# VETERINARY MEDICAL BOARD

# REVIEW OF THE VETERINARY TECHNICIAN NATIONAL EXAMINATION



## OFFICE OF PROFESSIONAL EXAMINATION SERVICES

STATE OF CALIFORNIA

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DEPARTMENT OF CONSUMER AFFAIRS

# VETERINARY MEDICAL BOARD

# REVIEW OF THE VETERINARY TECHNICIAN NATIONAL EXAMINATION

This report was prepared and written by the
Office of Professional Examination Services
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PROFESSIONAL EXAMINATION SERVICES

Licensing boards and bureaus within the California Department of Consumer Affairs (DCA) are required to ensure that examination programs used in the California licensure process comply with psychometric and legal standards. The Veterinary Medical Board (Board) requested that DCA's Office of Professional Examination Services (OPES) complete a comprehensive review of the American Association of Veterinary State Boards (AAVSB) Veterinary Technician National Examination (VTNE) program. The purpose of the review was to evaluate the suitability of the VTNE for continued use in California.

OPES received and reviewed documents provided by the AAVSB. Follow-up email and phone communications were conducted to clarify the procedures and practices used to validate and develop the VTNE. The documents were evaluated to determine whether the following VTNE examination program components met professional guidelines and technical standards: (a) occupational analysis, (b) examination development, (c) passing scores, (d) examination administration, (e) examination scoring and performance, (f) information available to candidates, and (g) examination security. OPES found that the procedures used to establish and support the validity and defensibility of the components listed above meet professional guidelines and technical standards outlined in the *Standards for Educational and Psychological Testing* (2014) *(Standards)* and in California Business and Professions Code section 139.

In December 2017, OPES convened a panel of California-registered veterinary technicians (RVTs) to serve as subject matter experts (SMEs). The SMEs were selected by the Board based on their geographic location, experience, and practice specialty. The SMEs were asked to review the examination content outline for the VTNE based on the AAVSB August 2017 Report of the 2017 Job Analysis of Veterinary Technicians (AAVSB 2017 OA). The SMEs were also asked to compare the VTNE examination outline with the examination outline for the California RVT examination based on the 2016 Occupational Analysis of the California Registered Veterinary Technician Profession performed by OPES (2016 California RVT OA).

The SMEs performed an evaluation of the task and knowledge statements in the 2017 national job analysis of veterinary technicians (VTs) and the 2016 California RVT OA. They concluded that the content measured by the VTNE assesses the general knowledge required for entry-level VT practice in California.

The SMEs were also asked to link the job task and knowledge statements taken from the 2017 national job analysis with the task and knowledge statements that make up the 2016 examination outline for the California RVT profession. This linkage was performed to identify whether there were areas of California RVT practice not measured by the VTNE.

The results of the linkage study indicate that there are areas of California RVT practice not measured by the VTNE. The SMEs provided input to OPES to revise the examination outline for the California RVT examination to address these content areas.

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# CHAPTER 1. INTRODUCTION

## PURPOSE OF THE COMPREHENSIVE REVIEW

Licensing boards and bureaus within the California Department of Consumer Affairs (DCA) are required to ensure that examination programs used in the California licensure process comply with psychometric and legal standards. The public must be reasonably confident that an individual passing a licensing examination has the requisite knowledge and skills to competently and safely practice in the corresponding profession.

The Veterinary Medical Board (Board) requested that DCA's Office of Professional Examination Services (OPES) complete a comprehensive review of the American Association of Veterinary State Boards (AAVSB) Veterinary Technician National Examination (VTNE) program. The first purpose of the OPES review was to evaluate the suitability of the VTNE for continued use in California. The second purpose of the review was to determine whether the VTNE meets the professional guidelines and technical standards outlined in the *Standards for Educational and Psychological Testing* (2014) *(Standards*[1]*)* and in California Business and Professions (B&P) Code section 139. In addition to the review, OPES was asked to identify whether there are areas of California-registered veterinary technician (RVT) practice not measured by the VTNE.

OPES, in collaboration with the Board, requested documentation from the AAVSB to determine whether the following VTNE examination program components met professional guidelines and technical standards outlined in the *Standards* and in B&P Code section 139: (a) occupational analysis,[2] (b) examination development, (c) passing scores,[3] (d) examination administration, (e) examination scoring and performance, (f) information available to candidates, and (g) examination security procedures.

AAVSB, in consultation with PSI Services LLC (PSI), conducted the occupational analysis (OA) of the veterinary technician (VT) profession for the VTNE. The AAVSB August 2017 Report of the 2017 Job Analysis of Veterinary Technicians (AAVSB 2017 OA) is used in this review.

After completing the 2017 national job analysis, PSI presented the results to the VTNE Committee, who approved the test specifications and relative weighting of the VTNE content areas. The VTNE is administered at PSI test sites.

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[1] *Standards* references information taken from: American Educational Research Association, American Psychological Association, and National Council on Measurement in Education. *Standards for Educational and Psychological Testing* (2014). Washington, DC: American Educational Research Association.

[2] An occupational analysis is also known as a job analysis, practice analysis, or task analysis.

[3] A passing score is also known as a pass point or cut score.

## CALIFORNIA LAW AND POLICY

Section 139 (a) of the California B&P Code states:

> The Legislature finds and declares that occupational analyses and examination validation studies are fundamental components of licensure programs.

It further requires that DCA develop a policy to address the minimum requirements for psychometrically sound examination validation, examination development, and occupational analyses, including standards for the review of state and national examinations.

DCA policy, OPES 12-01, specifies the *Standards* as the most relevant technical and professional standards to be followed to ensure that examinations used for licensure in California are psychometrically sound, job-related, and legally defensible.

## FORMAT OF THE REPORT

The chapters of this report provide the relevant standards related to critical psychometric aspects of the VTNE and describe the findings that OPES identified during its review.

# CHAPTER 2. OCCUPATIONAL ANALYSIS

## STANDARDS

The most relevant standard relating to occupational analyses for licensing examinations is:

**Standard 11.13**
The content domain to be covered by a credentialing test should be defined clearly and justified in terms of the importance of the content for credential-worthy performance in an occupation or profession. A rationale and evidence should be provided to support the claim that the knowledge or skills being assessed are required for credential-worthy performance in that occupation and are consistent with the purpose for which the credentialing program was instituted. (pp. 181-182)

The comment following Standard 11.13 is also informative:

*Comment:* Typically, some form of job or practice analysis provides the primary basis for defining the content domain. If the same examination is used in the credentialing of people employed in a variety of settings and specialties, a number of different job settings may need to be analyzed. Although the job analysis techniques may be similar to those used in employment testing, the emphasis for credentialing is limited appropriately to knowledge and skills necessary for effective practice. . . .

In tests used for licensure, knowledge and skills that may be important to success but are not directly related to the purpose of licensure (e.g., protecting the public) should not be included. (p. 182)

California B&P Code section 139 requires that each California licensure board, bureau, commission, and program report annually on the frequency of its occupational analysis and the validation and development of its examinations. DCA Licensure Examination Validation Policy OPES 12-01 states:

Generally, an occupational analysis and examination outline should be updated every five years to be considered current; however, many factors are taken into consideration when determining the need for a shorter interval. For instance, an occupational analysis and examination outline must be updated whenever there are significant changes in a profession's job tasks and/or demands, scope of practice, equipment, technology, required knowledge, skills and abilities, or laws and regulations governing the profession. (p. 4)

FINDINGS

AAVSB commissioned PSI to conduct the OA for the VTNE. The results of the study are documented in the AAVSB 2017 OA.

