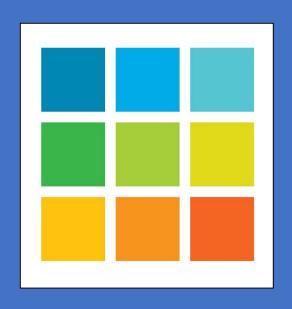


Welcome to CBVE Town Hall

Summer Session #2

Agenda



Summary of feedback and comments from Town Hall #1

Myth-busting: dispelling five common myths about CBVE

Wrap-up & next steps...

Thank you for participating in Town Hall #1



We heard you!



Town Hall Session #1:



Breakout Room Discussion Questions

- What does your program envision as the BIGGEST hurdle/barrier for implementation?
 - Share success/what's working in addressing this hurdle
 - Share frustrations/what do you need?
- How can the AAVMC Council on Outcomesbased Veterinary Education best support your needs for implementing/moving to this new model of education?

Town Hall Session #1:



Breakout Room Instructions & Follow-up Summarization of Data

- 15 breakout groups
- Participants discussed questions and entered answers into Google doc
- CBVE Catalyze WG reviewed responses
- The frequency of themes were noted

Summary of Themes:

- Educating and motivating faculty and staff about CBVE; promoting buy-in; changing mindsets (19)
- Lack of faculty and staff capacity (14)
- Assessment concerns change methods; change mindset; conflict with grading; graduate performance (13)
- Basic science faculty buy-in; preclinical milestones needed (12)
- Need for specific examples of implementation (7)

Biggest barrier or hurdle for implementation?



Summary of Themes, cont'd:

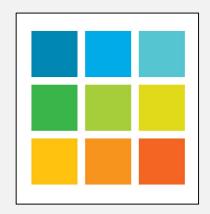
- Challenge of curriculum mapping(4)
- System needed for tracking student progress (3)
- Need for more detail in competencies (2)
- Need for an expert as a resource (2)
- Compatibility with accreditation standards (2)

Biggest barrier or hurdle for implementation?



Support needed for implementation?

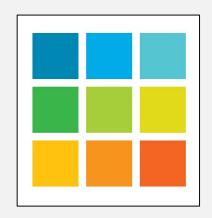
Summary of Responses:



- Materials for educating faculty, staff and students about CBVE (14)
 - Centralized resources for faculty development
 - Online videos for self-study
 - Webinars
 - Video vignettes of EPAs and competencies at different skill levels for training assessors
- Shared resources for assessment (10)
 - Best practices
 - Standardized longitudinal assessments
- Specific examples of implementation (9)
 - Create repository to share examples
 - Q&A sessions with those who have implemented CBVE

Support needed for implementation?

Summary of Responses, cont'd:



 Create pre-clinical milestones to engage basic science faculty (8)

- Common software program for mapping and student assessment (6)
 - AAVMC purchase or create an affordable system

- "Expert" assistance (4)
 - Psychometrician
 - Hotline

Five Common Myths about CBVE



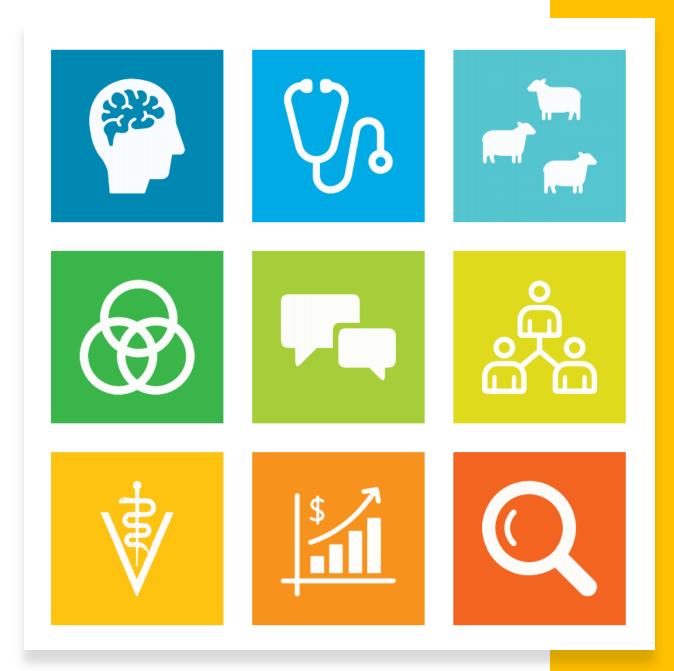


Adopting CBVE requires your program to have a CBVE-specific curricular model

MYTH #1

Jared Danielson

CBVE characterizes the outcome, not the educational process...



Curricular structure has not been shown to be an important factor in learner achievement, including in clinical reasoning.

Teaching and Learning in Medicine, 20(2), 104–113 Copyright © 2008, Taylor & Francis Group, LLC ISSN: 1040-1334 print / 1532-8015 online

DOI: 10.1080/10401330801991915



RESEARCH BASIC TO MEDICAL EDUCATION

How Much Do Differences in Medical Schools Influence Student Performance? A Longitudinal Study Employing Hierarchical Linear Modeling

Kent Hecker and Claudio Violato

Medical Education Research Unit, University of Calgary, Calgary, Alberta, Canada



Hecker and Violato, 2008.

