



REVIEW OF THE INTERNATIONAL COUNCIL FOR VETERINARY
ASSESSMENT NORTH AMERICAN VETERINARY LICENSING EXAMINATION



VETERINARY MEDICAL BOARD

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EXECUTIVE SUMMARY

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 of California (Board) requested that DCA's Office of Professional Examination Services (OPES) complete a comprehensive review of the International Council for Veterinary Assessment (ICVA) North American Veterinary Licensing Examination (NAVLE). The primary intent of the review was to evaluate the suitability of the NAVLE for continued use in California licensure of veterinarians.

The Board currently requires candidates to have the requisite education and experience and to pass three written examinations for veterinary licensure in California:

1. The North American Veterinary Licensing Examination (NAVLE).
2. The California Veterinary State Board Examination (CSB).
3. The mail-out Veterinary Law Examination (VLE), which covers information found in the California Veterinary Medicine Practice Act.

Candidates attending their senior year at either the University of California, Davis or Western University Health Sciences are exempt from taking the VLE.

The secondary intent of the review was to assess the contents of the CSB and the VLE in relation to the NAVLE review results to evaluate their continued use for veterinary licensure in California.

OPES, in collaboration with the Board, received and reviewed documents provided by ICVA. Follow-up emails were exchanged to clarify the procedures and practices used to validate and develop the NAVLE. OPES performed a comprehensive evaluation of the documents to determine whether the following NAVLE components met professional guidelines and technical standards: (a) occupational analysis (OA), (b) examination development, (c) passing scores, (d) test administration, (e) examination scoring and performance, (f) information available to candidates, and (g) test 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 (B&P) Code § 139. However, to better adhere to B&P Code § 139 and related policy, OPES recommends that NAVLE phase out the use of faculty members and educators in the examination development and passing score setting processes.

In May and June 2020, OPES convened a panel of California veterinarians to serve as subject matter experts (SMEs) to review the content of the NAVLE. The SMEs were selected by the Board to represent the profession based on their geographic location, experience, and practice specialty. The SMEs were asked to review the NAVLE competencies based on the ICVA 2017 NAVLE Veterinary Profession Practice Analysis (*ICVA 2017 OA*) and to compare them with the

tasks and knowledge statements that comprise the 2019 examination outline used for the CSB, which are based on the 2019 California Veterinary OA (2019 California OA) performed by OPES. This linkage was performed to identify whether there were areas of California veterinary practice not measured by the NAVLE.

In addition, the SMEs were asked to compare the California-prevalent diseases and diagnoses included in the California examination outline with the NAVLE Species and Diagnoses document, which outlines the species and diagnoses assessed by the NAVLE.

The results of the linkage study indicate that all practice areas of California veterinary practice are measured by the NAVLE except California law, rules, and regulations. OPES recommends that the CSB be revised from a practice-based examination to a CSB supplemental examination that measures California law, rules, and regulations only. OPES recommends that passing this examination be required for entry level licensure in California, in addition to the NAVLE. The revised CSB supplemental examination, which all candidates would be required to pass, would replace the current mail-out Veterinary Law Examination (VLE).

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CHAPTER 1 | INTRODUCTION

PURPOSE OF THE COMPREHENSIVE REVIEW

Licensing boards and bureaus within the California Department of Consumer Affairs (DCA) must 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 licensure examination has the requisite knowledge and skills to competently and safely practice in the veterinary profession.

The Veterinary Medical Board (Board) requested that DCA's Office of Professional Examination Services (OPES) complete a comprehensive review of the International Council for Veterinary Assessment (ICVA) North American Veterinary Licensing Examination (NAVLE). The OPES review included the following:

1. Evaluating the suitability of the NAVLE for continued use in California.
2. Determining whether the NAVLE meets the professional guidelines and technical standards outlined in the *Standards for Educational and Psychological Testing* (2014) (*Standards*¹) and in California B&P Code § 139.
3. Identifying any areas of California veterinary practice the NAVLE does not assess.
4. Assessing the content of the California Veterinary State Board Examination (CSB) and the Veterinary Law Examination (VLE) in relation to the NAVLE review results to evaluate their continued use for veterinary licensure in California.

OPES, in collaboration with the Board, requested documentation from ICVA, including the ICVA 2017 NAVLE Veterinary Profession Practice Analysis (*ICVA 2017 OA*), to determine whether the NAVLE examination components meet professional guidelines and technical standards outlined in the *Standards* and in B&P Code § 139: (a) occupational analysis,² (b) examination

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.

development, (c) passing scores,³ (d) test administration, (e) examination scoring and performance, (f) information available to candidates, and (g) test security protocols.

