

Developing Competency-Based Veterinary Education

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AAVMC Working Group on COMPETENCY-BASED VETERINARY EDUCATION (CBVE)

AAVMC CBVE Working Group

- Laura Molgaard (co-chair), University of Minnesota
- Jennie Hodgson (co-chair), Virginia-Maryland
- Harold Bok, Utrecht University
- Kristin Chaney, Texas A&M University
- Jan Ilkiw, University of California - Davis
- Susan Matthew, Washington State University
- Stephen May, Royal Veterinary College
- Emma Read, DVM, University of Calgary
- Bonnie Rush, Kansas State University
- Kathy Salisbury Purdue University
- Jody Frost, Educational Consultant & Facilitator



Today's Agenda

- **What is Competency-Based Education and why implement it?**
 - ✓ Current competency frameworks in the health professions
- **AAVMC Working Group on Competency-Based Veterinary Education (CBVE)**
 - ✓ Proposed Competency Framework; Domains, competencies and illustrative sub-competencies
 - ✓ Evaluating Progress: Entrustable Professional Activities (EPAs), Milestones and their relationship to Competencies
 - ✓ Future directions



Today's Agenda

The first animal to ask an existential question was from a parrot named Alex. He asked what color he was, and learned that it was "grey".



Please ask questions (even if they are not existential) at any time during the talk!



COMPETENCY-BASED EDUCATION



WHAT AND WHY?

Medical Education

➤ Competency-Based Medical Education

- ✓ Core strategy world-wide to educate and assess students in **undergraduate and graduate medical education**
- Achieved through well-defined and documented **frameworks** that guide development of curricula as well as assessment programs



Medical Education

How is CBE different from traditional education?

Traditional

Knowledge objectives

Curriculum/Processes are 1°

Competency-based

Learner and program
outcomes

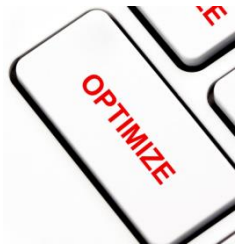
Curriculum/processes are 2°



Why CBME?



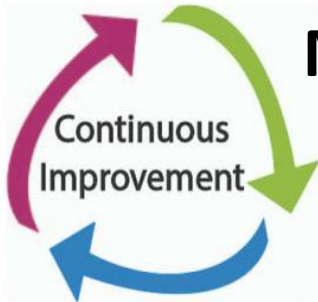
Learning, accountability, participation



Assessment (both formative and summative)



Abilities/outcomes with developmental milestones

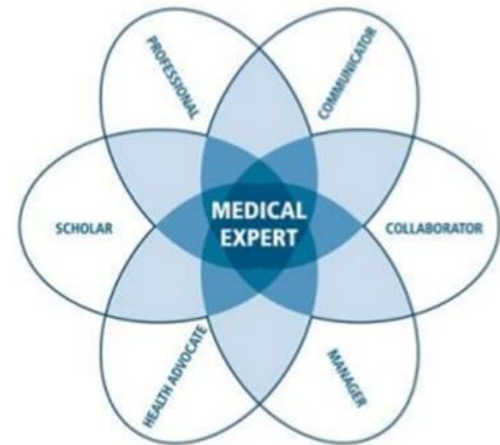


Map and continuously improve curriculum

Medical Education

➤ Increasing commitment to CBME over past 20 years

- ✓ Outcomes Project of ACGME and ABMS – USA
- ✓ Scottish Doctor Project – Scotland
- ✓ Framework for Undergraduate Medical Education – Netherlands
- ✓ CanMEDS – Canada



Definitions



Englander *et al.* Toward a common taxonomy of competency domains for the health professions and competencies for physicians. *Acad Med*, 88(08): 2013.

doi: 10.1097/ACM.0b013e31829a3b2b

➤ Competency:

- ✓ An observable ability of a health professional, integrating multiple components such as knowledge, skills, values and attitudes.
- ✓ Since competencies are observable, they can be measured and assessed to ensure their acquisition