Hecker K, Violato C. How much do differences in medical schools influence student performance? A longitudinal study employing hierarchical linear modeling. Teach Learn Med. (2008) 20:104–13. doi:10.1080/10401330801991915

- 116 medical schools
- 8 years
- 5 curricular models
 - Discipline Based
 - Organ Systems Based
 - Discipline Based Followed by Organ System
 - Other
 - Problem Based Learning
- Dependent Variable Performance on all three levels of the USMLE exam
- Outcomes (Hecker and Violato, 2008)
 - Majority of variation between schools accounted for by incoming student differences, mostly MCAT scores.
 - "Curriculum differences and school-level educational policies and educational innovations contributed only sporadically in the regression equations over the 8-year period." (p. 111)

CBVE supports and encourages proven strategies that can be utilized under a variety of curricular approaches:

- Use of clearly defined learning outcomes¹
- Informing students of what success looks like^{1,2}
- Mastery (competency-anchored rather than time-anchored) approaches^{3,4}
- Frequently assessing learning and providing feedback (e.g., Programmatic Assessment)^{5,6,7}
 - 1. Hattie J. Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement. New York: Routledge (2009).
 - 2. Hattie J. The applicability of visible learning to higher education. Sch Teach Learn Psychol. (2015) 1:79–91. doi: 10.1037/stl0000021
 - 3. Cook DA, Brydges R, Zendejas B, Hamstra SJ, Hatala R. Mastery learning for health professionals using technology-enhanced simulation: a systematic review and meta-analysis. Acad Med. (2013) 88:1178–86. doi: 10.1097/ACM.0b013e31829a365d
 - 4. Bloom BS. Time and learning. Am Psychol. (1974) 29:682–8. doi:10.1037/h0037632
 - 5. Hattie J, Timperley H. The power of feedback. Rev Educ Res. (2007) 77:81–112. doi: 10.3102/003465430298487
 - 6. Heeneman S, Oudkerk Pool A, Schuwirth LWT, van der Vleuten CPM, Driessen EW. The impact of programmatic assessment on student learning: theory versus practice. Med Educ. (2015) 49:487–98. doi: 10.1111/medu.12645
 - 7. Bok HGJ, de Jong LH, O'Neill T, Maxey C, Hecker KG. Validity evidence for programmatic assessment in competency-based education. Perspect Med Educ. (2018) 7:362–72. doi: 10.1007/s40037-018-0481-2



You have to implement all five core components of CBVE at the same time

MYTH #2

Jennie Hodgson



Fundamental Characteristics of CBME

Van Melle *et al.* (2019) A core components framework for evaluating implementation of Competency-Based Medical Education.

Academic Medicine, 94(7):1002-1009.

OUTCOME COMPETENCIES

SEQUENCED PROGRESSION

TAILORED LEARNING EXPERIENCES

COMPETENCY-FOCUSED INSTRUCTION

PROGRAMMATIC ASSESSMENT

Five Core Components





Five Core Components

#1: Outcome Competencies

- ➤ Outcomes are predefined, desired competencies with achievement by all students as the goal.
- ➤ Competencies are derived from the needs of patients/society and organized into a coherent guiding framework





Competency-Based Veterinary Education:

CBVE framework



















CBVE Competency Framework

- CBVE Framework is divided into domains of competence, competencies, and illustrative subcompetencies
- Can be used for curricular design or mapping at many levels within the curriculum



Five Core Components

#2: Sequenced Progression

Teaching and learning experiences are sequenced to facilitate an explicitly defined progression of ability in stages towards competence

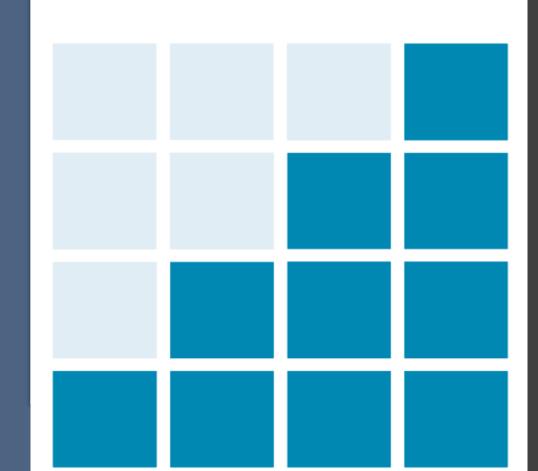


Milestones

- A defined, <u>observable</u> marker of an individual's ability along a developmental continuum
- Can be used for curricular design/mapping/assessment
- Pre-clinical milestones can help with backward design



Milestones



Englander et al (2017) Towards a shared language for CBME. Med Teach, 39(6), 582-87.



Five Core Components

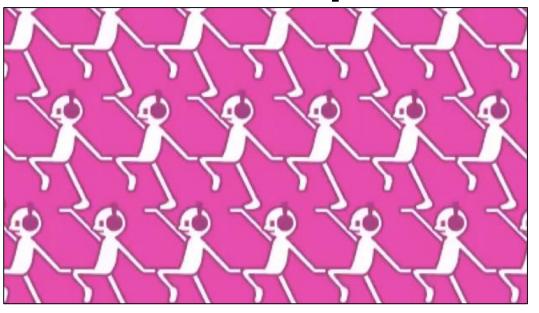
#3: Tailored Learning Experiences

- Learning is tailored to the learner's individual progression in some manner
- Time is a resource for learning, not the basis of progression of competence

Time as a Resource...??

Our current situation:

Lockstep



Time variable

versus



AVMA COE requirements:

"curriculum shall extend over a period equivalent to a minimum of 4 academic years"

Are there ways to use competence and not time to determine progression within the 4 years?



Five Core Components

#4: Competency-Focused Instruction

- Instruction is focused on competencies and their achievement
- ➤ Student-centered approaches versus faculty-centered approaches

Faculty Development

- Student centered (not faculty)
- Outcomes focused (not inputs)
- Coaching models (not instructing)

Walsh *et al.* (2017) Preparing teachers for Competency-Based Medical Education: Fundamental teaching activities. *Medical Teacher* 40(1):80-85.





