1st ICAVESS and 19th AAVS Meeting
Universitas Gadjah Mada, Indonesia. 28-29 March 2021

Veterinary Education and Accreditation of Veterinary Schools in Asia

Seoul National University

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Accreditation?

- Accreditation of higher education institutions is a type of quality assurance and improvement process
- The services and operations of the educational institutions are evaluated by an external body to determine if applicable standards (areas of evaluation) are met
- If standards are met, accredited status is granted by the agency for a fixed period

(*Higher education accreditation - Wikipedia*)

Accreditation = recognition of curriculum

- The advantages of being a graduate of accredited veterinary school by AVMA COE are
  1) eligibility for licensure in the US and Canada;
  2) an assurance that equivalent standards were used to measure Day One Competencies of their graduates.

Gallant N. Why veterinary school accreditation matters. Can Vet J. 2016 Mar;57(3):227-9.

→ Accreditation of veterinaray schools is like an external recognition of the curriculuar designed to equip their graduating students with Day One competencies requested by local/global society.

→ Two aspects of single entity

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Topics

- Competency-based veterinary education today
  - definition
  - OIE day-1 competencies
  - AAVMC competency-based veterinary eduaction and entrusrtable professional activity
- Progress in veterinary education and accreditation of veterinary schools in Asia
- Suggested strategies to establish accreditation systems for veterinary schools in Asia

Outcomes matters in medical education

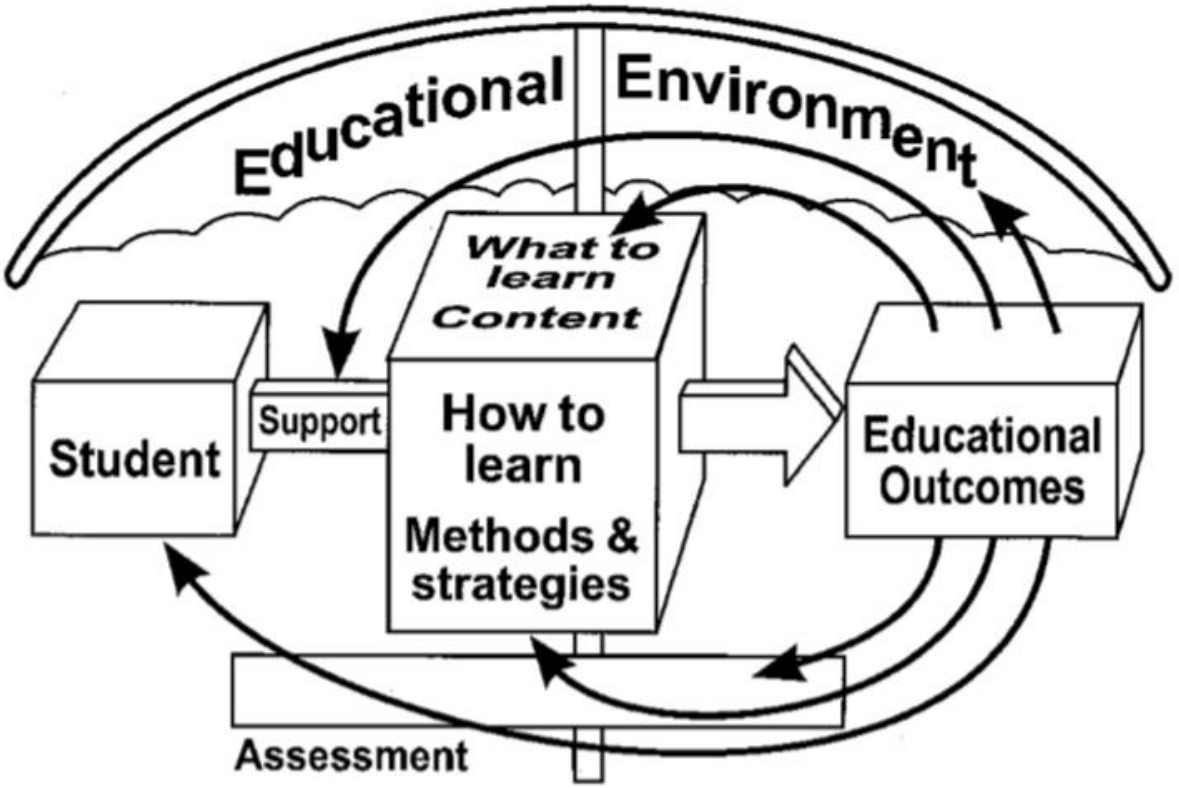

Figure 1. A model for the curriculum emphasising the importance of educational outcomes in curriculum planning.

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R. M. HARDEN (1999) AMEE Guide No. 14: Outcome-based education: Part 1-An introduction to outcome-based education, Medical Teacher, 21:1, 7-14,

Competency-based medical education (CBME)

❖ **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.

(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).

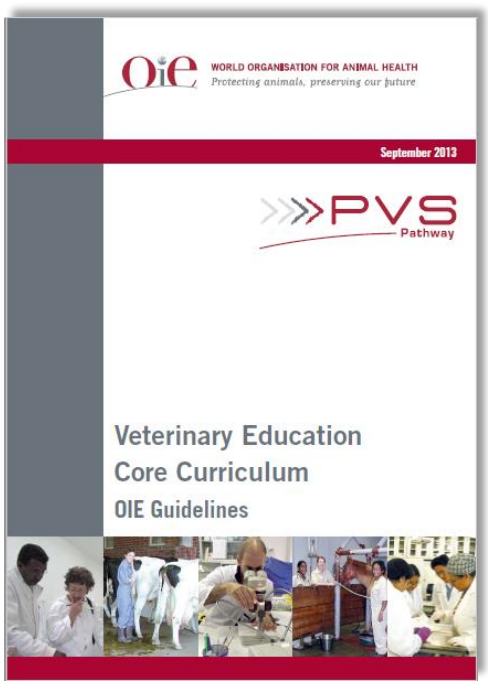
❖ **Day one competencies**

- Entry level competencies
- Graduation competencies
- Minimum/Core competencies

OIE Day One Competencies

OIE initiatives for veterinary education

- 1st Conference, Paris 2009
- 2nd Conference, Lyon 2011
- 3rd Conference, Iguazu, 2013
- 4th Conference, Bangkok, 2016



- Identified Veterinary Services as global pubic goods
- Developed Day 1 competencies (2012) and Core Courses for graduating veterinarians (2013)
- Promoting domestic and international collaborative efforts for implementation of the recommendations and guidelines (2013 ~ present)

Veterinary services are global public goods!

