

A mixed-method pilot study investigating challenges experienced by mixed animal veterinarians in practice and their private practice experiences prior to graduation

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Abstract

The attrition of veterinarians from mixed animal practice is concerning to the industry. The objectives of this pilot study were to describe the experiences that students gain in private practices prior to graduation, and to investigate the impact of these experiences on retention in mixed animal practice. Thirty-four veterinarians within 10 years post-graduation, who were employed in mixed practice as new graduates, responded to an online questionnaire. Four of these veterinarians also participated in individual interviews. During pre-clinical years of veterinary school, 88.2% (30/34) spent time in practice (both paid and/or unpaid) and 97% (33/34) undertook private practice experiences (externships) in their clinical year. Most frequently reported challenges of mixed practice were working more hours than scheduled followed by weekend work, on call and financial issues equally. Upon graduation, 68.0% (19/28) of veterinarians remaining in mixed practice felt moderately or extremely prepared, whereas all 6 that had left mixed practice felt moderately or extremely unprepared for challenges of mixed practice. Of those veterinarians responding, 85.3% (29/34) felt that externships prepared them the most for a career as a mixed animal practitioner. Three themes emerged from the interviews: working conditions; versatility of medicine; and business ability and knowledge. This study highlights the role of externships in preparing students for life in mixed animal practice.

Introduction

The attrition rate for the veterinary profession is reported to be higher than that of other industries.¹ Several studies have examined the issues surrounding recruitment of rural and food animal practitioners,²⁻⁵ while fewer have examined retention.² In the VetFutures study from the United Kingdom, 17% and 21% of veterinarians, 1-4 and 5-8 years post-graduation, respectively, had or were considering changing career areas within veterinary medicine from one type of practice to another.⁶ The potential underlying reasons for loss of veterinarians from practice have been investigated by many studies, primarily focusing on small animal and urban practices. Reported environmental conditions that lead to occupational stress, and ultimately attrition from the industry, include lack

of managerial and peer support, number of hours worked, professional mistakes, client expectations, clerical tasks, litigation, on call work and client complaints.⁷ Nett et al. (2015) reported similar findings alongside educational debt, animal deaths and dealing with grief.⁸ More recently, Moses et al. (2018) identified moral and ethical situations faced in practice as causes of stress and poor well-being of veterinarians.⁹ Recently graduated veterinarians appear to be at greater risk of occupational stress,¹⁰ while personality type has also been suggested as an important cause of burnout.¹⁰ There is also evidence that attrition from practice is a particular issue for mixed practice veterinarians⁶ and rural practitioners.² In addition, in the VetFutures study, over half (58%) of veterinary students in years 1-3 of their degree course wanted to work in mixed practice, compared to only 43% of students in years 4-6 (NB: U.K. veterinary education can be 6 years) indicating a shift in interest during veterinary school.⁶ The study reported that only 75% of graduates reporting that their degree prepared them for their area of work.⁶ A concomitant increase in interest in working in small animal practice was noted. However, factors that may have contributed to the decrease in interest for mixed practice were not investigated. Issues unique to food animal and rural veterinarians, who are more likely to be mixed animal practitioners, include farm profitability, lack of social and cultural opportunities, lack of access to jobs for spouses and lack of childcare.² However, to our knowledge, there have been no studies specifically investigating the benefits of externships to students and graduates. For the purposes of this study, an externship is a clinical experience, which may be for academic credit in private practice, outside of a university hospital. Depending on the veterinary college of study, veterinary students may have minimal experience of private practice prior to graduation, instead undertaking the majority of their rotations in teaching hospital settings. In the U.K., the Royal College of Veterinary Surgeons that accredits veterinary programs, requires 26 weeks of clinical extra-mural study, which is the equivalent of externships in the U.S.¹² However, in contrast to the U.K., there is no requirements from the accrediting body in the U.S., the American Veterinary Medical Association Council on Education (AVMA-COE), on externships. The amount of externship time may be as little as a single two-week externship in a traditional

program¹¹ to as many as 32 weeks in private practice in a distributive program (personal communication, LMU). The purpose of an externship has been defined as an opportunity to “provide realism about private practice and non-traditional employment”.¹¹

The objectives of this mixed method pilot study were: 1) to describe the different experiences that students gain in private practices prior to and during veterinary school (focusing on mixed animal practice) and 2) to determine the impact of these experiences on retention in mixed animal practice.