Frank et al cited by Englander et al, 2013



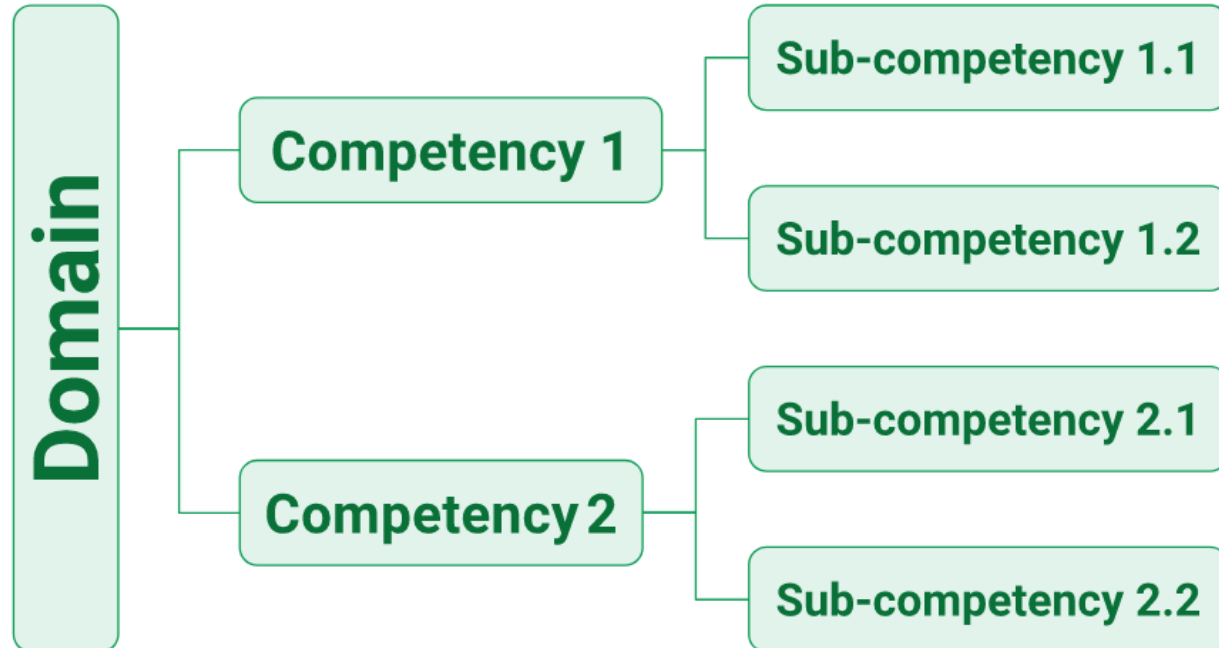
➤ Domains of Competence (DOC):

- ✓ “Broad, distinguishable areas of competence that in the aggregate constitute a general descriptive framework for a profession” Englander *et al.*, (2013)



➤ Competency Framework:

- ✓ An organized and structured representation of a set of interrelated and purposeful competencies *Englander et al., (2013)*



Definitions

➤ Entrustable Professional Activity (EPA):

- ✓ A duty or activity in the clinical setting that may be delegated to a learner by their supervisor once he or she has demonstrated sufficient competence to perform this task without supervision
- ✓ EPAs describe the work that is being done, or must be done, in the workplace *Ten Cate, (2015)*



Competencies vs EPAs

Competencies: bigger picture descriptors of the health professional

EPAs: descriptors of the **work** that health professionals do and which combine multiple competencies



Definitions

➤ Milestones:

- ✓ A milestone is a behavioral descriptor that marks a level of performance for a given competency
- ✓ Milestones help the learner and their supervisor identify stages in learner development *AAVMC Core EPAs for Entering Residency, Faculty and Learners Guide (2016)*



COMPETENCY-BASED EDUCATION



VETERINARY EDUCATION

Veterinary Education

➤ AVMA COE “clinical competencies” developed over 15 years ago

1. patient diagnosis
2. treatment planning
3. anesthesia and pain management
4. surgery skills
5. medicine skills
6. emergency and intensive care
7. health promotion, disease prevention/biosecurity
8. client communications and ethical conduct
9. critical analysis of new information and research findings



