



Survey Research Laboratory

A Unit of the College of Urban Planning and Public Affairs

VETERINARY PATHOLOGIST TRAINING PROGRAM DEMOGRAPHIC SURVEY: FINAL REPORT

Prepared for the American College of Veterinary Pathologists,
the Society of Toxicologic Pathology, and
the American Society for Veterinary Clinical Pathology

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- *Dr. Matthew Wallig* (University of Illinois at Urbana-Champaign), the Chair of the ACVP Recruitment Committee.
- *Dr. Ricardo Ochoa* (Neurogen Corporation). Dr. Wallig served as the first ACVP Recruitment Committee contact for the Survey Research Laboratory (SRL), and was later joined by Dr. Ochoa. Both provided invaluable guidance throughout the conduct of the survey. Also, their assistance in procuring and finalizing the sample files for this study deserves special note.
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■ INTRODUCTION ■

The Recruitment Committee of the American College of Veterinary Pathologists (ACVP) contracted with the Survey Research Laboratory (SRL) at the University of Illinois at Chicago to survey trainers of veterinary pathologists. The purpose of this mail study was to determine if there will be a sufficient number of trained veterinary pathologist candidates to cover market needs, taking into consideration the findings from a similar survey conducted in 2002. The current study was funded by the ACVP, the Society of Toxicologic Pathology, and the American Society for Veterinary Clinical Pathology.

The following pages summarize the responses of the 37 respondents to the training program survey. Since the questionnaire for the survey contained two sections – one asking about anatomic pathology trainees and one asking about clinical pathology trainees – results are presented separately for these two groups. Further, the foregoing contains a number of graphs. The data on which these graphs are based are included in tabular form in Appendix A.

Appendix B contains a detailed discussion of the study methodology and response rates. Copies of all survey materials (i.e., introductory letter, questionnaire, and reminder/thank you postcard) are included in Appendix C.

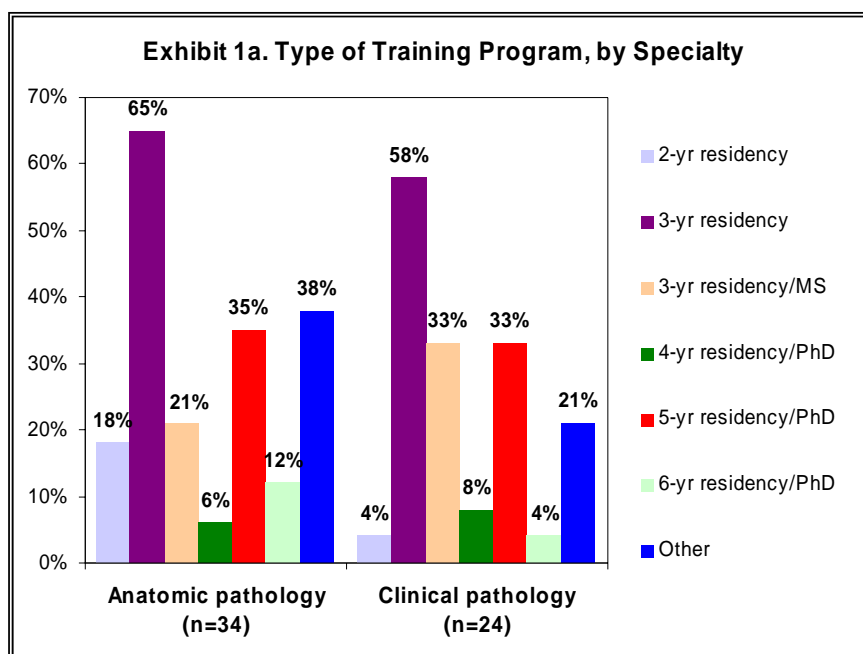
■ RESULTS ■

Thirty-seven training program questionnaires were completed out of 39 total eligible institutions for an overall response rate of 94.9%. The section of the questionnaire dealing with anatomic pathologist trainees was completed by 34 respondents. Of those 34, 21 also completed the clinical pathology section. Three questionnaires contained responses on the clinical pathology section only. Thus, the foregoing represents information on 34 anatomic pathology and 24 clinical pathology training programs.¹

Types of veterinary pathologist training programs

The questionnaire asked respondents to provide descriptive information on their programs and provided a list of program types (e.g., two-year residency, six-year residency/Ph.D.) and an “other” option that allowed them to write in program descriptions. Respondents could select multiple options. Thus, the percentages in Exhibit 1a sum to more than 100%. A majority of respondents to both the anatomic pathology and clinical pathology portions of the instrument described their programs as three-year residencies (64.7% and 58.3%, respectively). In addition, 35% of anatomic pathology respondents and 33% of clinical pathology respondents selected three-year residency/M.S. Thirteen respondents to the anatomic pathology section of the questionnaire chose the “other” option and wrote in a program description. Of those, nine also chose one of the specific response options and simply used the “other specify” to clarify their response. The four that chose only the “other specify” option provided the following responses:

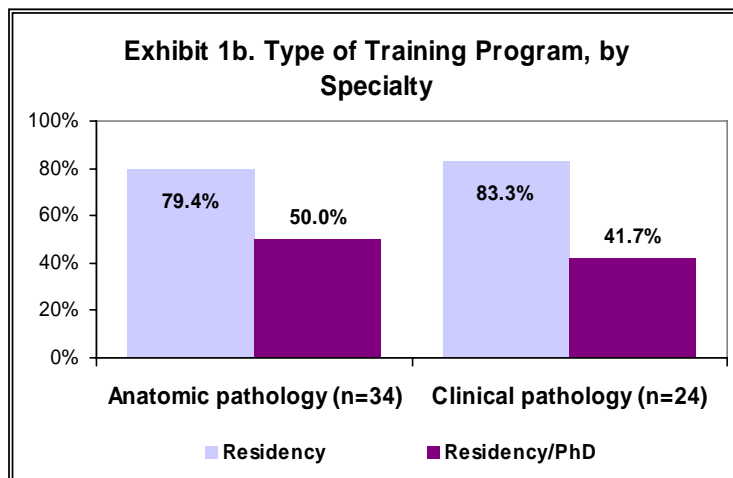
- NIH T32
- 3-yr combined residing/ MVSc non-thesis masters
- 3-year Doctor of Veterinary Science (DVSc)
- 1) 3-year DVSC similar to residency and MSC, and 2) 3–5 year PhD often with applied pathology training (similar to residency + PhD)



¹The totals for individual items may differ due to “don’t know” and missing responses.

Of the respondents to the clinical pathology portion of the questionnaire, five chose the “other specify” response to the question. Of these, only one also chose a specific response option. The other four provided the following responses:

- Already finished residency & 1-2-yr study for board
- 3=DVSc program
- 3-year combined residency/MVSC program (Master of Veterinary Science – different from MSC)
- 2-yr. MVetSc and 1-year Senior Residency



A complete list of “other specify” responses to this question can be found in Appendix D.

Exhibit 1b also shows the types of veterinary pathologist training programs but with the categories from Exhibit 1a collapsed into two categories – residency vs. residency/Ph.D. programs.

ACVP board certification as program purpose

The questionnaire asked if the training program is designed to produce ACVP board-certified pathologists. Of the 34 anatomic pathology programs that responded, 14 (41.2%) said that it is, while eight (23.5%) said the purpose is to produce ACVP board-eligible pathologists. Twelve (35.3%) indicated their programs had some other primary purpose or an additional purpose besides board certification or eligibility, such as in the responses provided below:

- Board eligible and for the PhD students, research training is the major goal.
- Produce employable, competent, entry level diagnostic pathologists who are ACVP Board eligible.
- Train veterinarians to be independent NIH-funded investigators.

For clinical pathology programs, 11 of the 24 respondents (45.8%) reported that board certification is a primary purpose of their programs. Five (20.8%) said the goal is to produce ACVP board-eligible pathologists. Eight said their programs had some other primary purpose or an additional purpose to board certification or eligibility, but three of those respondents actually stated board eligibility ($n=1$) or certification ($n=2$) in combination with another purpose. Only five respondents listed a primary purpose besides board certification or eligibility. Examples of the responses are provided below:

- PhD and residency scientists that are board eligible.
- Train diagnostic clinical pathologists
- Produce AVCP board-certified clinical pathologists with a PhD

Current enrollment in veterinary pathology training programs

Because of inconsistencies in respondent reporting (e.g., skipping some but not all items, answering in ranges rather than specific numbers), it is difficult to interpret the results regarding current, minority, and noncitizen/nonresident enrollees. However, Exhibit 2 presents basic summary information on

Exhibit 2. Number of All Enrollees and the Subsets of Minority and Noncitizen/Nonresident Enrollees, by Specialty

All Enrollees in...	Anatomic Pathology				Clinical Pathology			
	<i>n</i>	% with any enrollees	Average # of enrollees*	Total # of enrollees	<i>n</i>	% with any enrollees	Average # of enrollees**	Total # of enrollees
Residency only	34	67.6	4.0	91	24	54.1	2.2	29
Combined residency/MS	34	26.5	2.4	22	24	25.0	2.0	12
Combined residency/PhD	34	50.0	4.3	73	24	29.2	1.7	12
Other	34	11.8	2.5	10	24	20.8	1.8	9
Total ⁰	34	52.9	6.7	120	24	45.8	2.4	26
Minority enrollees in...	<i>n</i>	% with any enrollees	Average # of enrollees [†]	Total # of enrollees	<i>n</i>	% with any enrollees	Average # of enrollees ^{††}	Total # of enrollees
Residency only	34	20.6	1.4	10	24	4.2	1	1
Combined residency/MS	34	2.9	1.0	1	24	4.2	1	1
Combined residency/PhD	34	17.6	1.5	9	24	4.2	3	3
Other	34	—	—	—	24	4.2	1	1
Total ⁰	34	23.5	1.8	14	24	12.5	2	6
Noncitizen/nonresident enrollees in...	<i>n</i>	% with any enrollees	Average # of enrollees [‡]	Total # of enrollees	<i>n</i>	% with any enrollees	Average # of enrollees ^{‡‡}	Total # of enrollees
Residency only	34	41.2	1.7	24	24	37.5	1.2	11
Combined residency/MS	34	8.8	2.7	8	24	4.2	1.0	1
Combined residency/PhD	34	14.7	2.2	11	24	4.2	2.0	2
Other	34	—	—	—	24	12.5	1.7	5
Total ⁰	34	29.4	2.6	26	24	29.2	1.7	12

⁰In some cases, the column totals do not sum to the row totals. The number for the row total is based upon the total provided by respondents. The discrepancy is due to missing data (e.g., a respondent provided totals but did not break them down by program type).

*Among those reporting **any** enrollees. Ranged from 1–11 for residency only, from 1–6 for residency/MS and other, from 1–10 for residency/PhD, from 1–5 for other, and from 1–16 for total.

Among those reporting **any enrollees. Ranged from 1–5 for residency only, from 1–3 for residency/MS, from 1–6 for residency/PhD and total, and from 1–3 for other.

†Among those reporting **any** minority enrollees. Ranged from 1–3 for residency only and residency/PhD. Only one respondent reported one minority for residency/MS and none reported minorities for other. The number ranged from 1–6 for total.

††Among those reporting **any** minority enrollees. Respondents reported only one enrollee for residency and residency/MS, three for residency/PhD, one for other, and either one or four for total.

‡Among those reporting **any** noncitizen/nonresident enrollees. Ranged from 1–5 for residency only and residency/MS, from 2–3 for residency/PhD, and from 1–8 for total. For other, respondents reported no enrollees.

‡‡Among those reporting **any** noncitizen/nonresident enrollees. Ranged from 1–3 for residency only and from 1–3 for other and total. Respondents reported one enrollee for residency/MS and two enrollees for residency/PhD.

responses to these items. The numbers in the exhibit reflect the information provided by the respondents. In many cases, the responses to the number of trainees in residency only, combined residency/MS, combined residency/PhD, and other do not sum to the total because respondents' answers were inconsistent.

Funding for training programs

The questionnaire asked respondents how many anatomic pathology and clinical pathology training programs are funded by various sources. The responses to these questions are summarized in Exhibit 3. Institutional sources provide the greatest amount of funding, both in terms of the percent of institutions that receive funding this type of source and in the number of positions funded. For anatomic pathologist positions, state sources also offer a fair amount of funding, with 41.2% of

Exhibit 3. Training Positions, by Funding Source and Specialty

Training positions funded by...	Anatomic Pathology				Clinical Pathology			
	<i>n</i>	% with any positions	Average # of positions	Total # of positions	<i>n</i>	% with any positions	Average # of positions	Total # of positions
Institutional	34	73.5%	3.5	91	24	79.2%	1.8	35
State	34	41.2	2.8	45	24	12.5	1.7	5
Federal Government	34	32.3	2.5	33	24	4.2	4	4
Industry	34	29.4	1.5	18	24	20.8	1.2	6
Foundation	34	14.7	0.63	5	24	0.0	—	—
Endowment Gift	34	5.9	0.6	3	24	0.0	—	—
Other	34	20.1	1.2	11	24	25.0	1.8	11

institutions receiving funding from the state and 45 positions funded. Among clinical pathology positions, no other source stands out as a substantial source of funding.

In addition to asking about general funding sources, the questionnaire asked respondents to identify which types of programs were funded by which funding sources. Responses to those questions are in Exhibit 4. Institutional sources are more likely to fund residency-only programs: 52.9% of respondents to the anatomic pathology section and 45.8% of respondents to the clinical pathology portion of the questionnaire indicated that institutional sources fund residency-only programs. Institutional sources also fund residency/M.S. and residency/Ph.D. programs for both types of pathologists, but to a lesser extent than residency-only programs.

Among institutions with anatomic pathology programs, the federal government provides support for residency/Ph.D. programs, with 26.5% of the responding institutions receiving funding from this source.

Industry also provides some funding: 14.7% of respondents with anatomic pathology programs and 12.5% of those with clinical pathology programs receive industry funding for residency-only programs. Smaller percentages of respondents indicate industry funding for other types of programs.

