

## SUMMARY

The American Veterinary Medical Association (AVMA) created a program by which foreign-trained veterinarians could establish educational equivalency with veterinary schools that are accredited by the AVMA. The Educational Commission for Foreign Veterinary Graduates (ECFVG) designed a four-step program by which candidates must:

1. Enroll, provide proof of graduation, and verify veterinary credentials;
2. Assess English language ability;
3. Assess basic and clinical veterinary science knowledge; and,
4. Assess hands-on clinical veterinary medical skills.<sup>1</sup>

The Step 3 Certification, or the Basic and Clinical Sciences Exam, is meant to test whether the foreign-trained graduates have the same veterinary science knowledge as veterinarians trained in an AVMA-accredited veterinary school. The ECFVG is “the only veterinary education equivalency certificate that is recognized in all 50 states, the District of Columbia, Puerto Rico, and the Virgin Islands.”<sup>2</sup>

Every five to seven years, the AVMA updates the knowledge and task/skills that used as a basis for the Basic and Clinical Sciences Examination in a process called a Job Analysis. This report outlines the methodology and results from the AVMA Job Analysis Study.

A job analysis study is designed to obtain descriptive information about the tasks/skills performed on a job and the knowledge needed to adequately perform those tasks/skills. The purpose of the job analysis study was to:

- validate the knowledge and tasks/skills important for a recent (within two years) graduate of an AVMA-accredited veterinary school to be proficient;
- ensure that the knowledge and task/skills statements identified were congruent with the objective of certifying veterinarians for educational equivalency; and,
- develop test specifications for the Basic and Clinical Sciences Exam and to make recommendations regarding the content tested in the Clinical Practice Exam.

### Study Purpose:

1. Validate the knowledge and task/skills important for a recent graduate of an AVMA-accredited veterinary school.
2. Ensure the knowledge and task/skills are congruent with certifying veterinarians for educational equivalency.
3. Develop the test specifications for the Basic and Clinical Sciences Exam.

### Conduct of the Job Analysis Study

The job analysis study consisted of several activities: collaboration with subject matter experts to ensure representativeness of the knowledge and task/skill statements; survey development; survey dissemination; compilation of survey results; and test specifications development. The successful outcome of the job analysis study depended on the information provided by veterinarians who participated in the survey development and who responded to the survey.

<sup>1</sup> <https://www.avma.org/professionaldevelopment/education/foreign/pages/default.aspx> Retrieved July 18, 2012.

<sup>2</sup> <https://www.avma.org/ProfessionalDevelopment/Education/Foreign/Pages/ECFVG-about-us.aspx> Retrieved July 18, 2012.



## Survey Development

Survey research is an effective way to identify the knowledge and task/skills that are important for recent graduates (within two years) of an AVMA-accredited veterinary school. The knowledge statements included on the survey covered nine domains of practice, while the task/skills covered six domains. The development of the survey was based on a draft of knowledge and task/skills statements developed from a variety of resources, but primarily from the previous job analysis study, conducted in 2006, and the current Clinical Practice Exam's Manual of Administration.

## Survey Content

The survey was distributed to 15,000 veterinary professionals. The survey, disseminated in June of 2012, consisted of five sections.

| Survey Sections                               |
|---|
| Section 1: Background and General Information |
| Section 2: Knowledge                          |
| Section 3: Task/Skills                        |
| Section 4: Recommendations for Test Content   |
| Section 5: Comments                           |

## Results

### Survey Response

A total of 940 veterinarians submitted completed surveys. Based on the analysis of survey responses, a representative group of veterinarians completed the survey in sufficient numbers to meet the requirements for statistical analysis of the results.

### Survey Ratings

Participants were asked to rate the knowledge statements by the importance for a recent (within two years) graduate of an AVMA-accredited veterinarian school on a five point scale (0 = Of no importance to 4 = Very Important). Respondents were also asked to rate the skill level for which the knowledge is required at the time of graduation from an AVMA-accredited veterinary school (0 = Unnecessary to 4 = Mastery). Participants were asked to rate the task/skill statements by the importance for a recent (within two years) graduate of an AVMA-accredited veterinary school (0 = Of no importance to 4 = Very Important).

### Content Coverage

Evidence was provided for the comprehensiveness of the content coverage within the domains. That is, if the knowledge and task/skills within a domain are adequately defined, then it should be judged as being well covered. Respondents indicated that the content within each knowledge and task/skill domain was adequately to well covered, thus supporting the comprehensiveness of the defined domains.

## RESULTS AT A GLANCE

### WHO COMPLETED THE SURVEY

*A total of 940 responses were used for analysis. The majority of respondents have hired or worked with recent veterinary graduates, graduated from an AVMA-accredited school, and are employed in Clinical Practice.*

### KNOWLEDGE IMPORTANCE RATINGS

*118 of 132 knowledge achieved high importance ratings for the overall group.*

### TASK/SKILLS IMPORTANCE RATINGS

*86 of 95 task/skills achieved high importance ratings for the overall*



### *Test Specifications Development*

In August 2012, a Test Specifications Committee convened to review the results of the job analysis and to create the test content outline that will guide the development of the Basic and Clinical Sciences Examination.

### *Summary*

In summary, this study used a multi-method approach to identify the knowledge and task/skills that are important to the competent performance of veterinarians. The job analysis process allowed for input from a representative group of veterinary professionals and was conducted within the guidelines of professionally sound practice. The results of the job analysis can be used by the AVMA's ECFVG to develop the Basic and Clinical Sciences Examination.



## BACKGROUND

The American Veterinary Medical Association (AVMA) is a not-for-profit association founded in Washington, D.C. in 1863. The objective of the association is “to advance the science and art of veterinary medicine, including its relationship to public health, biological science, and agriculture.”<sup>3</sup>

The Educational Commission for Foreign Veterinary Graduates (ECFVG) is a committee appointed by the AVMA Executive Board and founded in 1971. The primary purpose of the ECFVG is to evaluate the professional competence of graduates of foreign colleges of veterinary medicine, to the benefit of such graduates and of the state veterinary licensing agencies, and of other concerned parties.<sup>4</sup>

The Step 3 examination is the third of four steps in the ECFVG certification program. It will assess the basic and clinical sciences competencies of graduates of non–AVMA-accredited schools as compared with competencies in these areas of graduates of AVMA-accredited schools.

This report describes the job analysis study including the:

- rationale for conducting the job analysis study;
- methods used to define knowledge and task/skills;
- types of data analyses conducted and their results; and
- results and conduct of the test specifications meeting.

### ***Job Analysis Study and Adherence to Professional Standards***

A job analysis study refers to procedures designed to obtain descriptive information about the tasks performed on a job and the knowledge, skills, or abilities requisite to the performance of those tasks. The specific type of information collected during a job analysis study is determined by the purpose for which the information will be used.

For purposes of developing certification examinations, a job analysis study should identify important tasks, knowledge, skills, or abilities deemed important by veterinarians.

The use of a job analysis study (also known as practice analysis, role and function study, or role delineation) to define the content domain(s) is a critical component in establishing the content validity of the certification. Content validity refers to the extent to which the content covered by an examination is representative of the knowledge and task/skills of a job (tasks, knowledge, skills, or abilities).

A well-designed job analysis study should include the participation of a representative group of subject matter experts who reflect the diversity within the profession. Diversity refers to regional or job context factors and to factors such as experience, gender, and race/ethnicity. Demonstration of content validity is accomplished through the judgments of subject matter experts. The process is enhanced by the inclusion of large numbers of experts who represent the diversity of the relevant areas of expertise.

<sup>3</sup> <https://www.avma.org/About/WhoWeAre/Pages/mission.aspx> Retrieved July 18, 2012

<sup>4</sup> <https://www.avma.org/ProfessionalDevelopment/Education/Foreign/Pages/ECFVG-pp-history.aspx> Retrieved July 18, 2012



*The Standards for Educational and Psychological Testing*<sup>5</sup> (1999) (*The Standards*) is a comprehensive technical guide that provides criteria for the evaluation of tests, testing practices, and the effects of test use. It was developed jointly by the American Psychological Association (APA), the American Educational Research Association (AERA), and the National Council on Measurement in Education (NCME). The guidelines presented in *The Standards*, by professional consensus, have come to define the necessary components of quality testing. As a consequence, a testing program that adheres to *The Standards* is more likely to be judged to be valid and defensible than one that does not.

As stated in Standard 14.14,

“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 should be provided to support a claim that the knowledge or skills being assessed are required for credential-worthy performance in an occupation and are consistent with the purpose for which the licensing or licensure program was instituted...Some form of job or job analysis provides the primary basis for defining the content domain...” (p.161)

The job analysis study for the ECFVG’s Basic and Clinical Sciences Examination was designed to follow the guidelines presented in *The Standards* and to adhere to accepted professional practice.