Veterinary Education

But concerns
were raised
about the
outcomes of
this process



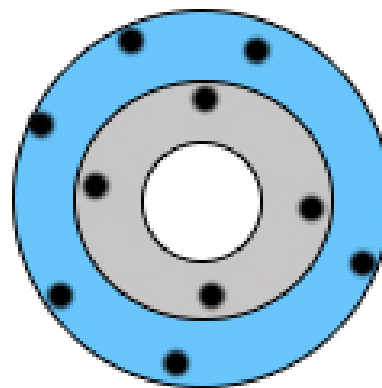
Suddenly Dr. Fogney realized this simple spaniel knew more about veterinary medicine than he did.



Concerns about “COE 9”



OUTDATED



Not reliable or valid

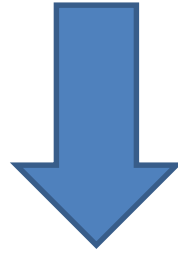


Veterinary Education

- **AAVMC Workshop on Competency Assessment at Minnesota in July of 2015**
- **Associate Deans and Assessment Professionals from around the world**
 - ✓ Modern, shared competency framework
 - ✓ Common assessment tool(s)
 - ✓ Continued alignment with the directions of other frameworks in the Health Professions



“Through collective input we could create a powerful argument for change”



Working Group on Competencies in Veterinary Medical Education was conceived



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AAVMC CBVE Working Group

Volunteer effort for voluntary adoption



COMPETENCY-BASED VETERINARY EDUCATION



WORK TO DATE BY CBVE

CBVE Work to Date

- **Started by evaluating existing Frameworks**
 - ✓ Veterinary Frameworks (e.g., NAVMEC, VetPro)
 - ✓ Other Health Care Professional Frameworks
- **Drafted Competency Framework and developed Entrustable Professional Activities (EPAs)**
- **Disseminated drafts and conducted surveys and web-in-airs**



CBVE Framework

Ready for Rollout!!!

- Intended to be **core for all graduates of all programs**
- Recognizes that schools may develop additional competencies and sub-competencies that are relevant to their individual/unique missions



CBVE Domains of Competence

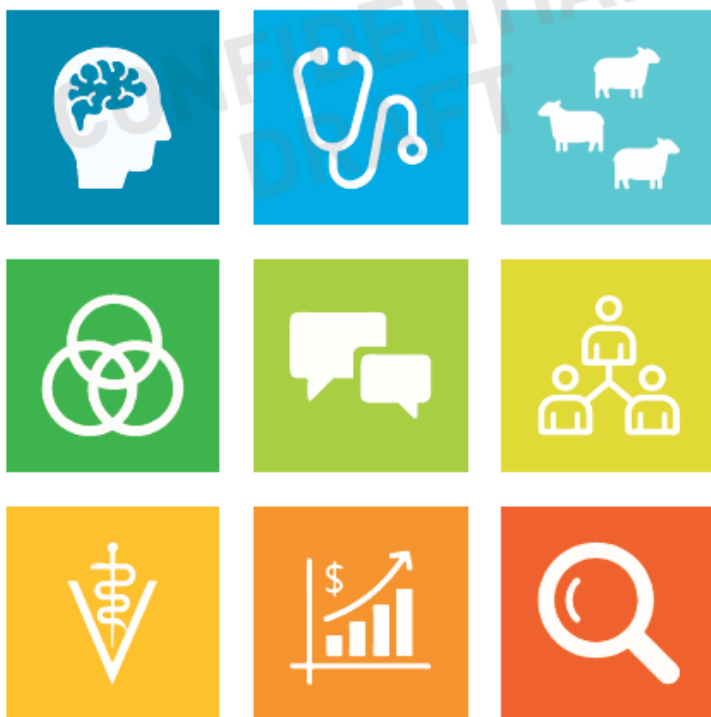
1. Clinical Reasoning and Decision-Making
2. Individual Animal Care and Management
3. Animal Population Care and Management
4. Public Health
5. Communication
6. Collaboration
7. Professionalism and Professional Identity
8. Financial and Business Management
9. Scholarship



CBVE Domains of Competence



CBVE framework



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

Competencies & Sub-competencies



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.