Occupational Analysis – Methodology and Time Frame

The purpose of the OA was to "provide a detailed study of the job activities of the veterinary technician in an effort to provide a sound basis for the continuing development of the Veterinary Technician National Examination (VTNE)" (AAVSB 2017 OA, p. 1). The methodology used to conduct the OA study was a web-based survey. The survey was developed under the guidance of PSI with the assistance of AAVSB staff, the VTNE Committee, and a Job Analysis Task Force (Task Force) consisting of 11 subject matter experts (SMEs). The Task Force included five VTs, a Doctor of Veterinary Medicine, and other relevant stakeholders. The OA survey was administered to entry-level VTs throughout North America (all 50 states and 6 Canadian provinces).

> **Finding 1.** The occupational analysis study was conducted within a current and legally defensible time frame. The study began in 2016 and was completed in 2017.

Occupational Analysis – Development of Survey Instrument and Sampling Plan

PSI consultants facilitated the survey development, beginning with a review of the previous job analysis that had been conducted in 2012-2013. PSI asked the VTNE Committee and the Task Force to work together on the project, which was conducted in two phases. In the first phase, SMEs reviewed and updated the current VTNE examination outline. "In the second phase, a survey was conducted to identify the absolute and relative salience of each domain, task, and knowledge area to the overall work of the entry-level veterinary technician" (AAVSB 2017 OA, p. 1).

During a two-day face-to-face meeting, the VTNE Committee and the Task Force were charged with reviewing and modifying the draft master task list and reviewing the practice domains, resulting in the development of a draft survey. "This document went through several reviews and revisions including an online review by an additional independent group of subject matter expert veterinary technicians, and eventually led to the development of a final job analysis survey" (AAVSB 2017 OA, p. 2). The Task Force also adopted a unified practitioner definition for the purposes of the survey.

Survey participants were asked to rate each domain, task, and knowledge base on three scales: (1) frequency, (2) importance, and (3) potential harm that could result if a VT was not competent with respect to the domain, task, or knowledge base. The draft survey was pilot tested and consisted of 9 practice domains, 70 tasks, and 49 knowledge areas. The survey also included demographic information and a rating of the level of supervision that the task required.

**Finding 2.** The methodology used by PSI to develop the survey instrument meets professional guidelines and technical standards.

Sampling Plan

The sampling plan for the study included VTs close to the entry level of practice from all 50 states and from 6 Canadian provinces. AAVSB contacted each of the 40 AAVSB member boards and requested a list of licensees in their jurisdiction. PSI sent survey invitations to each of the licensees compiled by AAVSB. PSI and AAVSB sent additional email invitations on behalf of AAVSB directly to individuals whose jurisdictions did not provide data to AAVSB.

In response to these efforts, a total of 5,776 surveys were returned as complete and usable, resulting in a response rate of 14.92%. Survey respondents from the United States made up a majority of the sample, with respondents from California and Canada appropriately represented.[4]

**Finding 3.** The intent of the sampling plan was reasonable and meets professional standards. Practicing RVTs in California comprised a sufficient proportion of the final respondent sample.

Occupational Analysis – Survey Results

After administering the survey, PSI collected the data and analyzed the survey results. During a second web-based meeting, the VTNE Committee and the Task Force reconvened to review the survey results. The key findings indicated that the tasks and knowledge represent a complete description of the specific elements of the job of entry-level VTs. In addition, all tasks and knowledge areas were rated above the recommended threshold for inclusion in the new version of the VTNE examination outline (AAVSB 2017 OA, p. 3).

**Finding 4.** The respondents consisted of practicing VTs from throughout the United States and Canada. A satisfactory percentage of the respondents reported that they had been practicing five years or less, and the majority reported working 40 hours or more as a VT. Of the total respondents, the majority categorized their primary work setting as general veterinary hospital / clinic, with the next most frequent category as referral / emergency / specialty veterinary hospital / clinic.[5]

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[4] Survey demographics from the AAVSB Veterinary Technician Job Analysis 2017.
[5] Ibid.

**Finding 5.** OPES facilitated a focus group of SMEs to review the findings of the AAVSB 2017 OA. The focus group reviewed the tasks and knowledge statements included in the survey and the results of the survey, and they compared the results with those of the 2016 California RVT OA. The group concluded that the results from AAVSB 2017 OA were consistent with RVT practice in California.

Occupational Analysis – Development of Test Specifications

PSI calculated the examination weights for each domain directly from the survey data. The domain weights were based on the frequency, importance, and potential for harm ratings. Decision rules were utilized to determine which tasks and knowledge areas to include in the examination outline. The decision rules for task importance incorporated regional subgroup analysis ratings to ensure that tasks included in the examination outline were rated important by all geographic regions. "The structure of the new delineation of practice continues the current structure. Data supported the nine domains in the new delineation which continues the current VTNE test specifications. All domains remained the same but some tasks were added to each domain" (AAVSB 2017 OA, p. 3). The VTNE Committee reviewed the survey results and recommended the new test specifications to the AAVSB Board of Directors.

**Finding 6.** The linkage between the critical tasks required by entry-level RVTs and the major content areas of the VTNE demonstrates a sufficient level of validity, thereby meeting professional guidelines and technical standards.

## CONCLUSIONS

Given the findings, the occupational analysis conducted by AAVSB meets professional guidelines and technical standards. Additionally, the development of the test specifications for the VTNE is based on the results of the OA and meets professional guidelines and technical standards.

## STANDARDS

Examination development includes many steps within an examination program, from the development of an examination content outline to scoring and analyzing items after the administration of an examination. Several specific activities involved in the examination development process are evaluated in this section. The activities include item writing, linking items to the examination content outline, developing examination forms, and scoring criteria.

The most relevant standards related to licensing examination development are:

**Standard 4.7**
The procedures used to develop, review, and try out items and to select items from the item pool should be documented. (p. 87)

**Standard 4.12**
Test developers should document the extent to which the content domain of a test represents the domain defined in the test specifications. (p. 89)

## FINDINGS

Item development for the VTNE is performed by PSI with the assistance of the VTNE Committee. The VTNE Committee members and member tenure are determined by the AAVSB President and approved by the Board of Directors, "taking into consideration the need for diverse representation, expertise and continuity" (AAVSB Bylaws, 2017, p. 12). In addition to the VTNE Committee, the AAVSB selects a diverse and representative group of RVT subject matter experts (SMEs).

A psychometrician from PSI trains the item writers. When items are reviewed remotely, SMEs gain access through a link and use an individual login ID and password. Newly written items are subject to an editorial review by PSI. The items are then reviewed by the VTNE Committee and a representative group of SMEs. The SMEs evaluate the items for relevance, clarity, and conformance to the examination specifications. The accuracy of the items is documented by references. Approved items are available for use as unscored pretest items (AAVSB, email communication, 2018).

> **Finding 7.** The criteria used to select SMEs for item and examination development are consistent with professional guidelines and technical standards.