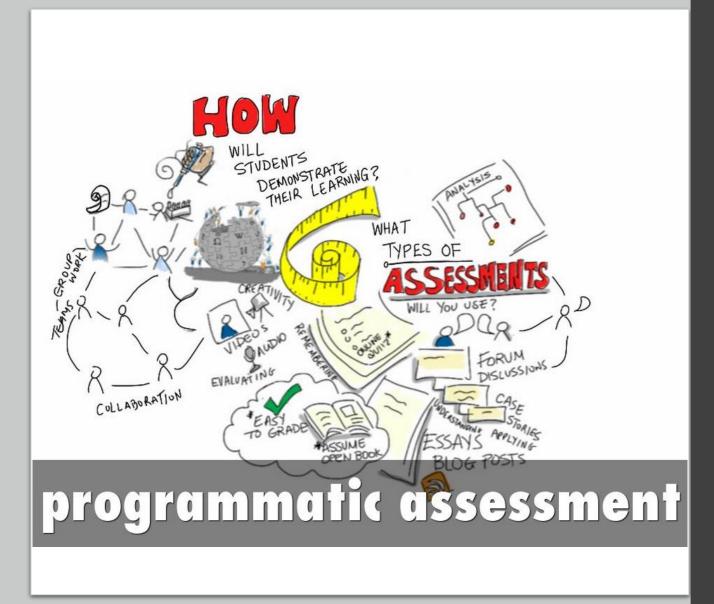
Five Core Components

#5: Programmatic Assessment

- Assessment is planned, systematic, systemic, and integrative
- Numerous direct observations and focused feedback contribute to effective learner development of expertise

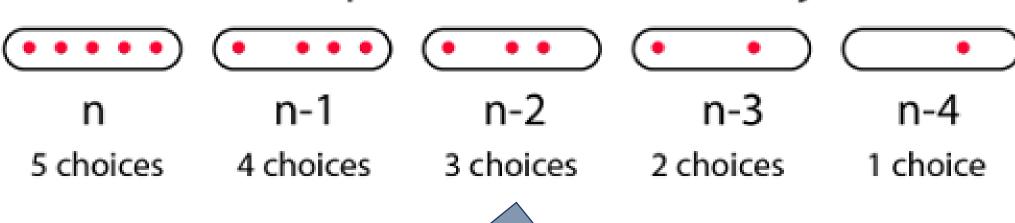
Programmatic Assessment

- Assessment of all domains of competence over time
- Multiple methods & multiple evaluators over time needed to "aggregate the pixels"
- Assessment for learning



Torre *et al.* (2020) Theoretical considerations on programmatic assessment. *Medical Teacher* 42(2):213-220.

The number of permutations of 5 objects is 5!



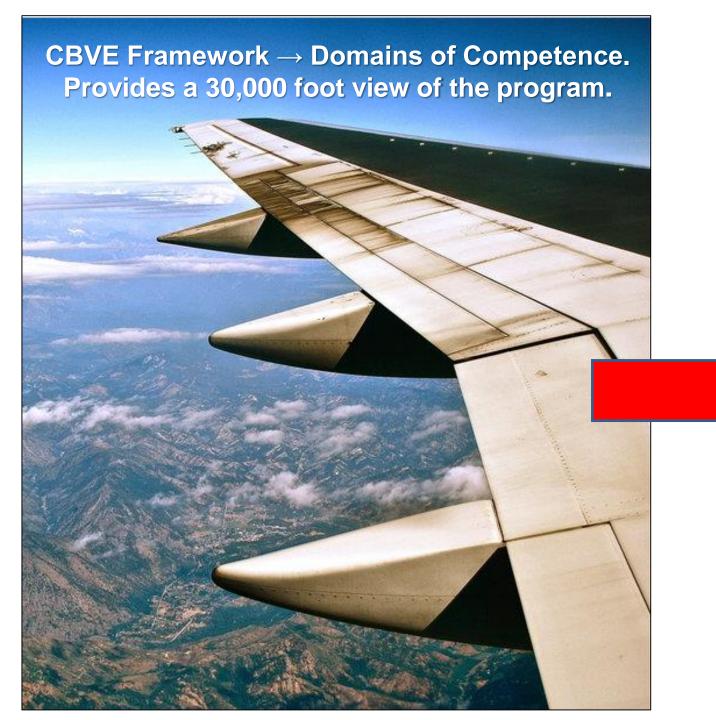
Veterinary colleges can implement any/all of these 5 five components, and in any sequence, depending on their local needs and resources.

...And colleges need to work towards implementing all 5 components to truly have a CBVE program.

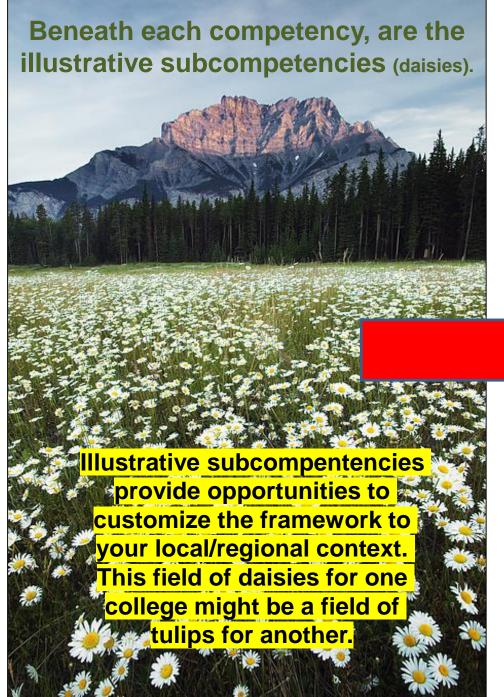














Closely observing the grass surrounding the daisies is equivalent to the discipline-specific content necessary to build illustrative subcompetencies, which support each associated competency.