Materials and methods

Quantitative study

Veterinarians were recruited using social media platforms, membership email lists of state veterinary medical associations, listserve emails of the American Association of Bovine Practitioners and Small Ruminant Practitioners, and emails to practices in the Lincoln Memorial University Clinical Affiliates program. Inclusion parameters to complete the survey were veterinarians in the United States, having recently graduated from a U.S.-based veterinary school, and initial employment in mixed practice. Mixed practice was defined for this survey as providing service to more than one species. All selected respondents reported practicing with both large and small species. Participants completed an anonymous, electronic questionnaire (using Qualtrics). The questionnaire was comprised of questions including demographics, education, veterinary experiences both paid and unpaid prior to, and during, veterinary school, current employment type and any changes in employment, and challenges experienced by graduates. See Appendix 1 for the survey questions. Paid and unpaid veterinary experiences were undefined to allow for broader responses. Nine questions utilized a 5-point Likert-response format examining veterinarians’ opinions on challenges of mixed practice, and whether externships and veterinary employment prior to graduation prepared graduates for these challenges. Participants were asked to leave their contact details if they wished to participate in an interview to gather more specific details of their veterinary experiences prior to graduation and the challenges of mixed practice. Descriptive statistics was performed on the survey responses. A chi-squared test was performed to investigate any significance in weeks of experience (unpaid prior to veterinary school and externships in clinical years) <equal 6 weeks and >equal 7 weeks between those veterinarians who stayed in mixed practice and those who left mixed animal practice. When describing the Likert scale responses, the moderately and extremely categories were combined.

Qualitative study

Practitioners who participated in the quantitative phase of the study who indicated they were interested in participating in a semi-structured interview were contacted and undertook an approximately 20-minute semi-structured interview with investigator Philippa Gibbons via telephone. See Appendix 2 for interview questions. These interviews covered current challenges, involvement in the veterinary field prior to veterinary school, externships, and whether any veterinarians in private practice addressed challenges of mixed practice (i.e. discussion of life in mixed practice was had between the student and the veterinarian). The interviews were recorded and then transcribed verbatim by two authors (JW and KW). Thematic

analysis was then used to analyze the interview data.¹³ The text was read in its entirety and areas that reflected challenges of mixed practice were identified by each author. The list of challenges identified in the initial analysis was discussed with the primary investigator and these individual challenges ultimately grouped into 3 overarching themes.¹³

This study was approved by the Institutional Review Board at Lincoln Memorial University.

Results

Forty initial respondents completed the questionnaire fully. Four respondents were excluded as they reported being more than 10 years from graduation (furthest graduated that was included in the study was 2013) and 2 others were excluded as they were not in mixed practice as a new graduate. The questionnaire defined mixed practice broadly as “more than one species”, but all respondents reported practicing with both large and small species, with varying percentages. Of the 34 respondents included in the final results, 6 veterinarians (17.6%) reported they were no longer in mixed-animal practice, and 4 of the 6 left before 3-4 years. Those who were no longer in mixed animal practice were in companion animal (n = 4), government (n = 1) and other (n = 1) at the time of the survey. Males constituted 14.7% and females 85.3% of respondents. Twenty-two states were represented, and all graduated from a veterinary school with teaching hospital-based clinical year(s). Paid work in a veterinary practice prior to veterinary school was undertaken by 22/34 (64.7%) of respondents, with 16/22 (72.2%) of those working <1 year. The primary positions held by those who had worked were as veterinary assistants (n = 17) and unlicensed technicians (n = 10). Respondents could choose more than one type of position. Unpaid work in private practice prior to veterinary school was undertaken by 20/34 (58.8%) of respondents, with 14/34 (41.2%) spending 9 or more weeks in mixed practices.