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<sup>5</sup> American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (1999). *The Standards for Educational and Psychological Testing*. Washington, DC: American Psychological Association.



## METHOD

The job analysis study for the ECFVG’s Basic and Clinical Sciences Examination involved a multi-method approach that included meetings with subject-matter experts and a survey. This section of the report describes the activities conducted for the job analysis study.

First, experts identified the knowledge statements and task/skills they believed were important to the work performed by recent graduates (within two years) of an AVMA-accredited veterinary school. Then, a survey was developed and disseminated to veterinarians. The purpose of the survey was to obtain verification (or refutation) that the requisite knowledge needed and the task/skills identified by the experts are important to the work of veterinarians.

### STEPS OF THE JOB ANALYSIS STUDY

1. Conduct of a planning meeting
2. Development of the survey instrument
3. Dissemination of the survey
4. Analysis of the survey data
5. Development of the test specifications

Survey research functions as a “check and balance” on the judgments of the experts and reduces the likelihood that unimportant areas will be considered in the development of the test specifications. The use of a survey is also an efficient and cost-effective method of obtaining input from large numbers of experts and makes it possible for ratings to be analyzed separately by appropriate subgroups of respondents.

The survey results provide information to guide the development of test specifications and content-valid examinations. What matters most is that a certification examination covers the important knowledge needed to perform job activities.

#### **1. Conduct of Planning Meeting**

A project-planning meeting was held on November 8, 2011, via web conference. During the planning meeting, several issues were discussed including selection of the Task Force Committee members and Test Specifications Committee members, meeting dates and logistics, and survey delivery.

#### **2. Development of the Survey**

##### ***Conduct of the Job Analysis Study Task Force Meeting***

The Task Force Committee was comprised of a representative group of veterinarians. In total, 11 veterinarians comprised the committee. The Task Force meeting was conducted March 14-15 in Schaumburg, Illinois. The purpose of the meeting was to develop the survey content.

Activities conducted during the meeting included reviewing and, as needed, revising the major domains, knowledge and task/skills that are necessary for the competent performance of recent graduates (within two years) of an AVMA-accredited veterinary school. Survey rating scales and background and general information questions were presented, discussed, and revised as needed.



## *Survey Construction and Review Activities*

### *Survey Construction*

Upon the completion of the Task Force Meeting, a draft version of the survey was developed. The following knowledge and task/skill domains and sub-domains were covered on the survey:

#### Knowledge:

- |   |                               |
|---|-------------------------------|
| Domain 1: Anatomy   | Domain 5: Anesthesia          |
| Domain 2: Pharmacology, Physiology, and Toxicology                      | Domain 6: Surgery             |
| A. Pharmacology   | Domain 7: Diagnostics         |
| B. Physiology   | A. Diagnostic Techniques      |
| C. Toxicology   | B. Diagnostic Imaging         |
| Domain 3: Pathology   | Domain 8: Animal Welfare      |
| A. Anatomic Pathology   | Domain 9: Preventive Medicine |
| B. Clinical Pathology   | A. Disease Prevention         |
| C. Pathophysiology  | B. Epidemiology               |
| Domain 4: Medicine: Etiology, Pathophysiology, Diagnosis, and Treatment | C. Nutrition                  |
|   | D. Public Health              |
|   | E. Regulatory Programs        |

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#### Task/Skill Domains:

- |                       |                         |
|-----------------------|-------------------------|
| Domain 1: Anesthesia  | Domain 5: Treatment     |
| Domain 2: Assessment  | Domain 6: Communication |
| Domain 3: Examination | A. Oral                 |
| Domain 4: Techniques  | B. Written              |
| A. Diagnostic         |                         |
| B. Treatment          |                         |



### *Survey Review by Task Force Committee*

After the Task Force meeting, each Task Force member received a copy of the draft survey. The purpose of the review was to provide the Committee an opportunity to view their work and recommend any revisions.

Comments provided by the Task Force Committee for the online survey were compiled and reviewed via web conference on April 5, 2012, with AVMA staff and the Task Force members. Refinements, as recommended by the Task Force, were incorporated into the online survey in preparation for a pilot test.

### *Survey Pilot Test*

The purpose of the small-scale pilot test was to have professionals in the field who had no previous involvement in the development of the survey, review and offer suggestions to improve the instrument. The survey link was sent to 24 participants, eight of which completed the survey.

Pilot participants were asked to review the survey for clarity of wording, ease of use, and comprehensiveness of content coverage. Comments were compiled and reviewed via web conference on April 23, 2012 with the Task Force members. The survey was revised and finalized based on the review of the pilot test comments.

### *Final Version of the Survey*

The final version of the online surveys consisted of five sections: Section 1: Background and General Information; Section 2: Knowledge; Section 3: Task/Skills; Section 4: Recommendations for Test Content; and, Section 5: Write in Comments.

In Section 1: Background and General Information, survey participants were asked to provide general and background information about themselves and their professional activities. The purpose of this section was to gather information about the survey participants to ensure that those responding to the survey were representative of practicing veterinarians.

In Section 2: Knowledge, survey participants were asked to rate the statements using the importance scale shown below. Respondents were also asked to indicate the skill level required at the time of graduation.

| Knowledge  |  |
|--|--|
| Importance: How important is the knowledge for a recent (within two years) graduate of an AVMA-accredited veterinary school? | Skill level: To what level should this knowledge be attained at the time of graduation from an AVMA-accredited veterinary school?        |
| 0 = Of no importance   | 0 = Unnecessary – not required at all  |
| 1 = Of little importance   | 1 = Exposure – sufficiently aware of the knowledge to be able to look it up  |
| 2 = Of moderate importance   | 2 = Comprehension –able to interpret and/or discuss the concepts involved  |
| 3 = Important  | 3 = Application – able to use the knowledge to solve simple problems based on application of concepts in a new setting                   |
| 4 = Very important   | 4 = Mastery – able to apply the knowledge to complex problems, to integrate information and to create, synthesize and evaluate solutions |



In Section 3: Task/Skills, survey participants were asked to rate the statements using the importance scale shown below.

| Task/Skill  |
|---|
| <b>Importance: How important is performance of the task/skill for a recent (within two years) graduate of an AVMA-accredited veterinary school?</b> |
| 0 = Of no importance  |
| 1 = Of little importance  |
| 2 = Of moderate importance  |
| 3 = Important   |
| 4 = Very important  |

Survey participants were asked to provide a rating measuring the representativeness of each knowledge and task/skill domain. Respondents made their judgments using a five-point rating scale (1 = Very Poorly; 2 = Poorly; 3 = Adequately; 4 = Well; 5 = Very Well). A write-in area was provided for respondents to note any topics that were not covered within a specific domain.

In Section 4: Recommendation for Test Content, survey participants were asked to indicate the content weights that the knowledge areas below should receive on the Basic and Clinical Sciences Examination:

- Domain 1: Anatomy
- Domain 2: Pharmacology, Physiology, and Toxicology
- Domain 3: Pathology
- Domain 4: Medicine: Etiology, Pathophysiology, Diagnosis, and Treatment
- Domain 5: Anesthesia
- Domain 6: Surgery
- Domain 7: Diagnostics
- Domain 8: Animal Welfare
- Domain 9: Preventive Medicine

This was accomplished by distributing 100 percentage points across the nine knowledge areas. These distributions represented the allocation of examination items survey participants believed should be devoted to each knowledge area.

In Section 5: Survey respondents were given the opportunity to answer open-ended questions: “What additional professional development and/or continuing education could you use to improve your performance in your current work role?” and “How do you expect your work role to change over the next few years? What tasks will be performed and what knowledge will be needed to meet changing job demands?”

### 3. Dissemination of the Survey

An email list of 15,000 from AVMA was provided for participation in the survey. Of the 15,000 invitations sent, only 14,748 email addresses were valid. Survey respondents were given the opportunity to unsubscribe from the survey mailing list; 54 participants unsubscribed. The survey invitation was sent on June 1, 2012. Two reminders emails were sent on June 29, 2012 and July 5, 2012.



#### 4. Analysis of the Survey Data

As previously noted, the purpose of the survey was to validate the knowledge and task/skills that relatively large numbers of veterinarians judged to be relevant (verified as important) for a recent graduate of an AVMA-accredited school. This objective was accomplished through an analysis of the mean importance ratings for knowledge and task/skills statements. The derivation of test specifications from those statements verified as important by the surveyed veterinarians provides a substantial evidential basis for the content validity of credentialing examinations.

