboratory, or clinical rotation.

Who is Being Assessed? When is Assessment Administered? – The assessment would be administered at the completion of the teaching or demonstration of the skill or procedure. This is a summative assessment.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Time for practice under faculty or staff guidance should be built into the course, laboratory exercise, or clinical rotation prior to the summative assessment.

How Often is Assessment Administered? – Because the skills check-off system is a summative assessment, students would need to be given opportunities to demonstrate proficiency until they are successful.

What Resources are Needed? – Requiring that students demonstrate proficiency before passing the course or rotation may necessitate additional practice time, and alternative models would need to be made available for practice.

How is information shared with faculty, students and staff? – Results, in terms of time or number of attempts for students to demonstrate proficiency, would be reported back to the course or rotation director, clinical department, and curriculum committee. Students would be given direct feedback as to whether or not they have mastered the skill in question and would have additional opportunities to attempt to demonstrate mastery if they are deficient.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – Results would be used to evaluate the quality of clinical skills teaching and would also be used by the curriculum committee to ensure adequate time for teaching and practice of essential clinical skills.

Will Improved Student Performance be Tied to Student Advancement? – For the student, demonstration of skill proficiency is essential.

COMPETENCY 6: EMERGENCY AND INTENSIVE CARE CASE MANAGEMENT

Assessment: Computerized Case Study or Scenario (with potential to incorporate video, lung and heart sounds, etc.)

What Skill or Knowledge is Being Assessed? – Aspects of emergency and intensive case management (e.g., appropriate triage as an initial management skill).

Assessment Description – Various types of questions would be developed, based on the case and depending on when the case is used during the curriculum: from multiple-choice questions early on, progressing through short-answer questions and a script concordance test to branching-type decision-making questions. (A script concordance test is an assessment tool designed to probe whether examinees' knowledge is efficiently organized for clinical actions; the test measures the degree of concordance that exists between examinees' scripts and those of a panel of experts.[6] An

answer key is based on how experts would make the decision.) Ultimately, questions would be based on real cases, common emergency scenarios that can be made more complex as a student's competence increases. Case scenarios can also be used as a teaching tool to supplement emergency case load, since the scenarios can be used to help teach decision-making skills.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Case scenarios could be used as a teaching tool beginning very early in the curriculum, building in complexity and difficulty and modifying types of questions (e.g., during clinical assessment of respiratory and cardiovascular status).

How Often is Assessment Administered? – The assessment would be used as a qualifier to move into the clinic for rotations. Within the clinical year, it would be used as the more objective part of the clinics grade but would not eliminate subjective evaluations of how the student is performing in clinics. Formative assessments can be used throughout the curriculum.

What Resources are Needed? – Faculty education/training is needed to write appropriate cases/questions. Collaborative efforts are needed on a national/international level; these could result in a database of cases managed by a central source. Technical assistance (IT) and educators are needed to assist with determining what type of questions to incorporate into each specific case scenario to ensure assessment of appropriate cognitive levels and to ensure that questions are formatted appropriately; veterinarians will need to be subject-matter experts when writing questions.

How is Information Shared with Faculty, Students, and Staff? – Students would receive formative results with feedback and summative results without feedback, since feedback may lead to exam security issues. Faculty would receive information on pass rates; trends; and statistics on which cases students are having problems with, which questions within each case, and so on.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – If the assessments are used as a gateway to moving forward within the curriculum, then such assessments will affect student behavior. Even if the assessments are used in a more formative manner earlier in the curriculum, such assessments will assist student learning, since the feedback provided will help students identify areas of weakness for improvement. If results of this particular assessment indicate that students have difficulty in one specific area (e.g., triaging appropriately), then the school may wish to increase student learning opportunities on initial management of emergency cases. This may require schools to build an outcomes-based curriculum, with outcomes mapped back to each course in the curriculum so that the results of assessments can be used to enhance all areas of the curriculum to which that particular outcome maps.

Will Improved Student Performance be Tied to Student Advancement? – This depends on when in the curriculum such assessments are used and also on each school's curriculum. The assessments could be designed as a gateway in order to move forward into specific clinical rotations or to advance out of a given rotation.