Exhibit 4. Type of Program Funded, by Source and Specialty

Training positions funded by...	% with anatomic pathology positions funded, by type				
	<i>n</i>	Residency only	Residency/MS	Residency/PhD	Other
Institutional	34	52.9%	23.5%	23.5%	2.9%
State	34	20.6	14.7	11.8	—
Federal Government	34	—	5.9	26.5	5.9
Industry	34	14.7	5.9	8.8	—
Foundation	34	8.8	—	8.8	—
Endowment Gift	34	2.9	—	5.9	2.9
Other	34	14.7	2.9	5.9	—

Training positions funded by...	% with clinical pathology positions funded, by type				
	<i>n</i>	Residency only	Residency/MS	Residency/PhD	Other
Institutional	24	45.8%	29.2%	16.7%	8.3%
State	24	—	4.2	8.3	12.5
Federal Government	24	—	—	4.2	—
Industry	24	12.5	8.3	4.2	—
Foundation	24	—	—	—	—
Endowment Gift	24	—	—	—	—
Other	24	8.3	8.3	12.5	8.3

Exhibit 5. Number of Years of Funding, by Source and Specialty

Training positions funded by...	Anatomic Pathology				Clinical Pathology			
	<i>n</i>	% with any funding	Average # of years funded	Total # of years funded	<i>n</i>	% with any funding	Average # of years funded	Total # of years funded
Institutional	34	70.6%	3.3	79	24	66.6%	3.3	53
State	34	41.2	3.3	46	24	12.5	3	14
Federal Government	34	32.4	4.3	47	24	8.3	3	6
Industry	34	26.5	3.1	28	24	25.0	3.2	19
Foundation	34	14.7	2.8	14	24	—	0	—
Endowment Gift	34	8.8	3.3	10	24	—	0	—
Other	34	17.7	3.3	20	24	33.3	2.9	23

In terms of years of funding, institutional sources also provide the greatest amount of support. Institutional sources provide support for 70.6% of anatomic pathology programs and 66.6% of clinical pathology programs for an average of 3.3 years of funding per institution (Exhibit 5). Among anatomic pathology programs, state sources are the second biggest contributor, funding 41.2% of institutions with an average of 3.3 years per institution. While the federal government provides funding to fewer anatomic pathology programs than state sources, the funding covers a higher number of years (4.3).

Among clinical pathology programs, industry provides funding for 25% of the programs; this funding is provided for, on average, 3.2 years per institution. Other sources provide funding for about a third of clinical pathology programs, with an average of nearly three years of funding per institution.

Since 2002, anatomic pathology programs have experienced a greater number of changes in the number of training positions than have clinical pathology programs (Exhibit 6). Of the 34 respondents to the anatomic pathology section of the questionnaire, 26 (76.5%) have either gained or lost training positions, with the majority gaining. Overall, anatomic pathology programs have gained 60 positions and have lost only six, with an average gain of 2.3 per institution. By funding source, the greatest change has been among positions funded by institutional sources, with 13 respondents (38%) reporting changes and an average gain of 1.6 positions. Positions funded by the federal government and industry also experienced growth, with an average gain of 1.9 positions for the former and 2.0 for the latter.

Exhibit 6. Changes in Training Positions Since 2002, by Specialty

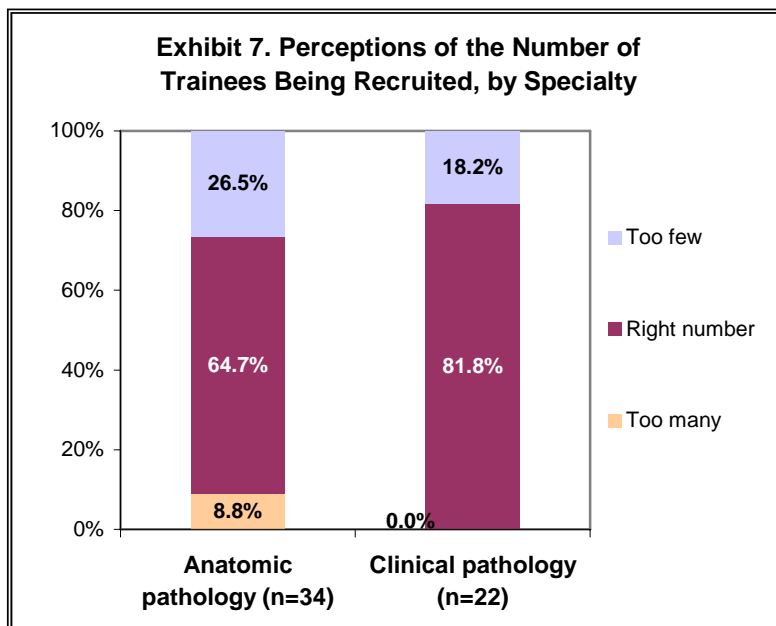
	Anatomic Pathology					Clinical Pathology				
	<i>n</i> *	Total gained	Avg. gained	Total lost	Avg. lost	<i>n</i> *	Total gained	Avg. gained	Total lost	Avg. lost
Total	26	60	2.3	6.0	0.23	13	15	0.63	0	—
By funding source ...										
Institutional	13	21	1.6	2	0.15	3	3	—	0	—
State	2	2	1.0	1	0.5	1	1	—	0	—
Federal Government	7	13	1.9	2	0.29	0	—	—	—	—
Industry	8	16	2.0	0	—	7	9	—	0	—
Foundation	4	4	1.0	0	—	0	—	—	—	—
Endowment Gift	0	—	—	—	—	0	—	—	—	—
Other	5	9	1.8	0	—	2	—	—	0	—

*Number of respondents who indicated a change in the number of positions.

Among clinical pathology programs, about half of the institutions (13/24) experienced changes in the number of positions – they gained a total of 15 positions and lost none. The greatest growth was in positions funded by industry.

Perceived adequacy of the number of veterinary pathology trainees being recruited

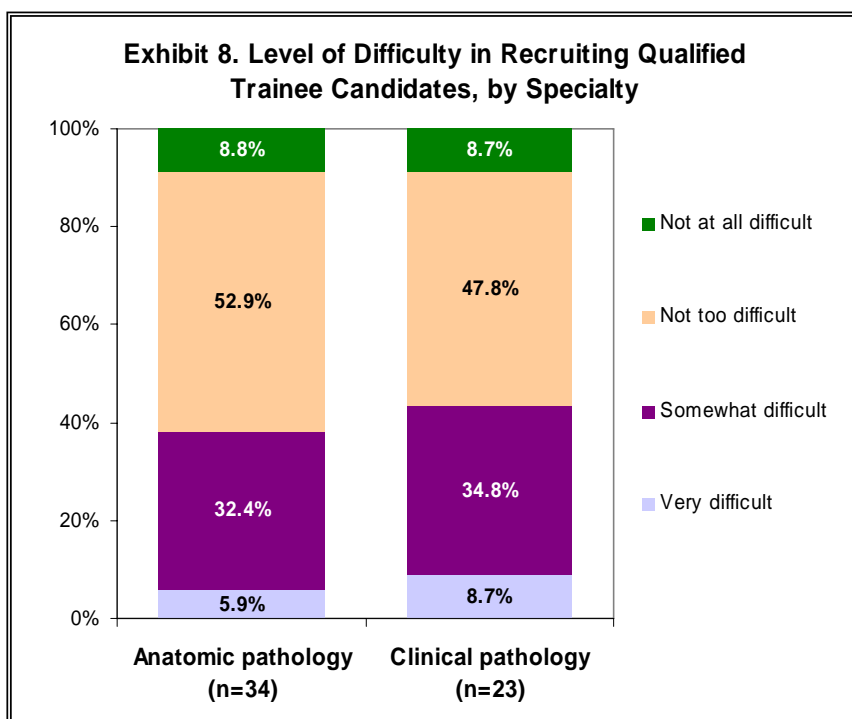
With regard to current recruitment, respondents were asked their opinion of the number of trainees being recruited given the teaching and service support provided to trainees. Over 26% of anatomic pathology program respondents believe too few trainees are being recruited, while 64.7% reported the right number are being recruited. Only 8.8% said too many are being recruited. The vast majority of clinical pathology training program respondents (81.8%) believes the right number of trainees is being recruited. These results are presented in Exhibit 7.



Over 26% of anatomic pathology program respondents believe too few trainees are being recruited, while 64.7% reported the right number are being recruited. Only 8.8% said too many are being recruited. The vast majority of clinical pathology training program respondents (81.8%) believes the right number of trainees is being recruited. These results are presented in Exhibit 7.

Barriers to recruiting qualified veterinary pathology trainee candidates

Level of difficulty in recruiting qualified trainee candidates. As can be seen in Exhibit 8, nearly 40% of respondents reported it is very or somewhat difficult to recruit qualified anatomic pathology candidates, while just over half (52.9%) reported it is “not too difficult.” From responses to the clinical pathology portion of the questionnaire, it appears that recruiting this type of candidate is slightly more difficult: 43.5% of these respondents described recruitment efforts as very or somewhat difficult, 47.8% said recruitment efforts are not too difficult, and 8.7% suggested recruitment efforts are not difficult at all.



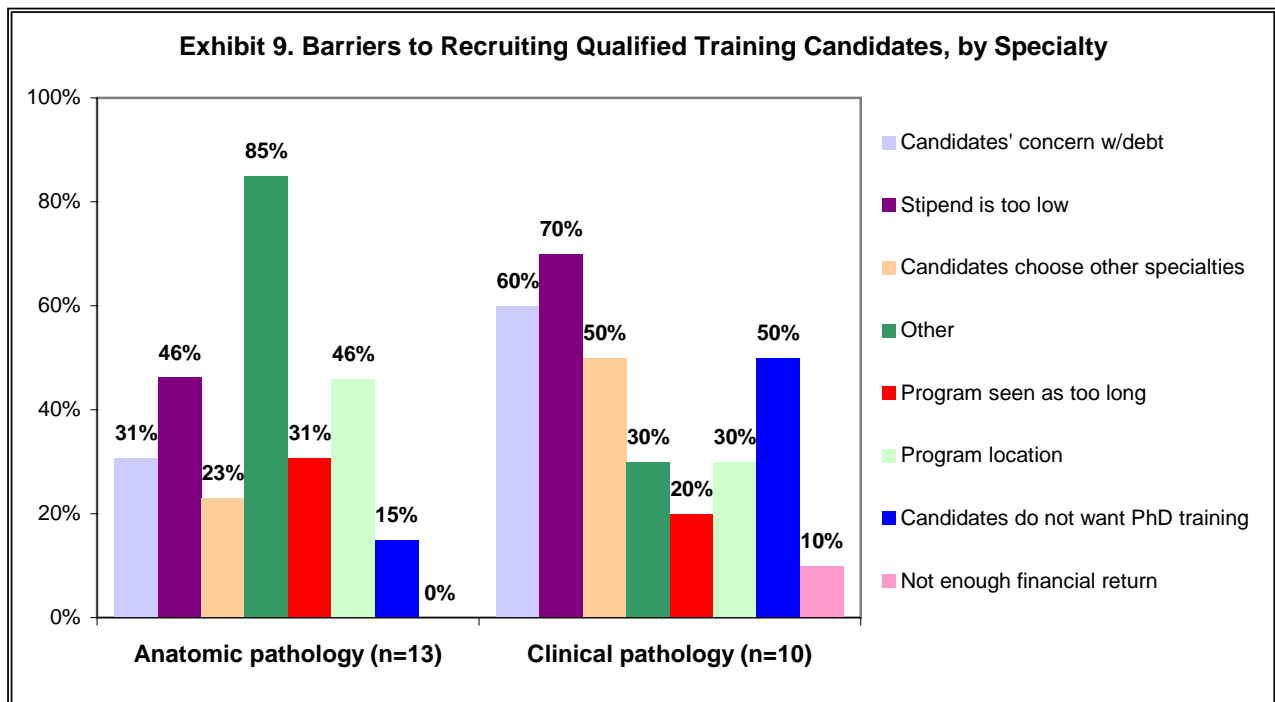
Barriers to recruiting qualified trainee candidates. Respondents who reported that recruitment of qualified candidates is very or somewhat difficult were asked to identify the barriers to recruitment efforts. Exhibit 9 summarizes their responses. As that figure shows, there are some differences in the difficulties faced when recruiting anatomic pathologists vs. clinical pathologists; the following bullet points describe the results for each specialty.

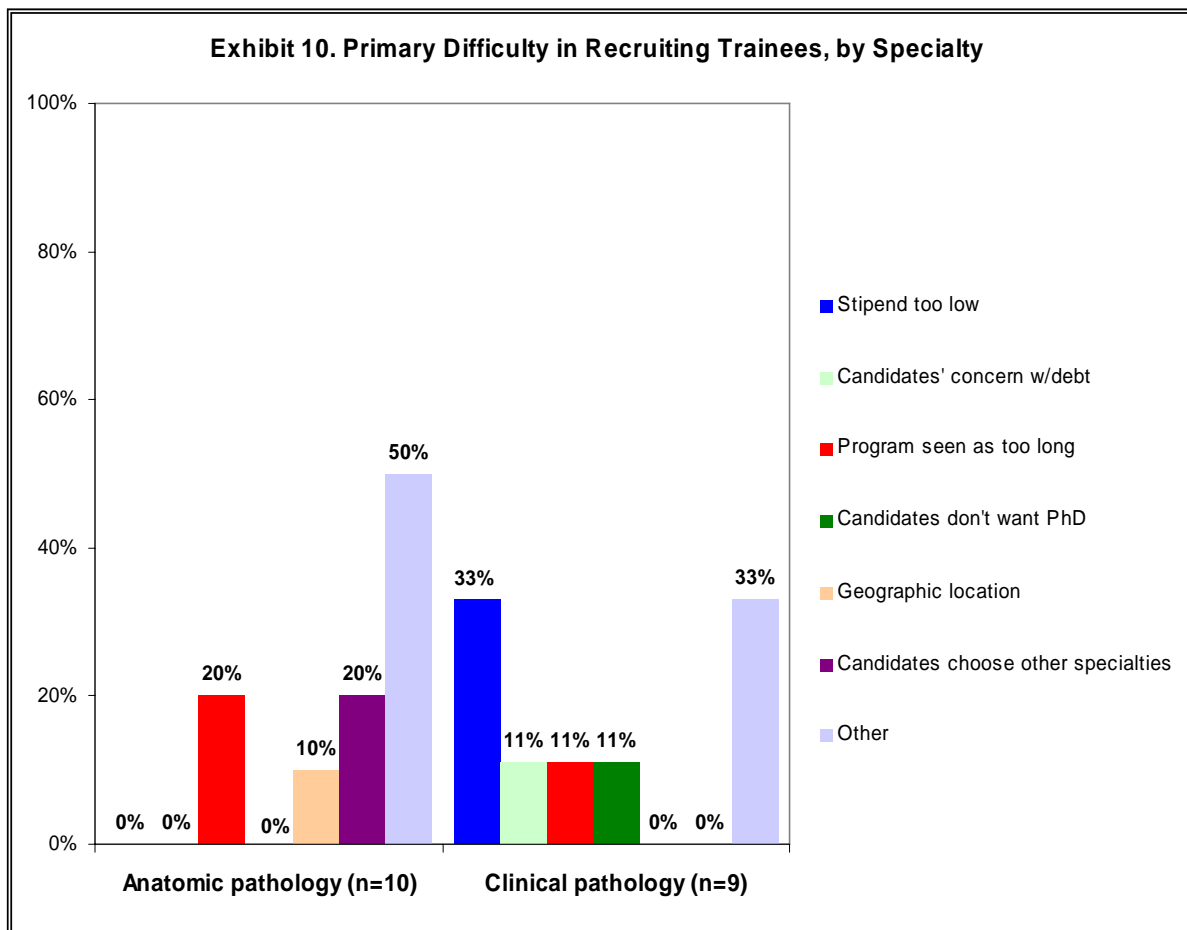
Anatomic pathology

1. Respondents to the anatomic pathology portion of the instrument chose the “other” response option most frequently (84.6%) and offered reasons like “small program, no livestock,” “the difficulty of the board exam,” and “no interest in anatomic pathology.”
2. Equal numbers of respondents (46.2%) indicated that the stipend is too low or the geographic location of the program is a barrier.
3. Just over 30% reported that candidates are concerned with debt burden or they see the program as too long.
4. Nearly one-quarter (23%) said candidates choose other specialties.
5. About 15% believe that candidates do not want Ph.D. training with a residency.