> **Finding 8.** SMEs and VTNE Committee members participating in item and examination development are required to sign confidentiality agreements and are

instructed about examination security, which is consistent with professional guidelines and technical standards.

<u>Examination Development – Linkage to Examination Content Outline</u>

Linkage of items to the examination content outline is performed by providing item writers with specific item writing assignments. The VTNE Committee perform a second review to ensure that items conform to the examination content outline. Verification of the item-content area linkage is performed as a routine part of the item review process for every item. All items go through multiple reviews.

> **Finding 9.** Assignment of an item to a content area is reviewed by a committee as a routine part of the item review process. The steps taken to link the examination items to the appropriate content area are consistent with professional guidelines and technical standards.

<u>Examination Development – Item Field Testing and Calibration</u>

All scored test items have first been field tested as part of the regular examination administrations. The VTNE examination forms consist of 170 four-option multiple-choice items, with 150 scored and 20 pretest (unscored) items.

After pretesting, all items are analyzed using classical item analysis. Based on this analysis, PSI determines whether items can be used as scorable items or returned to the VTNE Committee for review and revision and additional pretest. Items are retired based on SME judgment and AAVSB request.

> **Finding 10.** The procedures used to develop, review, and pretest items, as well as to select and retire items from the item pool, meet professional guidelines and technical standards.

<u>Examination Development – Examination Forms</u>

PSI test developers and psychometricians select successfully pretested items for the scored portion of the VTNE. Items are selected for examination forms in accordance with the examination specifications. Forms are constructed to be comparable in terms of content and difficulty, and each form is reviewed by the VTNE Committee. Items are replaced as needed, and comparability is confirmed through pre-equating.

PSI uses classical item analysis to calculate descriptive statistics for each examination item, in addition to overall examination performance. Each scored item of the examination is evaluated to ensure that it performs with appropriate statistical characteristics. Examination forms are evaluated for reliability and decision consistency.

> **Finding 11.** The criteria applied to create new examination forms meet professional guidelines and technical standards.

## CONCLUSIONS

Given the findings, the examination development procedures conducted by PSI meet professional guidelines and technical standards.

STANDARDS

The passing score of an examination is the score that represents the level of performance that divides those candidates for licensure who are minimally competent from those who are not competent.

The standards most relevant to licensing examination passing scores, cut points, or cut scores are:

**Standard 5.21**
When proposed score interpretations involve one or more cut scores, the rationale and procedures used for establishing cut scores should be documented clearly. (p. 107)

**Standard 11.16**
The level of performance required for passing a credentialing test should depend on the knowledge and skills necessary for credential-worthy performance in the occupation or profession and should not be adjusted to control the number or proportion of persons passing the test. (p. 182)

The supporting commentary on passing or cut scores in Chapter 5 of the *Standards*, "Scores, Scales, Norms, Score Linking, and Cut Scores," states that the standard-setting process used should be clearly documented and defensible. The qualifications and the process of selection of the judges involved should be part of the documentation. A sufficiently large and representative group of judges should be involved, and care must be taken to ensure that judges understand the process and procedures they are to follow. (p.101)

In addition, the supporting commentary in Chapter 11 of the *Standards*, "Workplace Testing and Credentialing," states that the focus of tests used in credentialing is on "the standards of competence needed for effective performance (e.g., in licensure this refers to safe and effective performance in practice)" (p. 175). It further states, "Standards must be high enough to ensure that the public, employers, and government agencies are well served, but not so high as to be unreasonably limiting" (p. 176).

FINDINGS

## Passing Scores – Process, Use of Subject Matter Experts, and Methodology

The process of establishing passing scores for licensure exams relies upon the expertise and judgment of SMEs.

AAVSB uses the probability-based modified Angoff method of standard setting as the basis for establishing the passing score for the VTNE. PSI's Chief Psychometrician and a test development specialist facilitated the most recent standard setting workshop. The participants included 10 SMEs: 7 current members of the VTNE Committee, 2 former members of the VTNE who participated in the Job Analysis Task Force, and 1 additional SME. "The committee members and SME who participated were veterinary technician practitioners and educators, veterinarian practitioners and educators in veterinary technology programs, including AAVSB member board members and representatives from the allied organizations" (AAVSB email communication, 2018).

In the workshop, the SMEs were asked to identify the attributes of the minimally competent practitioner (MCP) by using a discussion and brainstorming process. The SMEs were also asked to review the content outline and identify potentially problematic tasks for the MCP. Once the definition of the MCP was developed, the SMEs were asked, "Out of 100 MCP examinees, how many will correctly answer the item?" Ratings lower than 25% and higher than 95% were discouraged. The SMEs were asked to first provide their rating for an item; they were then provided with the item statistics or the correct key to the item. The SMEs could adjust their ratings and were encouraged to discuss their ratings when necessary.

PSI psychometricians calculated the results of the passing score study and presented the findings during a webinar call with the VTNE Committee members. The VTNE Committee members discussed the results, and PSI provided statistical information. The final passing score was unanimously agreed upon, with a final recommendation presented to the AAVSB Board of Directors.

> **Finding 12.** The number of SMEs (10) used in the passing score studies meets professional guidelines and technical standards.

> **Finding 13.** The VTNE incorporates the minimum competency standards that the MCP should have as objective criteria by which candidate performance can be evaluated. This practice meets professional guidelines and technical standards.

> **Finding 14.** The training of the SMEs and the application of the probability-based modified Angoff method is consistent with professional guidelines and technical standards.

## CONCLUSIONS

Given the findings, the passing score studies conducted by PSI demonstrate a sufficient degree of validity, thereby meeting professional guidelines and technical standards.

# CHAPTER 5.  EXAMINATION ADMINISTRATION

## STANDARDS

The standards most relevant to licensing examination administration are:

**Standard 6.1**
Test administrators should follow carefully the standardized procedures for administration and scoring specified by the test developer and any instructions from the test user. (p. 114)

**Standard 6.2**
When formal procedures have been established for requesting and receiving accommodations, test takers should be informed of these procedures in advance of testing. (p. 115)

**Standard 6.6**
Reasonable efforts should be made to assure the integrity of test scores by eliminating opportunities for test takers to attain scores by fraudulent or deceptive means. (p. 116)

**Standard 8.2**
Test takers should be provided in advance with as much information about the test, the testing process, the intended test use, test scoring criteria, testing policy, availability of accommodations, and confidentiality protection as is consistent with obtaining valid responses and making appropriate interpretations of test scores. (p. 134)

## FINDINGS

The VTNE is administered three times a year via computer at over 300 PSI testing centers throughout the United States and Canada. A French translation is also available. Examination administration is accompanied by scripted instructions and protocols to ensure standardized administration of the tests. AAVSB provides a wide variety of information concerning the VTNE to candidates and prospective candidates through its website at www.aavsb.org/vtne/.

Examination Administration – Test Centers

All test centers where the VTNE is administered are run by Test Center Administrators (TCAs) who must complete a comprehensive training program. TCAs are trained by a site Lead TCA and receive a copy of the TCA Manual. Refresher training is completed by either the test site Lead or by a traveling Lead TCA trainer. Biannual training for all TCA staff is also mandatory.

The TCA Manual includes detailed procedures for arriving at the test center, greeting examination candidates, checking in candidates, walking candidates into the testing room, monitoring candidates during testing, checking out candidates, and shutting down the testing site after testing.

