Job Analysis for the Small Animal Internal Medicine (SAIM) Examination

Conducted on behalf of

American College of Veterinary Internal Medicine

American College of Veterinary Internal Medicine (ACVIM)

Prentice Place Suite 300
8301 East Prentice Avenue
Greenwood Village, CO 80111

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Prepared by:

PROMETRIC

Colvin Franklin
Assessment Services

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EXECUTIVE SUMMARY

"The American College of Veterinary Internal Medicine (ACVIM) is a not-for-profit 501(c)(6) organization dedicated to improving the lives of animals and people through education, training and certification of specialists in veterinary internal medicine, discovery and dissemination of new medical knowledge, and increasing public awareness of advances in veterinary medical care."[1]

ACVIM requested a Job Analysis Study from Prometric for their Small Animal Internal Medicine (SAIM) Examination. A job analysis study is designed to obtain descriptive information about the tasks, knowledge, and skills needed to perform a particular job. The purpose of the job analysis study was to:

- validate the tasks, knowledge, and skills important for veterinarians specializing in small animal internal medicine; and,
- update the test specifications for the SAIM exam.

Conduct of the Job Analysis Study

The job analysis study consisted of several activities: background research; collaboration with subject matter experts; 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 throughout the project.

Survey Development

Survey research is an effective way to identify the tasks, knowledge, and skills that are important for veterinarians specializing in internal medicine. The identified statements included on the survey covered a total of 20 domains of practice. The development of the survey was based on a draft of task statements developed from a variety of resources, but primarily on the previous job analysis conducted in 2015.

Survey Content

The survey, disseminated in July 2022, consisted of four sections. ACVIM distributed the survey to members with knowledge relevant to the field of small animal internal medicine.

Survey Sections
Section 1: Background and General Information
Section 2: Tasks
Section 3: Recommendations for Test Content
Section 4: Comments

[1] https://www.acvim.org/about-acvim retrieved November 1, 2022.

Results

Survey Response

A total of 168 veterinary professionals submitted surveys complete enough for analysis. Based on the analysis of survey responses, a representative group of professionals completed the survey in sufficient numbers to meet the requirements for statistical analysis of the results. This is evidenced by review of the responses for each of the background and general information questions with confirmation by the Test Specifications Committee.

Survey Ratings

Participants were asked to rate the task statements in regard to their importance for "an individual specializing in Small Animal Internal Medicine" using a five-point scale (0 = Of no importance to 4 = Very Important). Participants were also to indicate whether or not they performed each task statement "in [their] current position (Yes, No).

Content Coverage

Evidence was provided for the comprehensiveness of the content covered within the domains. If the statements within a domain are adequately defined, then it should be judged as being well covered. Respondents indicated that the content within each domain was well covered, thus supporting the comprehensiveness of the defined domains.

Test Specifications Development

In September 2022, a Test Specifications Committee convened to review the results of the job analysis and to update the test content outline that will guide future development for the SAIM exam.

RESULTS AT A GLANCE

WHO COMPLETED THE SURVEY

A total of 168 responses were used for analysis. The majority of respondents reported working in private specialty practice.

IMPORTANCE RATINGS

441 out of 495 task statements included in the survey achieved high importance ratings for the overall group.

Summary

In summary, this study used a multi-method approach to identify the tasks, knowledge, and skills that are important to competent performance as veterinarians specializing in small animal internal medicine. 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 ACVIM to guide development for the SAIM exam.

INTRODUCTION

"The American College of Veterinary Internal Medicine (ACVIM) is a not-for-profit 501(c)(6) organization dedicated to improving the lives of animals and people through education, training and certification of specialists in veterinary internal medicine, discovery and dissemination of new medical knowledge, and increasing public awareness of advances in veterinary medical care.

The ACVIM is the international certifying organization for veterinary specialists in cardiology, large animal internal medicine, neurology, nutrition, oncology and small animal internal medicine with over 3,000 members worldwide."[2]

In 2022, ACVIM requested a job analysis study from Prometric for their Small Animal Internal Medicine (SAIM) Examination. This report describes the job analysis study including the:

- rationale for conducting the job analysis study;
- methods used to define tasks, knowledge, and skills;
- types of data analyses conducted and their results; and
- results and conduct of the SAIM 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 a credentialing examination, the job analysis study should identify tasks, knowledge, and/or skills deemed important for individuals practicing in that area.

The use of a job analysis study (also known as a 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 a certification. Content validity refers to the extent to which the content covered by an examination is representative 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.

[2] https://www.acvim.org/about-acvim retrieved November 1, 2022.

The Standards for Educational and Psychological Testing[3] (2014) (*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 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... Typically, some form of job or practice analysis provides the primary basis for defining the content domain…" (pp 181-182)

The job analysis study for the SAIM exam was designed to follow the guidelines presented in *The Standards* and to adhere to accepted professional practice.

[3] American Educational Research Association, American Psychological Association, National Council on Measurement in Education. (2014). *The Standards for Educational and Psychological Testing*. Washington, DC: American Psychological Association.

METHOD

The job analysis study for the SAIM exam 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.

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

First, experts identified the tasks, knowledge, and skills they believed were important to veterinary practice in the area of small animal internal medicine. Then, a survey was developed and disseminated to ACVIM veterinarians and related professionals. The purpose of the survey was to obtain verification (or refutation) that the task statements identified by the experts are important to the work of veterinarians specializing in small animal internal medicine.
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 analysis of ratings 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 tasks, knowledge, and skills needed to perform job activities.

The steps of the job analysis study are described in detail below:

1. Conduct of a Planning Meeting

In 2022, ACVIM representatives and the Prometric staff responsible for the conduct of the job analysis held a planning meeting via web conference. During the planning meeting, the selection of the Task Force Committee members and Test Specifications Committee members, meeting dates and logistics, and survey delivery were topics of discussion.