Description of the **Domain**

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)

Relevant individual competencies

Illustrative sub-competencies

- ✓ Not all encompassing
- ✓ But help as they are more how general practitioners think

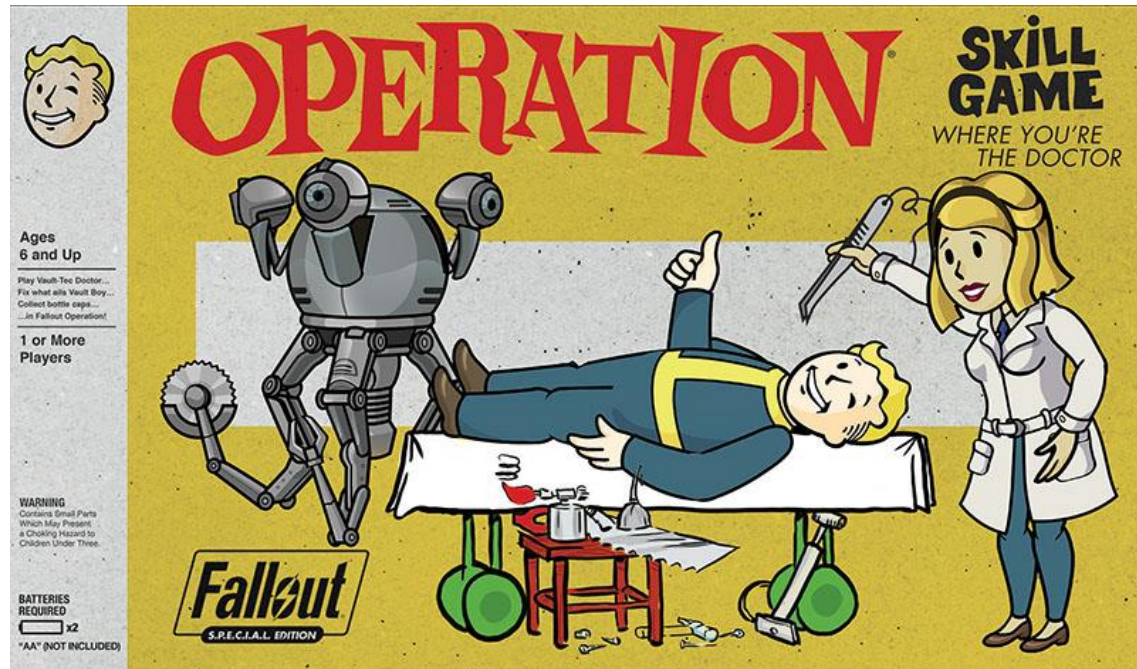
Entrustable Professional Activities

- Routine activities that doctors/veterinarians perform in their daily practice
- EPAs describe the work that is being done, or must be done in the workplace (ten Cate, 2015)



Entrustable Professional Activities

- Developed because they helped “operationalize” the competencies
- They also provide a framework for assessment and feedback that guides learners as they work towards independence with key tasks in veterinary practice



Entrustable Professional Activities

EPAs

1

Gather a history, perform an examination, and create a prioritized differential diagnosis list

2

Develop a diagnostic plan and interpret results

3

Develop and implement a management/treatment plan

4

Recognize a patient requiring urgent or emergent care and initiate evaluation and management

5

Formulate relevant questions and retrieve evidence to advance care

6

Perform a common surgical procedure on a stable patient, including pre-operative and post-operative management

7

Perform general anesthesia and recovery of a stable patient including monitoring and support

8

Formulate recommendations for preventive healthcare.

➤ **The CBVE Working Group has created 8 core EPAs**

Entrustable Professional Activities

EPA 1

Gather a history,
perform an examination,
and create a prioritized
differential diagnosis list

DESCRIPTION OF ACTIVITY

Perform a history and exam on an individual animal or herd and assimilate the information collected to derive a prioritized differential diagnosis.