Now we're getting closer to dispelling this myth...

Where does basic science fit in??









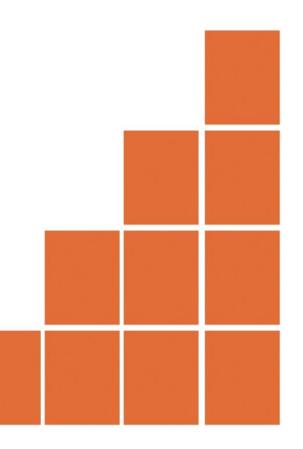












Framework

 Faculty and graduates can visualize outcomes at graduation

Milestones

 Assist instructors and learners in use of framework for clinical training 1.1

Competency-Based Veterinary Education:

Milestones

COMPETENCY 1.1

Gathers and assimilates relevant information about animals

MILESTONES



NOVICE:

exercises safe animal handling. Poses historic questions from a template. Gathers insufficient, exhaustive, or irrelevant information.

Per prims disorganized or incomplete physical exam and may overlook key indings. Interpretation of results rarely advances the plan.



AD ANCED BEGINNER:

Gat ers some pertinent information. May omit details that support/
ref the common differential diagnoses. Physical exam follows a pattern
and major abnormalities are identified, described and documented.
Into prets laboratory tests correctly most of the time; struggles to interpret
cor licting results. Interpretation of results partially advances the plan.



COMPETENT:

Obtains pertinent history appropriate for the situation. Identifies and organizes historic elements consistent with common disorders. Performs thorough physical exam in a logical, fluid sequence. Identifies and documents most abnormal physical exam findings including subtle findings. Selects and interprets routine diagnostic tests appropriately. Ambiguous results are interpreted in the context of history and physical exam. Interpretation of results adequately supports the plan.



PROFICIENT:

Recognizes variability in disease presentation. Identifies historic information pertinent to unusual disease conditions. Efficiently reviews results and recognizes unexpected findings. The magnitude of abnormal findings contributes to interpretation. Summarizes findings using semantic qualifiers (e.g., acute, subacute and chronic). Accurate interpretation of results directs confirmatory or sequential testing and fully supports the plan.

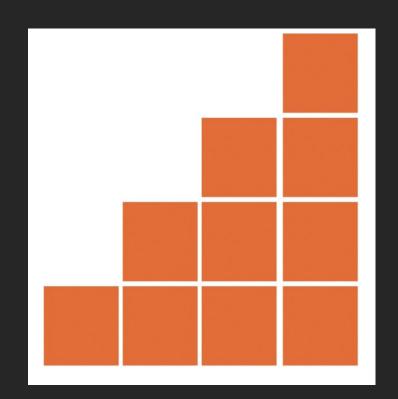
ENTRY INTO CLINICAL TRAINING

GRADUATION

Milestones provide narrative descriptors of learner progress for the clinical year...

What about the pre-clinical program??







Pre-Clinical Milestones?

Milestones can be used in the pre-clinical curriculum to ensure learners achieve at least the novice level before entering clinics.

Creating pre-clinical milestones allow us to move the learning continuum into the pre-clinical program...

Pre-clinical milestones can assist faculty in understanding how the framework applies across the program and includes basic science content...



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.

1.1 Gathers and assimilates relevant information about animals

	First Year	Second Year	Third Year	Fourth Year
Milestone			Level of competence following completion of year 3. Milestone = NOVICE	Expected level of competence at graduation. Milestone = COMPETENT
1.1 Gathers and assimilates relevant information about animals	milestone des milestone 1.3 assimilates relevabout animal milestone les achieved by the year in this extends entry into the we environment/cluthe 4 th year, and milestone achievable	ole of pre-clinical velopment for 1 Gathers and vant information 1s. The novice vel should be e end of the 3 rd ample, prior to vorkplace-based inical training in the competent eved by the time luation.	3A. exercises safe animal handling 3B. poses historic questions from a template 3C. gathers history but information collected may be insufficient, exhaustive, or irrelevant 3D. performs physical exam, may be disorganized or incomplete, and may overlook key findings 3E. interprets test results but may not use to advance the plan	4A. obtains pertinent history appropriate for the situation 4B. identifies and organizes historic elements consistent with common disorders 4C. performs thorough physical exam in a logical, fluid sequence 4D. identifies and documents most abnormal physical exam findings including subtle findings 4E. selects and interprets routine diagnostic tests appropriately 4F. interprets ambiguous results in the context of history and physical exam 4G. interprets results to support the plan

Chaney *et al.* (2017) Curriculum Redesign in Veterinary Medicine: Part I. *JVME* 44(3):552-562. Macik *et al.* (2017) Curriculum Redesign in Veterinary Medicine: Part II. *JVME* 44(3):563-569.

Competency-Based Veterinary Education:

Milestones

COMPETENCY 1.1

Gathers and assimilates relevant es relevant information about animals information about animals

MILESTONES



NOVICE:

Exercises safe animal handling. Poses historic questions from a template. Gathers insufficient, exhaustive, or irrelevant information. Performs disorganized or incomplete physical exam and may overlook key findings. Interpretation of results rarely advances the plan.



ADVANCED BEGINNER:

Gathers some pertinent information. May omit details that support/ refute common differential diagnoses. Physical exam follows a pattern and major abnormalities are identified, described and documented. Interprets laboratory tests correctly most of the time; struggles to interpret conflicting results. Interpretation of results partially advances the plan.



COMPETENT:

Obtains pertinent history appropriate for the situation. Identifies and organizes historic elements consistent with common disorders. Performs thorough physical exam in a logical, fluid sequence. Identifies and documents most abnormal physical exam findings including subtle findings. Selects and interprets routine diagnostic tests appropriately. Ambiguous results are interpreted in the context of history and physical exam. Interpretation of results adequately supports the plan.



