AAVMC CBVE

Competency-Based Veterinary Education

Competency-Based Veterinary Education:

CBVE framework
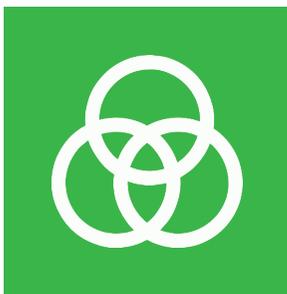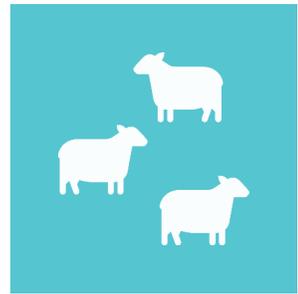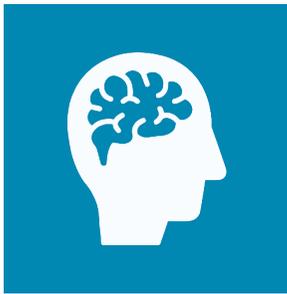
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Preparing future generations of highly qualified veterinary medical practitioners is one of our most fundamental responsibilities as educators. How can we be assured that, collectively, we are producing practice ready, entry-level professionals who are educated to a common standard and ready to deliver competent, professional care in a variety of clinical environments?

We can ensure that our institutions meet the educational standards of performance articulated by the AVMA Council on Education. We can examine student performance data on the North American Veterinary Licensing Exam (NAVLE). But how can we create consensus for what constitutes a "practice-ready veterinarian?" And how do we know if our graduates are achieving this benchmark?

Such were the questions facing the AAVMC Competency-Based Veterinary Education Working Group when it was established in July 2015. The group began by systematically reviewing and analyzing the contemporary literature in competency-based education throughout the health professions. Then, over 32 months of coordinated work and dozens of virtual and face-to-face meetings, they constructed this framework for competency-based outcomes assessment in veterinary medical education.

The result of their labor represents one of the most substantial pedagogical projects ever undertaken by the AAVMC. We invite the colleges and schools of veterinary medicine to consider this framework as they update their professional curricula, whether they are making modest refinements or undergoing a complete curriculum redesign.

We are indebted to the CBVE Working Group for the enormous amount of time and effort they invested in this project. The framework they have produced will inform and enrich many different aspects of our professional programs, and substantially foster the professional excellence we all seek in academic veterinary medicine.

Andrew T. Maccabe, DVM, MPH, JD
AAVMC Chief Executive Officer

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Competency-Based Veterinary Education

Competency-Based Veterinary Education (CBVE) is an approach modeled after competency-based medical education and is designed to prepare graduates for professional careers by confirming their ability to meet the needs of animals and the expectations of society. This approach focuses on outcomes-based and learner-centered education and assessment.

The CBVE framework consists of nine domains of competence, each representing a group of related abilities necessary for veterinary graduates. Associated with each domain is a list of competencies, all of which are considered core for veterinary education. The CBVE framework consists of 32 competencies, some of which lend themselves to assessment in the clinical context, while others may be best assessed in the pre-clinical curriculum.

To better describe each competency, illustrative subcompetencies are provided as examples of content that may be modified or refined by individual schools. Subcompetencies are more granular than competencies and can be used to develop course or rotation objectives and assessments.

The CBVE framework provides a consistent foundation for implementation in any veterinary curriculum. A team of individuals known as the AAVMC CBVE Working Group developed this framework and associated Entrustable Professional Activities (EPAs) which are described in a separate document. Members of this team include representatives from veterinary colleges and schools across the U.S., Canada, Europe, the U.K. and some with experience from Australia. The AAVMC CBVE website provides resources on the framework and EPAs. Additional work products including milestones and assessment tools will be added as they become available. Please see: **aavmc.org/cbve**

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Questions, Suggestions and Comments

The AAVMC's Competency-Based Veterinary Education (CBVE) project is an ongoing, dynamic undertaking which will be continuously developed and enhanced. Suggestions and input from all sectors of academic veterinary medicine are welcome. If you have questions or suggestions about the CBVE project, please contact project leadership by emailing CBVE@aavmc.org

Key Definitions

Competency
An observable ability of a health professional related to a specific activity that integrates knowledge, skills, values, and attitudes. Since competencies are observable, they can be measured and assessed to ensure their acquisition.[1]

Domains of Competence (DOC)
Broad distinguishable areas of competence that in the aggregate constitute a general descriptive framework for a profession.[2]

Competency Framework
An organized and structured representation of a set of interrelated and purposeful competencies.[3]

Entrustable Professional Activity (EPA)
An essential task of a discipline that a learner can be trusted to perform with limited supervision in a given context and regulatory requirements, once sufficient competence has been demonstrated. (As adapted from[4])

Milestone
A defined, observable marker of an individual's ability along a developmental continuum.[4]

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1. Frank, J.R., Snell, L.S., Ten Cate, O., *et al.* (2010) Competency-based medical education: Theory to practice. *Medical Teacher*, 32(8), 638-645.