Description of
the **Activity**

COMMENTARY

The history and examination should be tailored to the clinical situation and specific patient encounter. This data gathering serves as the foundation for evaluation and management. Expectations include integration of the scientific foundations of medicine with clinical reasoning skills to guide information gathering.

Commentary
about the Activity



Entrustable Professional Activities

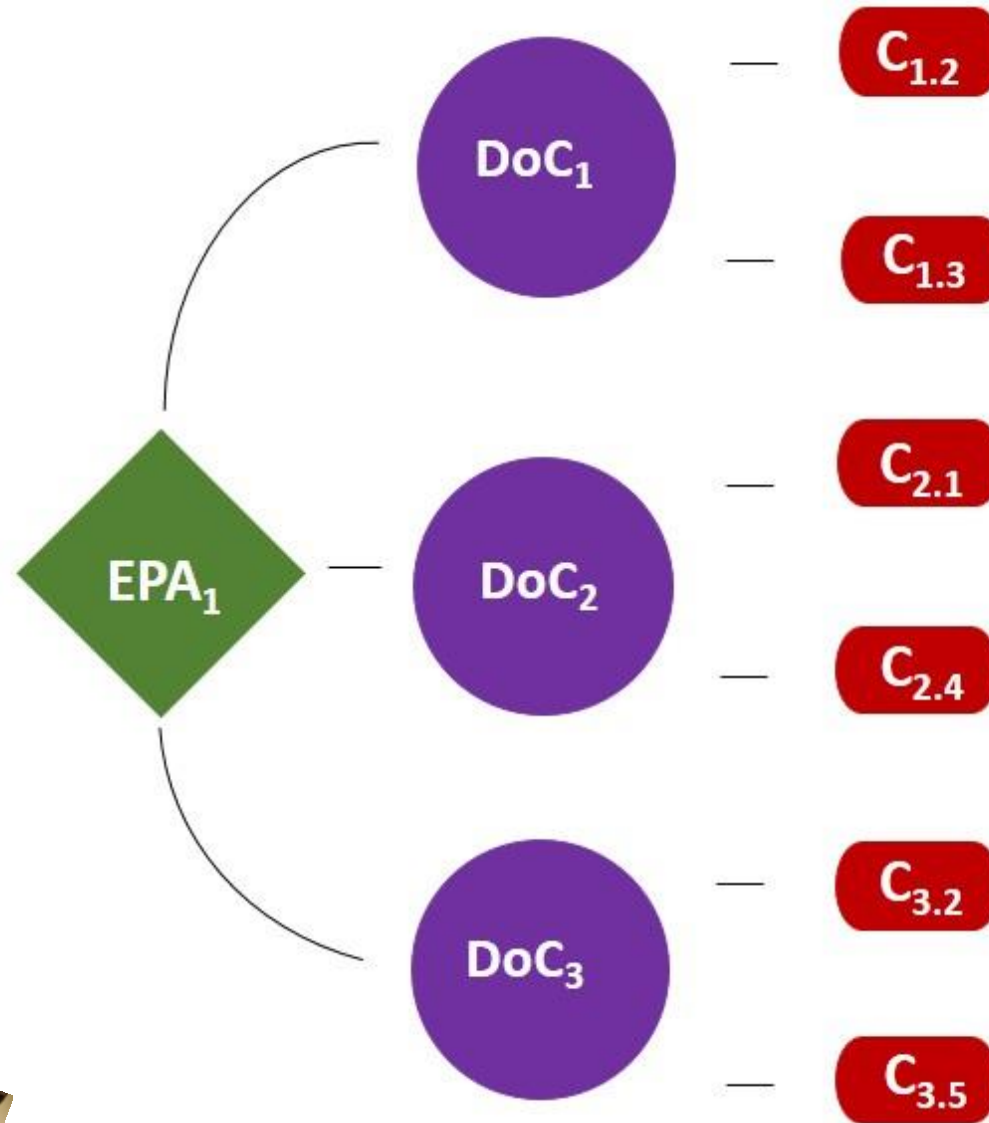


How do
Competencies and
EPAs connect?