COMPETENCY 7: HEALTH PROMOTION, DISEASE PREVENTION/BIO-SECURITY/ZOONOSIS, AND FOOD SAFETY

Assessment A. 360-Degree Evaluation of Individual Students as Members of a Peer Group Involved in Problem Solving

Introduction – The term ''360-degree evaluation'' is taken from human resource management and is a mechanism for evaluating an individual's performance based on feedback from everyone with whom the individual comes in contact.[7]

What Skill or Knowledge is Being Assessed? – Ability to assess an environment for risk of disease propagation and make appropriate recommendations based on salient facts and medical principles.

Assessment Description – Students collect all relevant data, with realistic input from a stakeholder, either live or virtual. Assessment is an iterative process involving self-evaluation, peers, technical experts, general stakeholders when applicable (logistics driven), and circling back to self-reflection. Clients provide feedback on the entire process, not necessarily on specific students. The assessment would start with fundamental, low-risk environments and move toward more complex, higher-risk assessment environments as the curriculum progresses.

Who is Being Assessed? – Students throughout the curriculum would be assessed.

When is Assessment Administered? – Whenever appropriate, with the caveat that multiple evaluations based on logistics and student experiences are a desired outcome for any particular student.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Assessments early in the curriculum could be formative, allowing for practice/improvement, while later assessments could be summative.

How Often is Assessment Administered? – Frequency of assessment would be decided by each school.

What Resources are Needed? – Resources needed include scheduled time allocations for limited personnel, as well as expertise in scenario and 360-degree assessment design, IT support, travel time, time off from hospital duties, and commitment.

How is Information Shared with Faculty, Students, and Staff? – Documentation of performance follows a standardized format; feedback is part of the process as it occurs, and students receive personal feedback in a meeting with appropriate faculty after the process.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – If the final assessment(s) is/are summative, students will be motivated to become competent.

Will Improved Student Performance be Tied to Student Advancement? – Student advancement is tied to success in assessments; remediation is part of the curriculum for students who do not demonstrate competence.

Assessment B: Standardized Rubric to Grade a Case-Based Computer Simulation Model and a Written Client Report

What Skill or Knowledge is Being Assessed? – Population-level diagnosis and intervention (e.g., a disease problem in a group of animals).

Assessment Description – There would be two components, both graded using a standardized rubric: a case-based computer simulation model assessing diagnostic process skills, and a written client report assessing communication skills.

Who is Being Assessed? – Years 1–3: Individual formative assessment. Final year: Individual summative assessment. Cases would be developed to expose the student to an increasing level of case complexity depending on the stage of the curriculum at which they are presented. Application would be across a broad range of species and disciplines within the curriculum to ensure that all aspects of this competency are covered (i.e., health promotion, disease prevention, public health, zoonoses, and food safety).

When is Assessment Administered? – Implementation as a summative assessment tool, either at the end of the year for all students or delivered or at end of the rotation, would be an individual school decision.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – When this tool is used in formative assessment, students will have multiple opportunities to access cases as a learning experience. Specific cases would be tied to delivery of existing courses, allowing students to practice and build skills over the duration of the DVM program.

How Often is Assessment Administered? – The use of a computer-based case allows for asynchronous delivery. Each institution would determine its particular needs. Specific cases would be tied to delivery of existing courses, allowing students to practice and build skills over the duration of the program in order to be prepared to undertake a summative assessment in this area.

What Resources are Needed? – There would be an extensive resource commitment of faculty expertise to develop the case material. The resulting cases would be integrated into the existing curriculum and would provide students with focused opportunities for independent learning. Significant IT support would be needed in the development phase, some of which could be offset through the use of ''low-tech'' paper-based cases in earlier years of the program. Faculty would also need access to the assistance of an educationalist during development of the cases.

How is Information Shared with Faculty, Students, and Staff? – Results of student performance would initially serve as a program evaluation tool (i.e., as curricular feedback). As the number and quality of the case simulations grew and as cases were introduced across all years of the curriculum, it would then become feasible to use them for summative assessments.

Students would incrementally build their skills for this competency over the duration of the program through repeated exposure to cases.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – A summative assessment would be a motivator for students to demonstrate competency.

Will Improved Student Performance be Tied to Student Advancement? – Student advancement could be tied to the use of the formative assessments at a low-stakes level. As the quality and use of this type of assessment matures, it can serve as a high-stakes summative competency assessment.