Clinical pathology

1. Seventy percent of clinical pathology program respondents indicated that low stipends are a barrier to recruitment efforts.
2. Candidates’ concern with debt burden also was cited as a reason by 60% of clinical pathology respondents.
3. Half of the respondents (50%) cited not wanting a Ph.D. or choosing other specialties as barriers.
4. Geographic location or “other” each were selected by 30% of the respondents. Some of the reasons offered were “don’t understand career opportunities” or “choose other institutions.”
5. Twenty percent said that candidates see their programs as too long.
6. Only one respondent (10%) said there is not enough financial return for employment as a clinical pathologist.



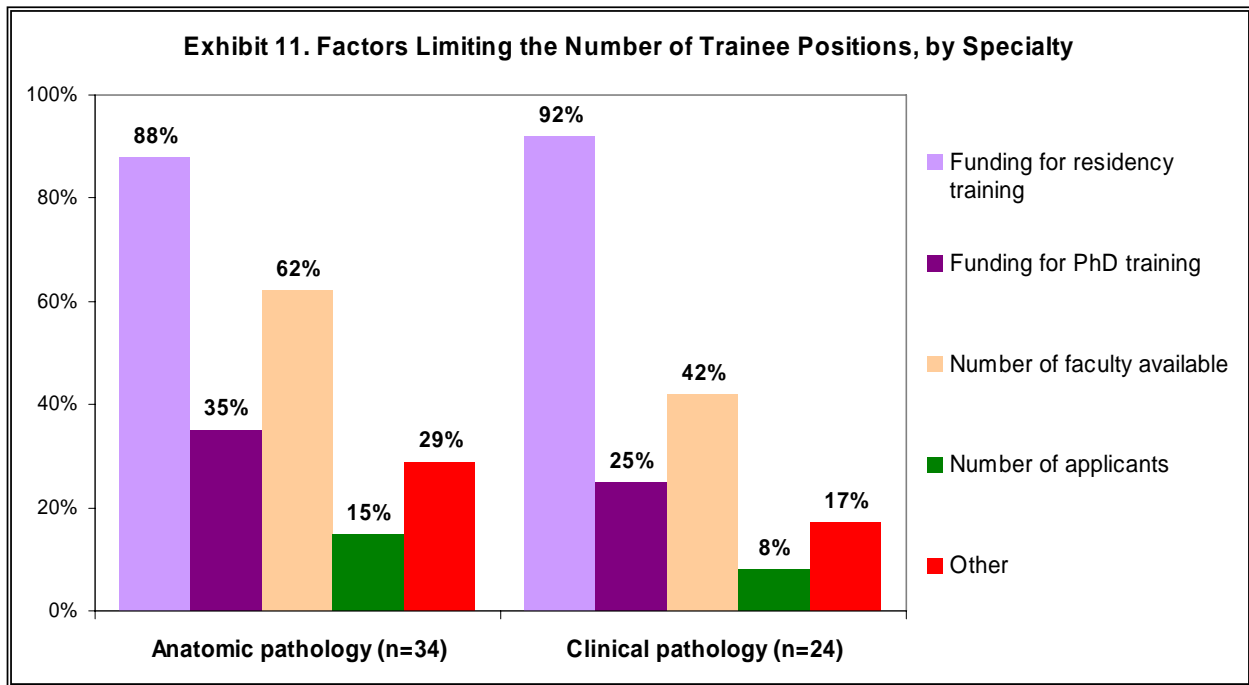


Primary difficulty in recruiting qualified training candidates. As Exhibit 10 shows, respondents to the anatomic pathology portion of the questionnaire were most likely to report that “other” factors serve as the primary recruitment barrier; 50% chose this option. These “other” reasons include lack of candidates, lack of interest in the profession, and competition from other specialties (see also Appendix D, Q14b8 and Q34b8). Choosing other specialties and length of program were each selected by 20% of respondents. Location was offered as a primary difficulty by 10% of respondents.

Respondents to the clinical pathology section of the trainer questionnaire were most likely to choose low stipend or “other” reasons as the primary difficulty in recruiting qualified candidates – three of the nine respondents (33%) singled out these factors. An equal number (1, or 11%) chose candidates’ concern with debt burden, program length, or not wanting Ph.D. training with a residency.

Limitations on the number of veterinary pathology training positions

When asked if there are limitations on the number of pathology training positions available currently at their institutions, 33 of 34 (97.1%) anatomic pathology program respondents and all 24 (100%) clinical pathology program respondents reported that there are. Subsequent questions asked them to identify the reasons for those limitations.



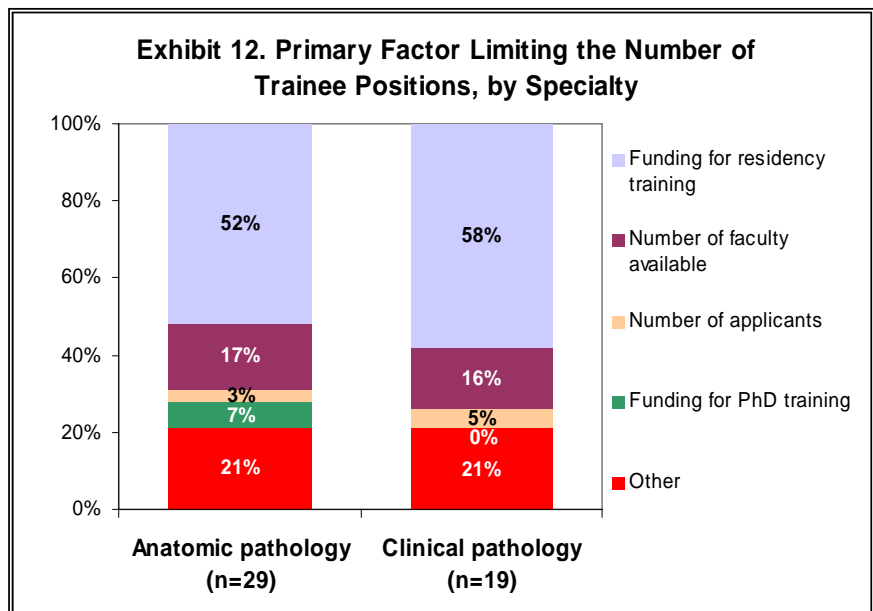
Factors limiting the number of positions. As shown in Exhibit 11, almost all (88.2%) anatomic pathology program respondents indicated that funding for residency limits the number of anatomic pathology trainee positions, while 35.3% named funding for Ph.D. training as a factor. Nearly two-thirds (61.8%) cited number of available faculty as a limitation, and 14.7% suggested that the number of applicants is an issue. Finally, 29.4% of anatomic pathology respondents wrote in “other” limitations, which included limited case loads, space constraints, and funding limits.

Similarly, almost all (91.7%) clinical pathology program respondents named funding for residency training as limiting the number of positions. While the number of available faculty is also an issue, fewer clinical pathology respondents (41.7%) cited it. Funding for Ph.D. training is a limiting factor for about 25%, and for 8.3%, the number of applicants limits the number of training positions. Four clinical pathology respondents named “other” factors:

- Space limitations ($n=2$)
- Service load, training materials, and space
- We don’t like training more than 3 at a time

Primary factor limiting the number of positions.

According to almost 52% of anatomic pathology and 58% of clinical pathology program respondents, funding for residency training is the primary factor that limits the number of training positions (see Exhibit 12). Other respondents to the anatomic



pathology section of the questionnaire selected “other” (20.7%), followed by number of faculty available (17.2%), funding for Ph.D. training (6.9%), and number of applicants (3.4%). As for clinical pathology respondents, “other” reasons were cited by 21.1% of respondents, followed by the number of available faculty (15.8%) and number of applicants (one respondent).

Number of qualified veterinary pathology program applicants in the recent past

One question asked respondents to estimate the average number of qualified candidates they had for each available pathology training position in the last two years. Exhibits 13a and 13b provide two different ways to view responses to this item.

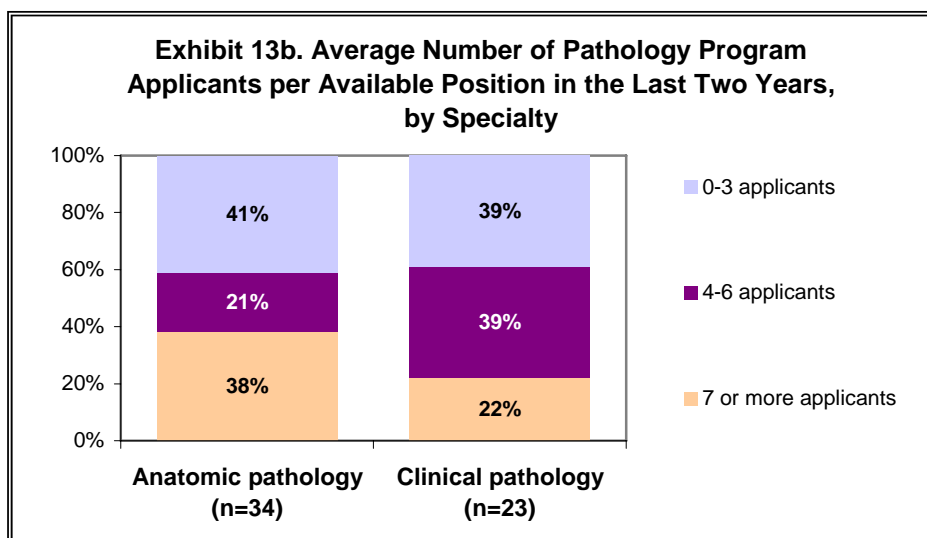
As Exhibit 13a shows, anatomic pathology training programs reported 7.1 applicants per position, while clinical pathology training programs reported 5.3 applicants per position. Fourteen anatomic pathology programs (41.2%) reported having 0 to 3 applicants in the last two years, while seven (20.6%) had 4 to 6 applicants and 13 (38.2%) had 7 or more applicants (see Exhibit 13b). Among clinical pathology programs, similar numbers reported having 0 to 3 and 4 to 6 applicants during the last two years (9, or 39.1%). Five programs (21.7%) indicated having 7 or more applicants per available position in the last two years.

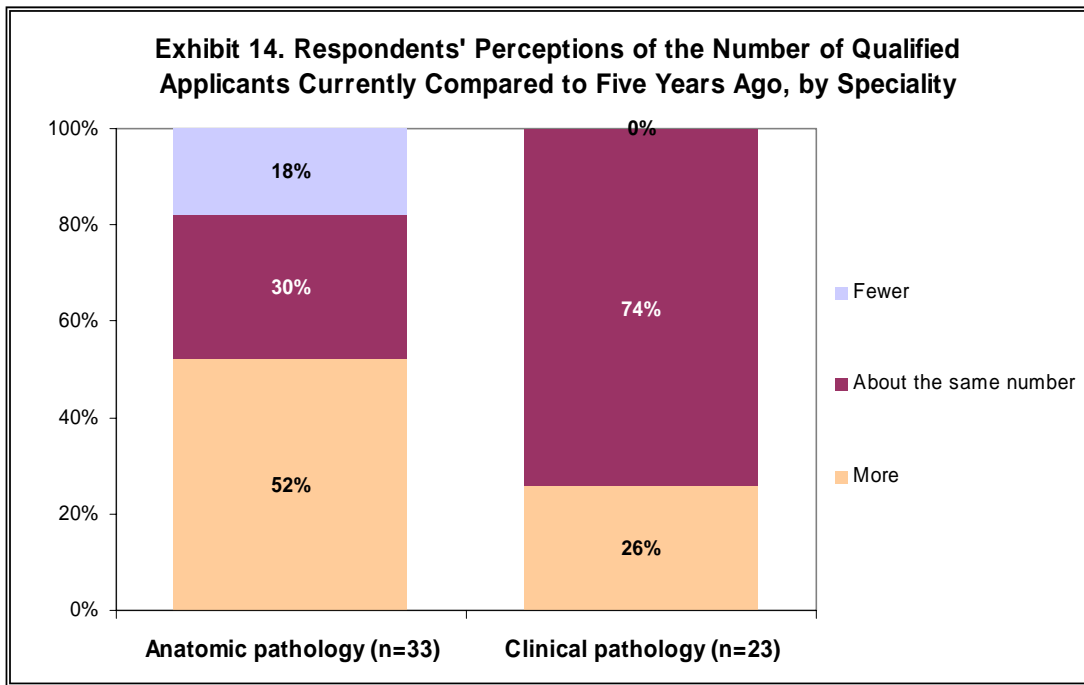
Number of applicants currently compared to five years ago. Respondents also were asked to indicate if the number of qualified veterinary pathology program applicants has increased, decreased, or stayed the same in comparison to five years ago. About 18% of anatomic pathology program respondents reported there are fewer today, while 30.3% suggested there are about the same number. The majority (51.5%) said there are a greater number of qualified candidates currently. None of the clinical pathology respondents, on the other hand, reported fewer candidates today compared to five years ago.

Nearly three-quarters (73.9%) reported the same number, while 26.1% said there are more candidates today. These results are summarized in Exhibit 14.

Exhibit 13a. Average Number of Pathology Program Applicants per Available Position in the Last Two Years, by Specialty

Anatomic Pathology			Clinical Pathology		
<i>n</i>	Average # of applicants	Range	<i>n</i>	Average # of applicants	Range
34	7.1	0–30	23	5.3	1–20





Veterinary pathology program completions in the last five years

Roughly equal proportions of anatomic pathology and clinical pathology training program respondents reported that one or more trainees had completed their programs in the last five years (90.9% and 83.3%, respectively). Exhibit 15 provides summary statistics on the number of trainees graduating in the last five years.

Exhibit 15. Number of Pathology Program Graduates in the Last Five Years, by Specialty

Anatomic Pathology				Clinical Pathology			
<i>n</i>	% with any graduates	Average # of graduates*	Total # of graduates	<i>n</i>	% with any graduates	Average # of graduates**	Total # of graduates
33	90.9	7.0	211	24	83.3	3.4	67

*Among those with any graduates. Ranged from 1–15.

**Among those with any graduates. Ranged from 1–6.

Placement of trainees following program completion. Respondents were asked to identify the employment or other placement of those who had graduated in the previous five years. They were first asked how many trainees completed their program and then asked how many were employed in each of eight different areas. Thus, Exhibit 16² presents the raw number of graduates employed by each sector. As the graph shows, both anatomic pathology and clinical pathology graduates were most likely to accept positions in the academic arena (40% of anatomic pathology graduates and 53% of clinical pathology graduates). Beyond this, however, there are few similarities between the

² The total number of graduates for Exhibit 16 and Exhibit 17 *should* be equal but are not. The discrepancy is due to differences in the number of graduates respondents reported for the two items on which these figures are based.