EPAs and Competencies



Entrustable Professional Activities

EPA 1

Gather a history,
perform an examination,
and create a prioritized
differential diagnosis list

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COMMENTARY

The history and examination should be tailored to the clinical situation and specific patient encounter. This data gathering serves as the foundation for evaluation and management. Expectations include integration of the scientific foundations of medicine with clinical reasoning skills to guide information gathering.

MOST RELEVANT DOMAINS

1: Clinical Reasoning & Decision-making ■
5: Communication ■

(SECONDARY DOMAINS)

(2: Individual Animal Care & Management) ■
(6: Collaboration) ■
(8: Financial & Practice Management) ■

➤ Mapped the EPAs to
most relevant
Domains of
Competence (DOCs)

➤ As well as secondary
domains)



Entrustable Professional Activities

1

Gather a history, perform an examination, and create a prioritized differential diagnosis list



ELEMENTS WITHIN ACTIVITY

Consultation

- Obtain a complete and accurate history in an organized fashion [1.1] ■
- Demonstrate client-centered interview skills (establish rapport, attentive to verbal and nonverbal cues, client culture, socioeconomic factors, demonstrates active listening skills) [5.1; 5.2] ■
- Identify the client complaint, [1.1] ■
- Identify pertinent history elements associated with common conditions [1.1] ■
- Demonstrate cultural competence in interactions with clients, recognizing the potential for bias [5.2, 6.4] ■ ■

Examination

- Perform exam (individual animal or herd) [1.1] ■
- Communicate findings [5.1] ■
- Attend to patient welfare and client safety and comfort [1.4, 2.2, 8.3] ■ ■ ■

Determining Differential Diagnosis

- Create a problem list [1.2] ■
- Justify prioritized differential diagnosis(es) [1.2] ■
- Consult or refer as needed based on limitations [1.7] ■

Documentation

- Document findings in the medical record [5.3] ■

➤ Identified the specific competencies within the domain that is relevant for the activities in the EPA



Another Point to Note about EPAs

- They provide a framework for **assessment and feedback** that guides learners as they work towards independence with key tasks in veterinary practice



Milestones

- As each EPA requires proficiency in multiple competencies simultaneously, they also help translate competencies into a **practical approach to assessment in workplace-based contexts**
- As a learner performs an EPA, he/she develops the required competencies progressing along a continuum
- This developmental progression is marked by achieving **milestones** that allow the learner, and their assessor, to determine what they are doing well and where they still need to improve

Beginner

Advanced
beginner

Competent

Proficient

1

Gather a history, perform an examination, and create a prioritized differential diagnosis list



ELEMENTS WITHIN ACTIVITY

Consultation

- Obtain a complete and accurate history in an organized fashion [1.1] ■
- Demonstrate client-centered interview skills (establish rapport, attentive to verbal and nonverbal cues, client culture, socioeconomic factors, demonstrates active listening skills) [5.1; 5.2] ■
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- Create a problem list [1.2] ■
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Documentation

- Document findings in the medical record [5.3] ■

➤ Used this competency to create milestones that describe the level of proficiency of each of the competencies within the EPA

Beginner

Advanced
beginner

Competent

Proficient

Milestones

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

Example Sub-Competencies (non-comprehensive)

1.2 Synthesizes and prioritizes problems to arrive at differential diagnoses

- a. Identifies problems
- b. Creates refined problem list
- c. Prioritizes differential diagnoses

Milestones:

Beginner: Learner recalls discrete, isolated medical facts related to clinical findings. List of differential diagnoses contains relevant and irrelevant conditions, supported by isolated portions of the history or physical exam. Explanations are linear and may be inaccurate. Differential diagnoses are not prioritized.

Advanced Beginner: Problem list is predominantly accurate with occasional omissions of less common disorders. Learner demonstrates more consistent prioritization of patient problems and differential diagnoses. Knowledge base of common conditions is sufficient to effectively use pattern recognition.

Competent: Learner compares and contrasts signalment, history and clinical findings of current animal(s) to previous cases. Considers alternative scenarios. Obtains additional information from appropriate secondary sources, and seeks confirmation of conclusions for less common conditions.