The following quantitative data analyses were produced:

- Means, standard deviations, and frequency (percentage) distributions for knowledge and content coverage ratings
- Means, standard deviations, and frequency distributions for task/skill statements and content coverage ratings
- Medians and modes for the knowledge skill level ratings
- Means and standard deviations for test content recommendations
- Index of agreement values for designated subgroups
- Crosstabs for selected demographic questions

#### *Criterion for Interpretation of Mean Importance Ratings*

Since a major purpose of the survey was to ensure that only validated knowledge and task/skills statements are included in the development of test specifications, a criterion (cut point) for inclusion needs to be established.

A criterion that has been used in similar studies is a mean importance rating that represents the midpoint between moderately important and important. For the importance rating scale used across many studies, the value of this criterion is 2.50.

It is believed that this criterion is consistent with the intent of content validity. Therefore, for this job analysis, the criterion was set at 2.50. Accordingly, the task and knowledge statements were placed into one of three categories: Pass, Borderline, or Fail as determined by their mean importance ratings.

- The Pass Category contains those statements whose mean ratings are at or above 2.50, and are considered eligible for inclusion in the development of test specifications.
- The Borderline Category contains those statements whose mean ratings are between 2.40 and 2.49. The Borderline Category is included to provide a point of discussion for the Task Force to determine if the statement(s) warrant(s) inclusion in the test specifications.

#### ***Definition of Pass, Borderline and Fail Categories for Importance Mean Ratings***

|                    | <u>Means</u>            |
|--------------------|-------------------------|
| <b>Pass:</b>       | <b>At or above 2.50</b> |
| <b>Borderline:</b> | <b>2.40 to 2.49</b>     |
| <b>Fail:</b>       | <b>Less than 2.40</b>   |



- The Fail Category contains those statements whose mean ratings are less than 2.40. It is recommended that statements in the Fail Category be excluded from consideration in the test specifications.

## **5. Development of the Test Specifications**

A meeting was conducted on August 7-8, 2012, in San Diego, California to develop the BCSE Test Specifications.

The meetings focused on:

- finalizing the knowledge that are important for inclusion based on the survey results;
- finalizing the task/skill statements for inclusion based on the survey results;
- establishing the percentage test content weights for each area on the examination;
- establishing cognitive level weights for each area on the examination; and,
- creating a linkage between the knowledge and task/skills.

These percentage test weights (content and cognitive) are used to guide examination development activities.



## RESULTS

### Survey Responses

Of the 15,000 invitations sent, only 14,748 email addresses were valid. An additional 54 respondents unsubscribed from the survey invitation, leaving 14,694 responses to be used in the sample. A total of 940 survey responses were used for analysis, resulting in a response rate of 6.40%.

Based on the analysis of survey responses, a representative group of veterinarians completed the survey in sufficient numbers to meet the requirements to conduct statistical analysis. This is evidenced by the distribution of responses for each of the background information questions and was confirmed through discussion with the Committee and AVMA representatives.

Response Rate of  
6.40%

Figure 1. *Demographic Question \*1. When was the last time you hired or worked with recent (within two years) veterinary graduates?*

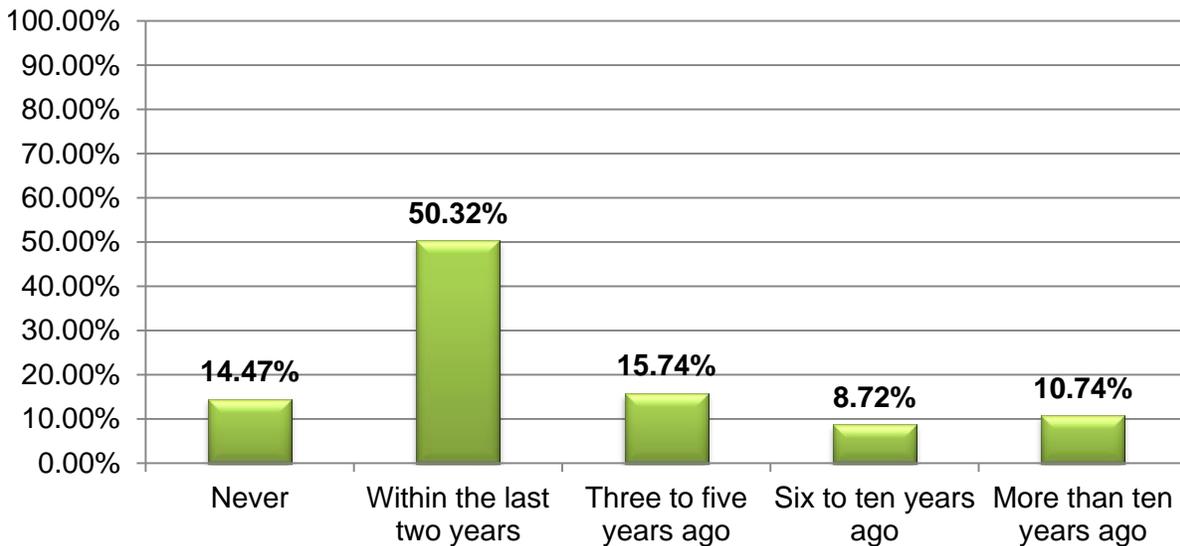


Figure 2. Demographic Question 1a. Do you provide input on hiring veterinarians in your organization?

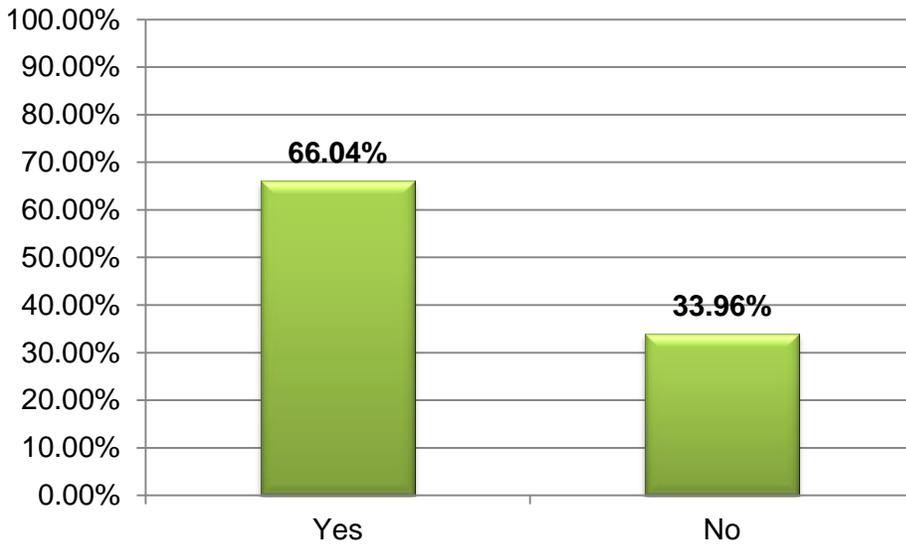


Figure 3. Demographic Question 1b. How many recent veterinary graduates do you hire annually?

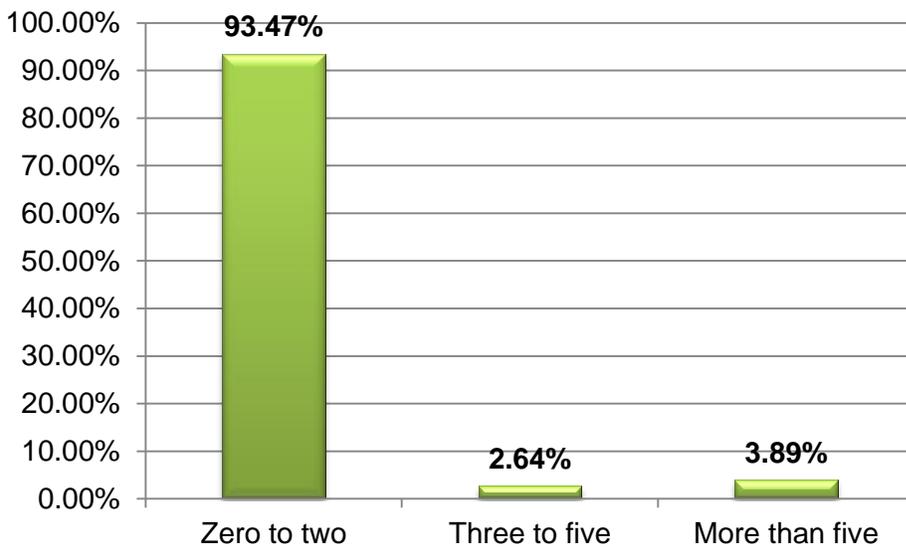


Figure 4. Demographic Question \*2. Do you currently teach or provide educational opportunities to veterinary students in any setting (e.g., academic; private clinical practice; government; student externships)?