2. Development of the Survey

Conduct of the Job Analysis Study Task Force Meeting

The Task Force Committee was consisted of a representative group of veterinary professionals specializing in small animal internal medicine. In total, 12 subject matter experts comprised the committee. A list of the Task Force Committee members appears in Appendix A. The Task Force meeting was conducted virtually from April 29th to May 23rd, 2022. The Task Force Committee met on April 29th, May 14th, and May 23rd, 2022 with independent assignments between each meeting. The purpose of the meeting was to develop the survey content. Prometric staff facilitated the meeting.

Activities conducted during the meeting included reviewing and, as needed, revising the major domains, tasks, knowledge, and skills necessary for competent performance as a small animal internal medicine veterinarian. The draft list presented to the Task Force was developed using the results of the 2015 Job Analysis. 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, Prometric staff constructed the draft survey. The survey covered the following task domains:

1. Cardiovascular
2. Epidemiology/Statistics
3. Endocrine
4. Metabolism/Nutrition
5. Hepatobiliary
6. Exocrine Pancreatic Disorders
7. Gastrointestinal
8. Hemolymphatic
9. Immunology
10. Infectious Disease
11. Oncology
12. Genetics/Molecular Biology
13. Reproduction
14. Respiratory
15. Pharmacology/Toxicology
16. Fluid/electrolyte/Acid base
17. Dermatology
18. Neuromuscular/Neurology
19. Urinary
20. Ophthalmology

Survey Review by Task Force Committee

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

Comments provided by the Task Force Committee for the online survey were compiled by Prometric staff and incorporated into the survey in preparation for final release.

Final Version of the Survey

The final version of the online survey consisted of four sections: Section 1: Background and General Information; Section 2: Tasks; Section 3: Recommendations for Test Content; and, Section 4: Write in Comments.

In Section 1: Background and General Information, survey participants responded to general and background information about themselves and their professional activities.

In Section 2: Tasks, task statements were divided into four equal sections (due to survey length). Participants were given the option to select how many task sections they were willing to complete. They were then randomly assigned task sections based on their response.

Within each task section survey participants rated statements using the importance scale shown below.

Tasks
Importance: How important is the performance of this task for an individual specializing in Small Animal Internal Medicine?
0 = Of no importance
1 = Of little importance
2 = Of moderate importance
3 = Important
4 = Very important

Participants were also asked to indicate if they performed each of the task statements using the scale below.

Tasks
Performance: Do you perform this task in your current position?
Yes
No

Survey participants were also asked to provide a rating measuring the representativeness of each domain. Respondents made their judgments using the five-point rating scale shown below.

Content Coverage
How well do the task statements in Domain [#] cover important aspects of [the domain]?
0 = Very Poorly
1 = Poorly
2 = Adequately
3 = Well
4 = Very Well

Respondents could note any topics that were not covered within a specific domain in an open response field.

In Section 3: Recommendation for Test Content, survey participants indicated the content weights that the areas below should receive on the exam:

1. Cardiovascular
2. Epidemiology/Statistics
3. Endocrine
4. Metabolism/Nutrition
5. Hepatobiliary
6. Exocrine Pancreatic Disorders
7. Gastrointestinal
8. Hemolymphatic
9. Immunology
10. Infectious Disease
11. Oncology
12. Genetics/Molecular Biology
13. Reproduction
14. Respiratory
15. Pharmacology/Toxicology
16. Fluid/electrolyte/Acid base
17. Dermatology
18. Neuromuscular/Neurology
19. Urinary
20. Ophthalmology

This was accomplished by distributing 100 percentage points across the 20 survey domains. These distributions represented the allocation of examination items survey participants believed should be devoted to each area.

In Section 4: Write-In Comments, survey respondents were given the opportunity to answer open-ended questions. Participants were asked, “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

ACVIM distributed the survey to members beginning on July 20, 2022. Appendix B contains a copy of the online survey.

4. Analysis of the Survey Data

As previously noted, the purpose of the survey was to validate the tasks, knowledge, and skills that relatively large numbers of veterinary professionals judged to be relevant (verified as important) for work in small animal internal medicine. This objective was accomplished through an analysis of the mean importance ratings for task statements. The derivation of test specifications from those statements verified as important by the surveyed ACVIM members provides a substantial evidential basis for the content validity of the credentialing examination.

Based on information obtained from the survey, data analyses by respondent subgroups (e.g., practice setting) are possible when sample size permits. A subgroup category is required to have at least 30 respondents to be included in the mean analyses. This is a necessary condition to ensure that the mean value based upon the sample of respondents is an accurate estimate of the corresponding population mean value.

The following quantitative data analyses were produced:

- Means, standard deviations, and frequency (percentage) distributions for task statements and content coverage ratings
- Means and standard deviations for test content recommendations
- Index of agreement values for designated subgroups

Criterion for Interpretation of Mean Importance Ratings

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

A criterion 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.

This criterion is consistent with the intent of content validity. Therefore, for this job analysis, Prometric recommended the value of this criterion should be set at 2.50.

Definition of Pass, Borderline and Fail Categories for Task and Knowledge Importance Mean Ratings

	Means
Pass:	**At or above 2.50**
Borderline:	**2.40 to 2.49**
Fail:	**Less than 2.40**

Accordingly, the task statements were grouped 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 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 Test Specifications Committee to determine if the statement(s) warrant(s) inclusion in the test specifications.
- 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

On September 19th, 20th, and 26th, 2022, Prometric staff facilitated meetings to develop test specifications for the SAIM exam based on the job analysis results. A total of twelve subject matter experts comprised the Test Specifications Committee. The meetings focused on:

- finalizing the task statements for inclusion based on the survey results; and,
- establishing the percentage test content weights for each area on the examination.