PROFICIENT:

Recognizes variability in disease presentation. Identifies historic information pertinent to unusual disease conditions. Efficiently reviews results and recognizes unexpected findings. The magnitude of abnormal findings contributes to interpretation. Summarizes findings using semantic qualifiers (e.g., acute, subacute and chronic). Accurate interpretation of results directs confirmatory or sequential testing and fully supports the plan.

making

solving to arrive at evidence-based decisions that consider animal

Second Year	Third Year	Fourth Year
	Level of competence following completion of year 3. Milestone = NOVICE	Expected level of competence at graduation. Milestone = COMPETENT
		4A. obtains pertinent history appropriate for the situation
	3A. exercises safe animal handling3B. poses historic questions from a template	4B. identifies and organizes historic elements consistent with common disorders
	3C. gathers history but information collected may be insufficient, exhaustive, or irrelevant	 4C. performs thorough physical exam in a logical, fluid sequence 4D. identifies and documents most abnormal physical exam findings including subtle findings
	3D. performs physical exam, may be disorganized or incomplete, and may overlook key findings	4E. selects and interprets routine diagnostic tests appropriately
	3E. interprets test results but may not use to advance the plan	4F. interprets ambiguous results in the context of history and physical exam
		4G. interprets results to support the plan

Chaney et al. (2017) Curriculum Redesign in Veterinary Medicine: Part I. JVME 44(3):552-562. Macik et al. (2017) Curriculum Redesign in Veterinary Medicine: Part II. JVME 44(3):563-569.

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.

1.1 Gathers and assimilates relevant information about animals

	First Year	Second Year	Third Year	Fourth Year
Milestone			Level of competence following completion of year 3. Milestone = NOVICE	Expected level of competence at graduation. Milestone = COMPETENT
1.1 Gathers and assimilates relevant information about animals	let's consider we must be able to reaching the milestone of interpret te treatment plant develop pre-clip or narrative of what the learned to do in the	e (yellow stars), what the learner achieve prior to e novice level being able to sts to design nswe need to nical milestones descriptions of er should be able e pre-clinical ach this point	3A. exercises safe animal handling 3B. poses historic questions from a template 3C. gathers history but information collected may be insufficient, exhaustive, or irrelevant 3D. performs physical exam, may be disorganized or incomplete, and may overlook key findings 3E. interprets test results but may not use to advance the plan	4A. obtains pertinent history appropriate for the situation 4B. identifies and organizes historic elements consistent with common disorders 4C. performs thorough physical exam in a logical, fluid sequence 4D. identifies and documents most abnormal physical exam findings including subtle findings 4E. selects and interprets routine diagnostic tests appropriately 4F. interprets ambiguous results in the context of history and physical exam 4G. interprets results to support the plan

The graduate demonstrates critical thinking and problem solving to arrive at evident and client needs, available resources, and social context.

1.1 Gathers and assimilates relevant information

	1.1 Gathers and as	similates relevant info	rmatic	first being able to select th	e correct
	First Year	Second Year		test to evaluate a particula	ar organ
Milestone	Level of competence following completion of year 1.	Level of competence following completion of year 2.	Level oj comple I	system and begin prioritize selection of tests based u	
1.1 Gathers and assimilates relevant information about animals	1A. describes methods of patient restraint for common domestic species 1B. performs basic restraint techniques safely and effectively 1C. obtains signalment and general history for common domestic species 1D. obtains general history for a herd/group environment 1E. performs complete physical examination of all body systems on common domestic species 1F. performs core diagnostic tests and interprets test results	2A. selects an appropriate restraint technique based upon the animal and situation 2B. interprets history to identify body system(s) involved 2C. differentiates normal from abnormal physical exam parameters 2D. selects correct test(s) to evaluate organ system(s) 2E. prioritizes diagnostic tests based on their benefits and risks	insuffici irreleval 3D. perf be disor and may 3E. inter	risks or benefits of that the learner would not be also progress without knowledged science in this example pathology / clinical pathol	test. A ble to ge of basic (e.g., ology). ments al exam le findings ets routine oriately ous results by and

These pre-clinical milestones (yellow

stars) for year two describe a student

The graduate demonstrates critical thinking and problem solving to arrive at and client needs, available resources, and social context.

1.1 Gathers and assimilates relevant inf

based on their benefits and risks

	First Year	Second Year		
Milestone	Level of competence following completion of year 1.	Level of competence following completion of year 2.		
1.1	1A. describes methods of patient restraint for common domestic species 1B. performs basic restraint techniques safely and effectively	2A. selects an appropriate restraint technique based upon the animal and situation 2B. interprets history to identify		
Gathers and assimilates relevant information about animals	1C. obtains signalment and general history for common domestic species 1D. obtains general history for a herd/group environment	2C. differentiates normal from abnormal physical exam parameters 2D. selects correct test(s) to evaluate organ system(s)		
about allillais	1E. performs complete physical examination of all body systems	2E. prioritizes diagnostic tests		

on common domestic species

1F. performs core diagnostic tests and interprets test results

And finally, looking back to the entry level of the program (first year), a student must first learn how to perform core/basic diagnostics tests and interpret their results. An example might be performing and interpreting blood glucose on a glucometer. In the simplest of terms: is the blood glucose normal or abnormal? This pre-clinical milestone reflects entry-level knowledge and could not be achieved without learner knowledge of foundation science (e.g., knowledge of physiology/regulation of blood glucose and anatomy/sites for venipuncture on given species).