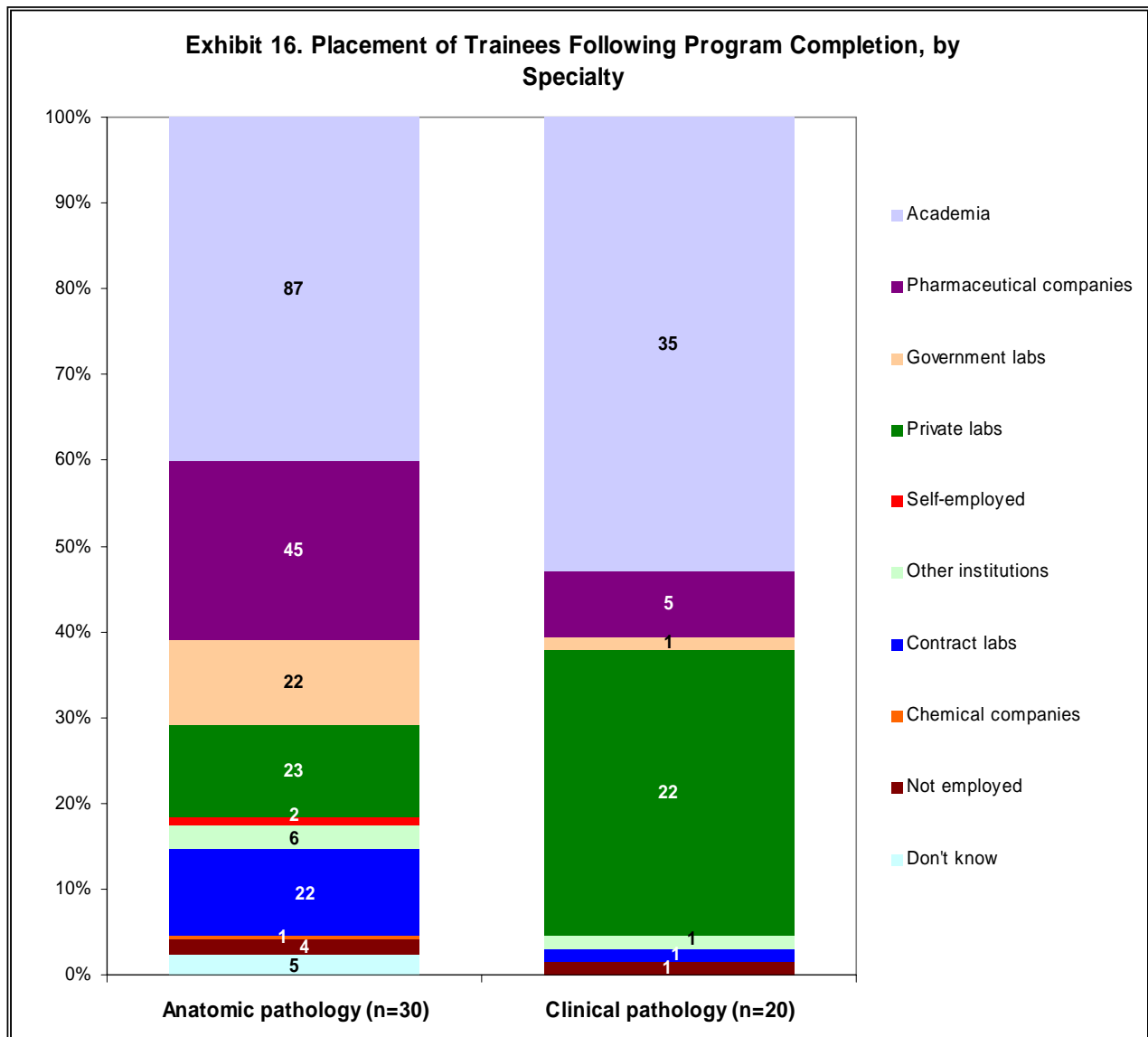
two specialties in job placement. The following bullet points describe the primary post-graduation placements of veterinary pathology trainees.

Anatomic Pathology

- Approximately 40% of anatomic pathologists took jobs in academia after graduating.
- Pharmaceutical companies hired about 20%.
- Private labs, government labs, and contract labs each hired about 10%.
- Just over 8% fell into one of the other response categories.

Clinical Pathology

- Approximately 53% of the clinical pathology graduates took jobs in academia after graduating.
- Private laboratories hired about 33%.
- Pharmaceutical companies hired nearly 8%.
- The remaining 6% fell into another response category.



Anticipated veterinary pathology program graduates and recent/anticipated program position openings

Exhibit 17 provides a summary of the number of anticipated program graduates for 2008 through 2013 and beyond. It also presents information on open program positions from 2007 through 2010. Note that the columns titled “Total # of graduates” and “Total # of positions” are sums of the numbers provided by respondents for each year and each specialty; these numbers are meant to be instructive only. Naturally, they fluctuate quite a bit as the number of respondents decreases and should be viewed as indicators only.

Exhibit 17. Anticipated Number of Pathology Program Graduates and Number of Open Training Positions, by Specialty

Graduates in...	Anatomic Pathology				Clinical Pathology			
	<i>n</i>	% with any graduates	Average # of graduates*	Total # of graduates	<i>n</i>	% with any graduates	Average # of graduates**	Total # of graduates
2008	34	85.3	2.1	60	24	25.0	1.3	8
2009	34	82.4	1.8	51	24	20.8	1.0	5
2010	34	74.5	2.0	50	24	29.2	1.3	9
2011	34	58.8	2.0	40	24	37.5	1.3	12
2012	34	41.2	2.0	28	24	29.2	1.0	7
2013 or later	34	23.5	2.6	21	24	4.2	1.0	1

Open positions in...	Anatomic Pathology				Clinical Pathology			
	<i>N</i>	% with any open positions	Average # of positions [†]	Total # of positions	<i>n</i>	% with any open positions	Average # of positions ^{††}	Total # of positions
2007	34	85.2	2.2	63	24	79.2	1.2	22
2008	34	76.5	2.5	65	24	79.2	1.2	23
2009	34	82.3	2.3	63	24	66.6	1.1	18
2010	34	76.5	2.4	61	24	62.5	1.2	18

*Among those reporting **any** graduates. Ranged from 1–5 for 2008, from 1–3 for 2009, 1–4 for 2010, 2011, 2012, and 2013 or later.

Among those reporting **any graduates. Ranged from 1–2 for 2008 and 2010 and 1–3 for 2011. For 2009, 2012, and 2013 or later, all anticipated only 1.

†Among those reporting **any** openings. Ranged from 1–10 for 2007 and 1–9 for 2008, 2009, and 2010.

††Among those reporting **any** openings. Ranged from 1–2 for all years.

Respondents’ suggestions on what ACVP could do to help them find more qualified training candidates

The training program questionnaire invited suggestions as to what ACVP could do to assist programs in locating more qualified training candidates. Many respondents commented on ACVP’s potential role in raising awareness about veterinary pathology and the need for more funding. The following is a summary of the suggestions different respondents offered:

1. Raise awareness about veterinary pathology.

- a. Continue to increase visibility of veterinary pathology as a career choice. Lobby admissions offices to look at recruiting more “nontraditional/nonclinical” students into veterinary school to expand recruitment base.
- b. Highlight the interesting aspects and career benefits of veterinary pathology.
- c. Provide senior students at veterinary schools with comprehensive information regarding available training programs.
- d. Several methods were suggested for raising awareness:

- (1) Fund a dynamic pathologist to go to vet schools and give promotional talks to ACVP student chapters.
- (2) Act as an information clearinghouse for (i) pathology externships and (ii) pathology training programs.
- (3) Prepare an attractive entertaining documentary about veterinary pathologist careers with reference also to salaries relative to companion animal practice, and the lifestyle benefits compared to practice.
- (4) Provide senior students at vet schools with comprehensive information regarding available training programs.
- (5) Pathology clubs, outreach, interactive Web site are potential avenues to “advertise” our specialty.

2. Increase funding for pathology training programs

- a. Provide financial support of U.S. citizens to train in Canada.
- b. Increase funding for residency positions, including positions through the ACVP/STP residency program.
- c. Provide funding to support faculty who train veterinary pathologists.
- d. Lobby the government to provide more program funding.

3. Continued support for student clubs and ACVP coalitions and chapters

- a. Support student clubs and chapter and student participation in ACVP meetings.
- b. Help with recruiting students through educational forums and pathology club sessions.

4. Career resources

- a. Create a “matching program” for resident candidates and programs.
- b. Create education programs about clinical veterinary pathology as a career.
- c. Provide more externship opportunities.
- d. Provide career counseling for DVM students.
- e. Emphasize research as a career for veterinary pathology students.

All commentary provided for this item can be found in Appendix D.

Additional commentary provided by respondents

A final questionnaire item allowed respondents to provide commentary on whatever topic they chose. As demonstrated in the sample of the responses provided below, some respondents viewed this as an opportunity to discuss new areas of difficulty or concern:

- This survey reflects a very narrow mindset as to the importance of veterinary pathologists. If the focus is on the boards, then the drug companies need to pay for the training. In my opinion, we should be training world-class integrative biologists. Veterinarians have the broadest training in comparative medicine and pathology of any health profession. This background coupled with advanced training in anatomic and clinical pathology can result in extraordinary scientists with scientific advances. Boards are a step along the way and not an end in itself.
- Actually, our number of qualified applicants may be increasing slightly, but they are becoming more and more foreign applicants. We have not received a single U.S. citizen applicant for our current position. Only in about the last 5 years have I heard increasing “hall talk” among vet students how they liked pathology but were concerned that after 5–6 years of training, they still might not be able to pass boards, so they go to clinical specialties. IMHO, our board is designed for exclusivity, not to test minimal competency, and that needs to change.

Other respondents discussed concerns raised previously in the report:

- To create residency/resident program matching system in which residents are ranked by institutions and residency programs are ranked by applicants. 2) I have an opinion that there is no shortage of qualified applicants but there is shortage of residency positions. Need more funding!
- Our current third position is a soft money situation. Having more opportunities for academic, industrial, and commercial investment in training programs will ensure being able to train all those interested in pursuing clinical pathology as a career.

Finally, some respondents raised concerns about the resources and faculty required to train veterinary pathology students:

- We have a clinical pathology residency program but have not been able to take any residents in the last 6 years due to insufficient faculty numbers to train them.
- Training residents is one of our top priorities – very pleasurable but also extremely time consuming if a good job is done. It would be hard to substantially up the number of training programs here unless there was also an expansion of faculty positions so people are available to train/run programs.
- We have seen an increase in qualified anatomic pathology candidates during past 5 years. We are limited by funding as our program in anatomic pathology could train at least 4 more individuals and our clinical pathology program at least 1 more individual.

For a complete listing of all respondent commentary, refer to Appendix D, Q31.

Projected supply and demand of veterinary pathologists

Estimated total supply of veterinary pathologists in 2007–2013. For the 2002 survey, calculating the total supply of veterinary pathologists involved using the information provided by training program respondents to estimate the number of veterinary pathologists that will be “supplied” in the coming years by nonresponding programs. However, in this survey, only two programs failed to respond, resulting in a response rate of 95%. In addition, we have information regarding the presence of anatomic or clinical programs for only one of those nonrespondents. Thus, estimates of supply will be based only on the completed questionnaires, as weighting the data to account for one nonresponse will have very little effect on the overall numbers. However, the estimates below do extrapolate to nonrespondents to specific questions. For example, if 34 respondents should have answered the questions on the number of expected graduates, but only 30 did so, the average number of graduates among responses will be assigned to the four nonrespondents. This may be a dubious assumption, though, as the nonrespondents to the questions may have skipped them because they did not have any graduates and therefore, the question does not apply to them. Thus, the tables present both the known supply and demand, based on completed questionnaires, and the estimated supply and demand among those who did not answer the questions. The readers can focus on the data they see as most accurate.

Exhibit 18. Estimated Total Supply of Veterinary Pathologists, by Specialty and Year[†]

ANATOMIC PATHOLOGISTS					
Year	A. Known supply (# of graduates)	B. Average # of graduates	C. # nonrespondents * % respondents w/any graduates	D. Estimated additional supply (B * C) [‡]	E. Estimated total supply (A + D)
2008	60	2.1	3	7	67
2009	51	1.8	5	9	60
2010	50	2.0	6	12	62
2011	40	2.0	8	16	56
2012	28	2.0	8	16	44
2013	21	2.6	6	16	37
CLINICAL PATHOLOGISTS					
Year	A. Known supply (# of graduates)	B. Average # of graduates	C. # nonrespondents * % respondents w/any graduates	D. Estimated additional supply (B * C) [‡]	E. Estimated total supply (A + D)
2008	8	1.3	4	5	13
2009	5	1.0	4	4	9
2010	9	1.3	5	7	16
2011	12	1.3	5	7	19
2012	7	1.0	5	5	12
2013	1	1.0	1	1	2

[†]The numbers upon which these estimates are based can be found in Exhibit 17.

[‡]Rounded to the nearest whole number.

The estimates presented in Exhibit 18 are based upon the following assumption:

- Programs that returned questionnaires but left the items dealing with number of graduates blank are similar to those that provided this information:
 - A similar proportion will have one or more graduates in each year of interest.
 - Those that will have graduates will have a similar *number* of graduates in each year of interest.³

For example, 34 institutions that train anatomic pathologists should have answered the questions regarding graduate information. For 2008, only 30 answered the question, resulting in four missing responses.

- If we assume that an equal proportion of those four will have one or more graduates in 2008 as will the 30 respondents, then 85.3% (or three) of them will have graduates (Column C).
- If we assume they will have a similar number of graduates (an average of 2.1), then they will have about seven graduates (Column D).
- Adding this total to the **known supply** of 60 graduates in 2008 (Column A) results in an **estimated total supply** for 2008 of 67 anatomic pathologists (Column E).

³ The risk in making this assumption is the possibility that all the programs that returned questionnaires but did not provide answers to these items may have **zero** graduates during the years about which they were asked (rather than leaving these items blank because they were unsure of the number, for example). The consequence of making this assumption in error would be that the estimated supply would be **lower** than what is presented in Exhibit 18.

Exhibit 19. Estimated Total Demand for Veterinary Pathologists, by Specialty and Year[†]

ANATOMIC PATHOLOGISTS					
Anatomic pathologist employer nonrespondents = total # nonrespondents (107) * % respondents that employ anatomic pathologists (83.6%) = 90 nonrespondents					
Year	A. Known demand (# of open positions)	B. Average # of open positions	C. # nonrespondents * respondents w/any open positions	D. Estimated additional demand (B * C)[‡]	E. Estimated total demand (A + D)
2008–2009	128	1.9	51	97	225
2010–2013	159	1.8	70	126	285

CLINICAL PATHOLOGISTS					
Clinical pathologist employer nonrespondents = total # nonrespondents (107) * % respondents that employ clinical pathologists (31.9%) = 34 nonrespondents					
Year	A. Known demand (# of open positions)	B. Average # of open positions	C. # nonrespondents * respondents w/any open positions	D. Estimated additional demand (B * C)[‡]	E. Estimated total demand (A + D)
2008–2009	24	1.9	10	19	43
2010–2013	34	1.5	18	27	61

[†]Estimates of known demand and average number of open positions are based on the **weighted** estimates of demand found in Exhibit 3 in the employer report.