These percentage test weights guide examination development activities.

RESULTS

Survey Responses

A total of 360 participants started the survey. Of those surveys 168 responses were considered complete enough for full analysis.

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

Demographic Characteristics of Survey Respondents

The profile of survey respondents is below. All responses to the background and general information section of the survey are provided in Appendix C1. Write in responses to "please specify" options are provided in Appendices C2 through C5.

Figure 1. *Demographic Question 3. Do you currently or have you recently (within the last five years) trained candidates for specialization in Small Animal Internal Medicine?*

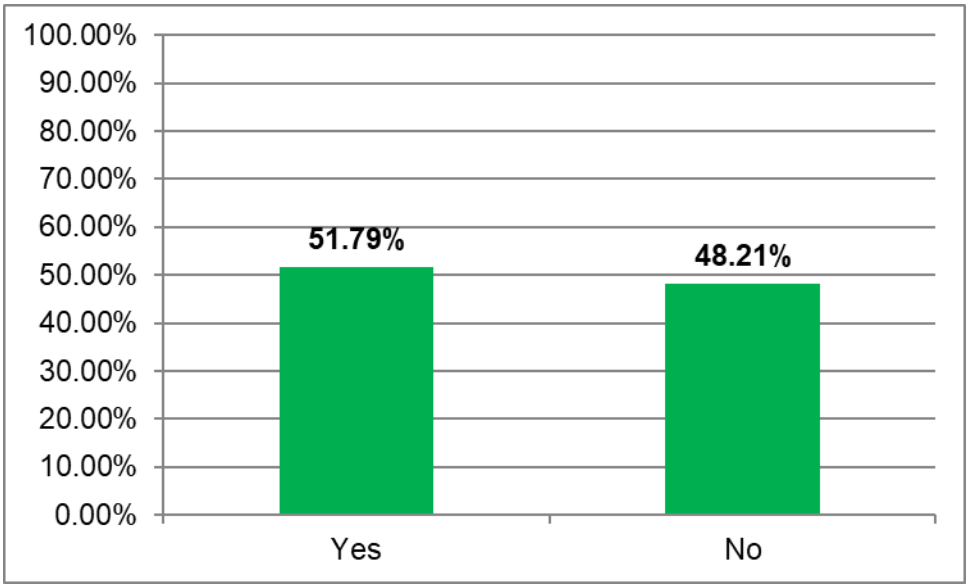


Figure 2. *Demographic Question 4. Which type of practice do you predominantly work in?*