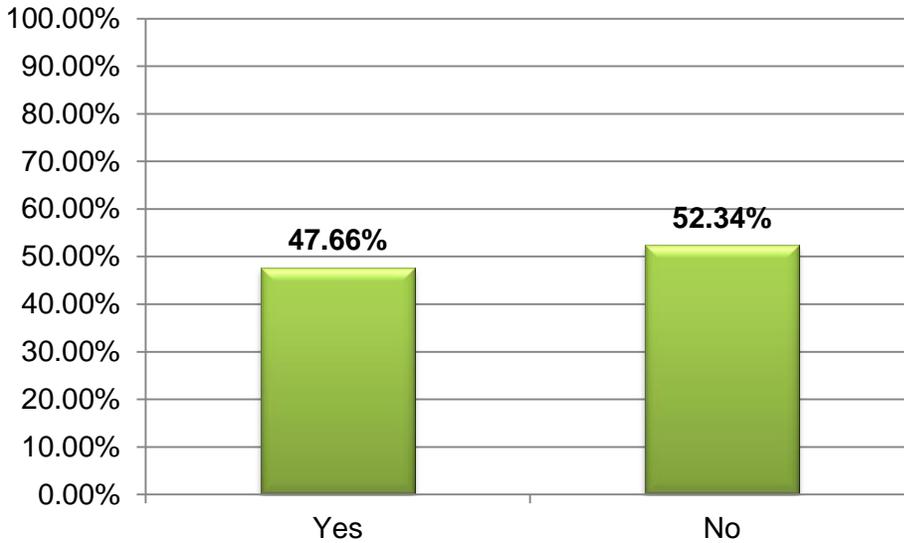


Figure 5. Demographic Question 2a. In what PRIMARY setting do you teach or provide educational opportunities to veterinary students?

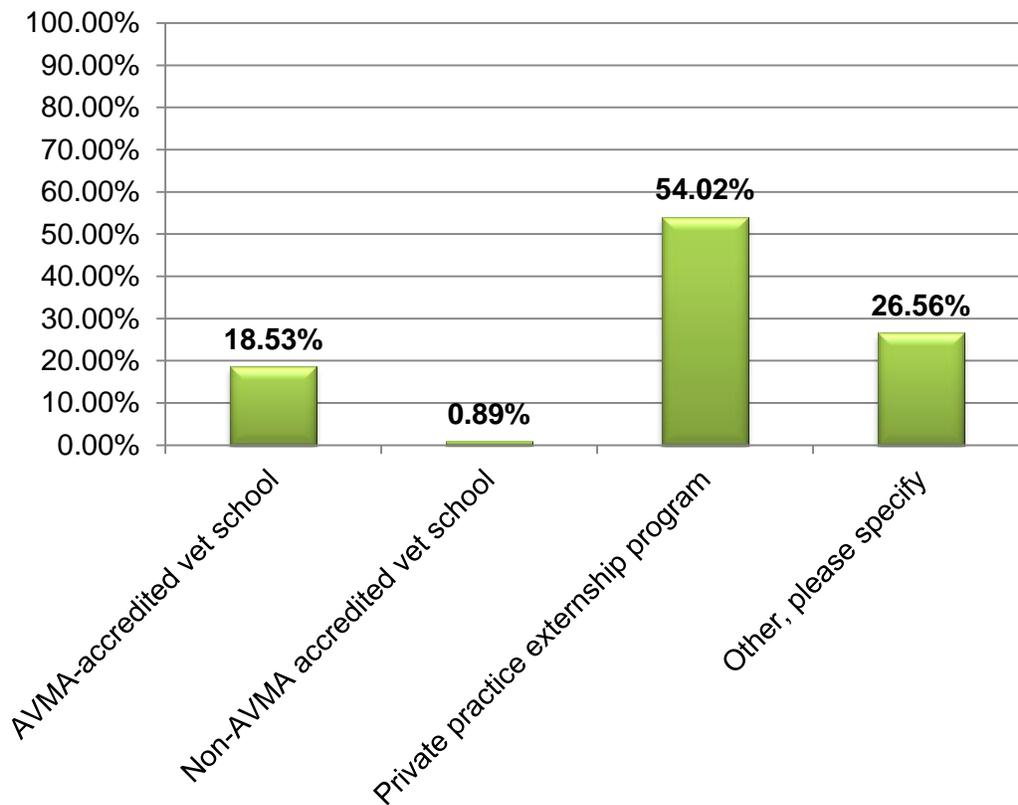


Figure 6. Demographic Question 3. For how long have you been a licensed veterinarian (state, provincial, or academic licensure) in the United States or Canada?

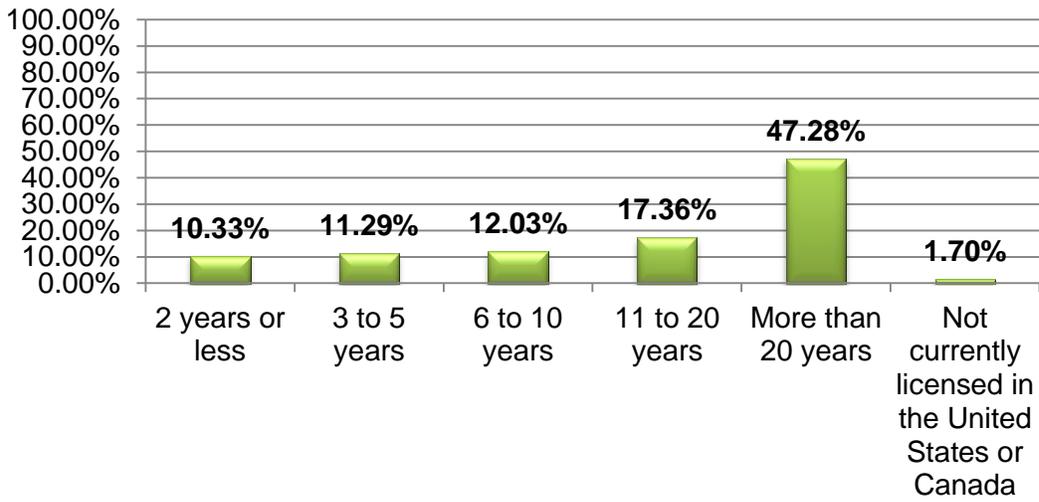


Figure 7. Demographic Question 4. In what U.S. state or Canadian province do you primarily practice (Non-U.S. or Non-Canada, please specify below)? (Select one)