3E. interprets test results but may not use to advance the plan

- **4F.** interprets ambiguous results in the context of history and physical exam
- **4G.** interprets results to support the plan

Domain₄

The gradu

The idea of the golden thread is important to consider as preclinical milestones are developed. Sequential learning is one of the 5 core components of CBVE and critical for mastery of competencies. Keeping the outcome, or end, in mind allows sequential learning opportunities to be established. Entrylevel knowledge and pre-clinical milestones are important for the learner to build upon moving forward through the program with achievement of the novice level milestone prior to entry into the clinical environment or work-placed based training.

Mile

1.1

Gathers and assimilates relevant information about animals

species

1B. performs basic restraint techniques safely and effectively

1C. obtains signalment and general history for common domestic species

 obtains general history for a herd/group environment

1E. performs complete physical examination of all body systems on common domestic species

1F. performs core diagnostic tests and interprets test results

restraint technique based upon the animal and situation

2B. interprets history to identify body system(s) involved

2C. differentiates normal from abnormal physical exam parameters

2D. selects correct test(s) to evaluate organ system(s)

2E. prioritizes diagnostic tests based on their benefits and risks

3B. poses historic questions from a template

3C. gathers history but information collected may be insufficient, exhaustive, or irrelevant

3D. performs physical exam, may be disorganized or incomplete, and may overlook key findings

3E. interprets test results but may not use to advance the plan

4B. and organizes historic elements consistent with common disorders

nce at

PETENT

situation

4C. performs thorough physical exam in a logical, fluid sequence

4D. identifies and documents most abnormal physical exam findings including subtle findings

4E. selects and interprets routine diagnostic tests appropriately

4F. interprets ambiguous results in the context of history and physical exam

4G. interprets results to support the plan

Chaney *et al.* (2017) Curriculum Redesign in Veterinary Medicine: Part I. *JVME* 44(3):552-562. Macik *et al.* (2017) Curriculum Redesign in Veterinary Medicine: Part II. *JVME* 44(3):563-569.

decisions that consi

animals

llo **I**ng

animal handling

VICE

Basic science is the foundation of medicine and surgery...and while not explicitly defined within the CBVE Framework, its importance is critical to the educational program.

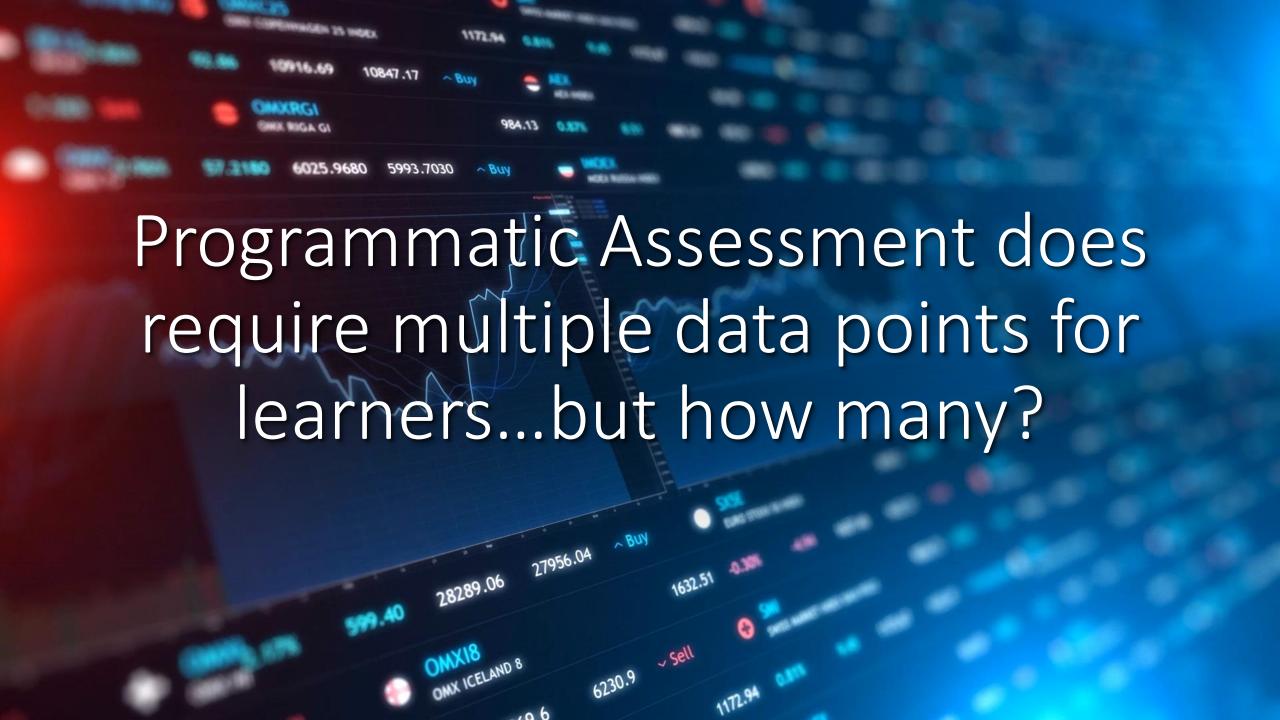




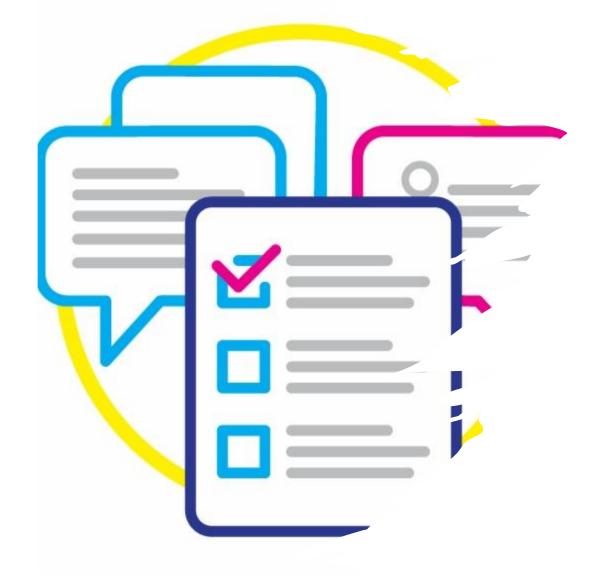
Programmatic assessment requires thousands of pixels to be any good...