During pre-clinical years in veterinary school, only 5/34 (14.7%) of veterinarians reported attending a school where externships during this time were required, however 88.2% (30/34) spent time in practice (both paid and/or unpaid) during this time. During the clinical year(s), 10/34 (29.4%) reported their veterinary school did not require clinical externships. Only 1 responding veterinarian did not undertake any externships during the clinical year. Of those undertaking externships, 20/34 (58.8%) had 6 or fewer weeks total of externships in any kind of practice (mixed vs. non mixed). Of those staying in practice, 10/28 were employed in practice prior to veterinary school, and 2/6 of those who left practice were employed. Sixteen of 28 veterinarians staying in mixed practice had more than 6 weeks of unpaid experience prior to veterinary school and 5/6 leaving. Twenty-two of 28 staying in mixed practice and 4/6 leaving mixed practice undertook more than 6 weeks of externships in clinical year. There was no significant difference between any of these experiences ($P > 0.05$). Twelve veterinarians reported being employed by a non-university veterinary practice at some point during veterinary school. Two had been employed or undertaken externships in the veterinary practice where they were first employed as a new graduate.

The most frequent challenges reported by the veterinarians in the questionnaire were working more hours than scheduled, followed by weekend work, on-call work and financial issues (Table 2). When asked regarding their career, 26/34 (76.5%) reported being moderately or extremely satisfied with their

Table 1: Distribution of externships in mixed practice undertaken by veterinarians (26 respondents had preclinical experience in mixed practice and 34 respondents reported mixed practice experience during clinical rotations)

Weeks of experience	Pre-clinical experience (n = 26)		Clinical experience (n = 34)	
	Veterinarians staying in mixed practice	Veterinarians left mixed practice	Veterinarians staying in mixed practice	Veterinarians left mixed practice
0-2	4	2	3	1
3-4	6	3	8	3
5-6	5	0	6	0
7-8	1	0	4	2
>9	4	1	7	0

Table 2: Challenges reported by survey respondents. Respondents could check as many as applicable.

Challenge	Veterinarians staying in mixed practice (n = 23, 5 did not respond)	Veterinarians left mixed practice (n = 6)
On call	10	4
Working more hours than scheduled	13	3
Weekend work	12	2
Working outside in all weathers	7	3
Financial (student loans, income)	11	3
Client financial restrictions	11	2
Clients not trusting new graduates	7	1
Personal stressors (home/family)	8	1
Lack of managerial support	1	2
Lack of technical support	4	0
Euthanasia	7	0
Lack of equipment	6	0

choice and 25/34 (73.5%) moderately or extremely satisfied with their current job. When asked about preparation for challenges in mixed practice, 19/28 (67.9%) of participants still in mixed practice felt moderately or extremely prepared, whereas all 6 veterinarians who left felt moderately or extremely unprepared. Externships and veterinary work (paid or unpaid) prior to veterinary school prepared veterinarians the most for a career in mixed practice: (24/34) 70.6% reported that paid and/or unpaid work prior to veterinary school and externships moderately prepared or extremely well prepared them the challenges of practice, while only 17/34 (50%) felt university-provided in-hospital rotations moderately or extremely prepared them for their chosen career. All 6 veterinarians who had left mixed practice reported feeling moderately or extremely unprepared for the challenges of mixed practice, and 3 were dissatisfied with their career choice. Only 2/6 (33.3%) veterinarians who had left practice recalled veterinarians with whom they gained externship or pre-clinical private practice experience discuss the challenges of mixed practice, compared to 18/28 (64.0%) who remained in mixed practice recalling discussing mixed practice challenges during their externship or pre-clinical experience.

Qualitative

Four interviews were conducted. The interviews took between 14.30 minutes and 18.28 minutes. All four veterinarians participating in interviews were in mixed practice as a new graduate. All but one veterinarian were still in mixed practice, although only 1 remained in the same practice since graduation. One veterinarian was currently in house call companion animal practice, although saw a few small ruminants. Of those not remaining in the same practice, two had started their own mobile practices. The practice breakdown of the 4 interviewees were as follows: 50% food animal; primarily small animal with small ruminant house call; predominant beef cattle ambulatory; and mobile van small animal/farm animal.