OPES used the *ICVA 2017 OA* in this review. The finalized OA was approved by the Collaboration for Veterinary Assessments Governance Committee (CVAGC) and by the ICVA Board of Directors.

CALIFORNIA LAW AND POLICY

California B&P Code § 139 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 Licensure Examination Validation Policy OPES 18-02 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 (*OPES 18-02*).

DCA Participation in Examination Development Workshops Policy OPES 18-01 specifies that due to potential conflict of interest, undue influence, and security considerations, board members, committee members, and instructors should not serve as expert consultants in the licensure examination development process (*OPES 18-01*).

FORMAT OF THE REPORT

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

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

CHAPTER 2 | OCCUPATIONAL ANALYSIS

STANDARDS

The following standard is most relevant to conducting OAs for licensure examinations, as referenced in the *Standards*:

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 emphasizes its relevance:

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 (p. 182).

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

California B&P Code § 139 requires that each California licensing board, bureau, commission, and program report annually on the frequency of its occupational analysis and the validation and development of its examinations. *OPES 18-02* 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 different 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 law and regulations governing the profession (p. 4).

FINDINGS

ICVA, in collaboration with the National Board of Medical Examiners (NBME), conducted the OA for the NAVLE. The results of the study are documented in the *ICVA 2017 OA*.

Occupational Analysis – Methodology and Time Frame

The purpose of the OA was to ensure that licensure examinations required for the practice of veterinary medicine remain highly job-related (*ICVA 2017 OA*). The methodology used to conduct the OA study was an online survey. A group of subject matter experts (SMEs) was established to participate during various stages of the project. The survey was developed by ICVA with the assistance of NBME staff and SMEs. The SMEs included veterinarians from the U.S. and Canada as well as qualified psychometricians. The survey was administered to a sample of 19,829 veterinarians throughout North America (all 50 states and 6 Canadian provinces), selected to reflect the current population of veterinarians with respect to age, gender, location, and practice characteristics.

Finding 1: Although it took three years to complete, the OA was conducted within a time frame considered to be current and legally defensible. The study began in December of 2014 and was completed in 2017.

Occupational Analysis – Development of Survey and Sampling Plan

ICVA representatives and NBME staff facilitated survey development, beginning with the development of a project plan and a review of relevant literature. The SMEs outlined and designed the various sections and content of the main survey and developed a list of diagnoses by species and a list of competencies. The resulting lists were then used to develop a draft survey for pilot testing. The draft survey was provided to and approved by the ICVA Board, which comprises 13 directors, each designated by one of ICVA's constituent organizations (AAVSB, AAVMC, AVMA COE, and the CNEB), and 5 at-large directors. The final practice analysis survey consisted of three sections: Demographics and Practice Characteristics, Species and Diagnoses, and Clinical and Professional Competencies. Each respondent was asked to evaluate specific species and/or competency statements based on their responses to demographic questions at the beginning of the survey (*ICVA 2017 OA*).

“The purpose of the Demographics and Practice Characteristics section was to gather relevant individual participant information to (1) route respondents to specific sections of the questionnaire based on practice sector and particular types of species encountered; (2) gather required information for validity, generalizability, and data interpretation (i.e., to verify that the sample is comparable to known US and Canadian veterinary demographics); and (3) to compare groups of participants based on practice type, gender, or other factors” (*ICVA 2017 OA*, p. 5).

The purpose of the Species and Diagnoses section was to “evaluate individual species and diagnoses in order to estimate how often veterinarians in clinical practice encounter particular diagnoses” (*ICVA 2017 OA*, p. 5). Finally, the purpose of the Clinical and Professional Competencies section was to gather data to “determine the relative contribution of distinct competencies for safe and effective practice” (*ICVA 2017 OA*, p. 6).

For the Species and Diagnoses section, “respondents were asked to indicate the frequency with which they encountered a diagnosis in the practice of veterinary medicine. The possible frequency response options were Daily, Weekly, Monthly, Rarely, and Never” (*ICVA 2017 OA*, p. 6). Information on criticality or level of importance of each diagnosis for competent practice was gathered separately from information provided by a group of 135 SMEs.