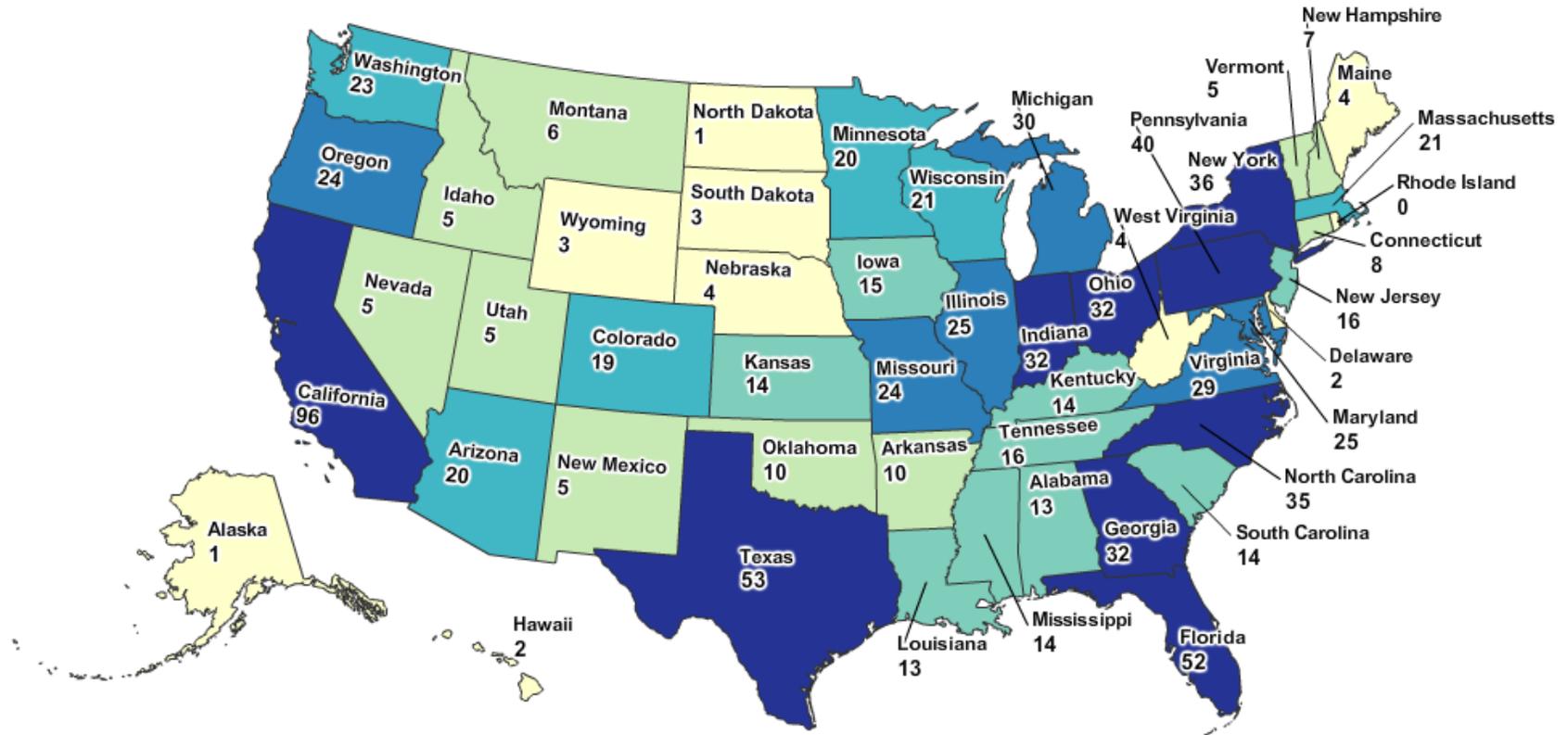


Figure 8. Demographic Question 4. In what U.S. state or Canadian province do you primarily practice (Non-U.S. or Non-Canada, please specify below)? RECODED to match the AVMA membership districts

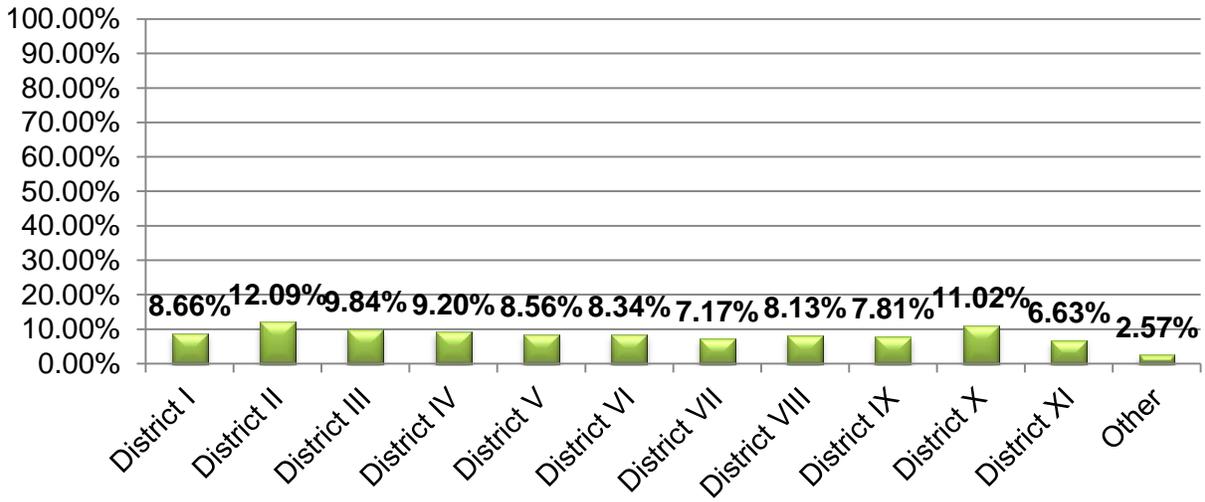


Figure 9. Demographic Question 4. Non-U.S. and Non-Canada representations

- Australia
- Cayman Islands
- France
- Germany
- Cuba
- Italy
- Sweden
- Trinidad
- Venezuela

Figure 10. Demographic Question \*5. What is your PRIMARY employment type?

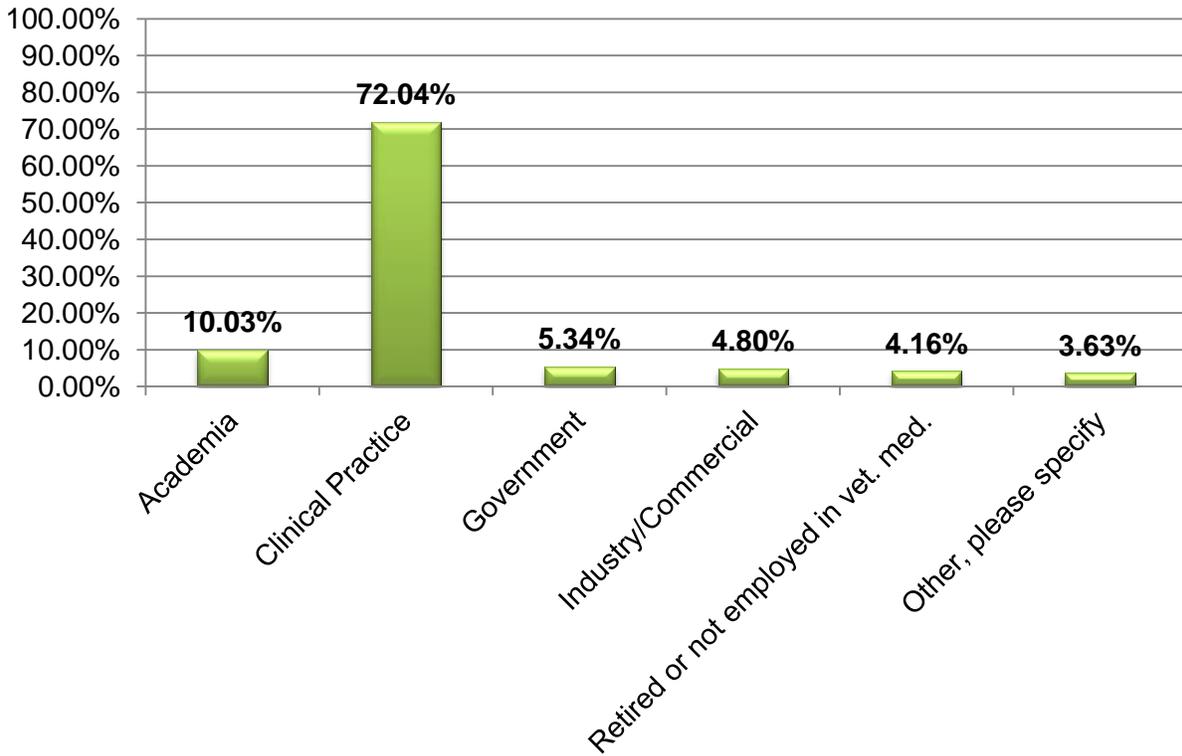


Figure 11. Demographic Question 5a. Which best describes your clinical practice?

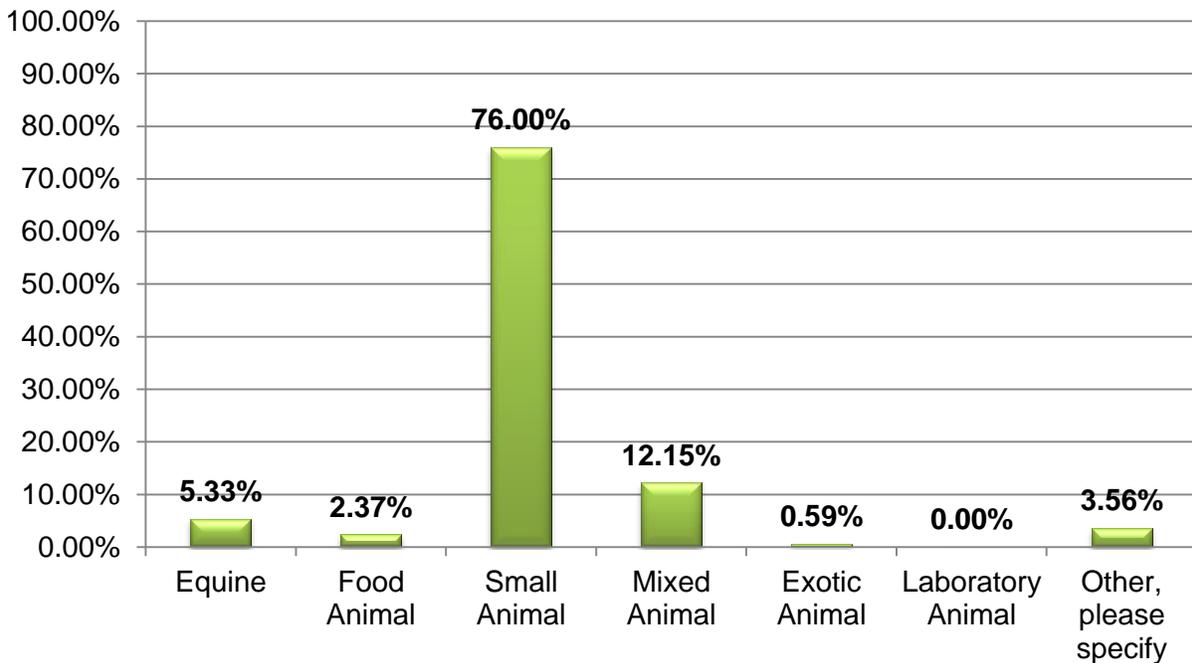


Figure 12. Demographic Question 5a. What is your PRIMARY employment type within "Industry/Commercial"?