MYTH #4

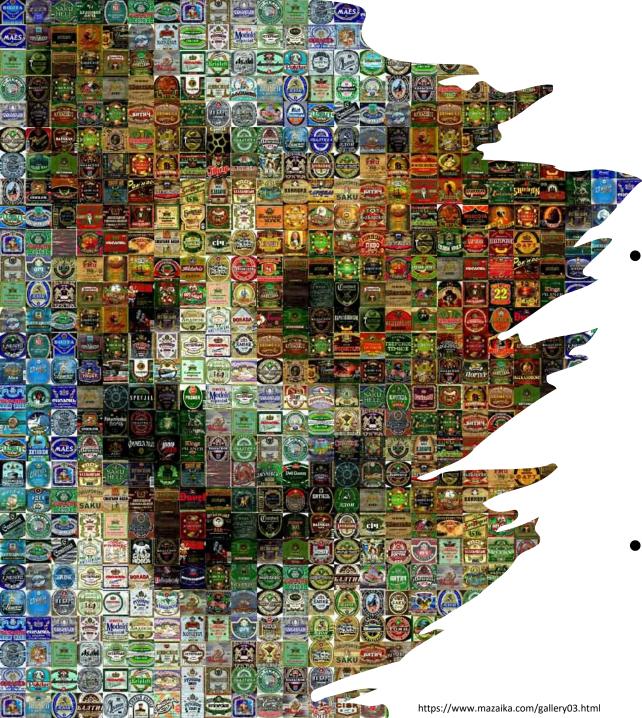
Emma Read



Assessment



- Individual assessment moments allow us to 'snapshot' student performance, competence, deficits, readiness to progress
- Each individual assessment moment provides the learner with feedback regarding strengths and weaknesses helps shape their learning behavior and encourages them to direct own learning



Programmatic Assessment

- Each individual assessment is part of a larger system in which all the assessments are viewed together to show a full picture. This then allows us to make high stakes competence/promotion decisions.
- Ideally, the individual assessment moments are decoupled from the bigger decisions.

The whole is more than the sum of its parts. Aristotle

Student progression decisions are made by an independent group looking at aggregate data – pass/fail is not at the level of the individual moment.

So how much data do you actually need?



The more you have the clearer the picture – to a point! (Someone has to collect and analyze it all)

Better to do a GREAT job with LESS than to STRUGGLE with TOO much.



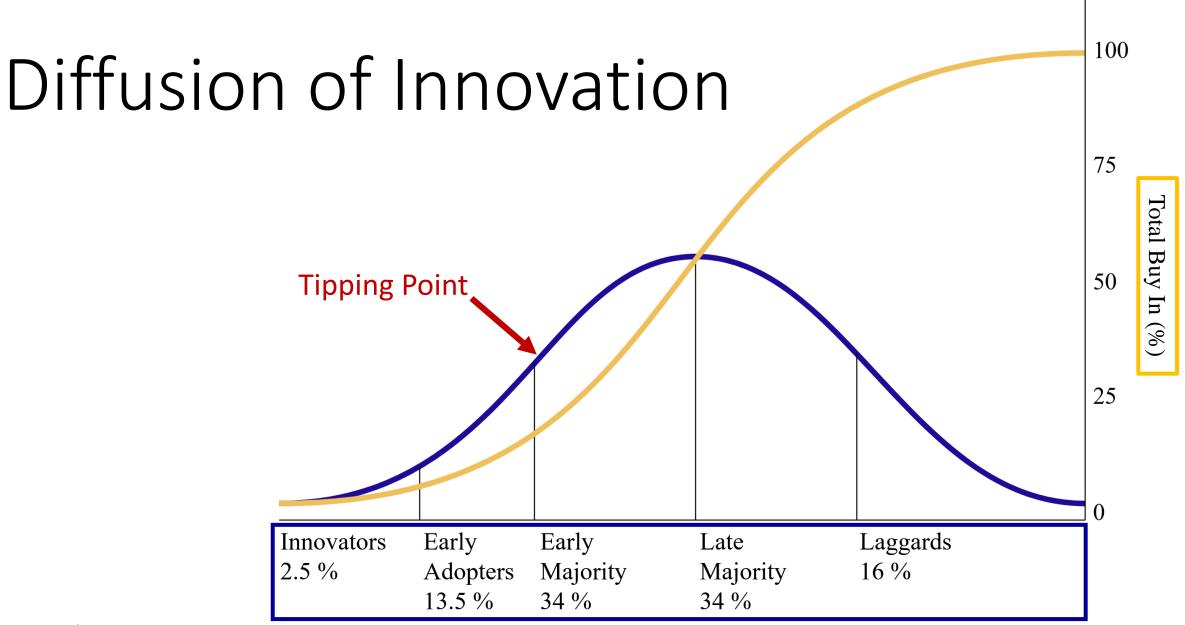
- Curriculum design creates curricular structure aligned with intended learning outcomes
- Your assessment system must be designed similarly goal is to enhance student learning
- An assessment blueprint informs how each assessment fits into broader 'program of assessment' and how progress decisions will be made
- Not every assessment needs to be perfect this is the sum of the parts.
- Aim to include a variety of assessments over time (longitudinal). Aim to use or develop quality assessments.
- CBVE Analyze WG is working on a tool box...