For the Clinical and Professional Competencies section, “respondents were asked to indicate the response that most closely reflected the frequency with which he or she performed each behavior as they practiced veterinary medicine. The response options were Daily, Weekly, Monthly, and Quarterly or Less. Respondents could also indicate ‘I do not do this’” (*ICVA 2017 OA*, p. 7). Information on criticality or level of importance of each competency was gathered separately from information provided by a group of 25 SMEs.

The draft survey was pilot tested with a random sample of 265 veterinarians and consisted of a total of 1,034 diagnoses spanning 23 animal species and 103 work activities (competencies), including both clinical and professional behaviors.

Finding 2: The procedure used by ICVA to develop the survey meets professional guidelines and technical standards.

Occupational Analysis – Sampling Plan

The sampling plan for the main survey included veterinarians close to the entry level of practice from all 50 states and from 6 Canadian provinces. For the Canadian sample, the Canadian Veterinary Medical Association (CVMA) contacted 3,564, or roughly 49% of its 7,200 members, on behalf of the ICVA, requesting they complete the survey. The survey and all communications were translated into French to include French-speaking veterinarians. For the U.S. sample, the American Veterinary Medical Association (AVMA) provided contact information for 16,000, or roughly 17%, of its 95,000 members.

A total of 6,975 responses to the survey were determined to be sufficiently complete to contribute to survey analysis, resulting in a response rate of 35%. Survey respondents from the U.S. made up the majority of the sample. The respondents were asked the geographic region, and not the state, in which they performed most of their work, with 13% of the respondents selecting the Pacific (Alaska, California, Hawaii, Oregon, Washington) region.

A separate survey aimed at gathering expert opinion on the potential impact (criticality) of the activities that appeared in the Clinical and Professional Competencies section of the *ICVA 2017*

OA survey was developed and sent to 25 SMEs familiar with ICVA and the purpose of the NAVLE. Each respondent was asked to rate the criticality of each competency to the well-being of animal patients, clients, and people in the work area, and to public health and environmental impact (*ICVA 2017 OA*). Another separate survey aimed at gathering information about the criticality of each diagnosis was developed and sent to 135 SMEs known to ICVA. This information was gathered “to ensure that our veterinary practice analysis study reflects the most accurate level of importance for each diagnosis potentially encountered by an entry-level veterinarian” (*ICVA 2017 OA*, p. 12).

The 25 SMEs described above were also asked to evaluate each of the competency statements and to sort them into meaningful groups (domains) based on perceived similarity. The results of the sorting exercise were subjected to multivariate analyses (cluster analysis or factor analysis) and SME review to develop a competency framework to serve as input for the NAVLE blueprint (*ICVA 2017 OA*).

After the main survey was administered and the additional criticality information was gathered, an additional group of 11 SMEs was convened. The primary objective of this meeting was to build consensus around the high-level blueprint for the diagnosis and competency domains. A final proposed blueprint was developed and shared with the ICVA Board (*ICVA 2017 OA*).

Finding 3: Although the criticality ratings were not obtained through the main survey, the intent of the sampling plan was reasonable and meets professional standards and technical guidelines. Practicing veterinarians in California comprised a sufficient proportion of the final respondent sample.

Occupational Analysis – Survey Results

The key findings indicated that the diagnoses and competencies represent a complete description of the specific elements of the practice of entry level veterinarians.

Similar species were grouped together for the purposes of criticality analyses for the Species and Diagnoses section. Diagnoses within each organ system within each species group were evaluated for criticality. Criticality ratings were averaged and presented for each species group. Findings showed consistent levels of importance for each species group.

ICVA collected the survey competency data and analyzed the frequency rating results. The key findings showed that competencies within the Clinical Practice (Domain 1) and Communication (Domain 2) domains are performed more frequently than those in the Professionalism, Practice Management, and Wellness (Domain 3) and the Preventive Medicine and Animal Welfare (Domain 4) domains.

Competency criticality ratings obtained from the supplemental surveys were analyzed and averaged. The criticality ratings show that the competencies comprising the Clinical Practice

domain (Domain 1) are viewed as the most critical, closely followed by the Preventive Medicine and Animal Welfare (Domain 4) and the Communication (Domain 2) domains.

Finding 4: The respondents were practicing veterinarians from throughout the U.S. and Canada. A satisfactory percentage (38%) of the respondents reported that they had been practicing 10 years or fewer, and the majority reported working 40 hours or more per week as a veterinarian. Of the total respondents, the majority categorized their primary employment sector as private practice, with the next most frequent as academia.