The interviews revealed 3 challenging themes: working conditions, versatility of medicine and business ability and knowledge. Areas discussed for working conditions included long hours and overbooking of appointments, lack of technical help, balancing work and life in a small town, on call, lack of mentorship, poor standard of care, and client demands. Versatility of medicine was described as practicing on multiple species and multiple disciplines (e.g. dentistry, surgery,

medicine). The versatility of medicine was a reason that veterinarians were attracted to mixed animal, but it also provided a source of challenge. One veterinarian, for example, described the challenges of versatility of medicine as feeling a “jack of all trades, master of none... there are things I enjoy but I know I could be better at if I specifically worked in small or large animal” and another “other things that are difficult are just transitioning between species and feeling like you can never master anything because you never get to see enough of one thing to get good at it.” Business ability and knowledge was highlighted by the two veterinarians who had started their own practice. Reasons for leaving mixed practice included practice management and personnel conflict issues, inability to buy into the practice, work life balance and a move toward small animal (undesirable species focus) by the practice. All interviewees felt that externships prepared them for life in mixed practice. Quotes from the interviewees that demonstrated how externships prepared them included, “I felt like I had good day 1 understanding of derm... wellness visits, just the things you see every day”, “hands on knowledge” and “the business side of it... the ins and outs of being ...mobile and mixed animal” and “see the flexibility of motion and brain power.”

Discussion

The demographics of the population sampled here (male 14.7% and females 85.3%) had a lower percentage of males compared to the data reported by the AVMA (35.9% male)¹⁴ and by a survey of food supply veterinarians 50.4%.¹⁵ In a 2020 survey of AVMA members, only 5.4% of veterinarians were reported to be in mixed animal practice, however, this increased to 17.7% when food animal predominant and companion animal predominant were included in the definition of a mixed animal practitioner, which may also reflect the definition of mixed animal practitioner in this study (more than one species).¹⁴ Total veterinarians in the U.S. potentially in mixed practice was calculated to be 13,333, giving us a sample of only 0.3% of the mixed animal veterinarian population. Our sample size was small, and response to the survey was low, which limits conclusions that can be drawn on the effect of externships on recruitment in mixed animal practice. Only 17.6% of veterinarians had left mixed practice in our sample population, which is almost identical to that reported by Andrus (17%).¹⁵ The VetFutures report from the U.K. found that 26% of veterinarians who started in mixed practice were considering changing or had changed.⁶ Andrus et al. reported that of the mixed practitioners changing career focus, the most common area to move to was companion animal followed by government as reflected also in our study.¹⁵ Identifying veterinarians who had left the work force entirely rather than changing species was challenging as they were likely no longer members of professional organizations or social media groups, and we did not identify any veterinarians no longer in any form of veterinary career.

This pilot study demonstrates the wide range of experiences students have prior to and during veterinary school in terms of time spent in private practices. There is no previously published data on the amount of paid or unpaid veterinary experience veterinary students have prior to veterinary school. The study by Sprecher, et al, (2002) found that 87.6% of students enrolled in at least one externship, and of these, 73.0% were in private practice with 47.4% in small or mixed animal practice.¹¹ The length, number and type of externships required, and oversight of the experience, varies between institutions. Our survey highlights students' desire to undertake externships as indicated by 58.8% of students choosing to undertake

more weeks of clinical year externships than required. The respondents reported that externships prepared them the most for the challenges of mixed practice, followed by paid or unpaid work prior to veterinary school, with teaching hospital rotations preparing them the least. The interviewees also reported that externships were key in preparing them for practice. This finding highlights the importance of including time in private practice for those students who are interested in pursuing clinical practice and in particular within their species or career area of interest. Fewer veterinarians who had left practice recalled veterinarians they encountered during paid or unpaid work during veterinary school discussing challenges of practice with them compared to those veterinarians who stayed in mixed practice. This highlights the potential need for private practitioners to undertake these discussions with veterinary students. This study did not seek to thoroughly evaluate externship experiences of veterinary students, indicating an area for future investigation.