> **Finding 15.** PSI provides candidates access to test centers across the United States and Canada with trained proctors and controlled testing conditions.

Examination Administration – Candidate Registration

AAVSB has a detailed registration process that can be found on its website at www.aavsb.org/vtne-overview. Through this website, candidates can easily navigate through the examination registration process. Candidates can verify eligibility to take the test, apply online, check the status of their application, and schedule their test date during the dates when the examination administration is available. The VTNE *Candidate Information Handbook*, which can be found on the AAVSB website, also provides detailed information on registration and examination administration.

> **Finding 16.** The AAVSB registration process is straightforward. The information available to candidates is detailed and thorough, clearly stating AAVSB and PSI policies where necessary. The candidate registration process appears to meet professional guidelines and technical standards.

Examination Administration – Accommodations and Arrangements

Candidates must submit requests for accommodations to AAVSB before the selected examination registration window closes. Candidates must select a box indicating that they are requesting accommodations on their online registration form. The AAVSB Board of Directors reviews and approves any necessary accommodations under the Americans with Disabilities Act. Candidates requesting accommodations must complete the *Veterinary Technician National Examination Application for Special Accommodations* and mail it directly to AAVSB. The online application and the application for special accommodations are matched and processed together by AAVSB.

> **Finding 17.** The examination accommodations procedure appears to meet professional guidelines and technical standards.

Examination Administration – Examination Security

PSI, through its internal examination administration and security protocols, provides a robust framework of test site and examination security policies and procedures (Test Center Operations Exam Administration Manual, 2016). In addition, the AAVSB VTNE *Candidate Information Handbook* describes what constitutes improper acts and unethical conduct on the part of candidates and the consequences of such actions.

> **Finding 18.** The examination security protocols pertaining to examination administration appear to meet professional guidelines and technical standards.

## CONCLUSIONS

Given the findings, the examination administration protocols put in place by AAVSB and PSI appear to meet professional guidelines and technical standards.

## CHAPTER 6.  EXAMINATION SCORING AND PERFORMANCE

### STANDARDS

The most relevant standards relating to the scoring and performance of licensing examinations are:

**Standard 2.3**
For each total score, subscore, or combination of scores that is to be interpreted, estimates of relevant indices of reliability/precision should be reported. (p. 43)

**Standard 4.10**
When a test developer evaluates the psychometric properties of items, the model used for that purpose (e.g., classical test theory, item response theory, or another model) should be documented. The sample used for estimating item properties should be described and should be of adequate size and diversity for the procedure. The process by which items are screened and the data used for screening, such as item difficulty, item discrimination, or differential item functioning (DIF) for major examinee groups, should also be documented. When model-based methods (e.g., IRT) are used to estimate item parameters in test development, the item response model, estimation procedures, and evidence of model fit should be documented. (pp. 88-89)

### FINDINGS

Examination Performance – Scoring of the VTNE

The VTNE consists of multiple-choice items that are scored as either correct or incorrect. Candidate performance is scored by computer, and raw scores are converted to scaled scores. "After equating procedures are completed, raw scores are mathematically converted to scaled scores that can range from 200 to 800 with a passing scaled score of 425. Scaled scores are equivalent for all administrations so that the same standard is maintained from administration to administration. All jurisdictions accept a scaled passing score of 425" (AAVSB, *Candidate Information Handbook*, 2017, p. 14).

The passing score for the base examination form established by the AAVSB standard setting study is used to statistically pre-equate all future examination forms until the next standard setting study is conducted.

> **Finding 19.** Scoring of the VTNE adheres to professional guidelines and technical standards.

**Finding 20.** Descriptive test statistics are calculated (e.g., mean, standard deviation, standard error of measurement, test reliability, and decision consistency reliability about the cut score). The resulting statistics indicate adequate performance for licensure examinations.

**Finding 21.** The procedure used to ensure examination forms are equated (equivalent) is appropriate based on the examination item types, examination form length, and candidate sample sizes.


## CONCLUSIONS

The steps taken by PSI to score the VTNE provide a fair and objective evaluation of candidate performance. The steps taken by PSI to evaluate examination performance are valid and legally defensible, meeting professional guidelines and technical standards.

# CHAPTER 7.  INFORMATION AVAILABLE TO CANDIDATES

## STANDARDS

The most relevant standards relating to the information communicated to licensing examination candidates by a test developer are:

**Standard 6.5**
Test takers should be provided appropriate instructions, practice, and other support necessary to reduce construct-irrelevant variance. (p. 116)

**Standard 8.1**
Information about test content and purposes that is available to any test taker prior to testing should be available to all test takers. Shared information should be available free of charge and in accessible formats. (p. 133)

**Standard 8.2**
Test takers should be provided in advance with as much information about the test, the testing process, the intended test use, test scoring criteria, testing policy, availability of accommodations, and confidentiality protection as is consistent with obtaining valid responses and making appropriate interpretations of test scores. (p. 134)

## FINDINGS

The AAVSB website at www.aavsb.org/vtne-overview is a rich source of information regarding the policies and procedures of the VTNE. Candidates must set up a "myAAVSB account" to access their personal information through the website. Candidates can find material on all necessary steps related to the examination process by selecting from the following links:

- Verify Your Eligibility
- Submit Your Online Application
- Check Your Application Status
- Schedule Your Exam
- Study for the VTNE
- Withdraw Your Application
- Get Your Score Report
- Retake the VTNE
- Get Your Credential

In the "Study for the VTNE" link, AAVSB offers practice tests for purchase that are designed to assess candidates' strengths and weaknesses in each of the nine domain

areas of the VTNE. Candidates who take the practice test are provided with diagnostic information by practice domain to assist in planning and preparing for the actual VTNE (AAVSB website, 2017).

In addition, AAVSB provides a customer service phone number and a helpful email form that candidates can use to submit questions.

> **Finding 22.** The AAVSB website provides extensive information to candidates regarding all aspects of the examination and testing process.

## CONCLUSIONS

Given the findings, the information provided to candidates about the VTNE program is comprehensive and meets professional guidelines.

# CHAPTER 8.  EXAMINATION SECURITY

## STANDARDS

The most relevant standards relating to the examination security of licensing examinations are:

**Standard 6.6**
Reasonable efforts should be made to ensure the integrity of test scores by eliminating opportunities for test takers to attain scores by fraudulent or deceptive means. (p. 116)

**Standard 6.7**
Test users have the responsibility of protecting the security of test materials at all times. (p. 117)

## FINDINGS

PSI provides a robust framework of test site and examination security policies and procedures through its internal examination administration and security protocols. In addition, the AAVSB website explains what constitutes improper and unethical conduct on the part of candidates and the consequences of such actions.

**Finding 23.** The Test Center Operations Exam Administration Manual addresses the following areas regarding security:

- Candidate identification verification procedures
- Test center proctoring policy
- Secure test center configuration and monitoring
- Maintaining security of test content
- Prevention policies enforced at test centers

**Finding 24.** PSI requires candidates to provide current and valid government-issued identification to sit for the examination. The identification must match registration forms and include a photograph and signature. Before testing, candidates must provide a digital thumbprint. Candidates must verify their thumbprint when entering and exiting the testing room. Candidates are prohibited from bringing any personal belongings into the testing rooms and TCAs verify that their pockets are empty. Candidates are videotaped during the entire testing process. TCAs monitor the video cameras and physically monitor the testing room every 5-7 minutes.