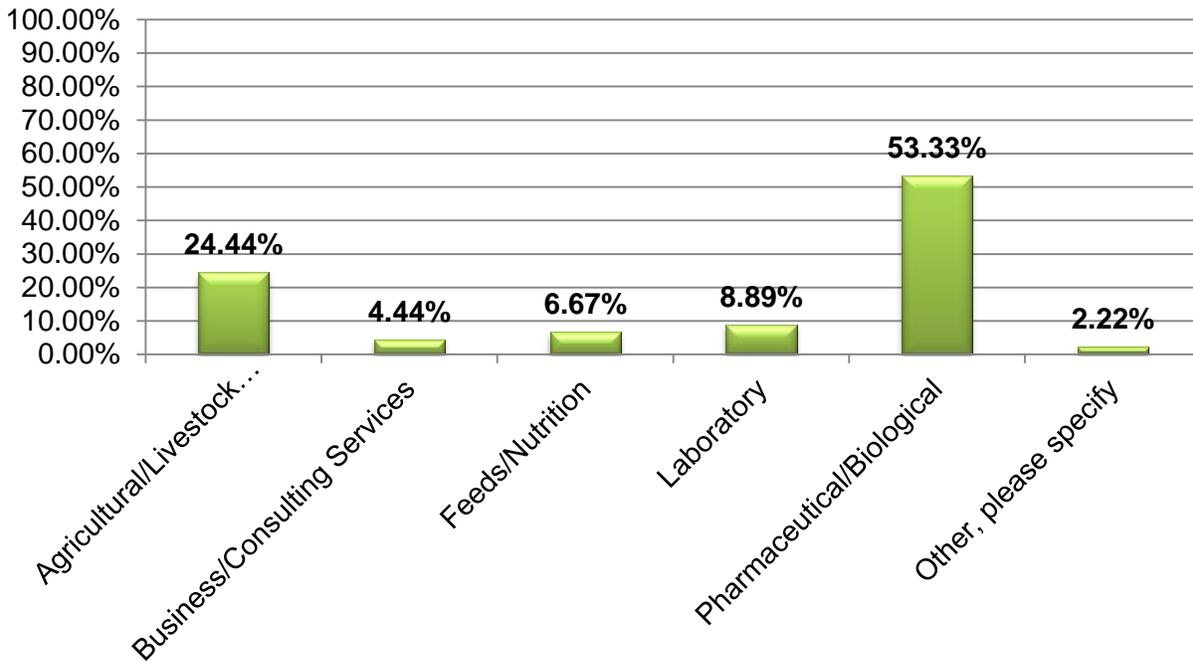
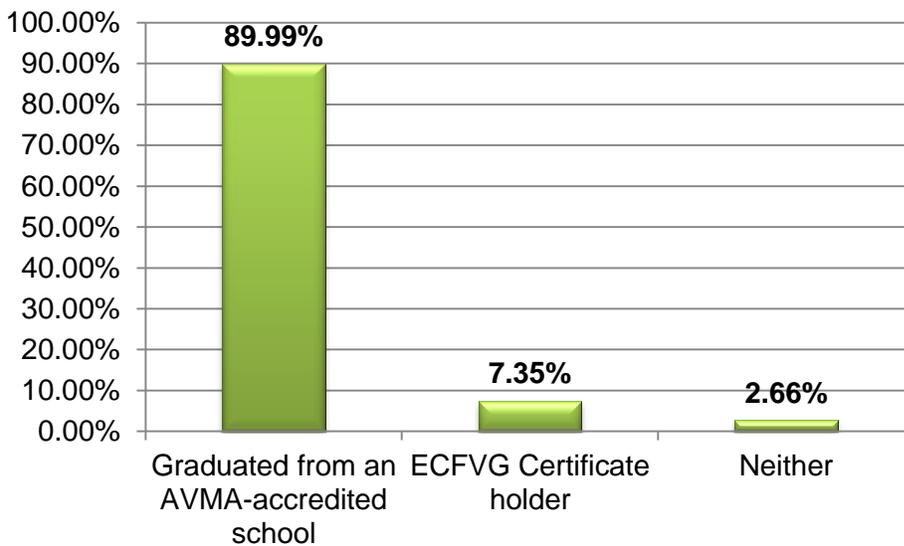


Figure 13. Demographic Question 7. What is your veterinary education background?<sup>6</sup>



<sup>6</sup> Question 6 is excluded from the charts because survey respondents were asked to indicate the percent of time spent with each species. This information was presented separately to the Test Specifications Committee.



Figure 14. Demographic Question 8. Do you currently have specialty board certification?

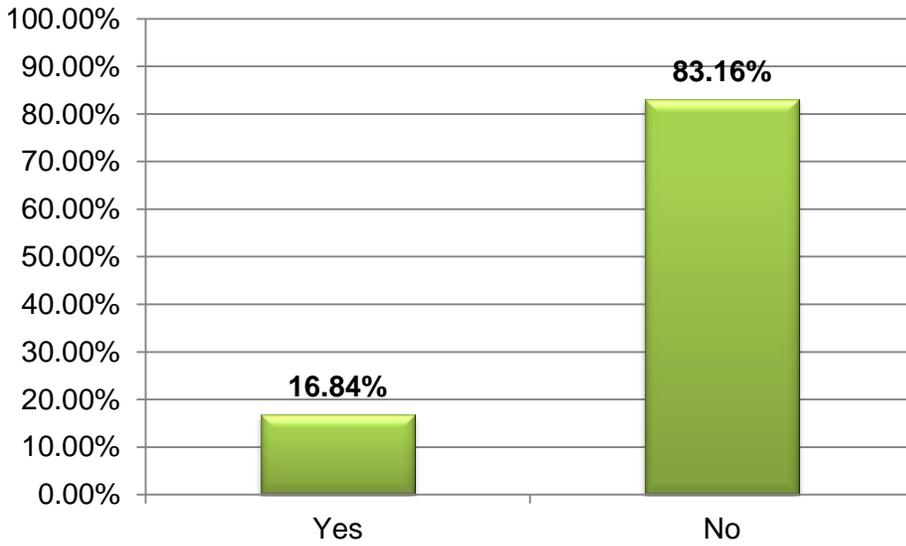


Figure 15. Demographic Question 9. What is your gender?