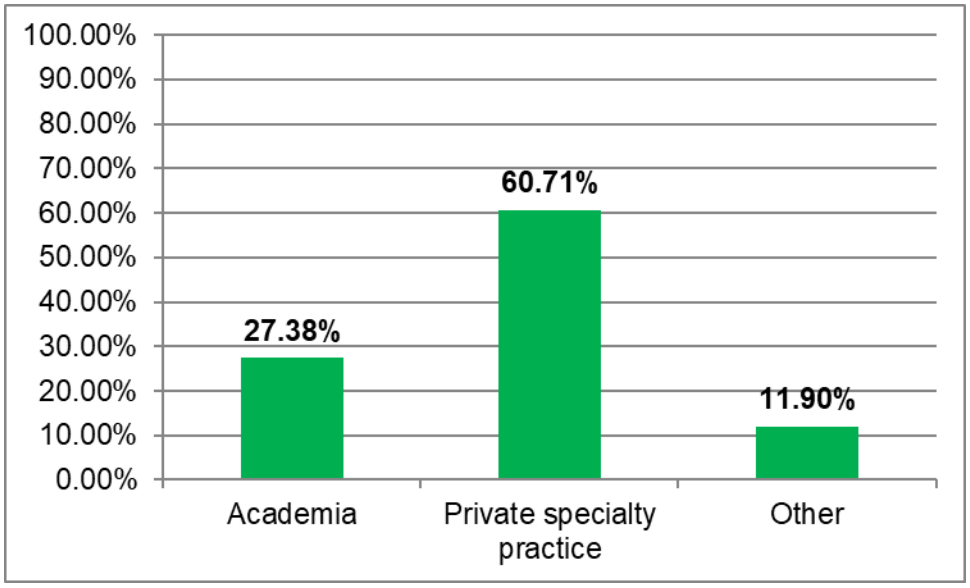


Figure 3. *Demographic Question 5. Where do you currently practice/live?*

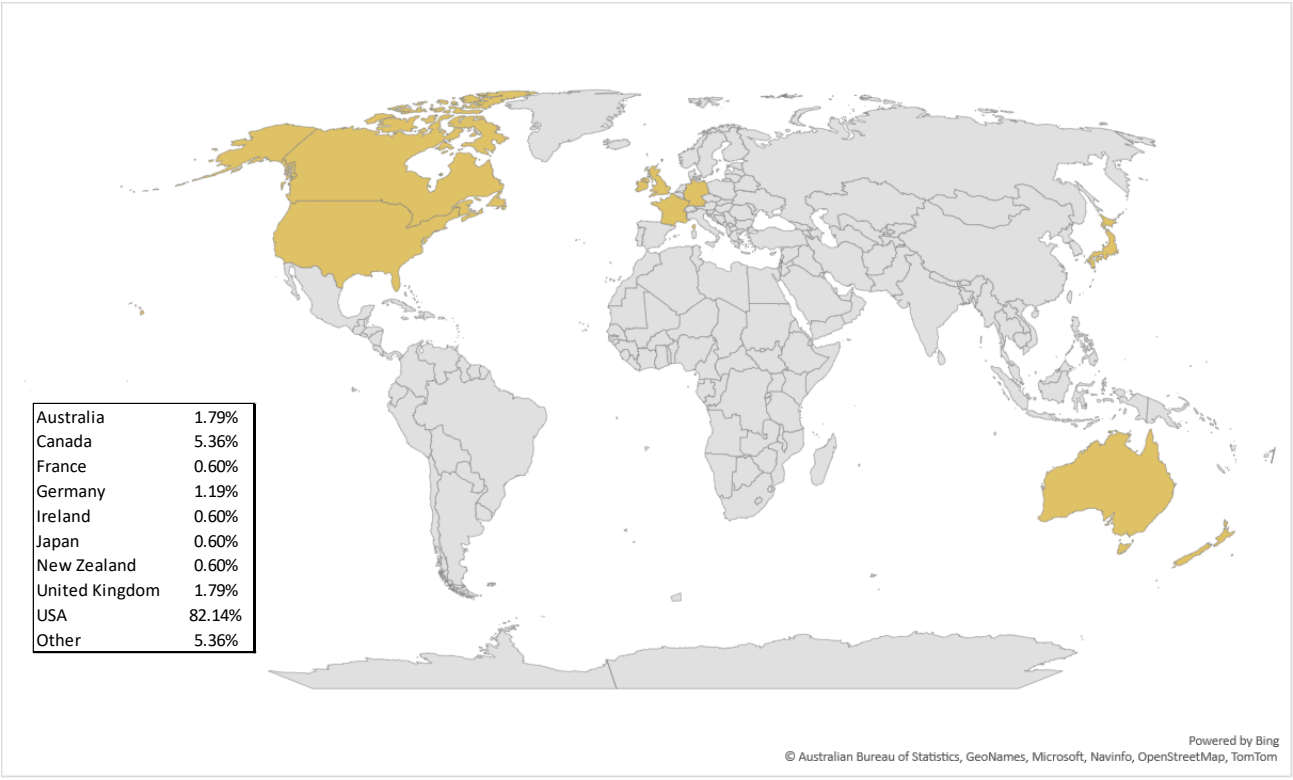


Figure 4. *Demographic Question 6. How many cases do you see per year, on average?*

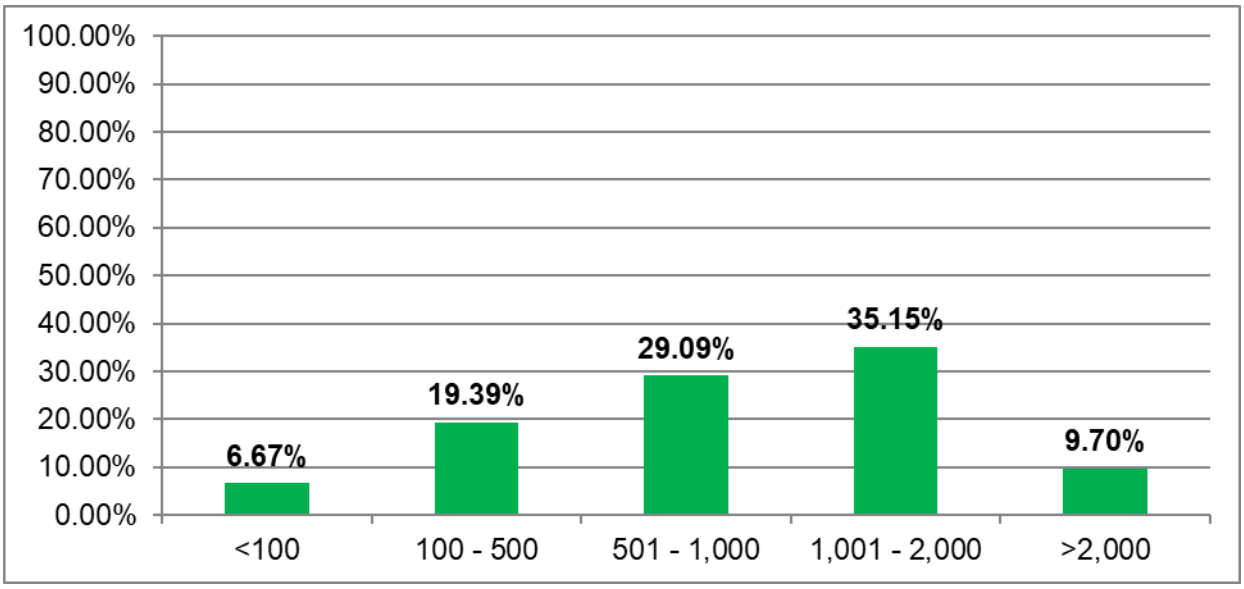


Figure 5. *Demographic Question 7. How many years of experience do you have in Small Animal Internal Medicine?*