[‡]Rounded to the nearest whole number.

Estimated total demand for veterinary pathologists in 2008–2013. Calculating the total demand for veterinary pathologists involved using the information provided by responding employers to estimate the number of veterinary pathologists that will be “demanded” in the coming years by nonresponding employers.⁴ This calculation was more difficult, since there is likely to be much more variation from year to year in the identities of companies who employ veterinary pathologists (e.g., companies go out of business or merge with other companies), in companies’ labor needs (e.g., companies restructure or changes in the market lead to changes in labor needs), and in the number of anatomic vs. clinical pathologists companies might employ. The estimates presented in Exhibit 19 are based upon the assumption that the 107 employers who did not return questionnaires are similar to the 141 employers that did return questionnaires in the following ways:

- A similar proportion will employ or plan to employ anatomic pathologists, and a similar proportion will employ or plan to employ clinical pathologists.
- A similar proportion of those that employ or plan to employ anatomic pathologists will have one or more open positions in the years of interest. Similarly, a similar proportion of those that employ or plan to employ clinical pathologists will have one or more open positions in the years of interest.
- Those that employ or plan to employ anatomic pathologists will have a similar number of open anatomic pathology positions in the years of interest. Similarly, those that employ or plan to employ clinical pathologists will have a similar number of open clinical pathology positions in the years of interest.

For example, we know that 83.6% of respondents employ anatomic pathologists.⁵ Therefore, we assume that 83.6% of the 107 nonrespondents employ anatomic pathologists (90 respondents).

- For 2008–2009, 57.1% of respondents reported having open positions, so we assume that 57.1% of nonrespondents would have open positions (about 51).

⁴ Results of the veterinary pathologist employer survey are detailed in *Veterinary Pathologist Employer Demographic Survey: Final Report* (2008).

⁵ Based on the number of respondents who employ anatomic pathologists (118 of the 141 that returned the survey) and the number who employ clinical pathologists (45 of 141).

- If we assume they will have a similar number of open positions (an average of 1.9), then they will have about 97 open positions.
- Adding this to the **known demand** of 128 open positions results in an **estimated total demand** of 225 anatomic pathologists for 2008–2009.

Known, estimated, and average deficit of veterinary pathologists. Survey results and results from the calculations described above allow us to ascertain, by comparing supply and demand figures, if there is or will be a deficit of veterinary pathologists and, if so, the potential size of that deficit. As Exhibit 20 shows, it appears that the number of new veterinary pathologists being produced will be insufficient to fill the number of expected open positions. For anatomic pathology,

- The **known deficit** (Column C) ranges from -10 (a surplus of 10) to 18 (10 in 2010, 18 in 2013).
- The **estimated total deficit** (Column F) ranges from 10 in 2010 to 52 in 2009.
- The estimated **average deficit** (Column H) ranges from 0 (2010) to 32.5 (2009) anatomic pathologists.

The data also suggest that there will be fewer new clinical pathologists than there are open clinical pathology positions:

- The **known deficit** (Column C) for clinical pathology ranges from -3 in 2011 to 7 in 2009 and 2013.
- The **estimated total deficit** (Column F) ranges from -4 (2011) to 13 (2013).
- The estimated **average deficit** (Column H) ranges from -3.5 (2011) to 10 (2013).

Exhibit 20. Known, Estimated, and Average Deficit of Veterinary Pathologists, by Specialty and Year[†]

ANATOMIC PATHOLOGISTS								
Year	A. Known supply	B. Known demand	C. Known deficit (B – A)	D. Estimated total supply	E. Estimated total demand	F. Estimated total deficit (E – D)	G. Range of deficit (C & F)	H. Average deficit ((C+F)/2)
2008	60	64	4	67	113	46	4–46	25
2009	51	64	13	60	112	52	13–52	32.5
2010	50	40	(-10)	62	72	10	(-10)–10	0
2011	40	40	0	56	71	15	0–15	7.5
2012	28	40	12	44	71	27	12–27	19.5
2013	21	39	18	37	71	34	18–34	26

CLINICAL PATHOLOGISTS								
Year	A. Known supply	B. Known demand	C. Known deficit (B – A)	D. Estimated total supply	E. Estimated total demand	F. Estimated total deficit (E – D)	G. Range of deficit (C & F)	H. Average deficit ((C+F)/2)
2008	8	12	4	13	22	9	4–9	6.5
2009	5	12	7	9	21	12	7–12	9.5
2010	9	9	0	16	16	0	0–0	0
2011	12	9	(-3)	19	15	(-4)	(-4)–(-3)	3.5
2012	7	8	1	12	15	3	1–3	2
2013	1	8	7	2	15	13	7–13	10

[†]The questionnaire items dealing with demand (number of open positions) asked about ranges of years (2008–2009 and 2010–2013), while those dealing with supply (number of graduates) asked about specific years (2008, 2009, 2013 or later). To calculate demand **per year**, the total for the range of years was divided by the number of years and rounded to the nearest whole number. For example, there was an estimated demand of 285 anatomic pathologists for 2010–2013. $285/4 = 71.25$ or 71 or 72 per year.

■ **APPENDIX A** ■

Data Used to Create Report's Graphs

Exhibits 1a and 1b. Type of Training Program, by Specialty*

PROGRAM TYPE	Anatomic Pathology (n=34)		Clinical Pathology (n=24)	
	<i>n</i>	%	<i>n</i>	%
2-year residency program	6	17.6%	1	4.2%
3-year residency program	22	64.7	14	58.3
3-year combined residency/M.S. program	7	20.6	8	33.3
4-year combined residency/Ph.D. program	2	5.9	2	8.3
5-year combined residency/Ph.D. program	12	35.3	8	33.3
6+ year combined residency/Ph.D. program	4	11.8	1	4.2
Other	13	38.2	5	20.8

*Respondents could select more than one option.

Exhibit 7. Perception of the Number of Trainees Being Recruited, by Specialty

	Anatomic Pathology (n=34)		Clinical Pathology (n=22)	
	<i>n</i>	%	<i>n</i>	%
Too few	9	26.5%	4	18.2
The right number	22	64.7	18	81.8
Too many	3	8.8	0	—

Exhibit 8. Level of Difficulty in Recruiting Qualified Trainee Candidates, by Specialty

LEVEL OF DIFFICULTY	Anatomic Pathology (n=34)		Clinical Pathology (n=23)	
	<i>n</i>	%	<i>n</i>	%
Very difficult	2	5.9%	2	8.7%
Somewhat difficult	11	32.4	8	34.8
Not too difficult	18	52.9	11	47.8
Not at all difficult	3	8.8	2	8.7

Exhibit 9. Barriers to Recruiting Qualified Training Candidates, by Specialty*

BARRIER	Anatomic Pathology (n=13)		Clinical Pathology (n=10)	
	<i>n</i>	%	<i>n</i>	%
Stipend is too low	6	46.2%	7	70.0%
Candidates are concerned with debt burden	4	30.8	6	60.0
Candidates see programs as too long	4	30.8	2	20.0
Candidates do not want Ph.D. training with a residency	2	15.4	5	50.0
Geographic location of program	6	46.2	3	30.0
Not enough financial return for employment	0	—	1	10.0
Candidates choose other specialties	3	23.1	5	50.0
Other	11	84.6	3	30.0

*Respondents could select more than one option.

Exhibit 10. Primary Difficulty in Recruiting Qualified Trainee Candidates, by Specialty

DIFFICULTY	Anatomic Pathology (n=10)		Clinical Pathology (n=9)	
	n	%	n	%
Stipend is too low	0	—	3	33.3%
Candidates are concerned with debt burden	0	—	1	11.1
Candidates see programs as too long	2	20.0	1	11.1
Candidates do not want Ph.D. training with a residency	0	—	1	11.1
Geographic location of program	1	10.0	0	—
Not enough financial return for employment	0	—	0	—
Candidates choose other specialties	2	20.0	0	—
Other	5	50.0	3	33.3

Exhibit 11. Factors Limiting Number of Trainee Positions, by Specialty*

FACTOR	Anatomic Pathology (n=34)		Clinical Pathology (n=24)	
	n	%	n	%
Number of applicants	5	14.7%	2	8.3%
Funding for residency training	30	88.2	22	91.7
Funding for Ph.D. training	12	38.2	6	25.0
Number of faculty available to train candidates	21	61.8	10	41.7
Other	10	29.4	4	16.7

*Respondents could select more than one option.

Exhibit 12. Primary Factor Limiting Number of Training Positions, by Specialty

FACTOR	Anatomic Pathology (n=29)		Clinical Pathology (n=19)	
	n	%	n	%
Number of applicants	1	3.4%	1	5.3%
Funding for residency training	15	51.7	11	57.9
Funding for Ph.D. training	2	6.9	0	—
Number of faculty available to train candidates	5	17.2	3	15.8
Other	6	20.7	4	21.1

Exhibit 13b. Average Number of Pathology Program Applicants per Available Position in the Last Two Years, by Specialty

AVERAGE NUMBER OF APPLICANTS	Anatomic Pathology (n=34)		Clinical Pathology (n=23)	
	n	%	n	%
0–3	14	41.2%	9	39.1%
4–6	7	20.6	9	39.1
7 or more	13	38.2	5	21.8

Exhibit 14. Respondents' Perceptions of the Number of Qualified Applicants Currently Compared to Five Years Ago, by Specialty

NUMBER OF APPLICANTS	Anatomic Pathology (n=33)		Clinical Pathology (n=23)	
	n	%	n	%
Fewer candidates	6	18.2%	0	—
About the same number	10	30.3	17	73.9
More candidates	17	51.5	6	26.1

**Exhibit 16. Placement of Trainees Following Program Completion, by Specialty
(Total Number of Trainees Placed, by Sector)**

PLACEMENT	Anatomic Pathology (n=30)	Clinical Pathology (n=20)
	<i>n</i>	<i>n</i>
Academia	87	35
Pharmaceutical companies	45	5
Chemical companies	1	0
Private diagnostic laboratories	23	22
Government laboratories	22	1
Contract research laboratories	22	1
Self-employed	2	0
Other types of institutions	6	1
Not employed	4	1
Don't know	5	0
TOTAL	217	66

Methodology Report

Study design

Staffing. The project coordinator responsible for the budgeting and administration of this study was Kelly Ann Marzano.

Questionnaire development. Because SRL had conducted a similar study for the ACVP in 2002, SRL had a copy of the questionnaire used in the original study. The client provided some additional questions and small revisions for existing questions. The head of SRL's Questionnaire Review Committee (QRC) reviewed the changes to the questionnaire. The QRC, which consists of SRL staff members appointed by the Director, examines all questionnaires administered by SRL to ensure they follow ethical practices and basic principles of questionnaire construction. Both the client and the head of the QRC approved the final version of the questionnaire.

IRB review. The study protocol was reviewed by a member of Institutional Review Board #2 of the University of Illinois at Chicago on November 2, 2007 (Protocol #2007-0816), and approval to begin the study was granted based on the IRB's determination that the protocol met the criteria for exemption as defined in the U.S. Department of Health and Human Services Regulations for the Protection of Human Subjects [(45 CFR 46.101(b))].

Trainers of veterinary pathologists sample design

The training program sample consisted of 81 trainers of veterinary pathologists within the United States and Canada. This list was provided by the ACVP. SRL sent out an explanatory letter and questionnaires to all cases on November 7–8, 2007. A postcard reminder/thank you was sent on November 16, and a second full mailing was completed on December 4, 2007. After meeting with the client early in 2008, the client informed SRL that they would like to continue data collection for a few more weeks to obtain a higher response rate. Another full mailing was completed on January 16, 2008. The client requested that data collection be closed on February 8, 2008. In the week prior to this date, several questionnaires were sent via e-mail at the client's request to nonrespondents in the hopes of obtaining a few more responses.

When questionnaires were mailed, each organization received two copies because the questionnaire had two distinct sections (one section concerned anatomic pathology; the other concerned clinical pathology). If one person was knowledgeable about both sections, he/she could complete the entire questionnaire. In some cases however, different people completed the two sections using separate questionnaires. Questionnaires returned from different people at one organization were counted as one completed questionnaire.*

Data Reduction (DR) quality control

* Separate questionnaires were treated as one response only when the two questionnaires shared the same case identification number. The issue of possible duplicate returns is discussed later in this report.

The following section describes the general quality control procedures followed by SRL to ensure that the files needed to conduct study mailings and the final data files are accurate.

Data entry. DR performs a 10% validity check on all data entry work before the end of a study. This check involves comparing the entered data to the actual paper questionnaire data. Ten percent of the completed questionnaires are pulled at random and checked by supervisors, and any mistakes found during this check are corrected. If any coder's work has more than a minimal amount of errors, additional checks of that coder's work are conducted. DR also conducts a 100% validity check on the data entry of newly hired coders and does so until the work of the coder in question is relatively error free. The length of time varies by coder but is generally one or two days.

History files. A DR supervisor cleans the history file, which contains responses to open-ended items. Cleaning the file involves correcting spelling and typing errors but otherwise leaving the responses verbatim. The process also involves formatting the text file. A second supervisor or the DR Manager will review the history file once it is completed.

Mailings. The mailing databases DR receives from Sampling are cleaned by a supervisor, which involves checking for incomplete addresses and correcting spelling, capitalization, and formatting errors or inconsistencies. The DR Manager also checks the databases before any mailing-related documents (e.g., address labels, personalized introductory letters) are printed.

Reconciliation. Reconciliation occurs on any study where DR has done any sort of entry – questionnaires, records of contact (ROCs), geocoding, or occupation coding. Reconciliation ensures that all data that should have been entered *are* entered, correctly. As a first step in reconciliation, a 100% check is conducted of questionnaires, ROCs, and coding forms to make sure all are identified as having been entered.

In the case of paper questionnaires, the number of completes actually entered is compared to the number of completes in the control desk. If there is a discrepancy, DR reconciles the problem by running and comparing case lists to locate the problem cases. It is during this process that a variety of problems can be found and corrected (e.g., cases not entered, duplicates, and cases entered under the wrong case identification number).

General DR Procedures. Virtually every task that DR completes goes through some sort of check process. When dealing with a large volume of paperwork, data entry, and editing, errors are inevitable. The goal is to prevent and correct as many as possible.