Occupational Analysis – Development of Test Specifications

Weights for each species group were based on multiple sources of empirical information and SME judgments, including the percentage of veterinarians who work with each species, the percentage of time a veterinarian spends with each species, the frequency with which each diagnosis is encountered in practice, and the criticality of each diagnosis. The weights for the current test blueprint were also considered. SMEs were asked to integrate this information and assign weights as part of a two-stage exercise. Based on frequency and criticality results, various sources of information, and on the ability of the test item bank to support each content area, the blueprint topic weights were proposed (*ICVA 2017 OA*).

Finding 5: The linkage between the critical competencies required by entry level veterinarians and the major content areas of the NAVLE demonstrates a sufficient level of validity, thereby meeting professional guidelines and technical standards.

CONCLUSIONS

Given the findings, the occupational analysis conducted by ICVA meets professional guidelines and technical standards. Additionally, the development of the test specifications for the NAVLE is based on the results of the *ICVA 2017 OA* and meets professional guidelines and technical standards.

RECOMMENDATIONS

In future OA reports, OPES recommends that the survey frequency rating results for Species and Diagnoses be included as well as the criticality ratings for specific diagnoses or for specific organ systems.

CHAPTER 3 | EXAMINATION DEVELOPMENT

STANDARDS AND REGULATIONS

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, and developing the scoring criteria and the examination forms.

The following standards are most relevant to examination development for licensure examinations, as referenced in the *Standards*.

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).

The following regulations are relevant to the integrity of the examination development process:

California B&P Code § 139 requires the Department of Consumer Affairs to develop a policy on examination validation which includes minimum requirements for psychometrically sound examination development.

OPES 18-01, as mandated by B&P Code § 139, specifies that due to potential conflict of interest, undue influence, and security considerations, board members, committee members, and instructors should not serve as expert consultants in the licensure examination development process.

FINDINGS

Examination Development – Subject Matter Experts

Examination development for the NAVLE is performed by ICVA's Assessment Development Committee (ADC) along with task forces comprising senior faculty members, educators, and clinicians with recognized prominence in their fields. ADC members are selected to provide broad representation from across the U.S. and Canada from the academic, clinical practice, and licensing communities. Members are appointed by ICVA to 3-year terms and may serve for a

maximum of three terms. Qualifications for appointment to the ADC include but are not limited to recognized achievement in two content areas:

1. Species (e.g., aquatics, bovine, camelid, etc.).
2. Competencies (e.g., clinical practice, communications, practice management, etc.).

Members of the ADC determine the main content areas of the NAVLE. Their duties include selecting and appointing NAVLE item writers each year and participating in item and examination form review meetings.

NAVLE item writers follow the item writing and review guidelines described in the National Board of Medical Examiners (NBME) publication, *Constructing Written Test Questions for the Basic and Clinical Sciences*. All item writers are trained in an item writing workshop before receiving a writing assignment. Writers are selected for their subject matter expertise based on the requirements of the item bank. A multifactor authentication system is used for all SMEs to access item information electronically.

Finding 6: The criteria used to select SMEs for item and test development are consistent with professional guidelines and technical standards, with the exception of using instructors, which is not in compliance with *OPES 18-01* as mandated by B&P Code § 139.

Finding 7: All SMEs are required to sign a pledge of confidentiality. SMEs 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.

Examination Development – Linkage to Examination Blueprint

The NAVLE is constructed according to the examination blueprint, which was derived from the *ICVA 2017 OA*. The two dimensions of the NAVLE blueprint are diagnoses and competencies.

Linkage of items to the examination blueprint is performed through a recoding process. SMEs drawn from the veterinary community and NBME SMEs recoded the NAVLE item bank based on the new diagnosis codes. The suggestion to develop a standardized approach for this process throughout all items came during initial discussions about using the new competency codes for the NAVLE items to replace previous competency codes. SMEs prepared a draft outline designed to ensure consistency, highlighting how and when to apply different competency codes to different items.

The draft document was further refined by SMEs from NBME and was subsequently sent to additional ADC members to continue its development. Finally, the NAVLE Competency Coding Guidelines were created to assist NAVLE item writers in correctly assigning the new codes to the existing and new NAVLE items. SMEs devoted several hours for multiple conference calls

until all the NAVLE items were correctly coded to ensure sufficient items exist in the bank pertaining to each competency.

Finding 8: Assignment of an item to a content area was performed by an SME committee through a standardized recoding process. The steps taken to link the examination items to the appropriate content areas are consistent with professional guidelines and technical standards.