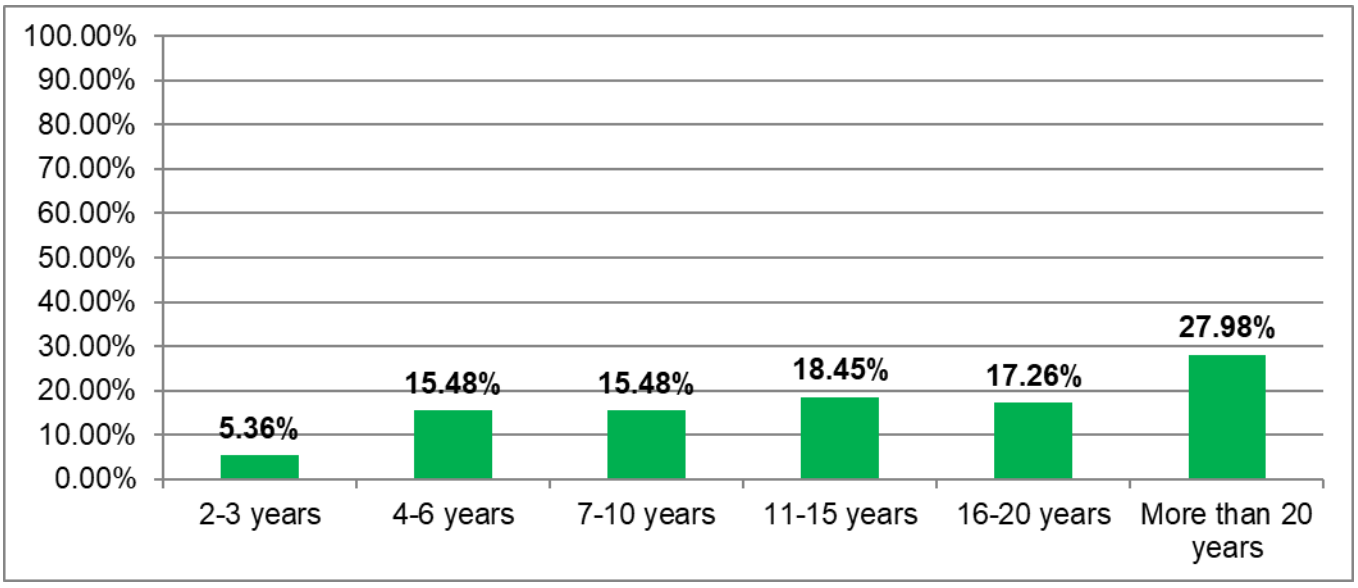


Figure 6. *Demographic Question 8. What is your ethnic background?*

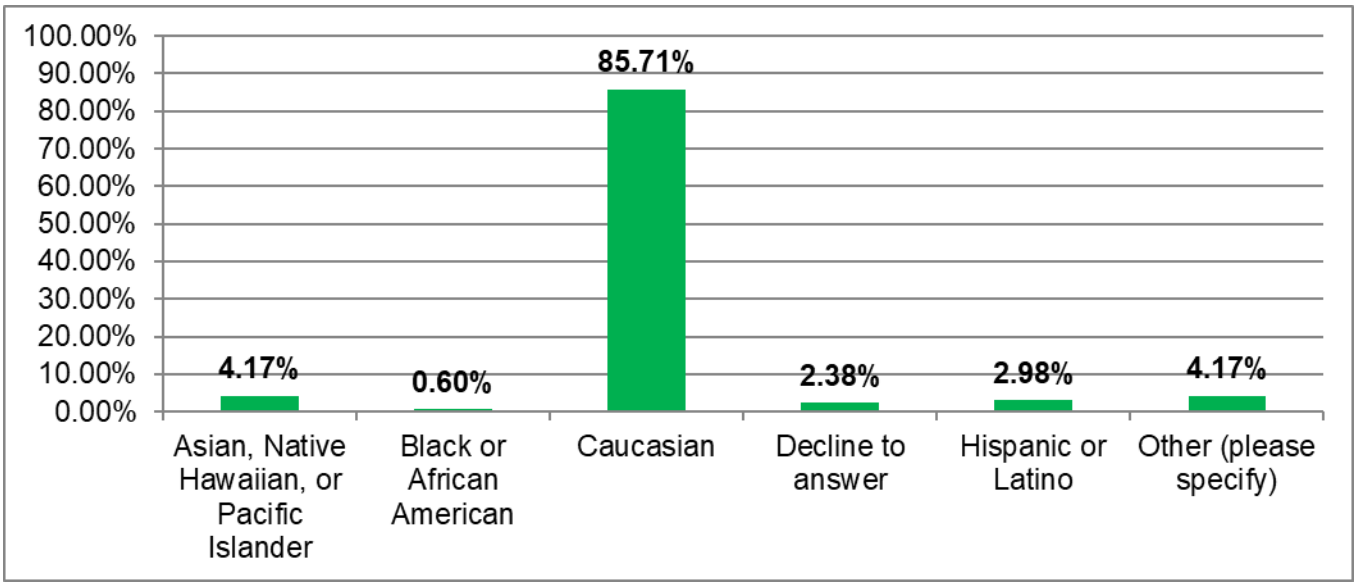


Figure 7. *Demographic Question 9. What is your age?*

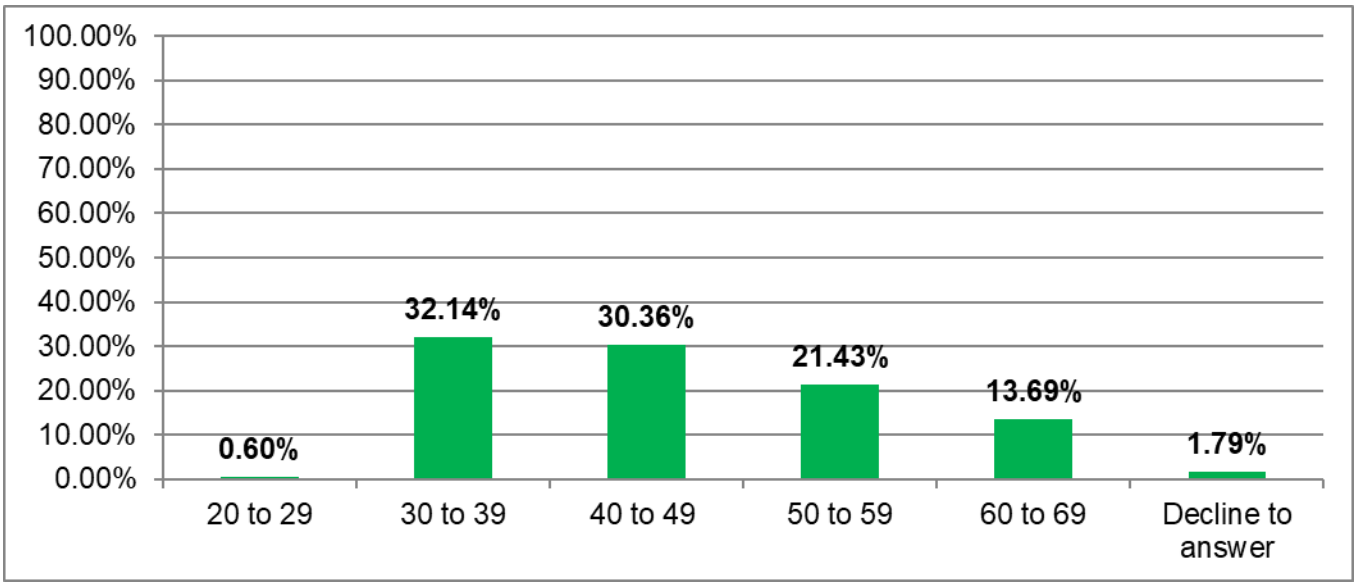


Figure 8. *Demographic Question 10. What is your gender identity?*

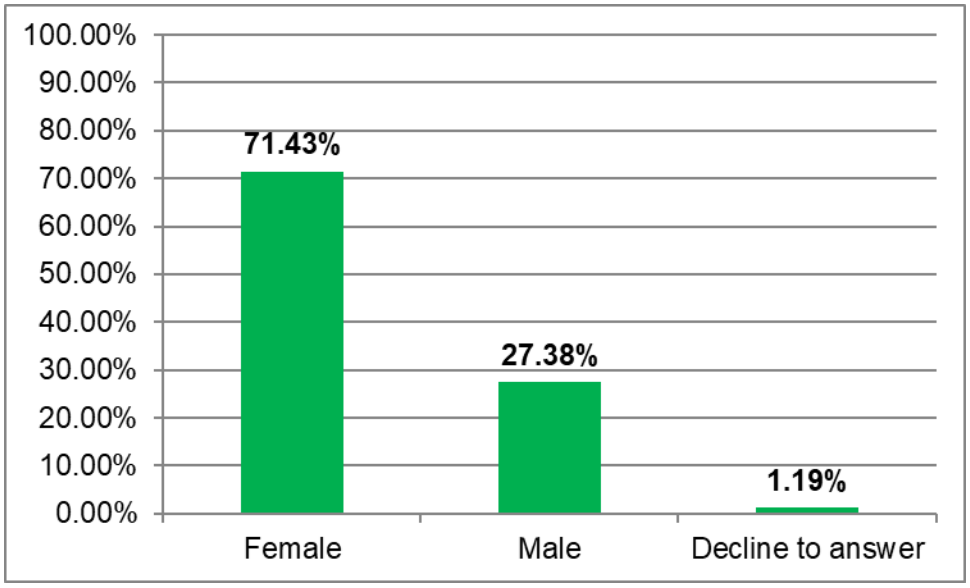