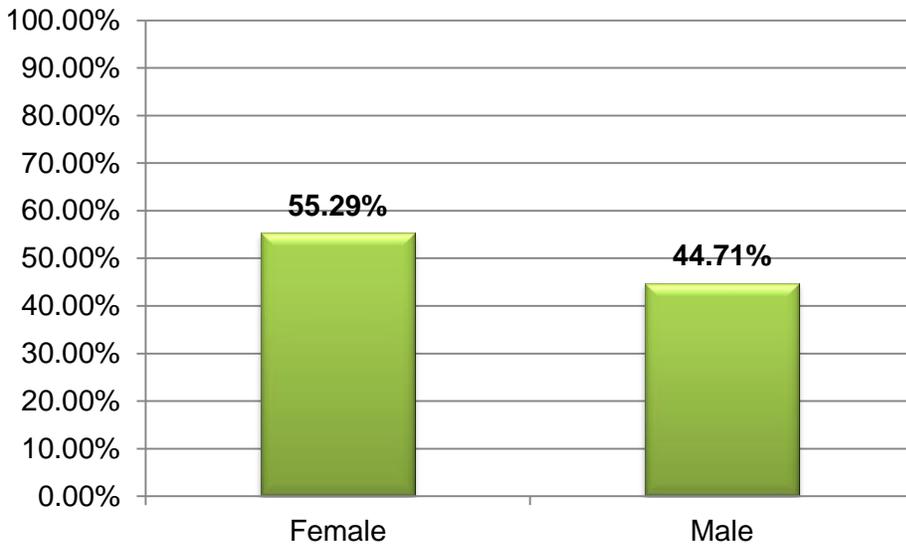
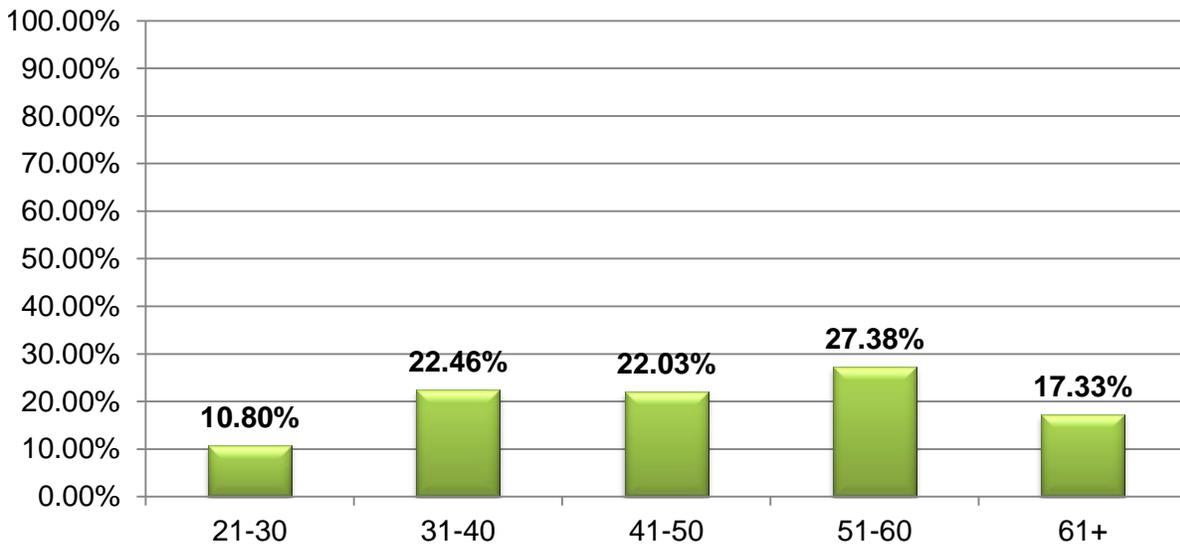


Figure 16. *Demographic Question 10. What is your age?*



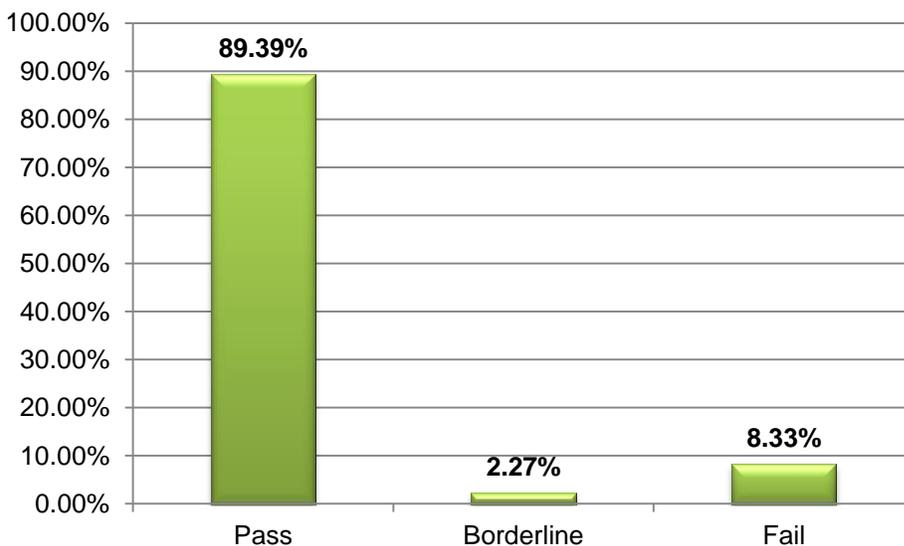
**Knowledge and Task/Skills Overall Ratings**

The following provides a summary of survey respondents’ ratings of the knowledge and task/skills. Of the 227 knowledge and task/skill statements, the survey respondents passed 204 (89.87%) statements.

**Knowledge**

Of the 132 knowledge, 118 (89.39%) achieved high importance means. Figure 17 shows the number of knowledge that were placed in Pass, Borderline, and Fail categories.

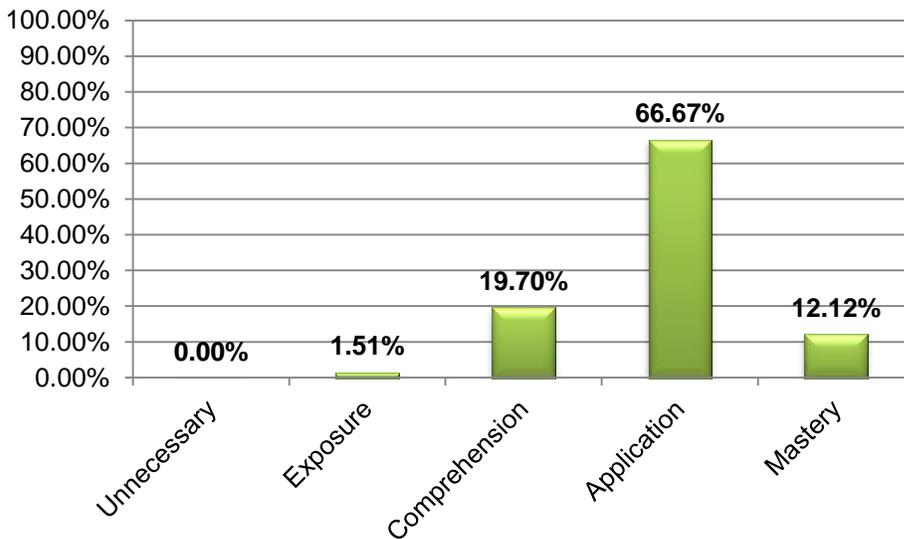
Figure 17. *Knowledge by Pass, Borderline, and Fail categories*



Survey respondents were asked to indicate the level to which a recent graduate (within two years) of an AVMA-accredited veterinary program was expected to have the knowledge upon graduation. Figure 18 shows the breakdown the modal responses for the skill level rating scale.



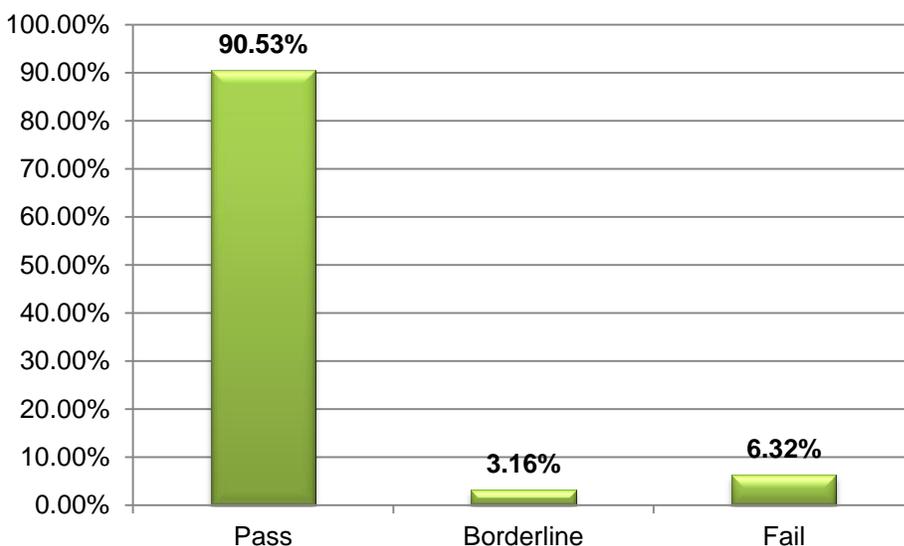
Figure 18. *Knowledge Skill Level Scale Modal Responses*



### *Task/Skills*

Of the 95 task/skills, 86 (90.53%) achieved high importance means. Figure 19 shows the number of task/skills that were placed in Pass, Borderline, and Fail categories.

Figure 19. *Task/Skill Statements by Pass, Borderline, and Fail categories*



### *Subgroup Analysis of Knowledge and Task/Skills Ratings*

The index of agreement (IOA) is a measure of the extent to which subgroups of respondents agree on which knowledge and task/skills are important. Using the mean importance ratings for knowledge and task/skills, indices of agreement were computed:

- If the subgroup means are above the critical importance value (mean ratings at or above 2.50), then they agree that the content is important.