Examination Development – Item Pilot Testing

All scored test items have first been pretested as part of regular examination administrations. The NAVLE examination forms consist of 360 four-option multiple choice items, with 300 scored and 60 pretest (unscored) items. Approximately 15%–20% of the items on the NAVLE include graphic or pictorial information relevant to the item (e.g., photograph, radiograph, drawing, chart, etc.).

The 60 pretest items are administered to obtain performance statistics. These new items and their statistics are reviewed by SMEs and the ADC before an item is approved for inclusion as a scored item on the NAVLE. Questions that seem problematic are revised or discarded. All accepted questions are then reviewed and validated by at least three experts in the field of veterinary medicine for accuracy, content relevance, importance, and difficulty.

Finding 9: The procedures used to develop, review, and pretest items, as well as to select and retire items from the item bank meet professional guidelines and technical standards.

Examination Development – Examination Forms

The ADC and SMEs select successfully pretested items for the scored portion of the NAVLE. Items are selected for an examination form based on the examination blueprint and statistical targets. SMEs are involved in an annual item bank review and in annual form reviews.

All examination forms are created using the same criteria to ensure that forms are comparable in terms of content and item difficulty.

Candidate responses are first converted into raw scores (i.e., the sum of the points earned from correct responses). Next, the raw scores are converted into three-digit scores using a non-linear algorithm that incorporates both the candidate's proficiency and the difficulty of the item to which they responded. This process, known as equating, statistically adjusts for differences in difficulty between forms of an examination to facilitate score comparisons across all NAVLE test takers. Equating also makes it possible to hold the passing standard at a constant proficiency level across forms and testing cycles.

Item statistics such as item difficulty are reviewed by the ADC before the item is approved for inclusion as a scored item on the NAVLE.

Finding 10: The procedure by which examination forms are equated is appropriate based on the examination item types, examination form length, and candidate sample sizes.

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 ICVA meet professional guidelines and technical standards.

RECOMMENDATIONS

To reduce conflicts of interest, and as mandated by B&P Code § 139, OPES recommends that NAVLE consider phasing out the use of faculty members and educators in its examination development.

CHAPTER 4 | PASSING SCORES AND PASSING RATES

STANDARDS AND REGULATIONS

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 following standards are most relevant to passing scores, cut points, or cut scores for licensure examinations, as referenced in the *Standards*.

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).

OPES 18-01, as mandated by B&P Code § 139, specifies that due to potential conflict of interest, undue influence, and security considerations, board members, committee members, and instructors should not serve as expert consultants in the licensure examination development process.

FINDINGS

Passing Scores – The NAVLE Process, Participation of SMEs, and Methodology

The process of establishing passing scores for licensure examinations relies upon the expertise and judgment of SMEs. For the NAVLE, standard setting is the process by which expert judgment (and content expertise) about the tested content is mapped to the test score scale to describe how much content mastery is required for candidates to pass.

Standard setting exercises are facilitated by psychometricians and use panels of SMEs to set the passing score.

The passing score is determined using a criterion-referenced modified Angoff standard-setting procedure. A group of SMEs with expertise in the various content areas covered by the NAVLE work individually and collectively to determine the minimum score that a candidate has to achieve to be judged minimally competent to enter private clinical practice. The SMEs are first trained on the standard-setting procedure and then complete an in-depth item review. The most recent group comprised 30 SMEs with diverse demographic characteristics, geographic location of practice, years of experience, and veterinary medicine area of focus. The SMEs were split into groups of three, and each group participated in a separate exercise. Multiple exercises allowed for more SMEs to participate.

NAVLE scores are expressed on a scale where the passing point is set at 425. If the licensing board requests the score to be reported on another scale (where 70 or 75 is passing), that will be done, with the scaled pass point of 425 equivalent to different local scores. The actual passing standard is the same in all jurisdictions. Once determined, the passing score is approved by ICVA, and is applied to each form of the NAVLE through equating.

Finding 12: The number of SMEs used in the setting of the passing score meets professional guidelines and technical standards.

Finding 13: The NAVLE incorporates the minimum competency standards by which candidate performance can be evaluated. This practice meets professional guidelines and technical standards.

Finding 14: The training of the SMEs and the modified Angoff passing score setting method are consistent with professional guidelines and technical standards.