Reducing poverty

Food security

Market access

Animal welfare

Protecting animal health

Protecting public health

Animal production food safety

Quality veterinary education is one of cornerstones of good veterinary governance

OIE Day-1 Competences (2011):
3 Categories

- **Basic competencies:**
  1. Basic general competencies**:** basic vet science, clinical vet science, animal production, food hygiene and safety, animal welfare

  2. Basic specific competencies: critical competencies written in OIE Terrestrial Code; definition and learning objectives for entry level-vet are provided

- **3. Advanced competencies:**
  - instruction is given as part of curriculum
  - expertise better obtained through post-graduate education & 'on-the-job' training
  - primary learning objective is 'general awareness/appreciation for each competency

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Ron DeHaven, 2011; 2nd OIE Global Conference for Veterinary Medical Education

OIE Day-1 Competences (2011)

2. General Specific Competencies (11)

2.1. Epidemiology - 2 Learning objectives (LO)
2.2. Transboundary animal diseases – 4 LO
2.3. Zoonoses including food-borne diseases – 4 LO
2.4. Emerging and re-emerging diseses – 4 LO
2.5. Disease prevention and control programs – 6 LO
2.6. Food hygiene – 3 LO
2.7. Veterinary products – 5 LO
2.8. Animal welfare– 3 LO
2.9. Veterinary legislation and ethics – 4 LO
2.10. General certification procedures – 2 LO
2.11. Communication skills - 2 LO

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Ron DeHaven, 2011; 2nd OIE Global Conference for Veterinary Medical Education

OIE Day-1 Competences (2011):

Definition and Learning Objectives of basic specific competency, Emerging and re-emerging diseases

Learning objectives:

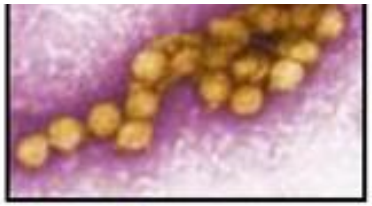
2.4.1. Define "emerging disease" and provide contemporary examples

2.4.1. Define "re-emerging disease" and provide contemporary examples

2.4.1. Understand the reasons/hypotheses to explain the emergence & re-emergence of diseases

2.4.1. Know where to find up-to-date information regarding emerging and re-emerging diseases

first time.



Ron DeHaven, 2011; 2nd OIE Global Conference for Veterinary Medical Education

OIE Day-1 Competences (2011):

3. Advanced Competencies (8)

3.1. Organization of veterin
3.2. Inspecti
3.3. M
3.4. Fo
3.5. Ap
in
co
3.6. Res
3.7. Inter
3.8. Admi

- 11 Specific Competencies and 39 Learning Objectives

* 8 Advanced Competencies and 33 Learning Objectives

→ 72 Learning Objectives

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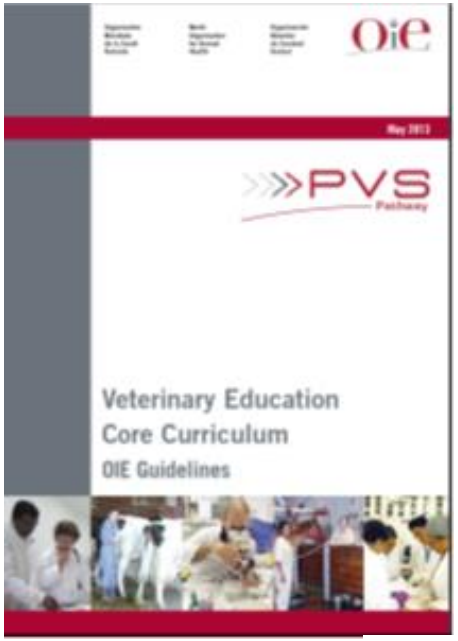
2nd OIE Global Conference (Lyon 2011)

- highlighted the importance of a minimum veterinary curriculum which would enable the attainment of the competencies.

Guidelines on the Core Veterinary Curriculum are on the OIE website: http://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/Vet_Edu_AHG/formation_initiale/Core-ENG-v6.pdf

21 Core Courses



Triggered to develop other parts of day-1 competencies for good veterinary doctors in Asian veterinary schools

1. Basic sciences and skills
2. Clinical sciences, skills and performance
3. Non-technical competencies

AAVMC Day One Competencies

AAVMC, Association of American Veterinary Medical Colleges

For competency-based veterinary education (CBVE),
AAVMC developed competency framework,
entrustable professional activity
and milestones

AAVMC CBVE Working Group (2015-2018)

- 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, University of Calgary
- Bonnie Rush, Kansas State University
- Kathy Salisbury, Purdue University
- Jody Frost, Educational Consultant & Facilitator
- Ted Mashima, Senior Director for Academic and Research Affairs, AAVMC