## CONCLUSIONS

Given the findings, the policies and procedures outlined in the Test Center Operations Exam Administration Manual and the TCA Training Instructions meet professional guidelines and technical standards.

## CHAPTER 9.  COMPARISON OF THE VTNE AND THE CALIFORNIA RVT

UTILIZATION OF EXPERTS

OPES convened a meeting on December 19-20, 2017 to critically evaluate the task and knowledge statements from the AAVSB 2017 OA and compare them with the task and knowledge statements of the 2016 California RVT OA. The Board, with direction from OPES, recruited 10 RVT SMEs to participate in the meeting. The SMEs completed security agreements and personal data forms documenting demographic information. The forms are on file with OPES.

The SMEs represented both northern and southern California. Four of the SMEs had been licensed for 0-5 years, three for 6-10 years, two for 11-20 years, and one for more than 20 years. All SMEs worked as RVTs in various settings.

An orientation provided by OPES stated the purpose of the meeting, the role of the SMEs, and the project background leading to the meeting. Once the SMEs understood the purpose of the meeting, they independently reviewed the task and knowledge statements from the AAVSB 2017 OA and compared this content with the task and knowledge statements contained in the 2016 California RVT OA. This review was conducted to identify the extent to which the content of the task and knowledge statements used as the basis for the VTNE reflected general RVT practice in California.

After the SMEs completed this review, OPES asked the SMEs to identify the tasks and knowledge in the 2016 California RVT OA that were most relevant to California-specific VT practice.  The SMEs then evaluated the extent to which the content of the VTNE related to the California-specific tasks and knowledge measured by the existing (2012) examination outline for the California RVT examination.

The content categories for the VTNE and the content areas for the 2016 California RVT OA examination outline are provided in Tables 1 and 2.

TABLE 1 – CONTENT CATEGORIES OF THE VTNE

| Practice Domains | Percentage of Examination |
|---|---|
| Domain 1. Pharmacy and Pharmacology | 12% |
| Domain 2. Surgical Nursing | 11% |
| Domain 3. Dentistry | 8% |
| Domain 4. Laboratory Procedures | 12% |
| Domain 5. Animal Care and Nursing | 20% |
| Domain 6. Diagnostic Imaging | 7% |
| Domain 7. Anesthesia | 15% |
| Domain 8. Emergency Medicine / Critical Care | 8% |
| Domain 9. Pain Management Analgesia | 7% |
| **Total** | **100%** |

TABLE 2 – CONTENT AREAS OF THE CALIFORNIA RVT EXAMINATION OUTLINE

| Content Area | Content Area Description | Percent Weight |
|---|---|---|
| 1. Patient Examination | This content area addresses the candidate's ability to obtain patient signalment and history (e.g., husbandry, medications, clinical signs) and discuss the patient with the owner; observe patient (e.g., demeaner, behavior, condition) and examine patient (e.g., oral, vitals, skin) to establish/update patient status. | 14% |
| 2. Emergency and Critical Care | This content area addresses the candidates' ability to triage patients; initiate emergency treatment (e.g., oxygen therapy, hemorrhage control, intravenous fluids, monitor vitals, CPCR) in order to stabilize patient; perform applicable diagnostics; calculate and administer medications as directed. | 10% |
| 3. Diagnostic Imaging | This content area addresses the candidate's ability to prepare and position patient for diagnostic imaging (e.g., radiography, ultrasonography) in a safe manner to maximize the quality of results; maintain images, imaging equipment, and personal protective equipment (PPE). | 6% |
| 4. Laboratory and Diagnostic Procedures | This content area addresses the candidate's ability to collect, prepare, and determine diagnostic samples (e.g., cytology, urinalysis, microbiology, hematology, parasitology) for veterinarian review; obtain electrocardiogram and blood pressure. | 8% |
| 5. Anesthesia and Surgical Assistance | This content area addresses the candidate's ability to prepare patient (e.g., position, shave, scrub) and surgical area(s) for anesthetic procedures (e.g., dosage calculation, surgical equipment, aseptic environment, emergency supplies); administer and induce anesthetics/sedation/medication; monitor patient through all phases of anesthesia; maintain surgical suite and equipment. This section also addresses the candidate's ability to assist with surgical procedures (e.g., scrub-in, suture) in adherence with sterility protocol; provide post-operative care (e.g., bandage, extubate) to optimize recovery. | 19% |
| 6. Animal Dentistry | This content area addresses the candidate's ability to perform dental care (e.g., charting, radiography, prophylaxis, extractions, dosage calculations/administration); maintain dental instruments and equipment. | 6% |

| Content Area | Content Area Description | Percent Weight |
|---|---|---|
| 7. Animal Nursing | This content area addresses the candidate's ability to restrain and prepare patient for diagnostics (e.g., ocular, orthopedic, blood pressure) and therapeutic procedures (e.g., fluid and blood products, bandages, medication, medical grooming); observe patient behavior and/or recognize physical abnormalities; administer euthanasia, dispose of biohazardous and infectious materials in adherence with State, local, and federal regulations; place permanent identification products. | 22% |
| 8. Pharmacology | This content area addresses the candidate's ability to calculate dosages; administer medications, fluids, and vaccines by various routes; store and maintain medication and controlled substances; prepare medication for dispensing; assess patient for adverse reaction to medication. | 8% |
| 9. Owner / Agent Communication | This content area addresses the candidate's ability to educate owner/agents regarding patient care (e.g., dental, grooming, vaccines, preventive care, medications) and husbandry (e.g., nutrition, reproduction, environmental condition, behavior and training) for various species and breeds; conditions and abnormalities that require management or urgent care; common contagious and zoonotic diseases. | 7% |
| **Total** | | **100%** |

FINDINGS

**Finding 25.** The SMEs evaluated the VTNE content outline against the California-specific tasks and knowledge in the 2016 California RVT OA and against the existing California RVT examination outline. The SMEs concluded that the VTNE does not assess all California-specific laws, regulations, and practice related to RVT practice.

CONCLUSIONS

Given the findings, the content of the VTNE, which is based on the AAVSB 2017 OA, is consistent with general areas of entry-level California RVT practice. The VTNE does not measure entry-level practice related to California-specific laws, rules, regulations, and practice. The SMEs recommended that a California supplemental examination continue to be required for entry-level licensure in California, in addition to the VTNE.

To address California-specific areas of RVT practice not measured by the VTNE, the SMEs provided input to OPES to revise the California RVT examination outline. The SMEs evaluated the California-specific tasks and knowledge in the proposed California RVT examination outline, reviewed the content areas and weights in the existing California RVT examination outline, and confirmed the tasks and knowledge to be included in the final California RVT examination outline.

The 2012 California RVT examination outline consists of content areas and associated codes, regulations, and safety guide references. The 2018 California RVT examination outline includes tasks and associated knowledge statements that provide a more complete description of the examination content. The new California RVT examination outline better meets the requirement that the content domains of a credentialing test should be defined thoroughly and explicitly (*Standards,* Standard 11.2, p. 178).