Disposition of sample

The response rate is the number of completed questionnaires divided by the number of eligible respondents. The number of eligible respondents was based on institution, and the initial sample file included multiple contacts for some institutions. The nature of the sample for the training coordinator surveys was such that two individuals at one organization could have received questionnaires and provided the same information for the same unit or division. However, all attempts were made beforehand to remove duplicates and send questionnaires to multiple individuals within one organization only when failing to do so risked missing eligible and unique respondents (i.e., different units or divisions with separate employees/trainers). The list of respondents was reviewed at different points during data collection and at its conclusion, and the individual records for suspected

duplicates were examined. Any suspected duplicates were reviewed with the client and responses omitted or merged where necessary.

In some cases the sample file contained two contacts for one institution, but only one person submitted responses. In other cases, the sample file contained two or more contacts from one institution, and two separate individuals each submitted half of the responses for that institution. To determine the response rate, these responses were merged in the final data set to create one completed questionnaire for that institution.

Disposition of sample. Exhibit B-1 presents the final disposition of sample for veterinary pathologist trainers.

Exhibit B-1. Disposition of Sample

Disposition	Number	Percent
Completed questionnaire	46	56.8%
Ineligible, does not have a veterinary pathology training program	11	13.6
Removed as a duplicate contact for an institution or as someone who is not responsible for veterinary pathology training programs at an institution	22	27.2
Final refusal	0	—
Did not return questionnaire	2	2.5
Total	81	100.0%

Twenty-two cases were removed from the sample file because they were a duplicate contact for an institution. Another 11 were determined to be ineligible because the person or institution does not train veterinary pathologists, resulting in 48 remaining contacts in the sample file. SRL received 46 partially or fully completed questionnaires. There were two nonresponding institutions in the sample file. Of the responses received, cases were merged for 18 institutions because SRL received two separate questionnaires for that institution, reducing the number of responses by nine. Thus, partial or complete responses were received for 37 institutions out of 39. **The response rate is 94.9% (37/39).**

Survey limitations

There are several potential limitations of this survey, including coverage error and measurement error. Coverage error can occur when members of the population of interest are not included in the sampling frame. When this omission is random and those included are no different from those who are excluded, coverage error is not a problem. When those who are omitted differ in ways related to the primary variables of interest, coverage error leads to bias. To the extent that the sample frame of eligible organization constructed for this study may have been incomplete, the ability of the final sample to represent employers of veterinary pathologists and the training programs for these individuals should be considered. Finally, numerous sources of measurement error may also influence results. For example, question wording, the ordering of questions, and the mode of data collection (i.e. telephone vs. face-to-face interviews vs. self-administered surveys) each may affect data quality and should be considered when interpreting survey results.

■ **APPENDIX C** ■

Survey Materials



November 20, 2007

<Salutation> <first name> <last name>
<Department>
<College> (if listed—for some it is not)
<Street address>
<City, state, and zip>

Dear <salutation> <first name> <last name>:

In conjunction with the Society of Toxicologic Pathology (STP) and the American Society of Veterinary Clinical Pathologists (ASVCP), the American College of Veterinary Pathologists (ACVP) recently initiated a new supply and demand study similar to the one conducted in 2002. Under the aegis of its Recruitment Committee, the ACVP has established a Demographics Subcommittee to determine if there has been a change in demand for veterinary pathologists and whether there is a continued shortage of veterinary pathologists in the workplace. To that end, the Subcommittee is gathering information on (1) the goals of training programs, (2) the number of trainees entering and completing training programs, and (3) the continued challenges associated with recruiting veterinarians into pathology training programs. This information will be used to propose modifications, if necessary, to the plans of the three participating organizations to address the shortfall issue. The Subcommittee also hopes to share the information with the National Academy of Sciences committee *Assessing the Current and Future Workforce Needs in Veterinary Medicine* as part of its report to Congress in relation to the proposed Veterinary Medicine Workforce Act. The Survey Research Laboratory (SRL) at the University of Illinois at Chicago is assisting us in surveying veterinary pathologist training programs and employers.

You received this questionnaire because the Subcommittee identified your institution as having a training program for veterinary pathologists. Completing the questionnaire should take approximately 20 minutes. Because the questionnaire addresses both anatomic and clinical pathology training programs, duplicate questionnaires are enclosed. If you are responsible for only one of the two programs, please forward the extra to the person responsible for the other type of program; each of you need complete only the section relevant to you.

Participation in this survey is voluntary, and you are free to stop answering this questionnaire anytime. Your decision to participate, decline, or withdraw from participation will have no effect on your status at or future relations with the University of Illinois, the ACVP, the STP, or the ASVCP. The information you provide will be kept completely confidential by SRL and will be reported only as group data; however, a summary will be sent to each institution that returns the questionnaire. There are no known risks to participating in this study.

If you have any questions about this study, please contact ACVP Executive Director Wendy Coe at (608) 443-2466, ext. 149 or wcoe@acvp.org. You also can visit this study's informational Web site at www.srl.uic.edu/vptrain.htm. If you need another copy of the questionnaire, please contact the SRL project coordinator Kelly Ann Marzano at (312) 996-6475 or kellym@srl.uic.edu. Thank you in advance for taking the time to help us with this research.

Sincerely,

Matthew A. Wallig
Chair, ACVP Demographics Subcommittee



Survey of Veterinary Pathology Training Programs

Prepared by the ACVP Recruitment Committee
Funded by the ACVP, STP, and ASVCP

This questionnaire is organized into two main sections: one dealing with veterinary anatomic pathology training programs and one addressing veterinary clinical pathology training programs. Duplicate questionnaires are enclosed:

- At some institutions, **one person** is responsible for both anatomic and clinical pathology training programs. If you are that person, please complete a single questionnaire and return it in the enclosed postage-paid envelope to the Survey Research Laboratory. The duplicate questionnaire can be discarded.
- At some institutions, there are **separate coordinators** for anatomic and clinical pathology training programs. Each should receive a copy of the questionnaire and need only complete the relevant section before returning it in the postage-paid envelope to the Survey Research Laboratory.

If you have questions, please contact Project Coordinator Kelly Marzano at (312) 996-6475 or via e-mail at kellym@srl.uic.edu

1. Name of institution: _____
2. Name and title of individual completing the survey:

On the following pages, please check one answer for each question unless otherwise specified.

If you are providing information about an **anatomic pathology training program**, please continue with Question 3 on the next page.

If you are providing information about a **clinical pathology training program**, please go to Question 23 on page 7.

Recruiting veterinary students into anatomic pathology training programs

3. Which of the following describes your anatomic pathology training program? (CHECK ALL THAT APPLY.)

- 1 2-year residency program
 - 2 3-year residency program
 - 3 3-year combined residency/M.S. program
 - 4 4-year combined residency/Ph.D. program
 - 5 5-year combined residency/Ph.D. program
 - 6 6+ year combined residency/Ph.D. program
 - 7 Other program providing advanced pathology training → PLEASE SPECIFY BELOW
-

4. Currently, what is the total number of training positions in your anatomic pathology training program?

_____ positions

5. Currently, how many trainees are enrolled in your anatomic pathology training program?

	<u># of trainees</u>
a. Residency only	_____
b. Combined residency/M.S. program	_____
c. Combined residency/Ph.D. program	_____
d. Other program.....	_____
e. TOTAL.....	_____

6a. Since 2002, has the average number of qualified applicants for your anatomic pathology training program from within North America increased, decreased, or stayed the same?

- 1 Increased
- 2 Decreased
- 3 Stayed the same

6b. Since 2002, has the number of qualified applicants for your anatomic pathology training program from outside North America increased, decreased, or stayed the same?

- 1 Increased
- 2 Decreased
- 3 Stayed the same

7. Currently, how many training positions in your anatomic pathology training program are funded by each of the following sources? (IF NONE, PLEASE ENTER "0.")

	<u># of positions</u>
a. Institutional.....	_____
b. State.....	_____
c. Federal government.....	_____
d. Industry	_____
e. Foundation.....	_____
f. Endowment or gift.....	_____
g. Other → PLEASE SPECIFY BELOW	_____

8. Which of the following describes the type of anatomic pathology training program funded by each source?
 (CHECK ALL THAT APPLY; IF NOT APPLICABLE, PLEASE CHECK "NA.")

	<u>Residency only</u>	<u>Combined residency/M.S.</u>	<u>Combined residency/Ph.D.</u>	<u>Other</u>	<u>NA</u>
a. Institutional	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. State	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. Federal government	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. Industry	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
e. Foundation.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
f. Endowment or gift.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
g. Other.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

9. How many years of funding does each funding source provide to a trainee?

	<u># of years</u>
a. Institutional.....	_____
b. State.....	_____
c. Federal government.....	_____
d. Industry.....	_____
e. Foundation.....	_____
f. Endowment or gift.....	_____
g. Other.....	_____

10. Currently, how many of the trainees enrolled in your anatomic pathology training program are members of a protected minority group (American Indian or Alaskan Native, Black/African American, Hispanic/Latino[a])?

	<u># of trainees</u>
a. Residency only	_____
b. Combined residency/M.S. program	_____
c. Combined residency/Ph.D. program	_____
d. Other program.....	_____
e. TOTAL.....	_____

11. Currently, how many of the trainees enrolled in your anatomic pathology training program are not U.S. citizens or are not permanent U.S. residents?

	<u># of trainees</u>
a. Residency only	_____
b. Combined residency/M.S. program	_____
c. Combined residency/Ph.D. program	_____
d. Other program.....	_____
e. TOTAL.....	_____

12a. Since 2002, have there been changes in the number of trainee positions in your anatomic pathology training program, or have there been no changes?

- 1 There have been changes in the number of positions
- 2 There have been no changes in the number of positions → SKIP TO #13

12b. Please indicate in the following the table the number of positions that were gained and/or lost since 2002.

	# of positions <u>gained</u>	# of positions <u>lost</u>
Total number of training positions	_____	_____

12c. Please indicate in the following the table the number of positions that were gained and/or lost since 2002 for each funding source. (IF NONE, PLEASE CHECK "NO CHANGE.")

	NO CHANGE	IF INCREASED # of positions <u>gained</u>	IF DECREASED # of positions <u>lost</u>
a. Institutional	<input type="checkbox"/>	_____	_____
b. State	<input type="checkbox"/>	_____	_____
c. Federal government	<input type="checkbox"/>	_____	_____
d. Industry	<input type="checkbox"/>	_____	_____
e. Foundation	<input type="checkbox"/>	_____	_____
f. Endowment or gift	<input type="checkbox"/>	_____	_____
g. Other → PLEASE SPECIFY BELOW.....	<input type="checkbox"/>	_____	_____

13. Is your program recruiting too few trainees, the right number of trainees, or too many trainees to fill the positions available?

- 1 Too few
- 2 The right number
- 3 Too many

14a. How difficult would you say it is to recruit qualified candidates into your anatomic pathology training program?

- 1 Very difficult
- 2 Somewhat difficult
- 3 Not too difficult → SKIP TO #15
- 4 Not at all difficult → SKIP TO #15

14b. Which of the following reasons make it difficult for your anatomic pathology training program to recruit qualified candidates? (CHECK ALL THAT APPLY.)

- 1 Stipend is too low
- 2 Candidates are concerned with debt burden
- 3 Candidates see program as too long
- 4 Candidates do not want Ph.D. training with a residency
- 5 Geographic location of program
- 6 Not enough financial return for employment as an anatomic pathologist
- 7 Candidates choose other specialties → PLEASE SPECIFY BELOW

8 Other → PLEASE SPECIFY BELOW

IF YOU CHECKED ONLY ONE REASON, SKIP TO #15.

14c. What is the primary reason it is difficult for your anatomic pathology training program to recruit qualified candidates? (CHECK ONLY ONE.)

- 1 Stipend is too low
 - 2 Candidates are concerned with debt burden
 - 3 Candidates see program as too long
 - 4 Candidates do not want Ph.D. training with a residency
 - 5 Geographic location of program
 - 6 Not enough financial return for employment as an anatomic pathologist
 - 7 Candidates choose other specialties → PLEASE SPECIFY BELOW
-
-

8 Other → PLEASE SPECIFY BELOW

15. During the last two years, what has been the average number of qualified applicants for each available position?

_____ applicants

16. Compared to five years ago, are there currently fewer qualified applicants, about the same number, or more qualified applicants to your anatomic pathology training program?

- 1 Fewer candidates
- 2 About the same number
- 3 More candidates

17a. At your institution, are there limitations on the number of anatomic pathology training positions that are currently available?

- 1 Yes, there are limitations
- 2 No, there are no limitations → SKIP TO #18a

17b. What factors limit the number? (CHECK ALL THAT APPLY.)

- 1 Number of applicants
 - 2 Funding for residency training
 - 3 Funding for Ph.D. training
 - 4 Number of faculty available to train candidates
 - 5 Other → PLEASE SPECIFY BELOW
-

IF YOU ONLY CHECKED ONE REASON, SKIP TO #18a.

17c. What is the primary factor that limits the number of anatomic pathology training positions currently available? (CHECK ONLY ONE.)

- 1 Number of applicants
 - 2 Funding for residency training
 - 3 Funding for Ph.D. training
 - 4 Number of faculty available to train candidates
 - 5 Other → PLEASE SPECIFY BELOW
-
-

18a. Since 2002, have any trainees completed your anatomic pathology training program?

- 1 Yes
- 2 No → SKIP TO #19

18b. How many?
_____ trainees

18c. How many were employed by each of the following after graduation? (SHOULD TOTAL NUMBER IN #18b.)

employed

- a. Academia..... _____
- b. Pharmaceutical companies..... _____
- c. Chemical companies _____
- d. Private diagnostic laboratories _____
- e. Government laboratories..... _____
- f. Contract research laboratories _____
- g. Self-employed _____
- h. Other types of institutions..... _____
- i. Not employed _____
- j. Don't know..... _____

19. How many of your current trainees are expected to complete your anatomic pathology training program in the following years?

to complete

- a. 2008..... _____
- b. 2009..... _____
- c. 2010..... _____
- d. 2011..... _____
- e. 2012..... _____
- f. 2013 or later _____

20. How many training positions in your anatomic pathology training program...

positions

- a. Were open in 2007? _____
- b. Will be open in 2008? _____
- c. Will be open in 2009? _____
- d. Will be open in 2010? _____

21. What is the major goal of your anatomic pathology training program?

- 1 Produce ACVP board-eligible anatomic pathologists
- 2 Produce ACVP board-certified anatomic pathologists
- 5 Other → PLEASE SPECIFY BELOW

22. What could ACVP do to help your anatomic pathology training program find more qualified candidates?

If you can provide information about a **clinical pathology training program**, please continue with #23. If not, please skip to #43 on page 12.

Recruiting veterinary students into clinical pathology training programs

23. Which of the following describes your clinical pathology training program? (CHECK ALL THAT APPLY.)

- 1 2-year residency program
- 2 3-year residency program
- 3 3-year combined residency/M.S. program
- 4 4-year combined residency/Ph.D. program
- 5 5-year combined residency/Ph.D. program
- 6 6+ year combined residency/Ph.D. program
- 7 Other program providing advanced pathology training → PLEASE SPECIFY BELOW

24. Currently, what is the total number of training positions in your clinical pathology training program?

_____ positions

25. Currently, how many trainees are enrolled in your clinical pathology training program?

	# of trainees
a. Residency only	_____
b. Combined residency/M.S. program	_____
c. Combined residency/Ph.D. program	_____
d. Other program.....	_____
e. TOTAL.....	_____

26a. Since 2002, has the average number of qualified applicants for your clinical pathology training program from within North America increased, decreased, or stayed the same?