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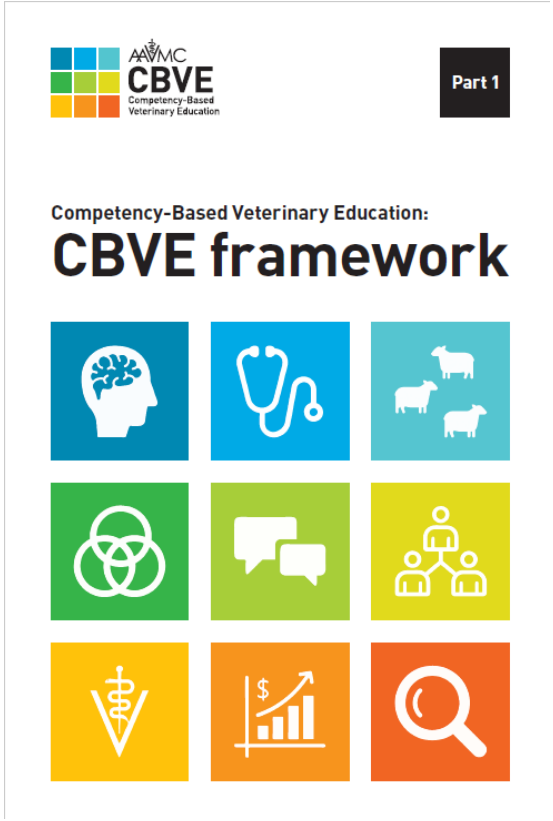
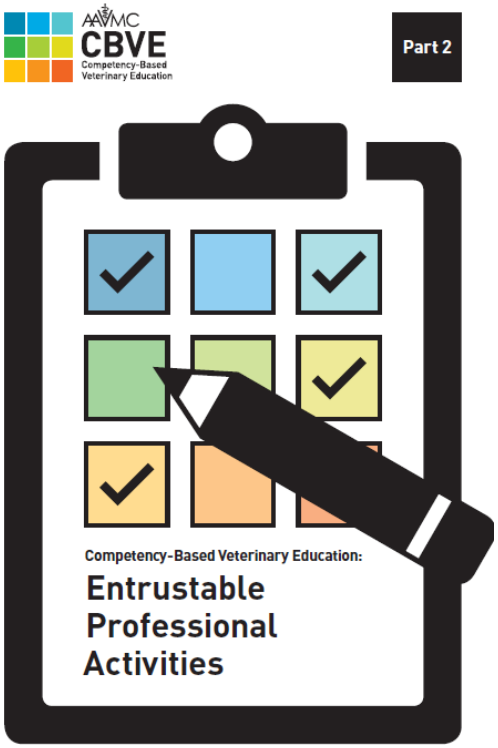
Three publications of competency-based veterinary education (CBVE) working group

March 2018



March 2018



May 2019

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Molgaard LK et al. (2019) Development of core entrustable professional activities linked to a competency-based veterinary education framework. ***Medical Teacher****,* ***41****:12, 1404-1410*

Domains of Competence

AAVMC CBVE Competency-Based Veterinary Education

Competency-Based Veterinary Education:
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

OIE Day-1 Com-petencies

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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.

← Description of 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 intended to be all encompassing;
- help because they provide some granularity

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Table 1: CBVE Framework Domain 1—Clinical Reasoning and Decision-Making

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)
1.1 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)
1.4 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

Table 4: CBVE Framework Domain 4—Public Health

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	Example Sub-competencies (non-comprehensive)
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 assuring food safety

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Matthew SM et al. Collaborative Development of a Shared Framework for Competency-Based Veterinary Education. J Vet Med Educ. 2020 Oct;47(5):578-593.

Competency-based medical education (CBME)

General acceptance worldwide, but..

- CBME frameworks tend to become analytical and detailed
- Competencies are sometimes rather abstract and general
- Clinical teachers struggle in assessing whether they can entrsut the trainee's performance at the work place

- During 2000~2010, the focus of CBME is shifted from *individual competencies* to the *work that must be done*.

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Olle ten Cate, UEMS-NASCE Business meeting Feb 16, 2018, Brussels

ten Cate O. Entrustability of professional activities and competency-based training. Med Educ. 2005 Dec;39(12):1176-7.

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 with minimal supervision
- EPAs describe an activity, in the *workplace* that can be used as an opportunity for assessment of the learner


- ***Entrustable***: acts that require trust – by colleagues, patients, public
- ***Professional***: confined to occupations with extra-ordinary qualification and right
- ***Activities***: tasks that must be done

Ten Cate O et al. Curriculum development for the workplace using Entrustable Professional Activities (EPAs): AMEE Guide No. 99. Med Teach. 2015;37(11):983-1002.

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EPA and Competency

- EPAs: units of work/tasks that must be done at the workplace
- Competencies: qualities of individuals
- One can possess competencies, but cannot EPAs

Competencies	EPAs
person-descriptors	**work-descriptors**
knowledge, skills, attitudes, values	Essential units of professional practice
• content expertise • health system knowledge • communication ability • management ability • professional attitude • scholarly skills	• discharge patient • counsel patient • lead family meeting • design treatment plan • Insert central line • Resuscitate patient

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(Olle ten Cate, UEMS-NASCE Business meeting Feb 16, 2018, Brussels)

Entrustable Professional Activity (EPA)