# CHAPTER 10.  CONCLUSIONS

### COMPREHENSIVE REVIEW OF THE AAVSB VTNE PROGRAM

OPES completed a comprehensive analysis and evaluation of the documents provided by AAVSB. The procedures used to establish and support the validity and defensibility of the VTNE (e.g., occupational analysis, examination development, passing scores, and examination security) were found to meet professional guidelines and technical standards outlined in the *Standards* and in Business and Professions Code section 139.

Given the findings regarding the VTNE, OPES supports the Veterinary Medical Board's continued use of the VTNE for licensure in California. In addition, OPES recommends a supplemental examination to measure California-specific laws, regulations, and practice.

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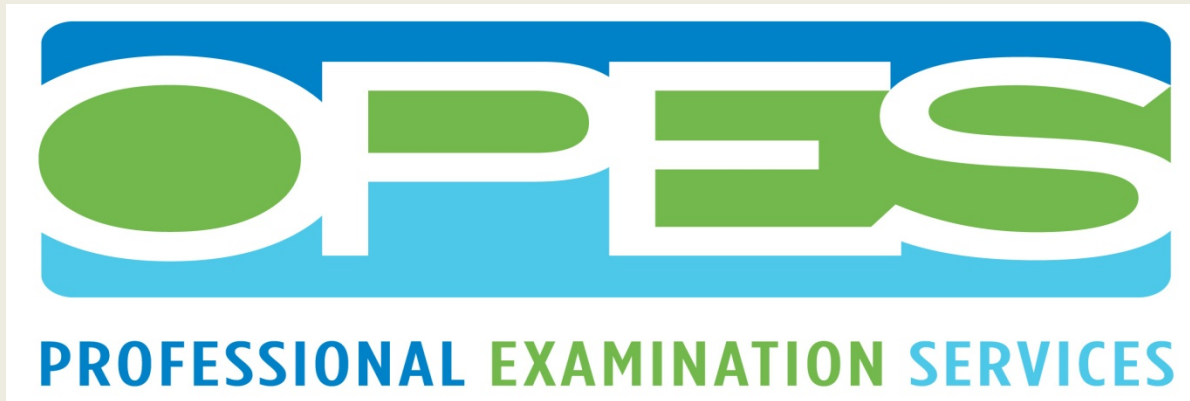
# The Veterinary Law Examination and the California State Board Exam: Comparison Study

Kamilah Holloway, M.A.

# Comparison Study Presentation Agenda

1. California Veterinarian Licensure Program Protocol

2. Occupational Analysis

3. The California State Board Veterinarian Examination Content Outline

4. VLE/CBS Comparison Study Process

5. Comparison Study Outcomes

   a. Options/OPES recommendation

# OPES Mission

*"OPES protects the interests of consumers by supporting the Department of Consumer Affairs and its regulatory entities in their commitment to establish and maintain licensure examination programs that are fair, valid, and legally defensible."*

# Veterinarians: Examination Protocol

CCR 2014 and BPC 4848:

- Must pass North American Veterinary Licensing Exam (NAVLE)
- California State Board Examination (CSB)
- Veterinary Law Examination (VLE)

# Office of Professional Examination Services – What is our role?

- OPES is in contract with VMB to develop the CSB

- The content of the CSB was determined by conducting an Occupational Analysis of the Professions wherein the following are delineated:

  - Critical job Tasks
  - Critical Knowledge needed to perform the Tasks
  - Required upon entry

# Why are Occupational Analyses Critical in Examination Development?

- Both legislation and professional testing standards require that examinations are job-related
  - Content domain of the licensing examination "should be defined clearly and justified in terms of the importance of the content for credential-worthy performance" (*Standard 14.14*)

- Occupational analysis:
  - Establishes job-relatedness of examinations
  - Forms the basis for legal defensibility of an examination

# Occupational Analysis Process

1. Perform background research
2. Conduct interviews with Subject Matter Experts (SMEs)
3. Identify, review, and finalize Task and Knowledge statements with SMEs
4. Develop occupational analysis survey
5. Analyze data collected from survey
6. Review survey results with SMEs
7. Create Examination Content Outline

# Occupational Analysis and Examination Development Process Diagram

**Occupational Analysis**

The Practice → Tasks → Knowledge

Task/Knowledge Links

Examination Content Outline

Item Bank/Examination Content
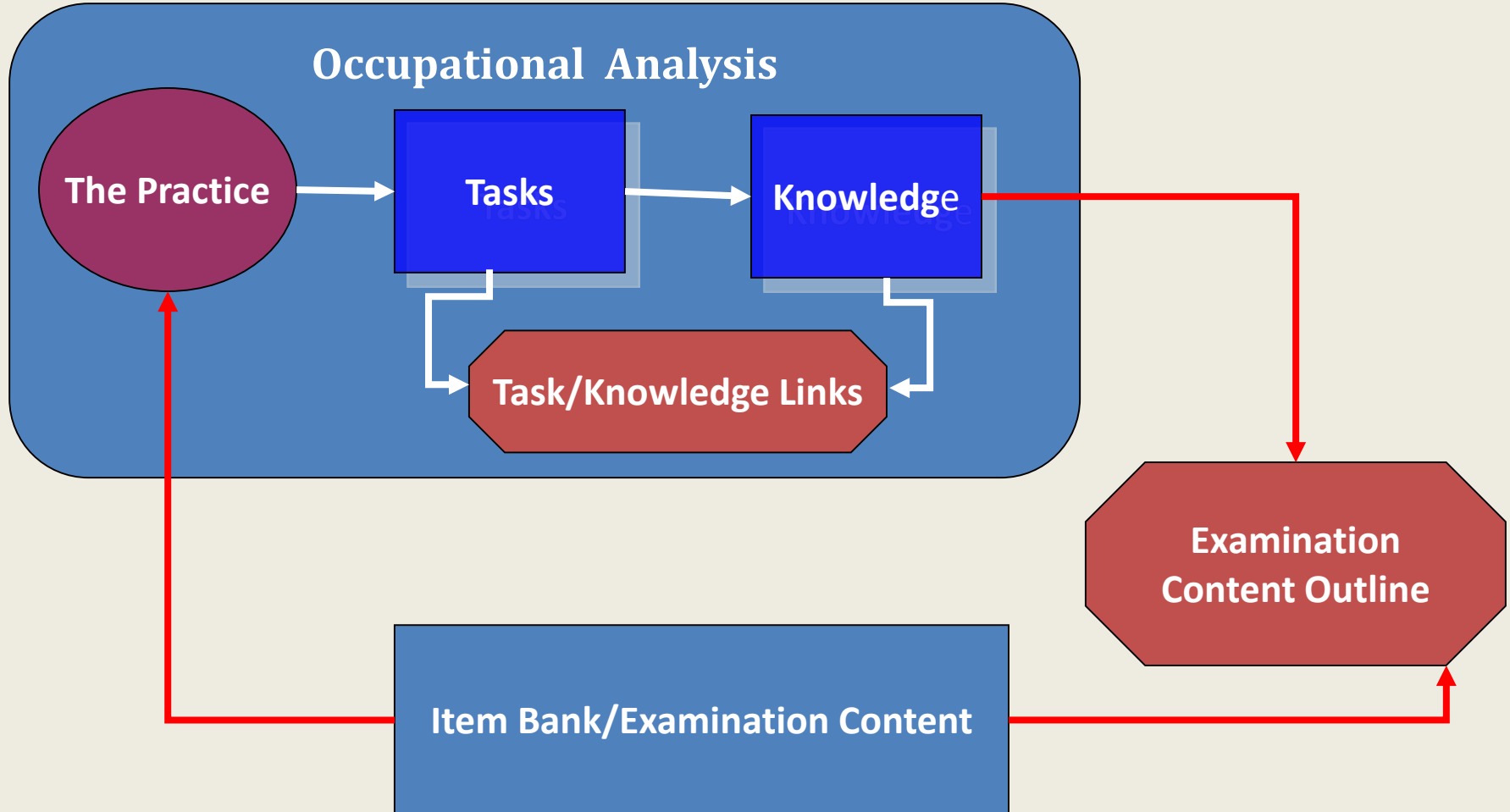
# Veterinarians:
# CSB Examination Content Outline