Proficient: Follows systematic procedure for synthesis, comparison, and evaluation of information. Consistently develops an accurate, prioritized, comprehensive problem list. Quickly filters irrelevant information and identifies unknowns. Uses deductive reasoning to prioritize needs for additional information through diagnostic testing or secondary sources.

- A milestone is a behavioral descriptor that marks a level of performance for a given competency
- Milestones help the learner and their supervisor identify stages in learner development
- Allow feedback to be specific and focused on areas where improvement can be made to help the learner to the next level of performance

COMPETENCY-BASED VETERINARY EDUCATION



FUTURE DIRECTIONS AND WORKPLACE-BASED ASSESSMENTS

- Domains and competencies are part of a framework to identify and organize required outcomes
- EPAs translate competencies into clinical (workplace) practice
- Neither of these are assessment tools per se
- Rather we need a toolbox of assessments to evaluate a learner's progress



Next Steps

- Finalize the **milestones**
- Develop an assessment tool that incorporates these, along with the EPAs
 - ✓ Potentially similar to ones in other health professions e.g., Physiotherapy
 - ❖ Developed a common assessment tool (Clinical Performance Instrument = CPI)
 - ❖ used across the US
 - ❖ Have enough data to psychometrically validate the tool



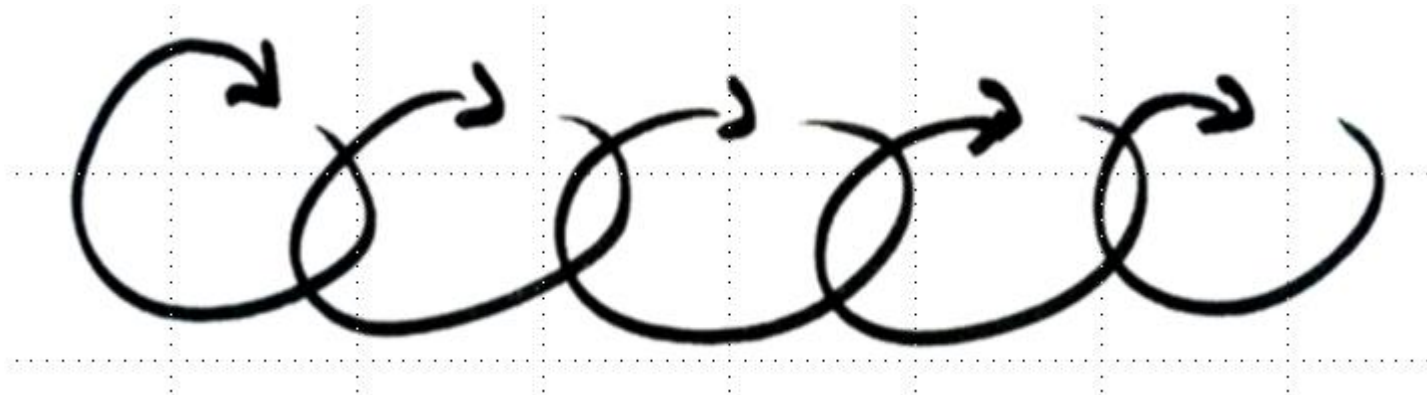
Next Steps

- But all competencies can NOT be effectively evaluated with this type of tool
 - ✓ Need to create the rest of the toolbox to help faculty/colleges assess the range of competencies, using multiple assessments modalities
- Create faculty development tools



Next Steps

- Keen to identify **Pilot Programs**
 - Implement CBVE
 - Collect Data
 - Leads to Refinement and/or Revision



FINAL WORDS!

THE FUTURE
IS ALREADY HERE.
IT'S JUST NOT EVENLY
DISTRIBUTED YET.

- William Gibson

Questions or Comments



Frequently Asked Questions

1. Where is my discipline (e.g., epidemiology, physiology, radiology)?
2. Where are specific skills (e.g., post-mortem)?
3. Why does this work just address clinical careers (not PH, research, etc.)?
4. How does this framework relate to the COE 9 clinical competencies?
5. Where is public health and one health?