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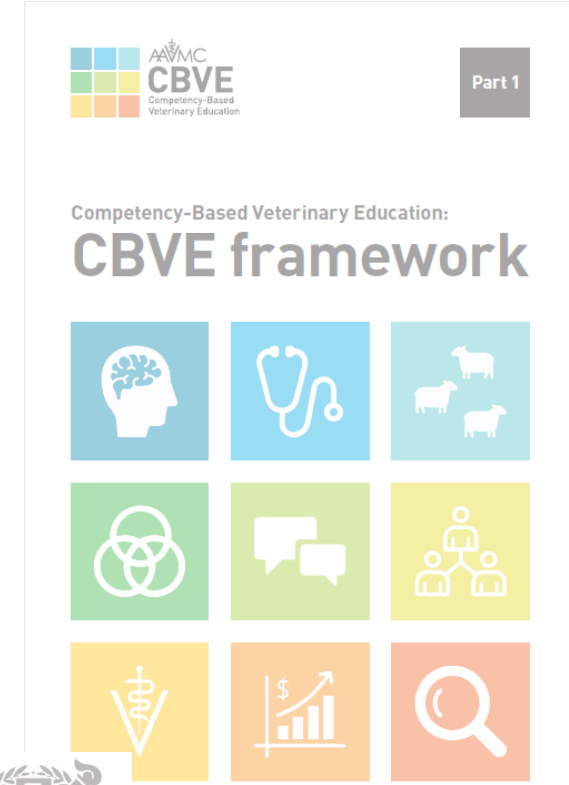

March 2018

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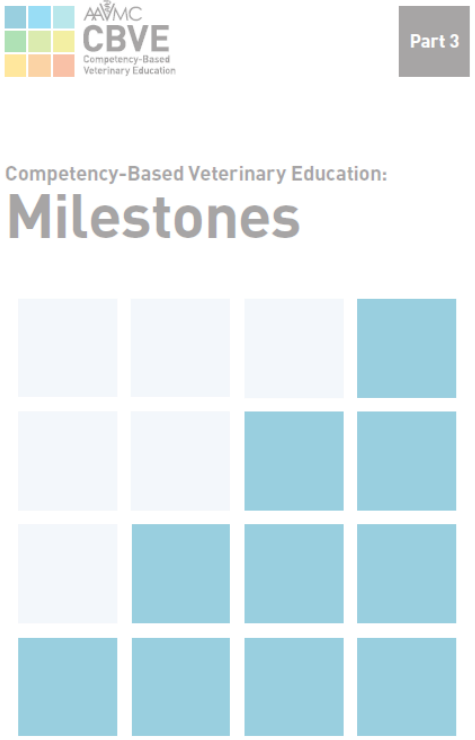

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AAVMC 8 Core EPAs

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

- can be performed on individual animals or pupulations of animals, and in a verity of species

Molgaard LK et al. Development of core entrustable professional activities linked to a competency-based veterinary education framework. Med Teach. 2019 Dec; 41(12):1404-1410.

EPA 2. Develop a diagnostic plan and interpret results

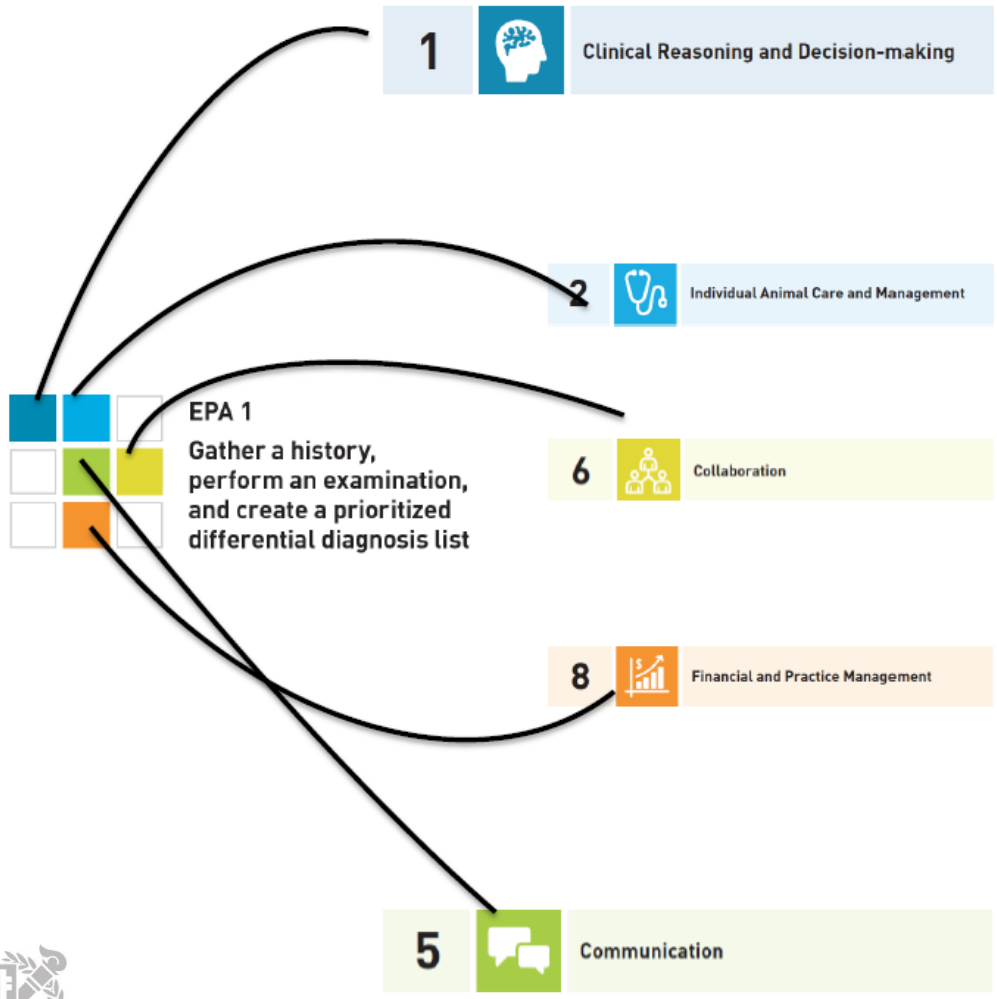
DESCRIPTION OF ACTIVITY	Integrate individual animal or herd data to create a prioritized differential diagnostic list and determine a diagnostic plan, obtain consent for diagnostic testing and interpret results.
COMMENTARY	Developing a diagnostic action plan is an iterative, reflective process that requires continuous adaptation to avoid common errors of clinical reasoning.
MOST RELEVANT DOMAINS	1: **Clinical Reasoning & Decision-making** ■ 5: **Communication** ■
SECONDARY DOMAINS	6: Collaboration ■ 9: Scholarship ■
ELEMENTS WITHIN ACTIVITY	• Use clinical reasoning skills to create a prioritized differential diagnosis list [1.2; 9.2] ■ • Select initial diagnostic tests/procedures [1.3; 9.1] ■ ■ • Explain working diagnosis and rationale for further testing [1.3; 5.1; 9.2] ■ ■ ■ • Develop a financial estimate and obtain and document informed consent [1.4; 5.2; 5.3; 6.1] ■ ■ ■ ■ • Interpret test results [1.1] ■ • Update working diagnosis, diagnostic plan and client consent as new information is obtained [1.3, 5.2, 9.2] ■ ■ ■ • Document diagnostic plan in medical record [5.3] ■