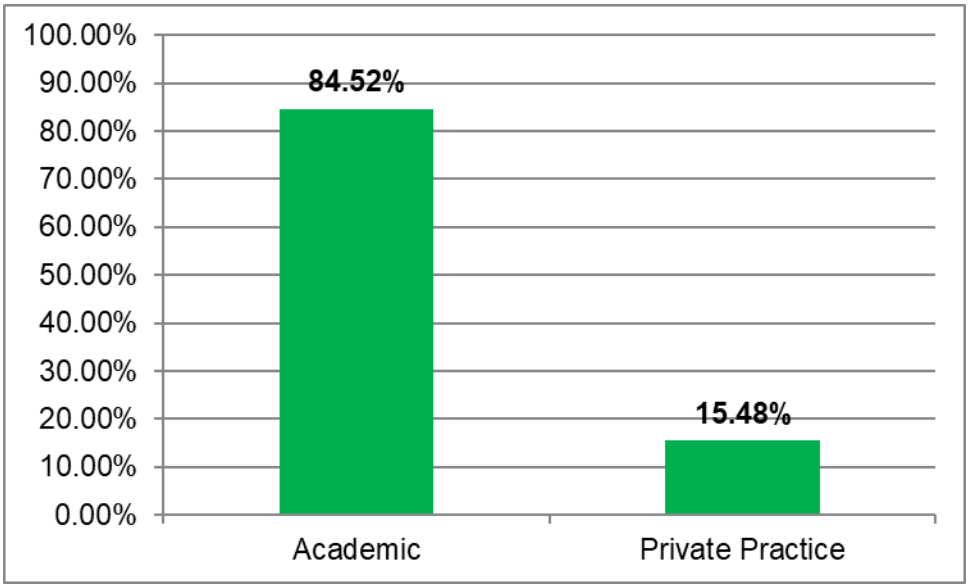


Figure 9. *Demographic Question 11. What type of Residency Program were you trained in?*



Tasks

Means and standard deviations for the task statements included on the survey are in Appendix D. 441 of the 495 tasks achieved high importance means. Table 1 shows the delineation of tasks in Pass, Borderline, and Fail categories by domain.