COMPETENCY 8: CLIENT COMMUNICATIONS AND ETHICAL CONDUCT

Assessment A: Web-Based Evaluation Forms

What Skill or Knowledge is Being Assessed? – Client communication, interaction with client/stakeholder.

Assessment Description – Web-based forms would be developed to be used for formative evaluation, which would involve observation and evaluation by faculty, peers, and senior staff members as well as self-evaluations. The form would have a clear rating scale with descriptors (anchors) for each rating. The expected acceptable behavior would be described and included in the form.

Who is Being Assessed? When is Assessment Administered? – Students would be assessed in their final year.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Practice can be accomplished through training opportunities across the curriculum (some schools will have a communications course); students will be coached in communication skills before the rotations begin and throughout the clinical year.

How Often is Assessment Administered? – At least twice in the final year of the program, and more often if the school has a communications course.

What Resources are Needed? – Significant time would be required to debrief the students and provide prompt feedback. Faculty would need training on how to provide feedback, particularly to reward exemplary performance and to detect when further action is not required and when there is a need to implement remediation. Development of the evaluation forms would require time; forms would be completed and the data processed electronically.

How is Information Shared with Faculty, Students, and Staff? – Results of assessments would be provided to appropriate rotation leaders if the assessment is a formative part of a rotation, or to Academic Affairs or other appropriate administrative unit.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – It is anticipated that a structured environment to assess communication skills would be a motivator for students.

Will Improved Student Performance be Tied to Student Advancement? – Poor student performance could lead to remediation.

Assessment B: Client Survey

What Skill or Knowledge is Being Assessed? – Client communication.

Assessment Description – A short survey with five to six topics based on the Calgary-Cambridge guide would be developed.[8] Topics are to be designed to evaluate each subcategory in the Calgary-Cambridge guide, with responses to questions on the topics entered as ''Yes,'' ''No,'' ''Unsure.'' Examples of topics include establishing rapport, listening skills, providing the correct amount and type of information, non-verbal behavior, planning, shared decision making, overall perception.

Who is Being Assessed? When is Assessment Administered? – All final-year students would be evaluated using the client survey at the conclusion of each encounter with a client.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Role-playing activities would be included across the curriculum, with evaluations performed by faculty using standardized forms. Role-playing could also provide opportunities for reflection on situations of conflict.

How Often is Assessment Administered? – Assessment is continuous.

What Resources are Needed? – Faculty time would be needed to develop the survey, review the results, and provide feedback to students; clerical support would also be needed to distribute forms and enter results in a database. Students would need a mentor to provide support and occasional counseling.

How is Information Shared with Faculty, Students, and Staff? – Individual results would be reported individually and in a confidential manner to students. Cumulative results could be part of semi-annual and annual reports to assess programs or could be used to validate courses or teaching techniques.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – Reflection would be encouraged, emphasizing the value of reflection after being faced with conflict. Monitoring would allow improvements and program changes as needed.

Assessment C: Observation of Learners Communicating with Stakeholders via Videorecording / Closed-Circuit Observation/Evaluation

What Skill or Knowledge is Being Assessed? – Client communication.

Assessment Description – The use of videorecording followed by assessment would allow evaluation of listening skills, questioning skills, nonverbal communication skills (eye contact, body language, etc.), interaction with clients, and interaction with patients.

Who is Being Assessed? When is Assessment Administered? – Students throughout the curriculum are assessed as a formative evaluation in initial years and summative in the final year.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – The core curriculum would include a communications course early in the program, which would also include multiple opportunities to participate in formative experiences that would allow students to practice what they have learned throughout the curriculum (e.g., in laboratory-animal courses, in summer research programs, and in large-animal classes) in the first three years of the program. In the final year, the assessment would be summative.

How Often is Assessment Administered? – Students would be assessed two to four times per year.

What Resources are Needed? – This assessment is integrated into the curriculum; equipment needed would include a video recorder and several exam rooms, possibly equipped with two-way mirrors.

How is Information Shared with Faculty, Students, and Staff? – Students would receive immediate feedback and could add exemplary recordings to their portfolios. Inadequate performance could result in a need to repeat the course, repeat the evaluation, or remediate specific deficiencies. Faculty could show good and not-so-good examples in future classes (provided that permission is obtained for the use of students' videos).