- If the subgroup means are below the critical importance value (mean ratings less than 2.50), then the subgroups agree that the content is considered less important.
- By contrast, if one subgroup's (for example, female) mean ratings are above the critical importance value and another subgroup's (for example, male) means are below the critical importance value then the subgroups are in disagreement as to whether the content is important.

The agreement coefficients ranged from 0.90 to 1.00 for knowledge and 0.86 to 1.00 for the task/skills. All of the subgroups statements achieved strong agreement (coefficients of 0.80 or higher) and additional mean analysis was not necessary.

As one of the major purposes of this job analysis study is to identify appropriate test content, the agreement index provides a statistical method to address this question at the subgroup level. Furthermore, the agreement index requires only 30 respondents per subgroup for computation, whereas the correlation coefficient requires at least 100 respondents per subgroup to provide a reliable measure of agreement.

Agreement coefficients were produced on the following background questions:

- |   |                                       |
|---|---------------------------------------|
| ➤ Last time hired or worked with recent graduates | ➤ AVMA Region                         |
| ➤ Provide input on hiring                         | ➤ Employment type                     |
| ➤ Number of recent graduated hired annually       | ➤ Type of clinical practice           |
| ➤ Teach or educate veterinary students            | ➤ Percent of time with select species |
| ➤ Setting for teaching/educating                  | ➤ Education background                |
| ➤ Years licensed in the U.S. or Canada            | ➤ Board certified                     |
|   | ➤ Gender                              |
|   | ➤ Age                                 |

The agreement coefficients ranged from 0.90 to 1.00 for knowledge and 0.86 to 1.00 for the task/skills. All of the subgroups statements achieved strong agreement (coefficients of 0.80 or higher) and additional mean analysis was not necessary.

### *Content Coverage Ratings*

The survey participants were asked to indicate how well the statements within each of the knowledge and task/skills domains covered important aspects of that area. These responses provide an indication of the comprehensiveness of the survey content.

The five-point rating scale included 1=Very Poorly, 2=Poorly, 3=Adequately, 4=Well, and 5=Very Well. The knowledge and task/skills mean content coverage ratings are provided in Figures 20 and 21. For the knowledge domains, the means ranged from 3.67 to 3.86 and for the task/skill statements ranged from 3.73 to 3.80. These means provide evidence that the knowledge and task/skills were adequately to well covered on the survey.



Figure 20. Mean Content Coverage Ratings of Knowledge Statements

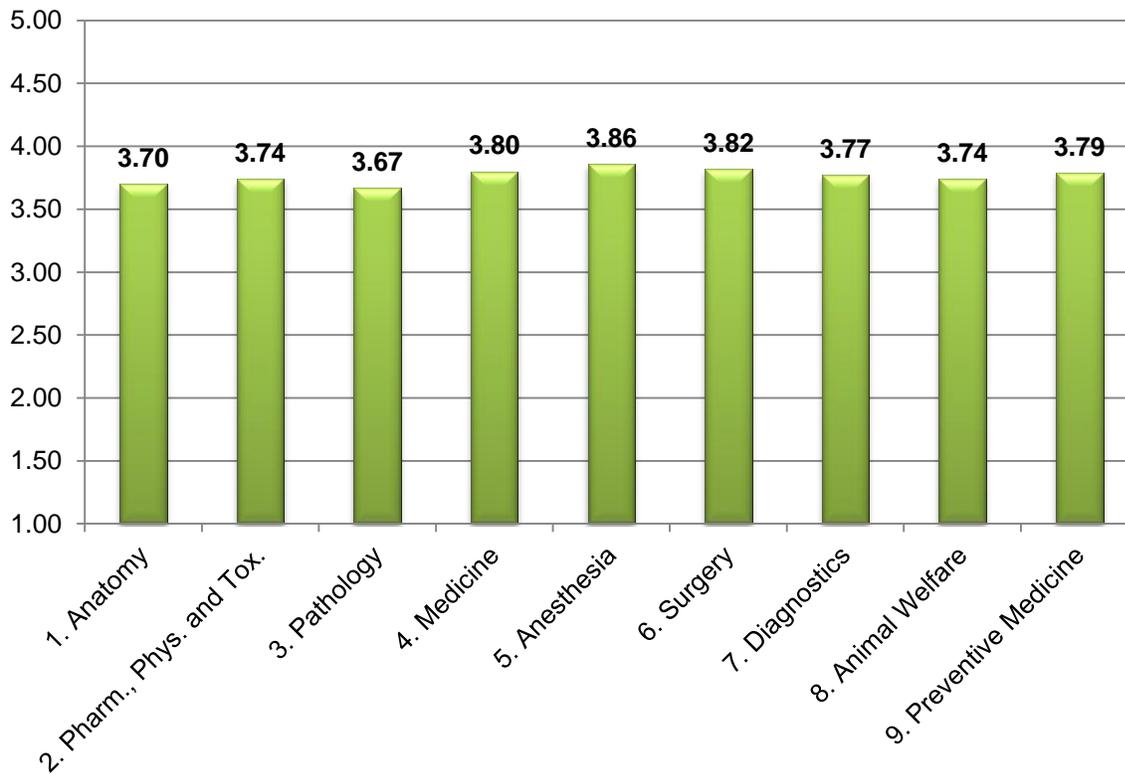
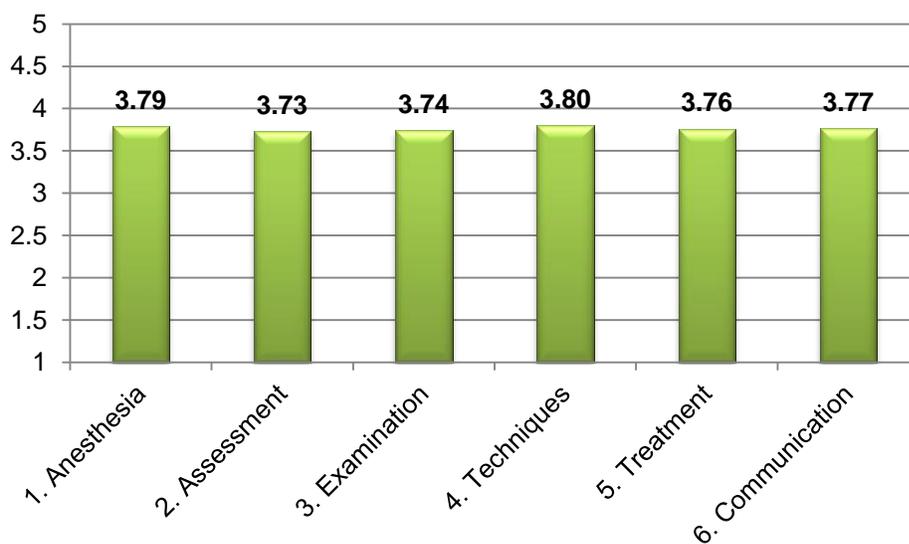


Figure 21. Mean Content Coverage Ratings of Task/Skill Statements



Survey respondents were also asked to write in knowledge or task/skills that they believe should be included in the listing of important knowledge and task/skills. The Test Specifications Committee reviewed the comments to determine whether there were important statements not covered on the survey that should be included in the test specifications.



## SUMMARY AND CONCLUSIONS

The job analysis study for the Step 3 Basic and Clinical Science Exam was conducted to identify knowledge and task/skills statements that are important to the work performed by recent graduates (within two years) of an AVMA-accredited veterinary school. Further, the data collected was used to guide the development of the test specifications that will be used to develop the examination.

The knowledge and task/skills statements were developed through an iterative process involving the combined efforts of subject matter experts. These statements were then entered into a survey format and subjected to verification/refutation through the dissemination of a survey to veterinarians. The survey participants were asked to rate the importance of knowledge and task/skills statements for competence as a recent graduate (within two years) of an AVMA-accredited veterinary school.

The results of the study support the following:

- All of the knowledge and task/skills statements that were verified as important through the survey provide the foundation of empirically derived information from which to develop test specifications for the Basic and Clinical Science Examination.
- Evidence was provided in this study that the comprehensiveness of the content within the knowledge and task/skill domains was adequately to well covered.
- The process utilized and all of the information that resulted from the analysis supported the development of the test specifications.

In summary, the study used a multi-method approach to identify the knowledge and task/skills that are important to the work performed by recent graduates (within two years) of an AVMA-accredited veterinary school. The results of the study were used to develop the test specifications for the Basic and Clinical Sciences Examination.