The most frequent challenges of mixed practice that were identified by the survey were on call, working more hours than scheduled, weekend work and financial issues. These challenges are not unique to mixed animal practice, although previously published studies have not considered mixed practitioners as a separate entity. Many studies have examined the recruitment challenge of food supply veterinary medicine,^{2-5,16} while fewer have looked at the causative agents of retention issues in food animal medicine.^{2,15} The Council on Agricultural Science and Technology (CAST) report lists student debt, family concerns, lack of mentorship, continuing education opportunities, salary/benefits, trust in the community and medical equipment accessibility as key challenges in rural/food animal practice. Rural practice is often a mixed animal clinic, therefore, these challenges are not unique to exclusive food supply veterinarians. The VetFutures report indicated less attrition in food animal exclusive veterinarians, but most attrition in mixed animal practice.⁶ In a study by Gwinner et al. (2006) students interested in food supply veterinary medicine recognized the need for on call and weekend work.⁴

The qualitative analysis identified 3 themes: working conditions, business ability and knowledge and versatility of medicine. Financial challenges (income, student debt) were not raised as challenges in this small study, and the reason for this was not explored during the interviews. The “working conditions” theme covered the major areas of working hours and on call, but also raised client demands and work life balance. The second theme raised during the interviews was the “business challenges”. As 2 of the 4 veterinarians had pursued solo business ventures upon leaving their first mixed practice, this likely emphasized this theme. Both of these veterinarians, however, indicated their reason for pursuing this practice style was to improve work life balance and to practice in the manner they would desire, again reinforcing the working conditions theme as being important.

The final theme was the challenge of “versatility of medicine”. This challenge has not been reported previously in the literature, and was not an option for respondents of the survey. Interviewees described having to be a “jack of all trades”, with the variation of different species encountered, and the necessity to switch between individual and herd level and transition from primary to secondary care levels. None of the participants reported that this was a negative challenge – in fact, they all discussed that this was one of the reasons they entered mixed practice – but nevertheless, it was described

as a challenge. This challenge is unique to mixed animal practice, which is difficult to replicate in a teaching hospital. This highlights the potential benefits of providing students time in private mixed practice while in school, by witnessing how private practitioners handle daily challenges. One interviewee indicated this was an area witnessed as a student on externship. As the profession requires the quality of clinical medicine to improve in all sectors (e.g. ultrasound examination by general practitioners becoming routine), omnicompetence becomes a challenge in mixed practice compared to single species. Whereas some of the other challenges including working conditions, financial challenges and business ability are not unique to mixed practice.⁷⁻⁹ Interviewees did not raise some challenges specifically mentioned by the CAST study, including spouse employment and childcare issues in rural areas. However, 1/4 interviewees moved to their home rural area with their spouses. In addition, the sample size of interviewees in this study was very small. Despite this, at least 2 veterinarians discussed challenges that fit into each of the 3 themes. Two interviewees raised the issue of versatility of medicine: this is an area which should be examined further in future studies as this represents the first report of this in the veterinary literature investigating attrition from practice.

In 2003, the AAVMC published a special report on recommendations to ensure the supply of veterinarians into population health and public practice. Externship or private practice experience was not discussed, although non-veterinary teaching hospital rotations were recommended.¹⁶ The VetFutures study recommended modules on managing stress, personal development and work life balance, more teaching of business and financial skills and increasing EMS (extramural studies – externship) placement settings, e.g. industry.⁶ The 2020 CAST paper addresses the challenges of both recruitment and retention of food animal veterinarians.²

Mentoring and veterinary role models have been discussed as methods to attract students to food supply veterinary careers, but the role of mentors in preventing attrition from food supply (which often includes mixed practice) has not been evaluated previously.³ Paid 8-week-long externships and mentorship programs were ranked highly in the potential effectiveness to attract students to food supply veterinary medicine. We did not specifically ask whether externships were paid in our survey. Subsequently, participants may have listed paid externships as paid veterinary work, which may have affected survey responses.

Conclusions

Mixed animal practitioners may have unique challenges, especially in the area of versatility of medicine, which should be explored further. Participants reported that externships prepared them for life in practice, therefore, students wishing to increase their confidence in pursuing mixed animal practice should seek experience before and during veterinary school. Veterinary schools that desire to increase graduate confidence should look to provide students with real-world externship experiences. Veterinary practices looking to fill mixed animal veterinary positions should consider offering pre-veterinary and veterinary students opportunities to work at their practices. Good student support and mentorship, along with realistic discussion of life in mixed practice during this time, is also important. The amount of time exploring, working and training in a mixed animal practice prior to graduation may affect new graduate confidence and long-term career path and needs to be explored.