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – Reflection would be encouraged, emphasizing the value of reflection after being faced with conflict. Monitoring would allow improvements and program changes as needed.

Assessment D: Assessment of Telephone Conversations with Standardized Clients

What Skill or Knowledge is Being Assessed? – This exercise is designed to assess telephone communication skills, including the ability to transmit and receive information and establish or build on relationships without the benefit of nonverbal communication. It will also bring in elements of record-keeping by requiring logging of pertinent information from the telephone call.

Assessment Description – This assessment uses standardized clients and telephone conversations. Students are assigned randomized telephone scenarios, during which they may need to complete various tasks such as gathering information, making decisions, giving clients instructions, or delivering bad news. Students are expected to log pertinent information from the conversation, and each conversation is recorded. Students receive qualitative and quantitative feedback on both oral and written performance.

Who is Being Assessed? When is Assessment Administered? – The summative assessment would be administered to students in the final year of their clinical studies.

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – Learning telephone communication skills would be part of more extensive communication education and training. This could be accomplished in various venues, beginning with lecture-based presentations and discussions and expanding to small-group work involving conversations and role-playing with peers. It is anticipated that conversations would become more complex in the later years of the curriculum and would incorporate medical and surgical training knowledge.

How Often is Assessment Administered? – The summative assessment, because it measures only one small aspect of communication skills, would be administered once during

the fourth year. Formative assessments could occur multiple times during the third and/or fourth years.

What Resources are Needed? – This assessment would require faculty and/or staff time to evaluate the summative assignments. Time would also be required for the actual telephone conversations. Faculty members may be willing to do this, on a rotating and/or voluntary basis. It may be possible to use retired practitioners or other interested parties who wish to serve as standardized clients. Recording systems would need to be in place for this assessment. Prior exposure to communication skills in the professional curriculum is essential in order for these skills to develop and then be assessed in a meaningful way. Faculty time would need to be dedicated to identifying topics of conversation and defined assessment rubrics.

How is Information Shared with Faculty, Students, and Staff? – Students would receive formative feedback from their peers and instructors several times prior to taking the summative assessment. Students would also receive written and verbal feedback from the faculty or staff person responsible for the evaluation.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – It is anticipated that students will realize the importance of communication skills, including telephone and other verbal communications skills, if it becomes part of their grade. Attention to this aspect of communication should result in increased proficiency.

Will Improved Student Performance be Tied to Student Advancement? – It is recommended that assessment of communication skills, including the grading of telephone conversations, be incorporated into some portion of student grades.

Assessment E: Rubric to Assess Students' Written Discussion of Ethical, Scenario-Based Cases

What Skill or Knowledge is Being Assessed? – This exercise is designed to assess ethical judgment and decision making, specifically in the context of veterinary medicine.

Assessment Description – This assessment involves the distribution of, scenario-based cases that contain at least one ethical issue to each student within a rotation. Each student must produce written document that is submitted for a grade. Students are given an outline and guidelines to follow for their reports. Each student receives written and/or individual oral feedback.

Who is Being Assessed? When is Assessment Administered? – The summative assessment would be administered to students in the final year of their clinical studies. Ideally, such an assessment would be administered once during each clinical rotation, and scenarios would be based on cases relevant to the disciplines (food animal, small animal, equine, surgery, medicine, necropsy, etc.).

How will Students be Able to Practice/Develop the Skill(s) Being Assessed Prior to the Assessment? – It is anticipated that discussions of ethical issues would begin in the first year of veterinary studies in the context of a class and continue, in at least one course per year, throughout the curriculum.

How Often is Assessment Administered? – The summative assessment should occur in the context of each clinical rotation in the clinical year(s).

What Resources are Needed? – The major faculty time commitments would be in the identification and development of case scenarios, which would ideally be based on actual cases, and in the development of appropriate grading rubrics. Prior exposure to ethical issues in veterinary medicine in the professional curriculum is essential if the related capabilities are to be assessed in the clinical year. Faculty must care about these issues and recognize that time spent on this competency is worthwhile.