2. Englander, R., Cameron, T., Ballard, A.J., *et al.* (2013) Toward a common taxonomy of competency domains for health professions and competencies for physicians. *Academic Medicine*, 88(8), 1-7.

3. Willet T. (2012) Performance framework definitions [Internet]. [cited 2012 Dec 5]. Available from: http://groups.medbiq.org/medbiq/display/CWG/Performance+Framework+-+Definitions.

4. Englander, R., Frank, J.R., Carracio, C., *et al.* (2017) Toward a shared language for competency-based education. *Medical Teacher*, 39(6), 582-587.

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Domains of Competence

1		**Clinical Reasoning and Decision-making**
2		**Individual Animal Care and Management**
3		**Animal Population Care and Management**
4		**Public Health**
5		**Communication**
6		**Collaboration**
7		**Professionalism and Professional Identity**
8		**Financial and Practice Management**
9		**Scholarship**

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DOMAIN 1

Clinical Reasoning and Decision-making

The graduate demonstrates critical thinking and problem solving to arrive at evidence-based decisions that consider animal and client needs, available resources, and social context.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
1.1	Gathers and assimilates relevant information about animals	a. Collects history b. Performs physical examination c. Interprets diagnostic test results d. Performs necropsy examination
1.2	Synthesizes and prioritizes problems to arrive at differential diagnoses	a. Identifies problems b. Creates refined problem list c. Prioritizes differential diagnoses
1.3	Creates and adjusts a diagnostic and/or treatment plan based on available evidence	a. Appraises available clinical information and acts accordingly despite uncertainty b. Explains justification for plan c. Re-evaluates animal or population in a timely manner to adjust plan d. Uses critical thinking to determine appropriate action when unexpected outcomes occur (e.g., complications, changed diagnosis)

1   Clinical Reasoning and Decision-making

| COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
1.4	**Incorporates animal welfare, client expectations, and economic considerations into the diagnostic or treatment plan**	a. Considers disease in context of the whole animal and client b. Presents a range of options to the client c. Considers euthanasia as a management option when appropriate
1.5	**Prioritizes situational urgency and allocates resources**	a. Triages cases to address most urgent and important problems first b. Recognizes emergent situation and directs action c. Recognizes and responds to reportable, transboundary, epizootic, and emerging/re-emerging diseases
1.6	**Adapts knowledge to varied scenarios and contexts**	a. Extrapolates knowledge to novel species or situations b. Adjusts existing protocol or procedure when standard measures are unavailable
1.7	**Recognizes limitations of knowledge, skill and resources and consults as needed**	a. Identifies situations in which referral is warranted b. Consults experts both within and outside the veterinary profession

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Individual Animal Care and Management

The graduate performs preventive, diagnostic, medical and surgical procedures for the health, wellness and treatment of animals, appropriate to the context and life stage.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
2.1	Performs veterinary procedures and post-procedural care	a. Performs elective procedures (e.g., castration) b. Performs routine therapeutic procedures (e.g., administer fluids) c. Performs emergency procedures (e.g., establish an airway) d. Provides analgesia and postoperative care e. Anesthetizes and recovers patients f. Manages patient comfort
2.2	Promotes comprehensive wellness and preventive care	a. Recommends disease prevention measures b. Provides nutritional counseling appropriate to life stage and health status c. Advises clients regarding routine dental care d. Educates clients on prevention of common behavioral problems e. Counsels clients about husbandry and welfare needs
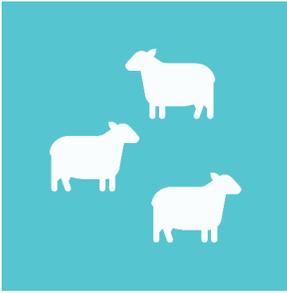
Animal Population Care and Management

The graduate designs and implements programs in herd/flock health, disease prevention and control to improve the health, welfare and productivity of animal populations.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
3.1	Applies population management principles in compliance with legal regulations and economic realities	a. Recommends disease prevention measures b. Advises on nutritional management c. Recommends housing and husbandry protocols d. Designs therapeutic plans for disease management
3.2	Recommends and evaluates protocols for biosecurity	a. Develops isolation protocols b. Selects disinfection protocols c. Recommends protocols for animal movement
3.3	Advises stakeholders on practices that promote animal welfare	a. Advocates for animal welfare through communication of the physical, affective and natural needs of the animal. Explains ethical and welfare-related aspects of production processes and slaughter b. Recognizes proper handling and/or adequate production facilities by interpretation of appropriate animal behaviors. Advises on animal husbandry and transport

DOMAIN 4
Public Health

The graduate responds to issues at the interface of animals, humans, and the environment, utilizing a global perspective and sensitivity to local cultures.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
4.1	Recognizes zoonotic diseases and responds accordingly	a. Identifies the clinical signs, clinical course, transmission potential and pathogen(s) associated with zoonotic diseases b. Responds to zoonotic disease diagnosis through owner education, reporting, quarantine, and disinfection
4.2	Promotes the health and safety of people and the environment	a. Makes recommendations for management of animal waste, carcasses, and by-products b. Implements safety and infection control practices c. Advises on disaster/emergency preparedness and response d. Practices responsible use of antimicrobial agents e. Describes the role of the veterinarian in food safety