EPAs mapped to 9 Domains of Competence

Identifies the specific competencies within the domain that make up the activities in the EPA

EPAs and Competencies

hx, history taking



- Obtain complete hx
- Identify chief complaint
- Identify hx elements assoc with common conditions
- Perform exam
- Attend patient welfare
- Attend patient welfare and wellness
- Demonstrates cultural competence
- Client safety and comfort
- Client centered interview skills
- Demonstrates cultural competence
- Communicate findings
- Document in medical record

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March 2018
AAVMC CBVE Working group

Cross-mapping of core EPAs to Domains of Competence in the CBVE Framework

EPAs \ DoCs	Clinical Reasoning and Decision-Making	Individual Animal Care and Management	Animal Population Care and Management	Public Health	Communication	Collaboration	Professionalism and Professional Identity	Financial and Practice Management	Scholarship
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	⋆	★	★		★				⋆

★ Most relevant domains of competence; ⋆ Secondary domains of competence.

Milestones: rating scales of entrustment

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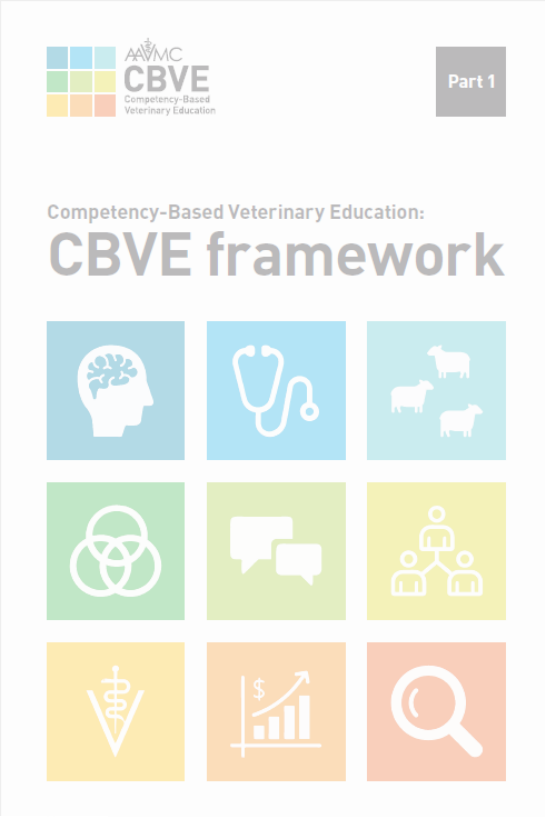

March 2018

May 2019

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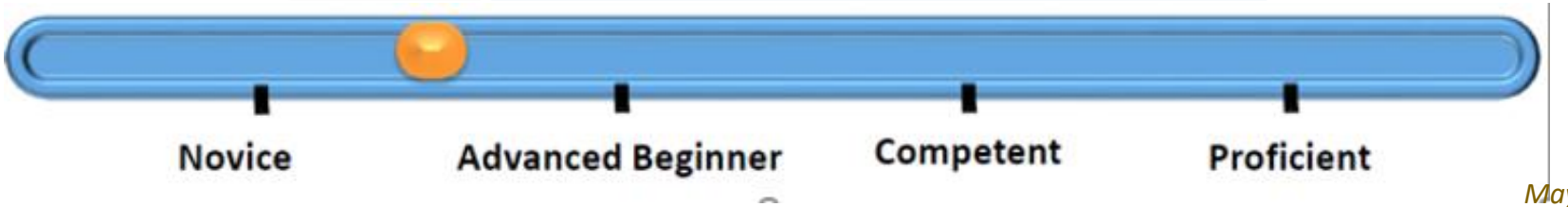
Milestones: level of achievement (competence) in each competency

Define the skill-level for each Competency.



Competency 1.1: Gathers and assimilates relevant information about animals (EPAs 1, 2, 4, 7)

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.