Everyone needs to buy in to begin the transition to CBVE

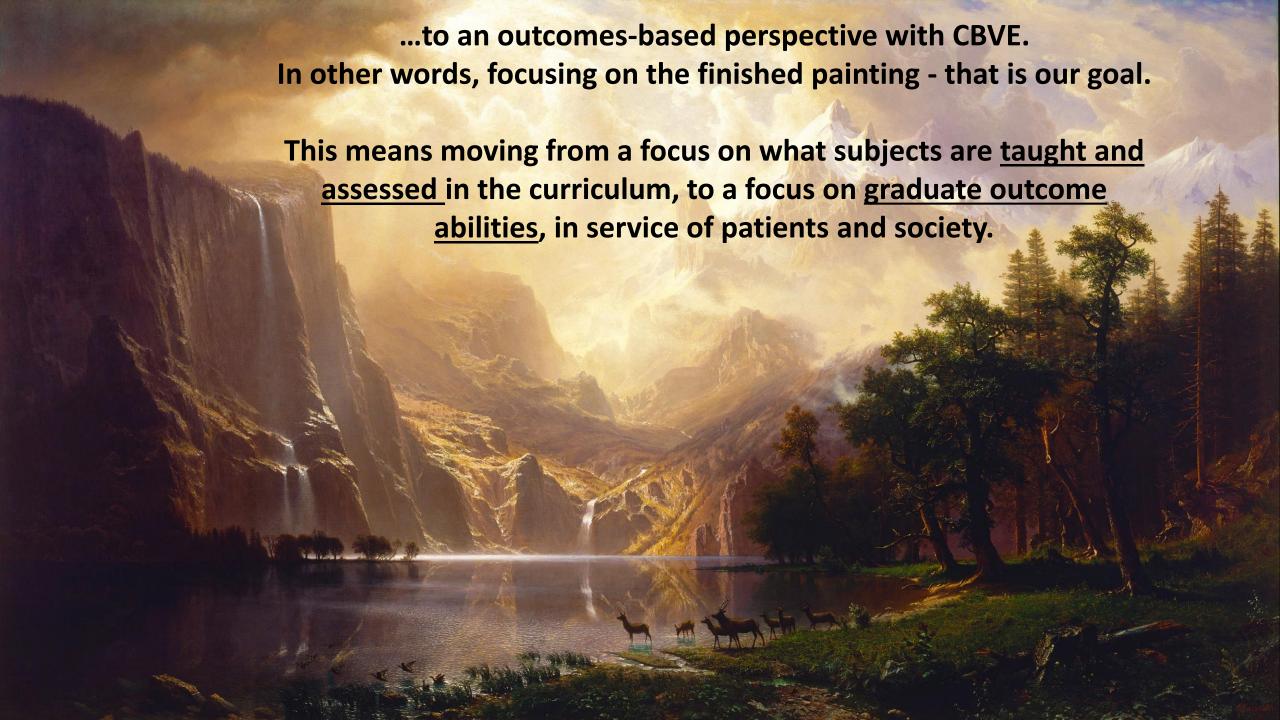
MYTH #5

Susan Matthew



Everyone DOESN'T need to buy in to CBVE before starting implementation. However, implementation requires a paradigm shift from an input-based focus (like these individual paints and paintbrushes)...

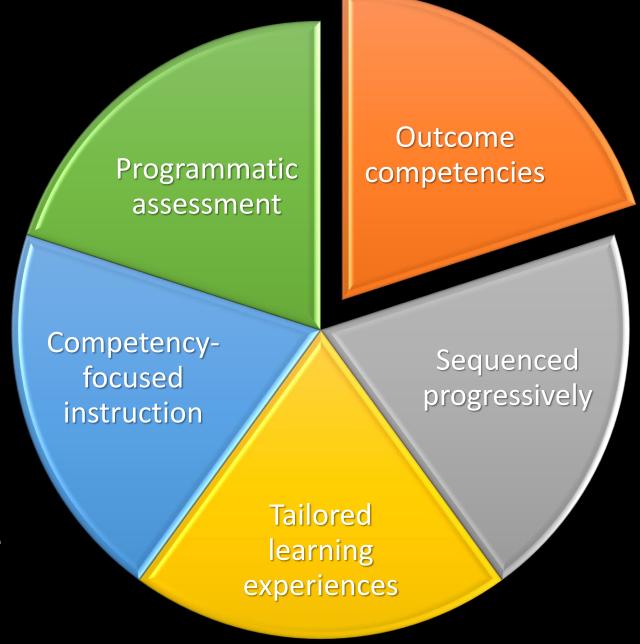






The Five Core Components of CBME / CBVE

No matter your starting point or how many faculty are with you in the initial phases of CBVE implementation, the 5 core components will guide and support the process. The core components are founded upon concepts of mastery learning and constructive alignment, or backwards design of curricula.



Establish sense of urgency **Anchor new** Build guiding approaches in coalition culture 8 Steps of Successful Consolidate gains Develop strategic and propagate vision and Change change initiatives (to assist CBVE implementation) Communicate for Create quick understanding visible wins and buy-in Enable action by removing barriers

(Kotter 2012;

Kotter & Rathgeber 2017; Kotter, Akhtar & Gupta 2021)

In closing...



Jody Frost

1) Have these Town Hall sessions been useful to you? Why or why not?

2) How **frequently** would you like COVE to host Town Hall meetings on CBVE (e.g., quarterly, annually)?

3) Is there anything **specific** that you would like to see included in the Town Hall meetings in the future?





Thank you!



www.cbve.org