PASSING RATES

Finding 15: OPES reviewed the 2018-2019 NAVLE passing rates. The passing rate for the fall administration was 84%, and the passing rate for the spring administration was 58%, with the passing rate averaging 79% for the 2018-2019 administration year. Differences in passing rates between the two administrations are most likely related to

school graduation dates and first time takers vs. repeat takers. The California Veterinary State Board Examination (CSB) passing rates show a similar pattern.

CONCLUSIONS

Given the findings, the passing score determination exercises conducted by ICVA and NBME demonstrate a sufficient degree of validity, thereby meeting professional guidelines and technical standards. However, NAVLE is not in compliance with *OPES 18-01*, as mandated by B&P Code § 139, which discourages the use of educators in the passing score process.

RECOMMENDATIONS

To minimize conflicts of interest, and to ensure an entry level perspective is maintained, OPES recommends phasing out the use of faculty members as SMEs in the passing score process.

CHAPTER 5 | TEST ADMINISTRATION

STANDARDS

The following standards are most relevant to the test administration process for licensure examinations, as referenced in the *Standards*.

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).

FINDINGS

The NAVLE is administered during two testing windows (November–December and April) each year via computer at over 300 Prometric testing centers throughout the U.S., U.S. Territories, Canada, and in 13 testing regions overseas. A French translation is available. Examination administration is accompanied by instructions on the use of computer equipment and a brief tutorial before the examination begins to ensure standardized administration of the tests. ICVA provides a wide variety of information concerning the NAVLE to candidates and prospective candidates through its website at <https://www.icva.net/navle/>.

Test Administration – Test Centers

Prometric test center administrators and examination proctors receive training about how to administer and proctor secure examinations and receive standardized instructions based on policies and procedures specific to the NAVLE.

Finding 16: Prometric provides candidates access to test centers across the U.S., U.S. Territories, Canada, and in 13 testing regions overseas with trained proctors and controlled testing conditions.

Test Administration – Candidate Registration

ICVA has a detailed examination registration process that candidates can easily navigate on the ICVA website at <https://www.icva.net/navle/>. Candidates can verify eligibility to take the test, apply online, check the status of their application, and schedule their test date. The *NAVLE Bulletin of Information for Candidates (NAVLE Candidate Bulletin)*, which can also be found on the ICVA website, provides detailed information about registration and test administration.

Finding 17: The ICVA registration process is straightforward. The candidate registration process meets professional guidelines and technical standards.

CONCLUSIONS

Given the findings, the test administration protocols put in place by ICVA and Prometric meet professional guidelines and technical standards.

CHAPTER 6 | EXAMINATION SCORING AND PERFORMANCE

STANDARDS

The following standards are most relevant to scoring and performance for licensure examinations, as listed in the *Standards*.

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 NAVLE

The NAVLE consists of multiple-choice items that are scored as either correct or incorrect. After an individual finishes the NAVLE, the examination data file is delivered electronically to NBME for scoring. The data is encrypted before electronic transmission. Raw scores (the number of items that candidates answer correctly) are converted to scaled scores in order for them to be expressed on a scale where the passing point is set at 425. After all responses are recorded, classical item analysis statistics (i.e., item difficulty and discrimination) are calculated for each examination item. Descriptive statistics are also obtained.

A final quality control check is performed to verify the scores on score reports before posting the reports to the candidates. A NAVLE score report shows the candidate their score, a pass/fail designation, and a breakdown of their performance on the major content areas of the NAVLE. Candidate score reports are sent to the licensing board through which they were approved. Score reports for all NAVLE candidates are accessible via a secure online portal, which licensing boards can also access. Candidates receive an email notifying them that their score report is available to access.

Uniform and precise procedures ensure that the score reported for each candidate to the licensing board is an accurate reflection of the responses recorded by the computer, and that the validity of scores has been historically verified. There is no rescoring or appeal of NAVLE scores once the reports are released. NAVLE candidates are not permitted to review their examinations.

The NAVLE is scored after the close of each testing window. Scores are reported to licensing boards and to candidates about 4 weeks after the close of each testing window.

Finding 18: The scoring criteria is applied equitably to ensure the validity and reliability of the examination results. The examination scoring process meets professional guidelines and technical standards.

Finding 19: The use of scaled scores and classical item analysis statistics is consistent with professional guidelines and technical standards.

CONCLUSIONS

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

CHAPTER 7 | INFORMATION AVAILABLE TO CANDIDATES

STANDARDS

The following standards are most relevant to the information communicated to licensure examination candidates by a test developer, as listed in the *Standards*.

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 6.5

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 ICVA website at <https://www.icva.net/> is a source of information about NAVLE policies and procedures. Candidates can find material on all necessary steps related to the examination process.