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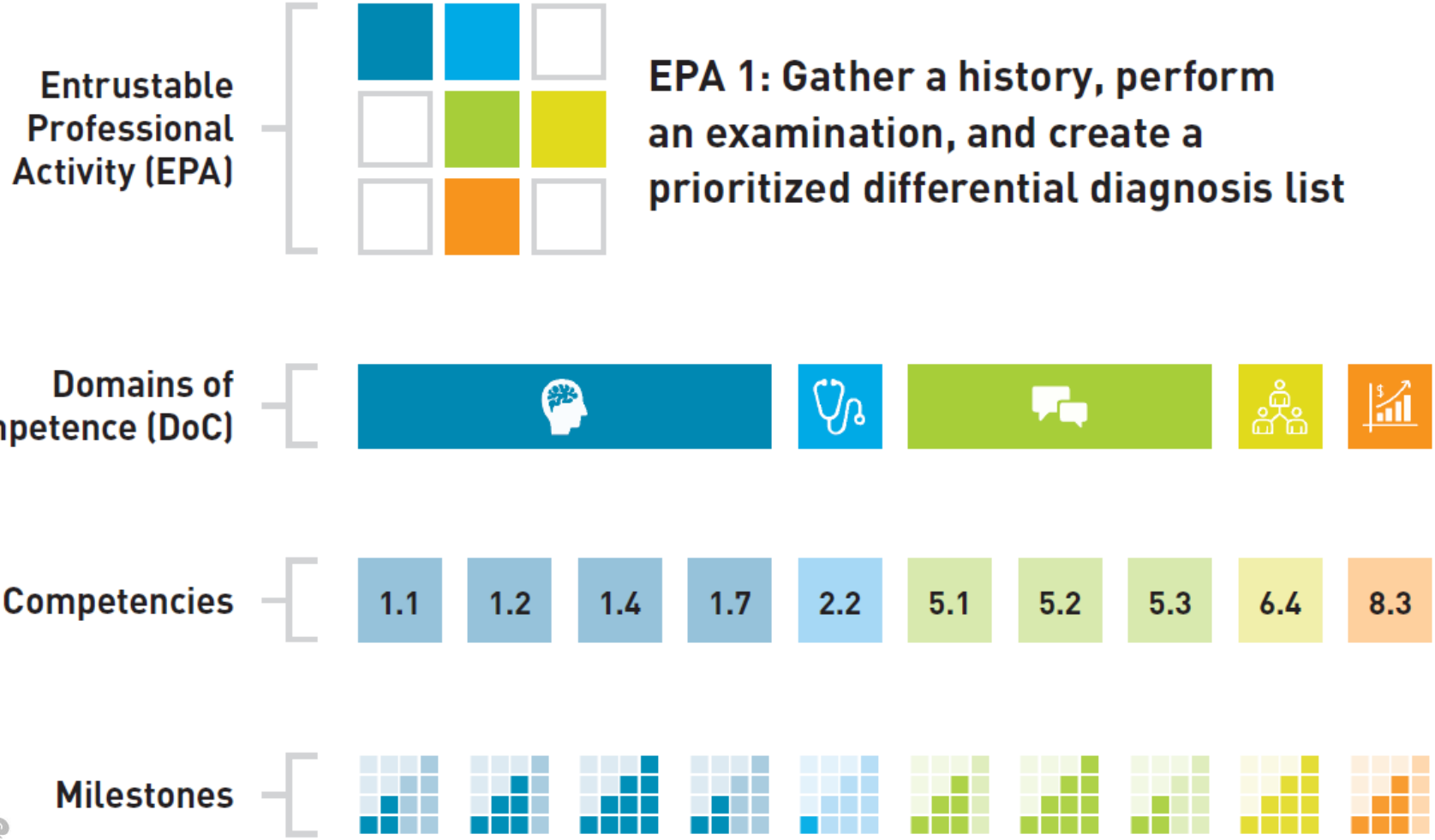
May 2019
AAVMC CBVE Working group

Achievement state (competence) of individual student in EPA 1



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Mach 2018
AAVMC CBVE Working group

Conversion achievement state to entrustment scales

Level of entrustment on EPA #

1. Not ready to trust
2. Trust with constant guidance
3. Trust with intermittent guidance
4. Trust with on demand guidance
5. Trust with no guidance

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Topics

- Competency-based veterinary education today
  - definition
  - OIE day-1 competencies
  - AAVMC competency-based veterinary eduaction and entrusrtable professional activity

- **Progress in veterinary education and accreditation of veterinary schools in Asia**

- Suggested strategies to establish accreditation systems for veterinary schools in Asia

There are 128 VEEs in 16 OIE member countries in Asia

(VEE, veterinary educational establishment; veterinary school)

Countries	No. of VEEs*	Countries	No. of VEEs*
Bangladesh	2	Malaysia	2
Cambodia	1	Monglia	1
China (People's Rep. of)	31	Myanmar	1
Chinese Taipei	4	Nepal	4
India	34	Philippines	4
Indonesia	10	Sri Lanka	1
Japan	16	Thailand	6
Korea (Rep. of)	10	Vietnam	1