Table 1. *Task Importance by Pass, Borderline, and Fail categories*

Task Domains	Number of Task Statements	Pass (Mean 2.50 or Above)	Borderline (Mean 2.40 to 2.49)	Fail (Mean Less than 2.40)
1. Cardiovascular	31	27	1	3
2. Epidemiology/Statistics	30	20	1	9
3. Endocrine	29	29	0	0
4. Metabolism / Nutrition	8	6	1	1
5. Hepatobiliary	10	10	0	0
6. Exocrine Pancreatic Disorders	3	3	0	0
7. Gastrointestinal	25	25	0	0
8. Hemolymphatic	59	57	0	2
9. Immunology	21	21	0	0
10. Infectious Disease	27	27	0	0
11. Oncology	27	21	2	4
12. Genetics/Molecular Biology	12	9	0	3
13. Reproduction	11	4	1	6
14. Respiratory	27	27	0	0
15. Pharmacology/Toxicology	23	22	1	0
16. Fluid/electrolyte/Acid base	33	32	1	0
17. Dermatology	16	6	0	10
18. Neuromuscular/Neurology	30	26	0	4
19. Urinary	54	53	1	0
20. Ophthalmology	19	16	1	2
Total	**495**	**441**	**10**	**44**
Percentage		**88.82%**	**2.24%**	**8.94%**

Subgroup Analysis of Task Ratings

The index of agreement (IOA) is a measure of the extent to which subgroups of respondents agree on which task statements are important. Using the mean importance ratings for tasks, 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 index of agreement provides a method of computing the similarity in judgments between groups and is tailored to the purpose of a job analysis study more than the correlation coefficient. Although the correlation coefficient measures the tendency toward agreement along the full range of possible ratings, the agreement index focuses on whether two groups agree that the content should (or should not) be included in an examination.

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.

An illustrative example for two groups on a survey with 100 task statements shows how to compute the index. If two groups passed the same 96 task statements and failed the same 2 task statements (out of the 100 total task statements in the survey), the consistency index would be computed as *Agreement* = (96 + 2)/100 = 0.98. Values of 0.80 or less show less than optimal agreement and therefore require additional mean analyses.

The index of agreement coefficients for tasks are in Appendix E. Agreement coefficients were produced on the following background questions:

- Do you currently or have you recently (within the last five years) trained candidates for specialization in Small Animal Internal Medicine?
- Which type of practice do you predominantly work in?
- Where do you currently practice/live?
- How many cases do you see per year, on average?
- How many years of experience do you have in Small Animal Internal Medicine?

Agreement coefficients for the task statements ranged from 0.88 to 0.95. Since the agreement coefficients for all questions were greater than 0.80, no additional mean analysis was required.

Content Coverage Ratings

The survey participants indicated how well the statements within each of the 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 means and standard deviations for the task ratings are provided in Table 2. The means ranged from 3.81 to 4.47. These means provide evidence that domains on the survey were well covered.

Table 2. *Mean, Standard Deviation, and Frequency Distribution Percentage of Task Content Coverage*

	Content Coverage						
			Frequency Percentage				
Task Domain	Mean	SD	1=Very poorly	2=Poorly	3=Adequately	4=Well	5=Very well
1. Cardiovascular	4.34	0.67	0.0%	0.0%	11.0%	43.9%	45.1%
2. Epidemiology/Statistics	4.05	0.86	0.0%	2.6%	26.0%	35.1%	36.4%
3. Endocrine	4.47	0.65	0.0%	0.0%	8.2%	37.0%	54.8%
4. Metabolism/Nutrition	3.86	0.93	1.4%	4.3%	29.0%	37.7%	27.5%
5. Hepatobiliary	4.19	0.82	0.0%	2.9%	17.1%	38.6%	41.4%
6. Exocrine Pancreatic Disorders	4.15	0.94	0.0%	6.0%	19.4%	28.4%	46.3%
7. Gastrointestinal	4.48	0.64	0.0%	0.0%	7.9%	36.0%	56.2%
8. Hemolymphatic	4.36	0.70	0.0%	0.0%	12.5%	38.6%	48.9%
9. Immunology	4.36	0.68	0.0%	0.0%	11.1%	42.0%	46.9%
10. Infectious Disease	4.40	0.65	0.0%	0.0%	9.1%	41.6%	49.4%
11. Oncology	4.17	0.79	0.0%	2.3%	16.3%	43.0%	38.4%
12. Genetics/Molecular Biology	3.88	0.82	0.0%	2.4%	32.9%	38.8%	25.9%
13. Reproduction	3.81	0.80	0.0%	4.8%	28.6%	47.6%	19.0%
14. Respiratory	4.35	0.67	0.0%	0.0%	11.1%	43.2%	45.7%
15. Pharmacology/Toxicology	4.38	0.65	0.0%	0.0%	9.2%	43.4%	47.4%
16. Fluid/electrolyte/Acid base	4.33	0.73	0.0%	0.0%	15.3%	36.1%	48.6%
17. Dermatology	4.04	0.82	0.0%	2.5%	23.8%	41.3%	32.5%
18. Neuromuscular/Neurology	4.09	0.71	0.0%	0.0%	21.0%	49.4%	29.6%
19. Urinary	4.41	0.69	0.0%	0.0%	11.3%	36.3%	52.5%
20. Ophthalmology	4.05	0.77	0.0%	0.0%	26.7%	41.3%	32.0%

Survey respondents could also write in statements that they believed should be included in the listing of important tasks, knowledge, and skills. See Appendix G for the content coverage write-in comments. 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.

Test Content Recommendations

In survey Section 3: Recommendations for Test Content, participants were asked to assign a percentage weight to each domain. The sum of percentage weights was required to equal 100. This information guided the Test Specifications Committee in making decisions about how much emphasis the domains should receive on the SAIM test content outline. The mean weights across all survey respondents are in Table 3.