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Appendix 1: Questionnaire

Section 1. Demographics and education

1. What is your age in years _____
2. What is your gender
 - Male₁
 - Female₂
 - Other (specify) _____
 - Prefer not to say₃
3. In which state do you currently live _____
4. Did you complete veterinary school primarily:
 - in a traditional program (teaching hospital) or
 - in a distributive program
5. How many years of undergraduate education did you complete prior to veterinary school? _____
6. What was the highest degree you obtained prior to veterinary school?
 - No degree obtained
 - BS₁
 - MS₂
 - PhD₃
 - Other₄ (please explain) _____

Section 2. Experiences prior to veterinary school

7. How many years were you in the workforce (full time, any field) before starting veterinary school ____ (if none, please skip to question 13)
 - Of these, how many were in the veterinary sector
 - <1 year₁
 - 1-2 years₂
 - 3-4 years₃
 - >5 years₄
8. Were you employed by a clinical veterinary facility serving the public prior to starting veterinary school
 - Yes
 - No, (if no, please go to question 13)
9. Which of the following roles were you employed in (circle all that apply)
 - Licensed tech₁
 - Unlicensed tech₂
 - Assistant₃
 - Kennel Staff₄
 - Receptionist₅
 - Other₆ _____

10. How many weeks of unpaid veterinary experience did you get before starting veterinary school
 - 0-2 weeks₁
 - 3-4 weeks₂
 - 5-6 weeks₃
 - 7-8 weeks₄
 - >9 weeks₅
11. Of these, how many weeks of unpaid veterinary experience were in a mixed practice
 - 0-2 weeks₁
 - 3-4 weeks₂
 - 5-6 weeks₃
 - 7-8 weeks₄
 - >9 weeks₅

Section 3: Experiences during veterinary school. These questions will ask you about externships – clinical experiences away from the teaching hospital undertaken during veterinary school.

12. How many weeks unpaid externships (in any part of the veterinary field) did you complete prior to clinical year. If none, please go to question 19
 - 0-2 weeks₁
 - 3-4 weeks₂
 - 5-6 weeks₃
 - 7-8 weeks₄
 - >9 weeks₅
13. How many of these were in mixed animal practice?
 - 0-2 weeks₁
 - 3-4 weeks₂
 - 5-6 weeks₃
 - 7-8 weeks₄
 - >9 weeks₅
14. How many of these externships (in any field) were required by your veterinary school?
 - 0-2 weeks₁
 - 3-4 weeks₂
 - 5-6 weeks₃
 - 7-8 weeks₄
 - >9 weeks₅
15. How many weeks unpaid externships (in any part of the veterinary field) did you complete during clinical year (4th year)
 - 0-2 weeks₁
 - 3-4 weeks₂
 - 5-6 weeks₃
 - 7-8 weeks₄
 - >9 weeks₅

16. How many of these were in mixed practice?

- 0-2 weeks₁
- 3-4 weeks₂
- 5-6 weeks₃
- 7-8 weeks₄
- >9 weeks₅

17. How many of weeks externships (in any field) were required by your veterinary school?

- 0-2 weeks₁
- 3-4 weeks₂
- 5-6 weeks₃
- 7-8 weeks₄
- >9 weeks₅

18. In total, during veterinary school, how many different private practices did you undertake externships at

- 11
- 22
- 33
- 44
- >55

Section 4: Employment in the veterinary sector. These questions refer to your experience as an employee in a veterinary practice during veterinary school (if this does not apply to you, please go to section 5).