| Content Domain | Weight |
|---|---|
| I.History | 12% |
| II. Examination of Patient and Environment | 21% |
| III. Assessment | 6% |
| IV. Diagnostic Plan | 2% |
| V. Diagnostic Procedures | 16% |
| VI. Treatment Plan | 12% |
| VII. Treatment | 12% |
| VIII. Preventative Care | 5% |
| IX. Professional Responsibilities | 14% |

# Veterinarians: CSB Examination Content Outline

IX. **PROFESSIONAL RESPONSIBILITIES (14%) – Fulfill California and federal laws and regulations, upholding standards of veterinary practice, reportable diseases, animal movement and disaster response.**
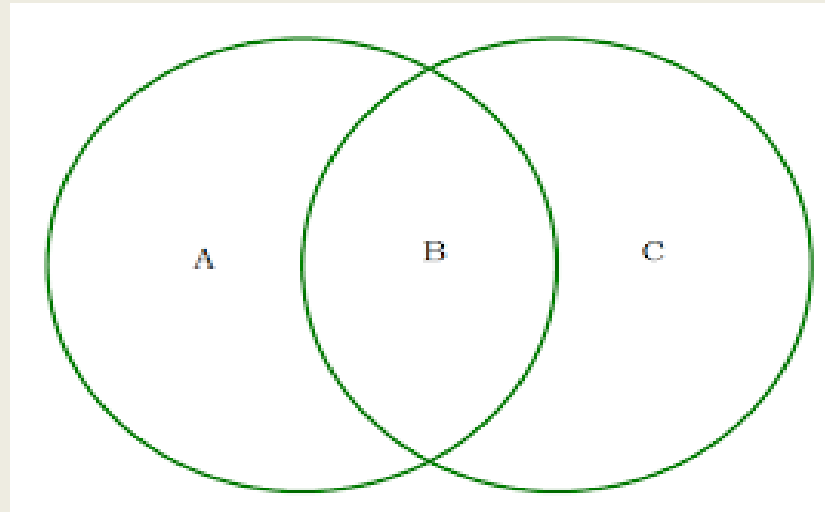
# Examination Coverage
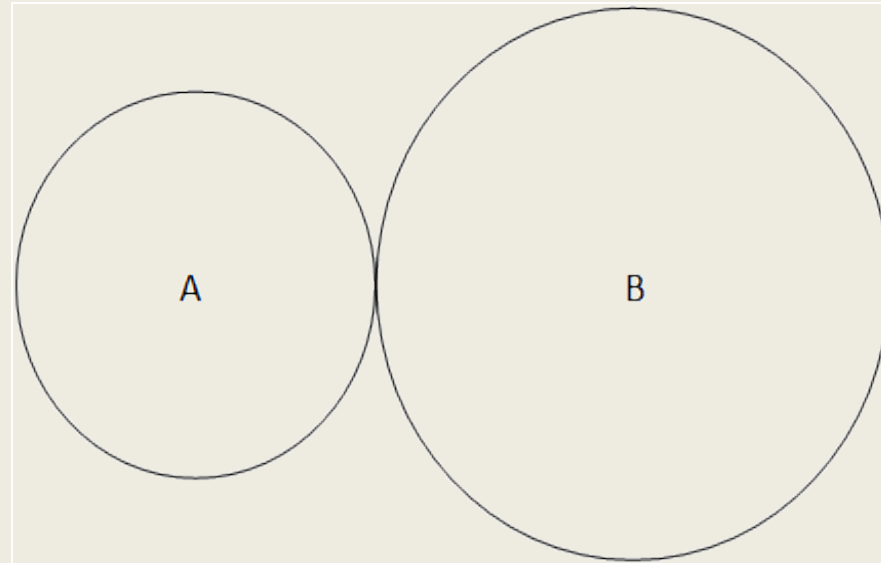


A = VLE
B = CSB Examination

# Examination Coverage



A = VLE
B = Overlapping Concepts
C= CSB Examination

# Veterinarians:
# Law Examination Review

## Comparison Study

To determine overlap between the VLE and the CSB examination:

- The SMEs reviewed the VLE items.

- The SMEs reviewed the 2016 California Veterinary Medicine Practice Act (VMPA) and established the link between VLE items and VMPA laws and regulations.

# Veterinarians:
# Law Examination Review (cont'd)

- The SMEs reviewed the Professional Responsibilities content area of the CSB examination content outline.