Table 3. *Survey Respondents' Test Content Recommendations by Mean Percentages and Standard Deviations*

Domain	Mean	SD	Range	
			Minimum	Maximum
1. Cardiovascular	4.3%	2.07%	0%	10%
2. Epidemiology/Statistics	1.8%	1.41%	0%	10%
3. Endocrine	9.9%	2.20%	6%	20%
4. Metabolism/Nutrition	4.4%	2.13%	0%	10%
5. Hepatobiliary	9.0%	4.22%	3%	50%
6. Exocrine Pancreatic Disorders	3.6%	2.20%	0%	10%
7. Gastrointestinal	10.1%	2.41%	0%	17%
8. Hemolymphatic	6.8%	2.42%	0%	12%
9. Immunology	4.8%	2.42%	0%	12%
10. Infectious Disease	7.8%	2.30%	0%	18%
11. Oncology	4.0%	1.89%	0%	10%
12. Genetics/Molecular Biology	1.5%	1.14%	0%	6%
13. Reproduction	1.1%	1.07%	0%	5%
14. Respiratory	8.0%	2.08%	0%	13%
15. Pharmacology/Toxicology	3.6%	1.93%	0%	10%
16. Fluid/electrolyte/Acid base	4.5%	2.17%	0%	10%
17. Dermatology	1.4%	1.12%	0%	5%
18. Neuromuscular/Neurology	3.5%	1.81%	0%	10%
19. Urinary	8.8%	2.09%	0%	15%
20. Ophthalmology	1.2%	0.91%	0%	4%

Write-In Comments

Many survey respondents provided responses to the open-ended questions in Section 4: Comments. See Appendix H for write-in comments about expected changes to job roles over the next few years.

DEVELOPMENT OF TEST SPECIFICATIONS FOR THE SAIM EXAM

The test specifications meeting for the SAIM exam occurred virtually on September 19th, 20th, and 26th, 2022. The steps involved in the development of the test specifications included the following:

- presentation of the job analysis project and results to the Test Specifications Committee;
- identification of the task statements to be included in the SAIM test specifications; and,
- development of the test content weights for the exam.

Presentation of the Job Analysis Project and Results to the Test Specifications Committee

The first activity involved in the test specification development was to provide the Test Specifications Committee an overview of the job analysis activities that were conducted and to present the results of the study.

Identification of the Task Statements to be Included on the SAIM

The Test Specifications Committee reviewed the task results to make final recommendations about the areas that should be included on the exam.

The survey results served as the primary source of information used by the Test Specifications Committee members to make test content decisions. Recommendations were based on the following criteria:

- the mean task ratings for all respondents;
- the frequency distribution of ratings for all respondents; and,
- the appropriateness of the content for the examination.

Appendix I outlines the approval decisions.

Tasks Recommended for Inclusion

- 437 of the 441 task statements that achieved mean ratings at or above 2.50 (pass category) were approved for exam inclusion by the Test Specifications Committee.
- Seven of the ten task statements that achieved mean ratings from 2.40 to 2.49 (borderline category) were approved by the Test Specifications Committee.
- 13 of the 44 tasks that achieved mean ratings less than 2.40 (fail category) were modified and approved by the Test Specifications Committee.
- The Test Specifications Committee chose to add one additional Epidemiology/Statistics task statement, one additional Pharmacology/Toxicology task statement, and one additional Ophthalmology task statement.

Development of Test Content Weights

The Test Specifications Committee participated in an exercise that required each member to assign a percentage weight to each of the domains. Weights were then entered into a spreadsheet and shown to the committee. The committee members were able to compare the test content weights derived from the survey responses to their own estimates. This resulted in a productive discussion among the committee members regarding the optimal percentages for the exam.

Table 4 shows the test specifications recommendations including the percentage content. The complete test specifications are in Appendix J.

Table 4. *SAIM Test Content Weights Recommended by the Test Specifications Committee*

Domains	Number of Statements	Weight
1. Cardiovascular	30	3%
2. Epidemiology/Statistics	30	2%
3. Endocrine	29	9%
4. Metabolism/Nutrition	7	5%
5. Hepatobiliary	10	8%
6. Exocrine Pancreatic Disorders	3	3%
7. Gastrointestinal	25	9%
8. Hemolymphatic	57	8%
9. Immunology	21	6%
10. Infectious Disease	26	8%
11. Oncology	21	4%
12. Genetics/Molecular Biology	10	2%
13. Reproduction	5	1%
14. Respiratory	27	7%
15. Pharmacology/Toxicology	24	4%
16. Fluid/electrolyte/Acid base	33	6%
17. Dermatology	7	1%
18. Neuromuscular/Neurology	25	4%
19. Urinary	52	9%
20. Ophthalmology	18	1%

SUMMARY AND CONCLUSIONS

This job analysis study for the SAIM exam identified tasks, knowledge, and skills that are important to the work performed by veterinarians specializing in small animal internal medicine. The results of the study can be used to guide further development work for the SAIM exam.

Task statements were developed through an iterative process involving the combined efforts of ACVIM, subject matter experts, and Prometric staff. These statements were entered into a survey format and subjected to verification/refutation through the dissemination of a survey to veterinary professionals. The survey participants were asked to rate the importance of task statements.

The results of the study support the following:

- Task statements that were verified as important through the survey provide the foundation of empirically derived information from which to develop test specifications for the SAIM.
- Evidence was provided in this study that the comprehensiveness of the content within the domains was well covered.
- The process utilized as well as the information that resulted from the analysis supported the development of the SAIM test specifications.

In summary, the study used a multi-method approach to identify the tasks, knowledge, and skills that are important to the work performed by small animal internal medicine veterinarians. The results of the study were used to develop test specifications for the SAIM exam.