Through the “Preparation Tools” link, ICVA offers practice tests for purchase that are designed to help candidates identify their strengths and weaknesses as they prepare for the NAVLE, and to help them learn about the content and format of the NAVLE. Each assessment consists of 200 items, English and French versions are offered, and a score report is immediately available after completion of an assessment. The self-assessments do not include the on-screen calculator function available on the NAVLE.

Candidates requiring accommodations must contact ICVA to request information about test accommodations, including procedures and documentation requirements, before applying to

take the NAVLE. Candidates requesting accommodations must submit required documentation to ICVA. ICVA reviews and approves any accommodations necessary under the Americans with Disabilities Act.

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

Finding 20: The ICVA website provides extensive information to candidates regarding all aspects of the examination and testing process.

Finding 21: The examination accommodations procedure meets professional guidelines and technical standards.

CONCLUSIONS

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

CHAPTER 8 | TEST SECURITY

STANDARDS

The following standards are most relevant to test security for licensure examinations, as referenced in the *Standards*.

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

Prometric, through its internal examination administration and security protocols, provides a robust framework of test site and test security policies and procedures. Security of examination material is controlled through computerized electronic transmission of encrypted data. Every proctor at every Prometric testing center is trained to recognize potential test security breaches, and every location is monitored with advanced security equipment and subjected to multiple random security audits. In addition, the *NAVLE Candidate Bulletin* describes what constitutes improper acts and unethical conduct on the part of candidates and the consequences of such actions.

Finding 22: Prometric requires candidates to provide current and valid government-issued identification to sit for the examination. The identification must include a photograph and signature and must match the scheduling permit the candidates receive after registering for the examination. Candidates are prohibited from bringing any personal belongings into the testing rooms, and test center administrators verify that candidate pockets are empty.

Finding 23: Observation of the testing sessions at Prometric is aided by use of audio and video monitors and recording and other equipment available at the test centers. All testing sessions for the NAVLE are monitored by staff at the test center.

CONCLUSIONS

Given the findings, the test center security procedures at Prometric meet professional guidelines and technical standards.

CHAPTER 9 | COMPARISON OF THE NAVLE EXAMINATION BLUEPRINT TO THE CALIFORNIA EXAMINATION OUTLINE

PARTICIPATION OF SUBJECT MATTER EXPERTS

OPES convened two workshops, one on May 28, 2020 and one on June 11, 2020, to critically evaluate the competency statements from the *ICVA 2017 OA* and to compare them with the tasks and associated knowledge statements from the *2019 California OA*. The Board, with direction from OPES, recruited 10 SMEs to participate in the workshops. 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. Three of the SMEs had been licensed for 6–10 years, two for 11–20 years, and five for more than 20 years. All SMEs worked as veterinarians in various settings.

An orientation provided by OPES stated the purpose of the workshop, the role of the SMEs, and the project background leading to the workshop. Once the SMEs understood the purpose of the workshop, they independently reviewed the competency statements from the *ICVA 2017 OA* and compared this content with the tasks and associated knowledge statements contained in the *2019 California OA*. This review was conducted to identify whether there were areas of California veterinary practice not measured by the NAVLE and to identify the extent to which California law, rules, and regulations are covered on the NAVLE.

After the SMEs completed this review, OPES asked the SMEs to review California-prevalent diseases and diagnoses described in CCR Title 16 § 2021.3, California Curriculum – Content. SMEs then evaluated the extent to which these diseases and diagnoses are measured by the NAVLE. To accomplish this, SMEs reviewed the NAVLE Species and Diagnoses section of the curriculum document, which provides an outline of the species and diagnoses assessed on the NAVLE, and compared it with California-prevalent diseases and diagnoses.

Finally, OPES engaged the SMEs in discussions about the current CSB to determine if the SMEs believed the practice-based content included in the examination was already covered on the NAVLE.

FINDINGS

Finding 24: The SMEs evaluated the NAVLE competencies against the *2019 California OA* tasks and associated knowledge statements. The SMEs concluded that the NAVLE adequately assesses entry level veterinary practice in California.

Finding 25: The SMEs evaluated the NAVLE competencies against the *2019 California OA* tasks and associated knowledge statements. The SMEs concluded that the NAVLE does not assess all California law, rules, and regulations related to veterinary practice.

Finding 26: The SMEs evaluated California-prevalent diseases and diagnoses against the NAVLE Species and Diagnoses content. The SMEs concluded that the NAVLE assesses all California-prevalent diseases and diagnoses related to veterinary practice.