Total number of countries: 16, Total number of listed VEEs: 128

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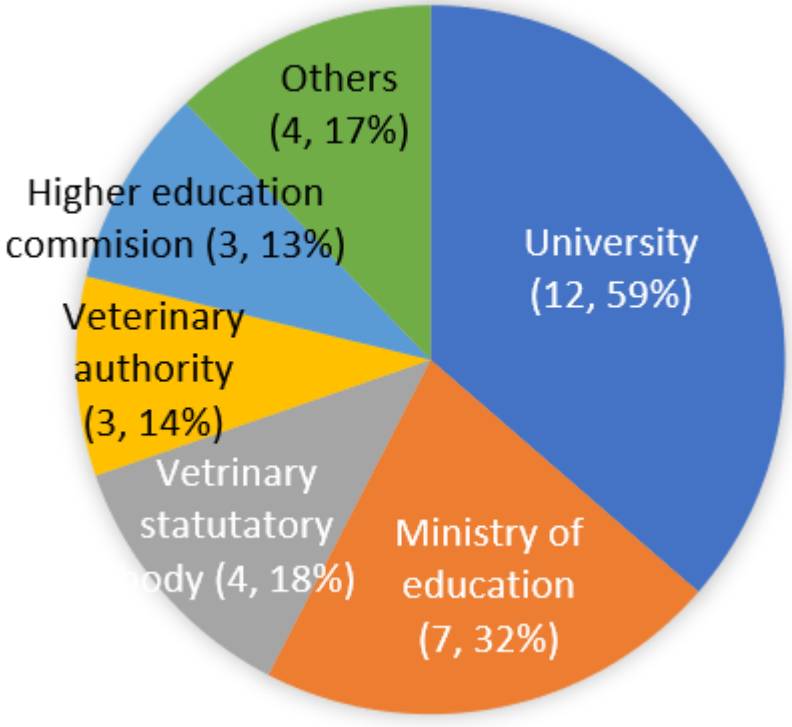
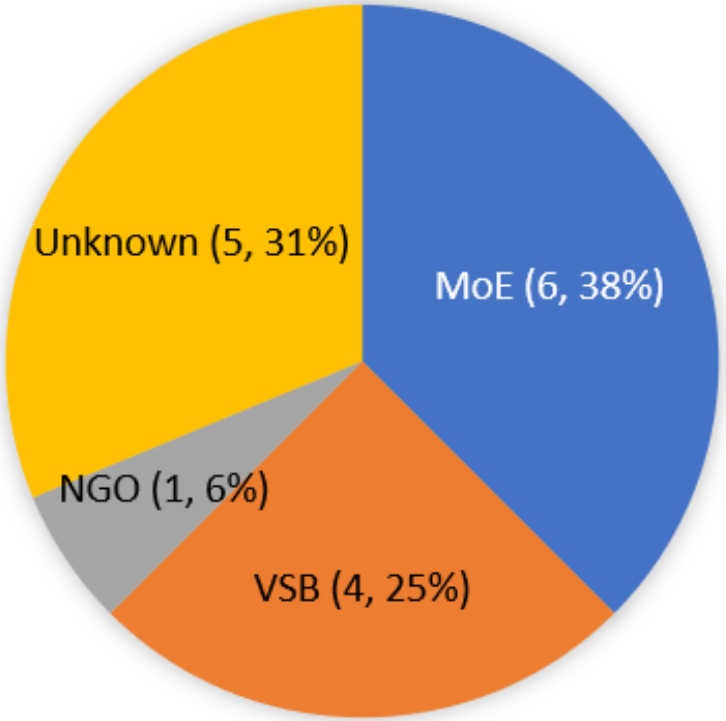
OIE global list of veterinary education establishments. OIE, Paris. Available at: www.oie.int/en/support-to-oie-members/veterinary-education/oie-global-list-of-vees (accessed on Feb 11 2016).

Curriculum approval and accreditation



Parties involved in approval of curriculum
(Urabe et al. 2020. JVME 47(s1):39-47)



Accreditation body (n=16)
(based on OIE VEE list, 2016)

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Major field of work for veterinarians in the country/territory (n=16)

Majority in companion animals	9 (56)
Majority in government work	4 (25)
Majority in food processing/food safety	1 (6)
Majority in livestock/farming	1 (6)

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Urabe M et al. Snapshot of Veterinary Education Establishments and Veterinary Statutory Bodies in Asia and the Pacific Region: Issues Identified and OIE Activities to Address Them. J Vet Med Educ. 2020 Sep;47(s1):39-47.

Summary: National accreditation bodies for veterinary schools in Asia

- ✓ About one third of veterinary schools in Asia are not under a quality assurance by accreditation system
- ✓ Curriculum change may take longer time in many countries/territories because the decision is made by others outside the university
- ✓ Major role of veterinarians vary widely among countries/territories

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Initiatives of AAVS for veterinary education

- *Establishment:* 2001 with 15 VEEs from 8 countries in Seoul
- *Mission:* advancement of education, research and public services in veterinary medicine
- *Membership*: educational institutions of veterinary medicine in Asian countries
- 18 annual meetings during 2001~2020
- 1 workshop for eduaction in 2014 (Surabaya) for curriculuar standadization

AAVS
ASIAN ASSOCIATION OF VETERINARY SCHOOL

Excellence in Veterinary Education

AAVS workshop for curricular standardization

(Sept 7-9, 2014)

- **Objectives**
  1. Standardize veterinary school curricula in Asia…….
  2. Prepare day one competencies for graduates ……..
  3. Provide the ground for accreditation of veterinary schools in Asia

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The 1st AAVS Working Group (2015)

- AAVS Working Group for Curricular Standardization and Accreditation is formed in 14th AAVS (Dec 11~13, 2015, Hua Hin-Cha Am, Thailand)

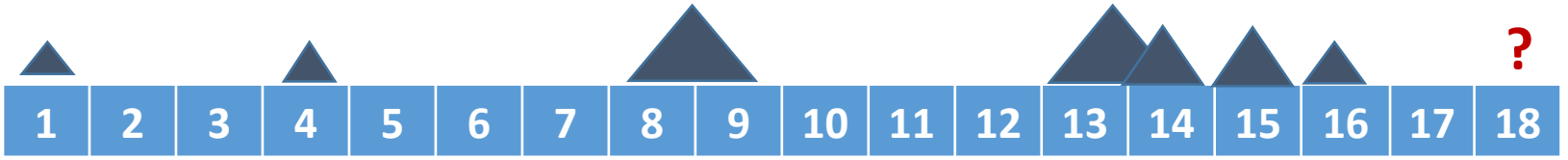
- Six members were appointed (Chair: Dr. R. Sidik, Airlangga University)
- Working Group's activity to be reported
  - AAVS 2016 (Oct 20-22, Taipei)
  - AAVS 2017 (Aug 27-31, Incheon)

Outcomes of AAVS initiatives for veterinary education ?

little accumulation

Why?