19. Were you employed by a veterinary practice at any point during your veterinary school Yes No (if no, please go to section 5)

20. What role did you have (circle all that apply)

- Licensed tech₁
- Unlicensed tech₂
- Assistant₃
- Kennel staff₄
- Receptionist₅
- Other₆ _____

21. How many weeks (approximately) did you work in each of these areas (a week = 40 hours)

- Licensed tech₁
- Unlicensed tech₂
- Assistant₃
- Kennel staff₄
- Receptionist₅
- Other₆ _____

22. Was your veterinary employer an immediate family member? Yes No

Section 5: Experiences of mixed practice as a new/recent graduate

23. What is your current position in the veterinary field

- a. Private practice₁
- b. Corporate practice₂
- c. Industry₃
- d. Government₄
- e. Teaching veterinary students₅
- f. Teaching other students₆
- g. Military₇
- a. Locum/relief exclusive₈
- b. Not currently practicing₉
- c. Not working in veterinary field₁₀
- d. Research₁₁
- e. Specialty/referral₁₂
- f. Other (please state) _____

24. For those in practice, what is your current species of practice

- Companion animal exclusive₁
- Feline exclusive₂
- Equine exclusive₃
- Food animal exclusive₄ (please circle species) beef/dairy/swine/small ruminant/camelid/poultry
- Mixed small animal & equine₅
- Mixed small animal & food animal₆
- Mixed small animal, equine, food animal₇
- Exotic exclusive₈
- Other (please list)₉ _____
- Not applicable₁₀

25. If you were in mixed practice at one point in your career, was this your first job? Yes No

26. If you were in mixed practice, how many years were you practicing mixed before you changed career focus?

- <1 year₁
- 1-2 years₂
- 3-5 years₃
- N/A₄

27. What species did you work with when in mixed practice? Please indicate approximate percentages

- a. Companion animal (dog/cat)₁---
- b. Small animal exotic/pocket pet₂---
- c. Equine₃---
- a. Dairy₅---
- b. Beef₆----
- d. Small ruminant₇---
- e. Swine₈----
- f. Poultry₉----
- g. Deer₁₀----
- h. Other₁₁-----

28. If you are currently in, or have been in veterinary practice, how many practices have you worked at after graduation from veterinary school during this time _____

29. Have you undertaken any locum/relief work Yes No

- If yes, how many practices have you worked at _____

30. Do you have, or have you had any management roles within your practice Yes No

31. Have you changed employment (different sector, clinic or species) since graduation? Yes No

32. Have you undertaken any further training post-graduation Yes No

33. Was your first practice of employment at a practice you had previously been employed at prior to or during veterinary school Yes No

34. Was your first practice of employment at a practice you had previously undertaken an externship at Yes No

Section 8: Challenges of veterinary practice

35. Which of the following challenges of being in practice MOST apply to you. If you were in mixed practice but no longer are, please answer this question retrospectively – please provide your views on when you were in mixed practice. Please rank your top 3 (1 being the most, 3 being the least)

	Rank
On call schedule	
Working more hours than scheduled	
Weekend work	
Physical work	
Working outside in all weathers	
Financial issues (student debt, income)	
Client financial restrictions	
Unreasonable client expectations	
Clients not trusting towards new graduates	
Personal stressors (home/family life)	
Lack of managerial support	
Lack of career progression	
Lack of peer support	
Lack of technical support (personnel)	
Euthanasia	
Lack of desired equipment (e.g. anesthesia monitoring machines)	

36. At any private practice you experienced (paid or unpaid) prior to veterinary school did any veterinarian address the challenges of private practice Yes No

37. If yes, what areas did they address? Please check all that apply

	Rank
On call schedule	
Working more hours than scheduled	
Weekend work	
Physical work	
Working outside in all weathers	
Financial issues (student debt, income)	
Client financial restrictions	
Unreasonable client expectations	
Clients not trusting towards new graduates	
Personal stressors (home/family life)	
Lack of managerial support	
Lack of career progression	
Lack of peer support	
Lack of technical support (personnel)	
Euthanasia	
Lack of desired equipment (e.g. anesthesia monitoring machines)	

38. At any private practice you experienced (paid or unpaid) during veterinary school did any veterinarian address the challenges of private practice Yes No

39. If yes, what areas did they address? Please check all that apply

	Rank
On call schedule	
Working more hours than scheduled	
Weekend work	
Physical work	
Working outside in all weathers	
Financial issues (student debt, income)	
Client financial restrictions	
Unreasonable client expectations	
Clients not trusting towards new graduates	
Personal stressors (home/family life)	
Lack of managerial support	
Lack of career progression	
Lack of peer support	
Lack of technical support (personnel)	
Euthanasia	
Lack of desired equipment (e.g. anesthesia monitoring machines)	