How is Information Shared with Faculty, Students, and Staff? – Students would receive feedback on an individual basis, and further formative discussion would be conducted in rounds.

How will Results of the Assessment be Used to Change Student Behavior, Improve Clinical Teaching, and Improve the Curriculum? – It is anticipated that the majority of clinical faculty would incorporate these activities as part of their usual clinical teaching duties. Additional efforts involved in case and assessment development should be recognized, in whatever manner is appropriate for the department and college, as scholarly activity.

Will Improved Student Performance be Tied to Student Advancement? – It is recommended that assessment of ethical decision making be incorporated into students' grades for their clinical rotations, so that a ''failure'' on an exercise would have an impact on the student's grades.

FACULTY RECOGNITION FOR PARTICIPATION IN CLINICAL COMPETENCY ASSESSMENTS

Personal Satisfaction

It is gratifying to receive positive evaluations from students and to know that graduates are competent. New assessment methods may be more educationally appealing and require no more time investment than current assessment methods, or potentially even less (recognizing that some form of student assessment already occurs in every institution). New assessment methods may provide increased opportunities for clinicians to interact with students at an earlier stage of the curriculum.

Promotion, Tenure, Merit Recognition

New assessment methods provide an opportunity for scholarly publications, particularly because outcome data will be generated. Demonstration of competency or of improvement in achieving competency by students should lead to rewards for teaching excellence for faculty. Faculty performance evaluations should be tied to student performance outcomes. Positive evaluations from students may help faculty advancement. Faculty who incorporate outcomes and who work in teams to generate data should be rewarded. Administrators should link active participation in the assessment process to yearly incentives and faculty retention decisions. Credit should be given (factored into promotion, tenure, merit) for case development and Web publications as scholarly products. A system should be developed that triggers an automatic alarm if evaluations and student conferences are not done, and faculty should be

held accountable for failure to perform their essential teaching duties. Development of scenarios and associated communications teaching materials would also need to be recognized as scholarly activity. Success and participation in innovative teaching and assessment could be part of a teaching portfolio.

Provision of Career Development Opportunities

Administration could provide seed grants as incentives for professional development or research projects for tenure-track faculty with teaching as their major appointment. There is also a possibility of income to faculty from the sale of intellectual property.

Support of Department Chairs and Deans

It is best to have a strong administrative commitment to the value of teaching, including the scholarship of teaching. A re-prioritization of time on clinical teaching services may be needed to emphasize teaching and student feedback at the expense of revenue generation. Time should be built into clinical rotations for assessment conferences with students. All clinical faculty should be expected to participate in these new assessment procedures to spread the work effort.

DISCUSSION

A variety of assessments were developed by the discussion groups, with a range of complexities. Some of these assessments represent refinements of existing assessment practices, such as observation of a student with a patient (e.g., neurologic examination) or stakeholder (e.g., simulated client in a communications assessment), with or without recording of the event. At the other end of the scale, some assessments propose case-based computer simulations and models (e.g., "Super Dog"). Regardless of the model used, it is apparent that an investment of time (beyond traditional clinical evaluations) is involved in developing and conducting these assessments. Clearly, this investment of extra time will be a challenge in the context of a veterinary teaching hospital that also needs to provide learning opportunities for DVM and post-DVM students as well as service to the animal-owning public and to referring veterinarians. An important factor addressed by some discussion groups is using the assessment tools as a means of assessing deficiencies in various parts of the curriculum. For example, if many students are not competent in performing a neurologic examination or in interpreting neurologic abnormalities, those parts of the curriculum in which neuroanatomy, neurobiology, neurologic pathology, and clinical neurology are taught can be reviewed and additional learning opportunities provided.

THE FUTURE

These assessments form a starting point for veterinary colleges to work collaboratively on developing clinical competency methods that will not only assure the public and licensing boards of the competency of DVM graduates but also ensure acceptability by the AVMA for accreditation purposes. Other potential developments are discussed in the concluding article in this series on clinical competency.[9]

ADDITIONAL INFORMATION

This report is a condensed version of the full report from the discussion groups. Arrangements for a Web site were not complete at the time of publication; in the mean time, the full report has been distributed to Associate Deans of Academic Affairs or equivalent at AAVMC member colleges and schools of veterinary medicine.

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