CONCLUSIONS

Given the findings, the content of the NAVLE, which is based on the *ICVA 2017 OA*, is consistent with the tasks and associated knowledge in the California examination outline for determining competence for entry level California veterinary practice. The NAVLE does not measure California veterinary law, rules, and regulations. The SMEs recommended that the current practice-based CSB be changed to a CSB supplemental examination that measures California law, rules, and regulations only. Passing this supplemental examination, in addition to the NAVLE, would be required for licensure in California.

The content categories for the NAVLE and the content areas for the *2019 California OA* examination outline are provided in Tables 1 and 2.

TABLE 1 – CONTENT CATEGORIES OF THE NAVLE BLUEPRINT

Competency Domains	Weight
Domain 1. Clinical Practice	70%
Data Gathering and Interpretation	35%
Health Maintenance and Prevention	35%
Domain 2. Communication	8%
Communication with Clients	5%
Communication with Veterinary and Other Professionals	3%
Domain 3. Professionalism, Practice Management, and Wellness	7%
Professional Development and Lifelong Learning	3%
Veterinary Practice Management	4%
Domain 4. Preventive Medicine and Animal Welfare	15%
Environmental Health and Safety	5%
Veterinary Public Health	4%
Animal Welfare Issues and Concerns	6%
Total	100%

TABLE 2 – CONTENT AREAS OF THE 2019 CALIFORNIA EXAMINATION OUTLINE

Content Area	Content Area Description	Weight
1. Patient Signalment and History	This area assesses the candidate’s knowledge of determining signalment, chief complaint, prior health status, and historical factors pertinent to current condition.	12%
2. Patient Physical Examination	This area assesses the candidate’s knowledge of gathering data by inspection and physical examination to evaluate current health and environmental status.	20%
3. Patient Data Assessment	This area assesses the candidate’s knowledge of determining clinical status, forming differential diagnoses, identifying health risks to animal and human populations, and determining presence of abuse or neglect.	8%
4. Diagnostic Planning and Procedures	This area assesses the candidate’s knowledge of determining diagnostic plans, and performing or ordering tests and procedures to establish diagnoses.	13%
5. Diagnostic Interpretation	This area assesses the candidate’s knowledge of evaluating the results of tests and procedures to establish patient diagnoses and prognoses.	6%
6. Treatment Planning	This area assesses the candidate’s knowledge of formulating treatment plans based on diagnostics and communicating treatment options to client.	11%
7. Treatment	This area assesses the candidate’s knowledge of administering medical, surgical, and therapeutic procedures indicated by the treatment plan.	12%
8. Disease Prevention and Health Management	This area assesses the candidate’s knowledge of developing preventative plans and programs to promote animal health and public safety.	5%
9. Professional and Legal Responsibilities	This area assesses the candidate’s knowledge of compliance with state and federal law and regulations, including veterinary practice standards, reportable diseases, animal movement, and disaster response.	13%
Total		100%

CHAPTER 10 | CONCLUSIONS

COMPREHENSIVE REVIEW OF THE ICVA NAVLE PROGRAM

OPES completed a comprehensive analysis and evaluation of the documents provided by ICVA. The procedures used to establish and support the validity and defensibility of the NAVLE (i.e., occupational analysis, examination development, passing scores, test administration, examination scoring and performance, information available to candidates, and test security procedures) were found to meet professional guidelines and technical standards as outlined in the *Standards* and in B&P Code § 139. However, to be fully compliant with *OPES 18-01*, OPES recommends that NAVLE discontinue the use of faculty members and educators. This will reduce conflicts of interest, allow the participation of additional practitioners, and help ensure that an entry level perspective is maintained.

Given the findings regarding the NAVLE, OPES supports the Veterinary Medical Board's continued use of the NAVLE for licensure in California. In addition, OPES recommends revising the practice-based CSB to a CSB supplemental examination that measures California law, rules, and regulations only.

During the linkage study workshop, the SMEs could not identify any California-specific veterinary practices or diagnoses that were not covered on the NAVLE. Therefore, OPES believes that continuing to assess candidates on the full breadth of veterinary practice on the CSB is redundant and could be perceived as an unnecessary barrier to licensure. OPES also recommends that the revised CSB supplemental examination be used in place of the mail-out Veterinary Law Examination (VLE), which would be discontinued.

CHAPTER 11 | REFERENCES

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