- 1 Increased
- 2 Decreased
- 3 Stayed the same

26b. Since 2002, has the number of qualified applicants for your clinical pathology training program from outside North America increased, decreased, or stayed the same?

- 1 Increased
- 2 Decreased
- 3 Stayed the same

27. Currently, how many training positions in your clinical pathology training program are funded by the following sources?

of positions

- a. Institutional _____
- b. State _____
- c. Federal government _____
- d. Industry _____
- e. Foundation _____
- f. Endowment or gift _____
- g. Other → PLEASE SPECIFY BELOW _____

28. Which of the following describes the type of clinical pathology training program funded by each source? (CHECK ALL THAT APPLY; IF NOT APPLICABLE, PLEASE CHECK "NA.")

	<u>Residency only</u>	<u>Combined residency/M.S.</u>	<u>Combined residency/Ph.D.</u>	<u>Other</u>	<u>NA</u>
a. Institutional	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. State	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. Federal government	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. Industry.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
e. Foundation.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
f. Endowment or gift.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
g. Other.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

29. How many years of funding does each funding source provide to a trainee?

of years

- a. Institutional _____
- b. State _____
- c. Federal government _____
- d. Industry _____
- e. Foundation _____
- f. Endowment or gift _____
- g. Other _____

30. Currently, how many of the trainees enrolled in your clinical pathology training program are members of a protected minority group (American Indian or Alaskan Native, Black/African American, Hispanic/Latino[a])?

of trainees

- a. Residency only _____
- b. Combined residency/M.S. program..... _____
- c. Combined residency/Ph.D. program..... _____
- d. Other program _____
- e. TOTAL _____

31. Currently, how many of the trainees enrolled in your clinical pathology training program are not U.S. citizens or are not permanent U.S. residents?

	<u># of trainees</u>
a. Residency only	_____
b. Combined residency/M.S. program.....	_____
c. Combined residency/Ph.D. program.....	_____
d. Other program	_____
e. TOTAL	_____

32a. Since 2002, have there been changes in the number of trainee positions in your anatomic pathology training program, or have there been no changes?

- 1 There have been changes in the number of positions
- 2 There have been no changes in the number of positions → SKIP TO #33

32b. Please indicate in the following the table the number of positions that were gained and/or lost in the last five years.

	<u># of positions gained</u>	<u># of positions lost</u>
Total number of training positions	_____	_____

32c. Please indicate in the following the table the number of positions that were gained and/or lost in the last five years for each funding source. (IF NONE, PLEASE CHECK "NO CHANGE.")

	NO CHANGE	IF INCREASED <u># of positions gained</u>	IF DECREASED <u># of positions lost</u>
a. Institutional	<input type="checkbox"/>	_____	_____
b. State	<input type="checkbox"/>	_____	_____
c. Federal government	<input type="checkbox"/>	_____	_____
d. Industry	<input type="checkbox"/>	_____	_____
e. Foundation	<input type="checkbox"/>	_____	_____
f. Endowment or gift	<input type="checkbox"/>	_____	_____
g. Other → PLEASE SPECIFY BELOW.....	<input type="checkbox"/>	_____	_____

33. Is your program recruiting too few trainees, the right number of trainees, or too many trainees to fill the available positions?

- 1 Too few
- 2 The right number
- 3 Too many

34a. How difficult would you say it is to recruit qualified candidates into your clinical pathology training program?

- 1 Very difficult
- 2 Somewhat difficult
- 3 Not too difficult → SKIP TO #35
- 4 Not at all difficult → SKIP TO #35

34b. Which of the following reasons make it difficult for your clinical pathology training program to recruit qualified candidates? (CHECK ALL THAT APPLY.)

- 1 Stipend is too low
- 2 Candidates are concerned with debt burden
- 3 Candidates see program as too long
- 4 Candidates do not want Ph.D. training with a residency
- 5 Geographic location of program
- 6 Not enough financial return for employment as an anatomic pathologist
- 7 Candidates choose other specialties → PLEASE SPECIFY BELOW

- 8 Other → PLEASE SPECIFY BELOW

IF YOU CHECKED ONLY ONE REASON, SKIP TO #35.

34c. What is the primary reason it is difficult for your clinical pathology training program to recruit qualified candidates? (CHECK ONLY ONE.)

- 1 Stipend is too low
- 2 Candidates are concerned with debt burden
- 3 Candidates see program as too long
- 4 Candidates do not want Ph.D. training with a residency
- 5 Geographic location of program
- 6 Not enough financial return for employment as an anatomic pathologist
- 7 Candidates choose other specialties → PLEASE SPECIFY BELOW

- 8 Other → PLEASE SPECIFY BELOW

35. During the last two years, what has been the average number of qualified applicants for each available position?

_____ applicants

36. Compared to five years ago, are there currently fewer qualified applicants, about the same number, or more qualified applicants to your clinical pathology training program?

- 1 Fewer candidates
- 2 About the same number
- 3 More candidates

37a. At your institution, are there limitations on the number of clinical pathology training positions that are currently available?

- 1 Yes, there are limitations
- 2 No, there are no limitations → SKIP TO #38a

37b. What factors limit the number? (CHECK ALL THAT APPLY.)

- 1 Number of applicants
- 2 Funding for residency training
- 3 Funding for Ph.D. training
- 4 Number of faculty available to train candidates
- 5 Other → PLEASE SPECIFY BELOW

IF YOU ONLY CHECKED ONE REASON, SKIP TO #38a.

37c. What is the primary factor that limits the number of clinical pathology training positions currently available? (CHECK ONLY ONE.)

- 1 Number of applicants
- 2 Funding for residency training
- 3 Funding for Ph.D. training
- 4 Number of faculty available to train candidates
- 5 Other → PLEASE SPECIFY BELOW

38a. Since 2002, have any trainees completed your clinical pathology training program?

- 1 Yes
- 2 No → SKIP TO #39

38b. How many?

_____ trainees

38c. How many were employed by each of the following after graduation? (SHOULD TOTAL NUMBER IN #38b.)

employed

- a. Academia..... _____
- b. Pharmaceutical companies..... _____
- c. Chemical companies _____
- d. Private diagnostic laboratories _____
- e. Government laboratories..... _____
- f. Contract research laboratories _____
- g. Self-employed _____
- h. Other types of institutions..... _____
- i. Not employed _____
- j. Don't know _____

39. How many of your current trainees are expected to complete your clinical pathology training program in the following years?

to complete

- a. 2008..... _____
- b. 2009..... _____
- c. 2010..... _____
- d. 2011..... _____
- e. 2012..... _____
- f. 2013 or later _____

40. How many training positions in your clinical pathology training program...

positions

- a. Were open in 2007? _____
- b. Will be open in 2008? _____
- c. Will be open in 2009? _____
- d. Will be open in 2010? _____

41. What is the major goal of your clinical pathology training program?

- 1 Produce ACVP board-eligible clinical pathologists
- 2 Produce ACVP board-certified clinical pathologists
- 3 Other → PLEASE SPECIFY BELOW

42. What could ACVP do to help your clinical pathology training program find more qualified candidates?

43. Other comments:

Thank you for your assistance!

Please return your completed questionnaire in the enclosed postage-paid envelope to

The University of Illinois at Chicago
Survey Research Laboratory
412 S. Peoria St., 6th Floor (M/C 336)
Chicago, IL 60607

REMINDER/THANK YOU POSTCARD

Front

Dear Colleague,

Recently we sent you a questionnaire from the American College of Veterinary Pathologists, the Society of Toxicologic Pathologists, and the American Society for Veterinary Clinical Pathologists that we would like you to complete. More information about the study can be found at: www.srl.uic.edu/vptrain.htm. If you have completed this questionnaire already, please disregard this notice. If you have not yet completed the questionnaire, we urge you to take time to do so as soon as possible. Please return your completed questionnaire in the postage-paid envelope sent with the original mailing.

If you have any questions or you need another copy of the questionnaire, please contact Kelly Ann Marzano at the Survey Research Laboratory at (312)996-6475 or by e-mail at kellym@srl.uic.edu. Thank you for your assistance.

Sincerely,
Kelly Ann Marzano

Back

THE UNIVERSITY OF ILLINOIS AT CHICAGO
Survey Research Laboratory
412 S. Peoria
Chicago, Illinois 60607

SRL Project 1037

Responses to Open-Ended Items

The following material represents the responses provided by all respondents. Each bullet point represents a separate response. In some categories, responses have been repeated, as the information that particular respondent provided covers more than one topic area.

Q3.7. Which of the following describes your anatomic pathology training program? Other (PLEASE SPECIFY)

3-year combined residency/M.S. program (n=3)

- 3-year Doctor of Veterinary Science (DVSc)
- 3-year residency and optional MS or PhD
- 3-year combined residing/MVSc nonthesis master's

3-year combined residency/Ph.D. program (n=2)

- 3-year residency and optional MS or PhD
- 3-year residency with transferral to other funding sources for PhD

Combined residency/Ph.D. program (n=2)

- 3-year residency followed by 3–5 years of PhD program
- 1) 3-year DVSC similar to residency and MSC, and 2) 3–5 year PhD often with applied pathology training (similar to residency + PhD)

Ph.D. program (n=1)

- PhD Alone

Other (n=6)

- NIH T32
- Fellowship (2 year) in the pathology of non-domestic animals
- 2–3 year zoo pathology program, minimum prerequisite 2-year general pathology residency, ophthalmic pathology program
- Many options depending on student
- An option for a 3rd year is available by mutual agreement
- We offer both a Mvet Science degree (24 month) & a Senior Residency (12 month) program & the programs can be – and often are – combined.

Q7g. Currently, how many training positions in your anatomic pathology training program are funded by each of the following sources? Other (PLEASE SPECIFY)

ACVP/STP (n=3)

- ACVP/STP (1) and Grants (3)
- ACVP/STP Ochoa fellow
- ACVP/STP coalition

Grants (n=2)

- ACVP/STP (1) and Grants (3)
- Research grants

Revenue/Own funds (n=5)

- One from college, other from diagnostic funds
- Self-supported
- Vet Med Diagnostic Lab
- Diagnostic lab revenue
- Income from fees through our Vet. Diagnostic Lab

Other (n=1)

- Institutional and [State] Aquarium

Q12c.g. Please indicate in the following the table the number of positions that were gained and/or lost since 2002 for each funding source. Other (PLEASE SPECIFY)

ACVP/STP (n=1)

- ACVP/STP fellow
- ACVP/STP

Grants (n=1)

- Research grants

Revenue/Own funds (n=1)

- Self-support

Other (n=1)

- Private aquarium

Q14b8. Which of the following reasons make it difficult for your anatomic pathology training program to recruit qualified candidates? Other (PLEASE SPECIFY)

Lack of supply of candidates (n=4)

- Finding qualified candidates
- Too few trainees
- 1) Other programs have earlier application deadlines, 2) Small pool of applicants for the fellowship (limited career opportunities)
- Competition; many open positions and too few candidates

Lack of interest in the profession/Profession seen as unattractive (n=3)

- No interest in anatomic pathology
- Amount of knowledge required is seen as large (program is challenging and the specialty requires lots of knowledge)

Competition (n=2)

- 1) Other programs have earlier application deadlines, 2) Small pool of applicants for the fellowship (limited career opportunities)
- Competition; many open positions and too few candidates
- Program doesn't have a track record/suitable history of success to attract stronger candidates. Perception as a smaller program without the amount of resources have, lack of visibility.
- Small program. No livestock.

Other (n=4)

- We often need fund/identify for spouses who are often professionals themselves
- Don't know the reason
- The difficulty of the board exam

Q14c7. What is the primary reason it is difficult for your anatomic pathology training program to recruit qualified candidates? Other (PLEASE SPECIFY)

Competition (n=2)

- Surgery, dermatology, oncology
- There are many specialties now available, and graduates of these are very well paid.

Lack of supply (n=1)

- Subspecialty of zoo and wildlife pathology is very small.

Q17b5. What factors limit the number (of anatomic pathology training positions that are currently available)? Other (PLEASE SPECIFY)

Space and lack of equipment (n=4)

- Space for residents/equipment/support
- Space
- Resources – office space, computer/microscope
- Office space, number of microscopes

Case material (n=3)

- Case load
- Case material
- Limitations on case material, which comes strictly from our teaching hospital

Funding (n=1)

- T32 funding limits

Other (n=2)

- Few Canadian DVMs wanting to do pathology PhDs, although funding is available for Canadian applicants
- No incentive. Faculty receive no credit for training – not a promotable activity

Q17c.5. What is the primary factor that limits the number of anatomic pathology training positions currently available? Other (PLEASE SPECIFY)

Funding (n=2)

- Funding for residency training and PhD training
- Funding for residency training and PhD training

Case material (n=1)

- Case material

Other (n=1)

- No incentive – see 17b

Q21. What is the major goal of your anatomic pathology training program? Other (PLEASE SPECIFY)

ACVP Board eligible (n=5)

- Produce veterinary scientists with board-eligibility
- Board eligible and produce pathologists with research expertise and training
- Board eligible and provide trainee with course preparation for doctoral work MS
- Board eligible and for PhD students, research training is the major goal
- Produce employable, competent, entry-level diagnostic pathologists who are ACVP Board eligible

ACVP Board certified (n=4)

- To produce ACVP board-certified anatomic pathologists AND excellent PhDs
- Produce ACVP Board certified anatomic pathologists with competency in zoo and wildlife pathology
- ACVP certified and PhD

- Board certified and we hope that most go into academic programs including public diagnostic labs associated with veterinary schools/colleges

Focus on research training (n=3)

- Produce research oriented academic pathologists – They are welcome to take boards but that is optional
- Board eligible and produce pathologists with research expertise and training
- Board eligible and for PhD students, research training is the major goal
- Train veterinarians to be independent NIH-funded investigators

Other (n=3)

- Produce veterinary pathologists
- Train excellent anatomic pathologists

Q22. What could ACVP do to help your anatomic pathology training program find more qualified candidates?

Increase visibility/awareness/understanding (n=11)

- Continue to increase visibility of vet. pathology as a career choice. Lobby admissions offices to look at recruiting more “nontraditional/nonclinical” students into veterinary school – to expand our recruitment base.
- Continue to advertise and help recruit veterinary medical students by discussing needs and opportunities.
- Continue to promote as much as possible, pathology as a viable specialty to undergrad DVM students in North America. Perhaps fund a dynamic pathologist to go to vet schools and give promotional talk to ACVP student chapters.
- Act as information clearinghouse for: 1) Pathology externships 2) Pathology training programs. Career counseling for DVM students. More active promotion of pathology in Vet schools. Continued growth of funding for training programs.
- Prepare attractive entertaining documentary about veterinary pathologist careers with reference also to salaries relative to companion animal practice, and the lifestyle benefits compared to practice. Target females especially. Make available on DVD for use in pre-veterinary courses.