The primary reason is lack of a channel allowing continuous communication among individuals interested in veterinary education



A total of 18 annual meetings

Excellence in Veterinary Education

OIE has been the game changer in veterinary education in Asia over the last 10 years

- Identified veterinary services as global public goods
- Developed guidelines and recommendations for day one competencies
- Supported twining programs
- Hold workshops for curriculum reform
- Set standards, but not involved in accreditation of veterinary schools

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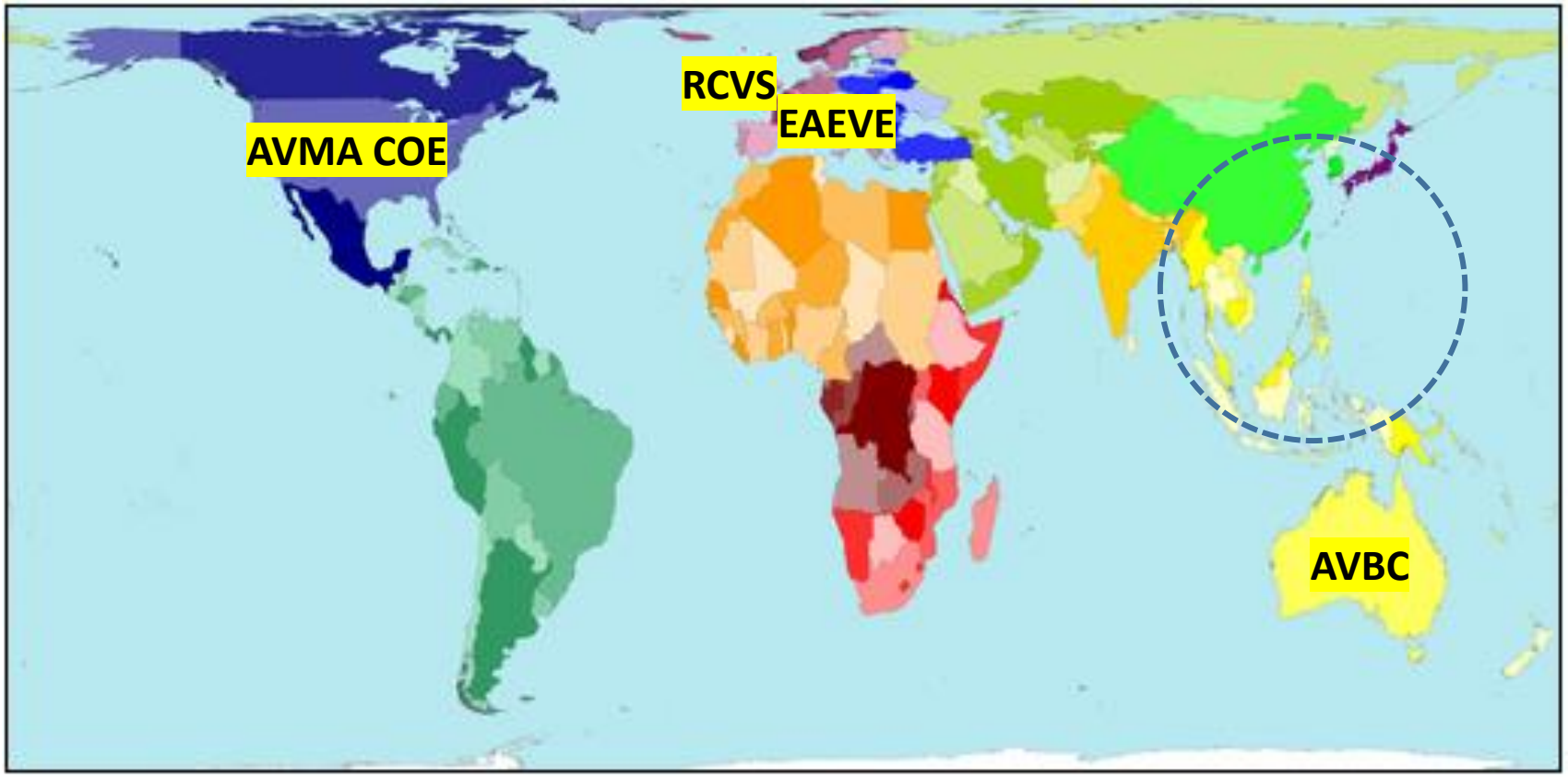
Established accreditation bodies for veterinary education: CBVE and EPA



- AVMA COE, Council of Education American Veterinary Medical Association
- EAEVE, European Association of Establishments for Veterinary Education
- RCVS, Royal College of Veterinary Surgens
- AVBC: Australasian Veterinary Boards Council
- AUN-QA: ASEAN University Network Quality Assurance

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Topics

- Competency-based veterinary education today
  - definition
  - OIE day-1 competencies
  - AAVMC competency-based veterinary eduaction and entrusrtable professional activity
- Progress in veterinary education and accreditation of veterinary schools in Asia
- **Suggested strategies to establish accreditation systems for veterinary schools in Asia**

Suggeted strategies-1

Phase 1: Establish a society of veterinary educators

1) Form an Asian community of practice for veterinary education and maintain communications and contacts among the members
   - individual faculty members in each veterinary school
   - experts working for accreditation of veterinary schools in each country

2) Identify PROPER day one competencies of own country/territory according the local demans

3) Prepare suitable curriculum/educational program for each veterinary school based on their own CBVE and EPA program

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Suggeted strategies-2

Phase 2: Design of accreditation instrument for veterinary school in Asia

1) Define advantages and benefits of adopting the accreditation system in Asia
2) Prepare the accreditation system including accreditation standards that fit most veterinary schools in Asia

Phase 3: Implementation of accrediation system for veterinary schools in Asia

1) Identify hurdles and work together to overcome them *(ie., resistance of faculty members inside the school, national laws that prevent or dely educational reform and accreditation)*
2) Maintain continuous improvement in veterinary education and accreditation *(ie., research in veterinary education; changes in the demands of local/gloval societies; changes in ecosystem)*

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Thank you for your attention!

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