Communication

The graduate communicates effectively with diverse clients, colleagues, other healthcare professionals and the public to promote animal, human and environmental health and wellbeing.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
5.1	Listens attentively and communicates professionally	a. Communicates with diverse audiences (e.g., demonstrates empathy, uses terminology appropriate to listener) b. Utilizes a variety of communication platforms (e.g., email)
5.2	Adapts communication style to colleagues and clients	a. Demonstrates client-centered communication b. Elicits client goals, expectations, perspectives and constraints, considering the human-animal bond c. Engages clients in difficult conversations such as financial decisions and end-of-life care (e.g., palliative care and euthanasia)
5.3	Prepares documentation appropriate for the intended audience	a. Documents care and communication using professional terminology b. Ensures documentation fulfills professional and legal requirements

DOMAIN 6
Collaboration

The graduate collaborates with diverse colleagues, clients and other stakeholders and demonstrates skills as a leader and inter-professional team member to improve outcomes and reduce error.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
6.1	Solicits, respects and integrates contributions from others	a. Invites input from others irrespective of role, hierarchy or background b. Acknowledges input and incorporates into ongoing plan of action c. Leverages own role and roles of others to achieve shared goals
6.2	Functions as leader or team member based on experience, skills and context	a. Applies principles of teamwork b. Bases action on collaborative input c. Manages conflict
6.3	Maintains ongoing relationship to provide continuity of collaborative effort	a. Follows up to determine if collaborator can implement the plan b. Provides support through encouragement, education, or redirection to refine the plan of action
6.4	Demonstrates inclusivity and cultural competence	a. Demonstrates respect for diversity b. Encourages diverse contributions within the workplace

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Professionalism and Professional Identity

The graduate demonstrates behaviors expected of the veterinarian, including ethical reasoning, reflective practice, self-regulation, professional development, and personal wellbeing.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
7.1	Adopts an ethical approach to meeting professional obligations	a. Applies an ethical approach to professional decision-making b. Recognizes and responds to evidence of neglect and abuse
7.2	Practices time management	a. Recognizes impact of time management on stakeholders b. Prioritizes and completes tasks according to importance and urgency
7.3	Reflects on personal actions	a. Invites and responds to constructive feedback on performance b. Critiques decision-making process and its outcomes

7 — Professionalism and Professional Identity

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
7.4	**Engages in self-directed learning and career planning**	a. Engages in self-directed learning as a foundation for life-long learning b. Identifies and undertakes professional development to meet learning needs c. Uses appropriate resources for learning and decision making (e.g., information technology, consultation with colleagues) d. Compares career paths and weighs professional and personal rewards (e.g., financial implications)
7.5	**Attends to wellbeing of self and others**	a. Recognizes sources of workplace stress and acts to remedy adverse situations b. Recognizes signs of stress in self and colleagues, engages in self-care and recognizes when professional support is appropriate for self or others c. Manages expectations of client and self

Financial and Practice Management

The graduate utilizes business acumen to manage professional and personal decisions, complies with legal and regulatory requirements and ensures safety of the workplace.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
8.1	Weighs economic factors in personal and business decision-making	a. Applies financial principles to professional decisions (e.g., debt repayment plan) b. Explains work-related insurance (e.g., personal, professional, patient) c. Describes relationship between revenue generation, expense categories, and compensation including benefits
8.2	Delivers veterinary services compliant with legal and regulatory requirements	a. Acts in accordance with codes of professional practice, veterinary practice acts and licensing board regulations (e.g., veterinarian-client-patient relationship) b. Acts in accordance with legal and regulatory requirements (e.g., reportable diseases, animal cruelty, waste disposal) c. Selects drugs in accordance with regulatory and legal requirements (e.g., controlled substances, extra-label, or off-label drug use)

8 Financial and Practice Management

COMPETENCIES	ILLUSTRATIVE SUBCOMPETENCIES
8.3 **Advocates for the health and safety of patients, clients, and members of the team within the workplace**	a. Complies with workplace health and safety regulations (e.g., radiation safety, infection control) b. Applies safe practices for handling hazardous materials (e.g., administration of chemotherapeutic agents)

DOMAIN 9
Scholarship

The graduate demonstrates the systematic identification, evaluation, integration and adaptation of evidence and experience to formulate questions and solutions, and educate others.

COMPETENCIES		ILLUSTRATIVE SUBCOMPETENCIES
9.1	Evaluates health-related information	a. Retrieves and evaluates information based on research principles b. Analyzes information for accuracy, reliability, validity and applicability
9.2	Integrates, adapts and applies knowledge and skills	a. Formulates questions and customizes solutions, drawing on personal experience and available evidence b. Applies literature to solve clinical or scientific problems (e.g., evidence-based practice) c. Applies creativity to develop innovative solutions
9.3	Disseminates knowledge and practices to stakeholders	a. Develops and disseminates educational material b. Explains evidence-based recommendations

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Notes

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Part 1