- We have repeatedly tried to get funding for 3-year residents from ACVP/STP. Clearly that mechanism is not designed to fund comparative medicine programs. There should be more understanding of the importance of comparative medicine programs to the field of pathology.
- Measures to highlight the interesting aspects and career benefits for DVM students. Funding for programs, ACVP STP coalition is great. Possibly provide leadership for lobbying government for program funding.
- Support an increase in the number of Vet students across the country – especially males.
- Continue to increase visibility of veterinary pathology to professional students.
- Finding trainees is not our problem, but I would like to see ACVP continue to grow its profile within the DVM curriculum in colleges.
- Provide senior students at vet schools with comprehensive information regarding available training programs.

Funding (n=8)

- Help identify a source of money to fund U.S. citizens to train in Canada.
- Continue to promote as much as possible, pathology as a viable specialty to undergrad

DVM students in North America. Perhaps fund a dynamic pathologist to go to vet schools and give promotional talk to ACVP student chapters.

- Act as information clearinghouse for: 1) Pathology externships 2) Pathology training programs. Career counseling for DVM students. More active promotion of pathology in Vet schools. Continued growth of funding for training programs.
- 1) Identify sources of support for increased salary or loan reduction. Many students carry too much debt. 2) Support the trainers. Salary stipends, etc.
- We have repeatedly tried to get funding for 3-year residents from ACVP/STP. Clearly that mechanism is not designed to fund comparative medicine programs. There should be more understanding of the importance of comparative medicine programs to the field of pathology.
- Measures to highlight the interesting aspects and career benefits, for DVM students. Funding for programs, ACVP STP coalition is great. Possibly provide leadership for lobbying government for program funding.
- For us, it is all about funding and making the activity worthwhile to faculty. Like most schools of medicine ours is nearly totally dependent on “soft” money. Anything that is in the way of raising this money is a distraction. Training can be a large distraction unless it benefits faculty by supporting their salaries as well as trainee salaries.
- 1) To create resident/residency program matching system in which residents are ranked by situations and residency program are ranked by applicants. 2) I have an opinion that there is no shortage of qualified applicants but there is shortage of residency positions. Need more funding!

Provide career resources (n=1)

- Act as information clearinghouse for: 1) Pathology externships 2) Pathology training programs. Career counseling for DVM students. More active promotion of pathology in Vet schools. Continued growth of funding for training programs.

Academic/Faculty needs (n=3)

- Finding more applicants is not a major problem for us. Having enough faculty available to teach the residents that we have and having enough time/faculty to devote to resident training is more of a concern. I don't have a solution for that problem.

- Do something to encourage trainees to remain in academia once completing their programs. Convince administrators in universities with training programs to do all they can to retain pathology faculty. From all the observations I have made in the past several years, administrators, including those who are veterinary pathologists, have the most part failed miserably in retaining faculty in training programs.
- We have sufficient qualified candidates. In 2-3 years there will be insufficient individuals left to train the candidates as it is hard to keep them in academia due to poor salary/high workload.

Support of ACVP efforts and chapters (n=4)

- 1) Continue support/encouragement of pathology clubs, veterinary student participation in ACVP meeting (poster, platform presentations, forum, reception, etc.) 2) Continue ACVP/STP coalition efforts.
- Continue supporting and perhaps increasing support of ACVP student chapters.
- 1. Work with ACVP/STP coalition and other entities to increase the number of funded training positions. 2. Provide additional travel grant dollars to ACVP affiliate clubs to increase veterinary student participation, this would increase the number and quality of residency applicants.
- 1) Keep supporting pathology club. 2) Get first-time pass rate on boards up around 70%. 3) Promote summer externships.

Create “matching program” (n=2)

- Promote experimental pathology. Recruit pre-vets into nonclinical careers. Promote “matching program” or agreed-upon offer date for resident candidates.
- 1) To create resident/residency program matching system in which residents are ranked by situations and residency program are ranked by applicants. 2) I have an opinion that there is no shortage of qualified applicants but there is shortage of residency positions. Need more funding!

Other (n=1)

- Standardize application deadlines and acceptance dates for residencies.

Q23.7. Which of the following describes your clinical pathology training program? Other (PLEASE SPECIFY)

3-year combined residency/M.S. program (n=1)

- 3-year combined residency/MVSC program (Master of Veterinary Science--different from MSC)

3-year combined residency/Ph.D. program (n=1)

- 3=DVSc program

Other (n=3)

- With option for 3rd year as lecturer
- Already finished residency and 1-2 year study for board
- 2 year MVetSc and 1-year Senior Residency

Q27g. Currently, how many training positions in your clinical pathology training program are funded by the following sources? Other (PLEASE SPECIFY)

Grants (n=3)

- Grant
- Fee income, NIH grant
- Most are supported by PI years 2-4 from various sources of funding, which may include federal funding like NIH or mouse training grants

Other (n=2)

- Program fundraising, CE, Caribbean school education
- Interprovincial agreement and Equine or Companion Animal fellowship

Revenue/Own funds (n=3)

- Fee income, NIH grant
- Revenue from clinical pathology lab
- Revenue from diagnostic service

Q32c.g. Please indicate in the following the table the number of positions that were gained and/or lost in the last five years for each funding source. Other (PLEASE SPECIFY)

- [Large diagnostic laboratory]

Q34b7: Which of the following reasons make it difficult for your clinical pathology training program to recruit qualified candidates? "Candidates choose other specialties" (PLEASE SPECIFY)

Clinical specialties (n=3)

- Internal medicine
- Oncology/internal medicine
- Internal medicine

Other (n=2)

- Clinical specialties (especially oncology, int. med) attracting lots of students.
- Ophthalmology, surgery.

Q34b8. Which of the following reasons make it difficult for your clinical pathology training program to recruit qualified candidates? Other (PLEASE SPECIFY)

Competition (n=1)

- Choose other institutions

Other (n=2)

- Don't understand career opportunities
- Practice beckons – then hard to return to grad school

Q37b5. What factors limit the number of clinical pathology training positions that are currently available? Other (PLEASE SPECIFY)

- Space
- We don't like training more than 3 at a time.
- Space limitations
- Service load, training materials, and space

Q37c. What is the primary factor that limits the number of clinical pathology training positions currently available? Other (PLEASE SPECIFY)

No open-ended responses.

Q41.3. What is the major goal of your clinical pathology training program? Other (PLEASE SPECIFY)

ACVP Board eligibility (n=1)

- PhD and residency scientists that are board eligible

ACVP Board-certified (n=2)

- Produce ACVP board-certified clinical pathologists with a PhD
- Board certified and we would prefer they proceed to graduate studies and pursue a career in academia

Other (n=5)

- Both, depends on the student and how aggressive they are in their studies
 - Candidates ready for industry, diagnostics or academics depending on the interest
 - Eligible but not sure how to answer – of course we want them certified, but that happens AFTER our program
 - Produce excellent clinical pathologists
 - Train diagnostic clinical pathologists
-

Q42. What could ACVP do to help your clinical pathology training program find more qualified candidates?

Increase visibility/awareness/understanding (n=4)

- More visible presence in the veterinary schools. We have a pathology club and we encourage students to join the society for clinical pathology.
- Increase awareness of clinical pathology as a career.
- Continue to increase awareness of pathology as a career – pathology clubs, outreach, interactive Web site are potential avenues to “advertise” our specialty.
- Any financial support would be helpful (the Industry Coalition effort is a nice one). Help with marketing the ACVP to veterinary students (the CD sent from ACVP for doing seminars to students is helpful but students find it quite dull). Need more jazzy image!

Funding (n=8)

- Would like to offer more residencies but lack funding.
- Universities can often find some funds for a residency program if a material or partial funding is provided. The STP/AVCP residency program may get more people into training programs if they partially fund twice as many positions with the institutions making up the difference in dollars. I am certain our institution would readily agree to this.
- We need financial support for non-Canadians.
- Any financial support would be helpful (the Industry Coalition effort is a nice one). Help

with marketing the ACVP to veterinary students (the CD sent from ACVP for doing seminars to students is helpful but students find it quite dull). Need more jazzy image!

- Provide more mechanisms for funding residents.
- Help recruit more students into the field through pathology club sessions, the meetings (ACVM, ACVP), continued education forums. Provide funding for externship programs.
- Career education program for Veterinary students so they understand what a clinical pathologist does (more of a mystery to them than anatomic pathology) & what career opportunities exist; help find funding for positions.
- ACVP student chapters (L & anatomic) – excellent effort. Include Canadian residents more in ACVP activities. Increase number of awards.

Recruitment (n=2)

- Help recruit more students into the field through pathology club sessions, the meetings (ACVM, ACVP), continued education forums. Provide funding for externship programs.
- Continue efforts at enticements of DVM students, provide additional externship opportunities.

Career resources (n=4)

- Continue efforts at enticements of DVM students, provide additional externship opportunities.
-

- Help recruit more students into the field through pathology club sessions, the meetings (ACVM, ACVP), continued education forums. Provide funding for externship programs.
- Career education program for Veterinary students so they understand what a clinical pathologist does (more of a mystery to them than anatomic pathology) and what career opportunities exist; help find funding for positions.
- 1) Emphasize research as a career for vet students. 2) Provide research opportunities for interested students. 3) Provide externships for students to research labs or pharmaceutical companies.

Improve competitiveness (n=1)

- Keep salaries and job opportunity for ACVP diplomats competitive. A recent development that has been a negative for our program is the demand by the NCSU-CVM hospital that our residents provide 24-7 emergency services.

Improve examination (n=1)

- 1) Have a better examination so that candidates are not scared away from the discipline. 2) Promote diagnostic and service careers. 3) Sponsor endowed chairs of clinical pathology with the purpose of a training institute.

Other (n=5)

- Primary limitation is institutional – low stipend, marginal benefits (esp. medical). Other problem is very high debt load of students – who borrow easily and greatly. Not sure how ACVP can attract students away from the “hot” areas (oncology, int. medicine) of post-graduate clinical training...
- We have not had difficulty with recruitment. My impression is that the use of training programs on the ASVCP Web site is the primary source of problem information for potential candidates.
- The ASCVP provides a convenient link on their Web site for each program. This has helped tremendously with candidate recruitment.
- Can't think of anything.
- Nothing.

Q43. If you have any other comments you would like to share regarding the recruitment of veterinary students into anatomic or clinical pathology training programs, please do so here:

Faculty (n=3)

- We have a clinical pathology residency program but have not been able to take any residents in the last 6 years due to insufficient faculty numbers to train them.
- Nice survey – we need to get a handle on where we are. It is imperative to protect number of faculty and increase opportunity for residents.
- Training residents is one of our top priorities – very pleasurable but also extremely time consuming if a good job is done. It would be hard to substantially up the number of training programs here unless there was also an expansion of faculty positions so people are available to train/run programs.

Need to change board process/Put less emphasis on boards (n=4)

- This survey reflects a very narrow mindset as to the importance of veterinary pathologists. If the focus is on the boards then the drug companies need to pay for the training. In my opinion we should be training world-class integrative biologists. Veterinarians have the broadest training in comparative medicine and pathology of any health profession. This background

coupled with advanced training in anatomic and clinical pathology can result in extraordinary scientists with scientific advances. Boards are a step along the way and not an end in itself.

- Actually, our number of qualified applicants may be increasing slightly, but they are becoming more and more foreign applicants. We have not received a single US citizen applicant for our current position. Only in about the last 5 years have I heard increasing “hall talk” among vet students how they liked pathology, but were concerned that after 5–6 years of training, they still might not be able to pass boards, so they go to clinical specialties. IMHO our board is designed for exclusivity, not to test minimal competency, and that needs to change.
- It is important to not only produce board-certified pathologists but ensure that this also means well-rounded pathologists – for example, there are areas not emphasized in programs that are still very important in clinical pathology. For example, many programs have limited exposure to toxicology studies. With a goal to ensure well-rounded pathologists, a useful approach might be to establish basic criteria for all residency programs.

- Our program is to teach veterinarians who want to be pathologists. Whether or not they sit for ACVP boards is their business. Men can do the hard labor of being pathologists better than women, who prefer lab animals, small specimen or biopsy service.

Training is important (n=5)

- Please convince department chairs & deans that training clinical pathology residents is as important (or more important) than basic research.
- We need to do a better job of helping University/ College administrators recognize the importance of residing training and of having well trained pathologists on their faculty. I'm concerned that the specialty of pathology is not getting recognition/visibility among administrators as some of the other veterinary specialties.
- I think one way to improve training here and elsewhere is to do more sharing of resources. Thanks for doing this survey – will be very interested in results.
- Training residents is one of our top priorities – very pleasurable but also extremely time consuming if a good job is done. It would be hard to substantially up the number of training programs here unless there was also an expansion of faculty positions so people are available to train/run programs.
- Our current third position is a soft money situation. Having more opportunities for academic, industrial, and commercial investment in training programs will ensure being able to train all those interested in pursuing clinical pathology as a career.

Increase competitiveness/awareness (n=1)

- Many if not a large majority of current pre-veterinary & veterinarians at age 10–12 years. These students are focused on one career goal, i.e., to become a companion animal veterinarian. The curriculum, facilities, & environment (including CVM faculty) of many colleges foster this career focus. Exposure of other career paths, e.g., pathology during pre-vet & veterinary college might persuade some to change their focus. Good salaries (competitive with practice) during pathology training would be very helpful.

Funding (n=5)

- The ACVP student chapters do a good job of prompting pathology as a career to DVM students, so keep funding their important program.
- Need more funding, unsuccessful bid for STP position, hope another one is available. Trying to continue another industry funding source.
- We have seen an increase in qualified anatomic pathology candidates during past 5 years. We are limited by funding as our program in anatomic pathology could train at least 4 more individuals and our clinical pathology program at least 1 more individual.
- To create residency/resident program matching system in which residents are ranked by institutions & residency programs are ranked by applicants. 2) I have an opinion that there is no shortage of qualified applicants but there is shortage of residency positions. Need more funding!
- Our current third position is a soft money situation. Having more opportunities for academic, industrial, and commercial investment in training programs will ensure being able to train all those interested in pursuing clinical pathology as a career.

Create matching system (n=1)

- To create residency/resident program matching system in which residents are ranked by institutions and residency programs are ranked by applicants. 2) I have an opinion that there is no shortage of qualified applicants but there is shortage of residency positions. Need more funding!

Other (n=3)

- I think that the ACVP is thinking too narrowly about pathology training, with the belief that only vet schools do a proficient job of pathology training. As you can see, the majority of our trainees end up in academic positions; the majority of them also become ACVP board certified. We have trained many of the leaders in pathology – for over 40 years! Not just our comparative medicine program, but those in comparative medicine departments and private research centers all over the country.
- Some day I would like to see an ACVP document that does NOT abbreviate the ASVCP incorrectly.
- We hope to add a 2nd resident position in 2009.