# Comparison Study Process Diagram:
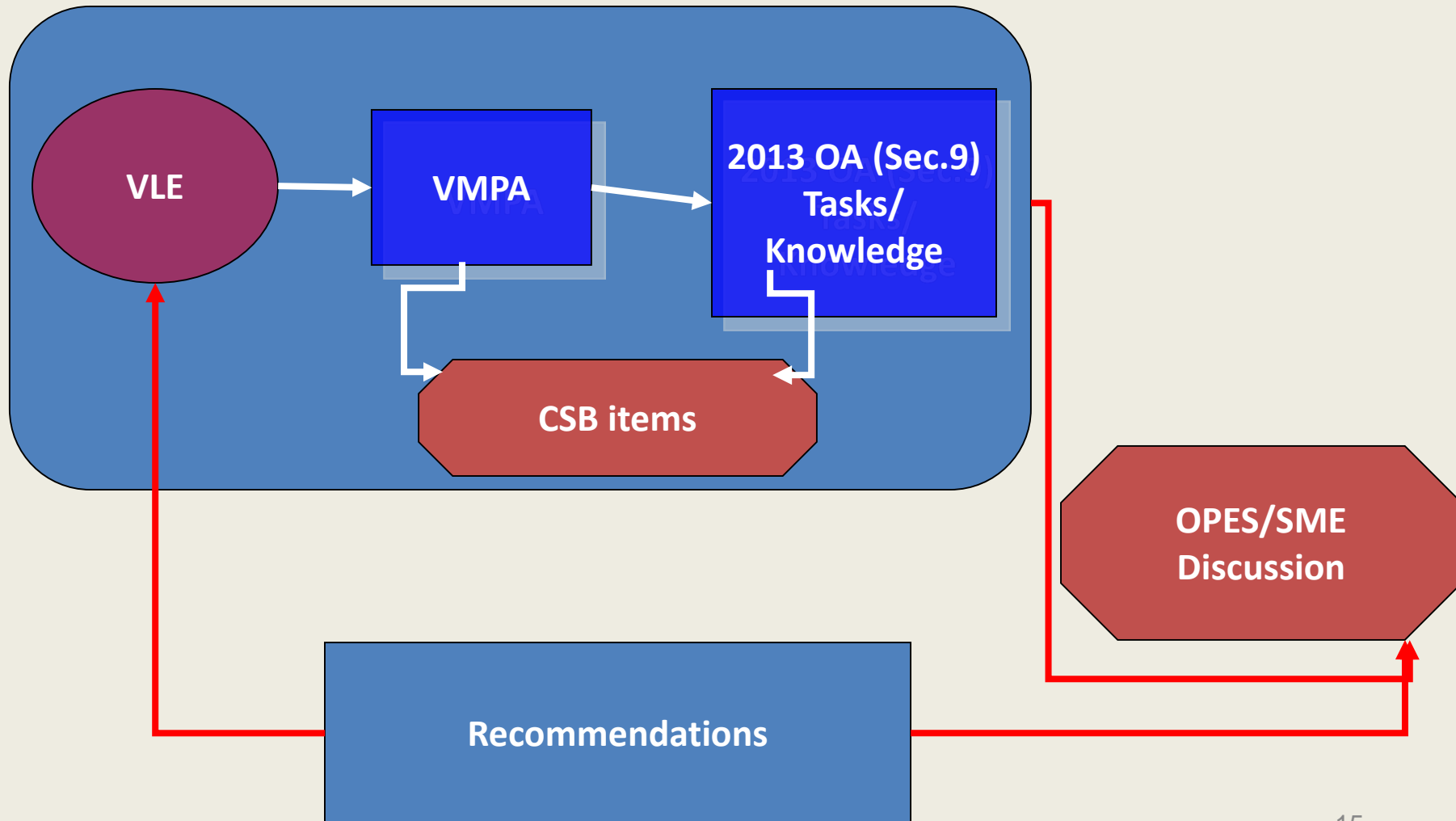
# Comparison Study Discussion

- Are the questions on the CSB examination and VLE assessing identical knowledge concepts?

- Is the weight of the Professional Responsibilities section of the CSB adequate to cover what the VLE assesses?

- Current weight 14% of  the 100 item CSB examination, meaning there are 14 questions

- The VLE is 32 questions but many of those questions were determined to address duplicate codes

# VLE vs CSB Examination Question Level

- ## VLE:
  - Examinees are presented with recall/definition based questions

- ## CSB:
  - Examinees are presented with mainstream scenarios that require action
  - Qualified Examinees "comprehend" the knowledge concept enough to "apply" and/or "perform an analysis of information given in the scenario
  - Qualified test takers can then select the required action out of provided options

# Examination Items:
# Levels of Processing Pyramid
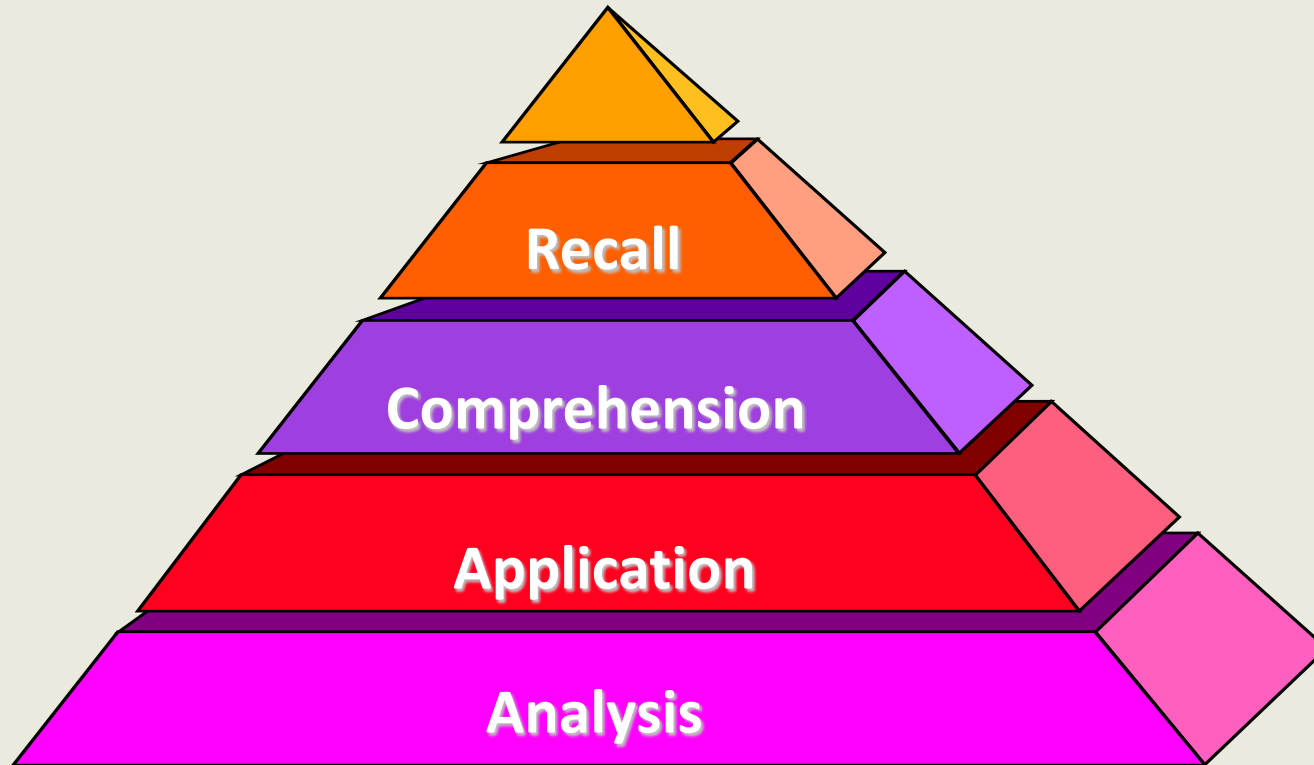
# Comparison Study-
# Final Steps

- OPES and SMEs worked together to create and finalize a table documenting examination overlap

- OPES and SMEs worked together to finalize options and recommendations to the Board

- OPES prepared a memo for the Board (12/2016) explaining the outcome of the study and providing options for examination protocol moving forward

# Veterinarians:
# Law Examination Review

# Examination Item Development

- In addition to the steps taken to determine overlap between the VLE and the CSB examination:

    - OPES worked with the SMEs to write new VLE items and to create two new VLE forms in accordance with the identified OA and VMPA linkage.

# Comparison Study Outcome: Options

1. Continue to administer the current form of the VLE.

2. Continue to administer the VLE using new examination forms yearly to eliminate overexposure of examination materials.

# Comparison Study Outcome: Options (Cont'd):

3. Initiate regulatory changes to discontinue administration of the VLE for all candidates for licensure who have completed the national exam, the CSB examination, and a Board-approved veterinary training program.

# Comparison Study Outcome: Options (Cont'd):

Option 3 (continued):

a) Only successful completion of the national examination and CSB examination would be required to obtain veterinarian licensure.

b) The VLE would continue to be administered to candidates applying for licensure through reciprocity.

c) The VLE will contain new examination items created yearly for administration to reciprocity-based candidates to prevent overexposure of examination materials.