Section 9: Your feelings toward externships, paid veterinary work prior to graduation and the challenges of practice

40. Overall, how prepared do you think you were upon graduation for the challenges of practice?

- Not at all prepared
- Somewhat unprepared
- Neutral
- Somewhat prepared
- Very prepared
- Not applicable

41. Overall, how satisfied are you with your veterinary career choice?

- Not at all helpful
- Somewhat helpful
- Neutral
- Somewhat helpful
- Very helpful
- Not applicable

42. Overall, how satisfied are you with your current job?

- Not at all helpful
- Somewhat helpful
- neutral
- Somewhat helpful
- Very helpful
- Not applicable

43. Do you think pre-clinical training (lectures, labs, seminars etc.) in veterinary school adequately prepared you for challenges of practice?

- Not at all prepared
- Somewhat unprepared
- neutral
- Somewhat prepared
- Very prepared
- Not applicable

44. Do you think teaching hospital-based rotations adequately prepared you for the challenges of practice?

- Not at all prepared
- Somewhat unprepared
- neutral
- Somewhat prepared
- Very prepared
- Not applicable

45. Do you think your unpaid veterinary experiences prior to attending veterinary school prepared you for the challenges of practice?

- Not at all prepared
- Somewhat unprepared
- neutral
- Somewhat prepared
- Very prepared
- Not applicable

46. Do you think your paid veterinary experiences prior to attending veterinary school prepared you for the challenges of practice?

- Not at all prepared
- Somewhat unprepared
- Neutral
- Somewhat prepared
- Very prepared
- Not applicable

47. Do you think your paid veterinary experience during veterinary school prepared you for the challenges of practice?

- Not at all prepared
- Somewhat unprepared
- Neutral
- Somewhat prepared
- Very prepared
- Not applicable

48. Do you think your externships undertaken during veterinary school prepared you for the challenges of practice?

- Not at all prepared
- Somewhat unprepared
- Neutral
- Somewhat prepared
- Very prepared
- Not applicable

49. Please check if you would like to be entered into a drawing to win an Amazon gift voucher

Email _____@_____

50. Would you like to participate in the interview stage of this research Yes No

Email _____@_____

Phone _____

Appendix 2: Semi-structured interview questions

1. Tell me about your current practice.
2. Tell me about your previous position. Please include why you changed.
3. Where did you attend veterinary school?
 - a. Explain the externship requirements at your school.
 - b. How do you feel the externships contributed to your life in practice?
4. What challenges do you face in your practice?
 - a. How did your veterinary school education prepare you to handle these challenges?
5. Beginning with high school, describe your involvement with the animal health/veterinary field prior to applying to veterinary school
 - i. Different types of practice, research
 - ii. Working with vets as an owner/shelter/livestock operation
 - b. Which of these experiences helped prepare you for life in practice the most?
6. Tell me about any veterinarians you interacted with prior to veterinary school who addressed any of the challenges you encounter in your current working life.
 - a. Prompt:
 - i. Which specific challenges did they address?
 - ii. How has that helped you manage the challenge(s)?
 - iii. What impact did s/he/they have on your decision to apply to veterinary school?
 - b. How did their information help prepare you for practice life?
7. Please describe your private practice experiences during veterinary school.
 - a. Prompt: (only if these specific topics are not addressed in the response)
 - i. Paid vs unpaid
 - ii. Role (tech, receptionist, assistant)
 - iii. Summer vs externship
 - b. How did these experiences prepare you for life in practice?
 - i. What experiences specifically were helpful?
8. What types of practices did you do externships in?
 - a. How did challenges associated with veterinary medicine vary between different types of clinics?
 - i. Prompt: Can you expand on...,

9. Tell me about any veterinarians you interacted with during your externships who addressed any of the challenges you encounter in your current working life.

a. Prompt:

i. What specific challenges did they address?

ii. How did you handle the challenges addressed by the vet(s) during your externship?

iii. What influence did this have on the types of jobs you applied for upon graduation?

10. Did your externships or paid work in a vet clinic during vet school best prepare you for clinical practice? Why?

11. Why did you want to go into mixed practice?

