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Demographics and career path choices of graduates from three Canadian veterinary colleges

Murray D. Jelinski, John R. Campbell, Kerry Lissemore, Lisa M. Miller

Abstract — The classes of 2007 from the Atlantic Veterinary College, Ontario Veterinary College, and Western College of Veterinary Medicine were surveyed to determine what factors influenced the respondents' career path choices. Seventy percent (166/237) of those contacted participated in the survey of which 89.1% were female, 62.7% had an urban upbringing, and 33.0% expected to be employed in a small center (population ≤ 10 000). Half (52.5%) of the respondents reported that they were interested in mixed or food animal practice at the time of entry into veterinary college, but this proportion declined to 34.2% by the time of graduation. Three factors were significantly associated with choosing a career in mixed or food animal practice: having been raised in a small center, being a male, and having a good to excellent knowledge of food animal production at the time of entry into veterinary college, as determined by a self-assessment.

Résumé — Démographie et choix d'un plan de carrière chez des diplômés de trois collèges vétérinaires du Canada. Les classes de 2007 de l'Atlantic Veterinary College, de l'Ontario Veterinary College et du Western College of Veterinary Medicine ont fait l'objet d'une enquête en vue de déterminer les facteurs ayant influencé les choix du plan de carrière des répondants. Le taux de réponse des diplômés a été de 70 % (166/237), 89,1 % étaient des femmes, 62,7 % étaient d'origine urbaine et 33,0 % prévoyaient être employés dans un petit centre (population ≤ 10 000). La moitié des répondants (52,5 %) ont mentionné qu'ils étaient intéressés par la pratique mixte ou la pratique des animaux de production à leur entrée au collège vétérinaire, mais cette proportion était tombée à 34,2 % au moment de la remise des diplômes. De l'avis même des répondants, trois facteurs étaient significativement associés aux choix d'une carrière en pratique mixte ou en production animale : avoir été élevé dans un petit centre, être un homme et avoir eu une excellente connaissance de la production animale au moment de l'admission au collège vétérinaire.

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Introduction

Heath (1–3) has reported extensively on the demographics of the Australian veterinary profession and specifically on the career path choices of new graduates. In his surveys, he found that more than 50% of the Australian graduates began their careers in mixed animal (MA) practice, but more than half of those left this type of practice within 5 y of graduation, with the majority migrating to small animal (SA) practice. Significantly, many of those who left MA practice had no aspirations of becoming an SA practitioner at the time of graduation. A lack of support and encouragement from employers, coupled with working too many hours, were cited as reasons for changing career paths, which included changing careers within the profession (moving from MA to SA practice) or leaving the profession entirely.

Department of Large Animal Clinical Sciences, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Saskatchewan S7N 5B4 (Jelinski, Campbell); Department of Population Medicine, Ontario Veterinary College, University of Guelph, Guelph, Ontario N1G 2W1 (Lissemore); Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, Prince Edward Island C1A 4P3 (Miller).

Address all correspondence to Dr. Murray Jelinski; e-mail: murray.jelinski@usask.ca

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In Canada, the veterinary profession has evolved over the last 50 y from a food animal (FA) orientation (4), to the current state, where approximately 60% of practitioners are devoted to companion animal practice (5). The other obvious trend in the veterinary profession relates to gender. Whereas 25–40 years ago, the majority of graduates were males, today, females comprise approximately 50% of the profession (S. Lavictoire, CVMA, personal communication).

The trends towards companion animal practice and a greater proportion of females in the profession are not unique to Canada. A recent survey of 26 veterinary colleges in the United States revealed that only 14% of graduates were interested in MA or FA practice and that 77% of graduates were women (6). In the United Kingdom, where the profession is equally divided along gender lines, approximately 50% of practitioners are in SA practice (7). Caution, however, is needed before one concludes that there is a cause and effect relationship between the increased percentage of females and the decline in the number of FA practitioners. This relationship may be confounded by the fact that the increase in female veterinarians happens to coincide with an unprecedented growth in companion animal medicine. In fact, Heath (8) found no association between gender and the type of practice new graduates entered into, but he did report that practitioners who were raised in a rural environment were twice as likely as their colleagues who were raised in an urban area to remain in MA practice (9). Similar results were reported in a study of the graduating Class of 2006 (Western College of Veterinary Medicine, Saskatoon), wherein there was no association between gender and career path, but there was an association between a rural upbringing and pursuing a career in MA or FA practice (10).

The purpose of this study was twofold: 1) to describe the demographics of the classes of 2007 from the Atlantic Veterinary College (AVC), Ontario Veterinary College (OVC), and Western College of Veterinary Medicine (WCVM), and 2) to identify the factors associated with the graduates' choice of a career in MA or FA practice.

Materials and methods

Survey design

As referenced previously, WCVM graduates from the Class of 2006 were surveyed to determine what factors were associated with their initial choice of a career path (type of employment). The current study is based on essentially the same survey that was administered in 2006 to the WCVM graduates, but this time it was administered to the Class of 2007 and included AVC, OVC, and WCVM graduates. The methodology used in constructing the survey instrument has previously been reported (10) and both surveys can be viewed online (11).

Graduates who responded to the survey are herein referred to as "respondents." As with the previous survey, answers were based upon future expectations of a job or career path versus a contemporary or historical perspective.

Briefly, the survey consisted of 65 questions, grouped into 4 sections. Section A, *Background Information,* inquired as to whether the respondents had a rural or urban background; if they had participated in 4-H (clubs that foster agricultural skills); about the population of the center they were raised in; about their province of origin; etc. The population of centers were dichotomized into small ($\leq$ 10 000) or large ($>$ 10 000). Respondents raised on either a farm or an acreage were collectively labeled as having a rural background, all others were categorized as having been raised in an urban area.

Section B, *Background on Your First Job/Position as a Veterinarian*, related to the type of practice or internship the respondents were entering into; their specific areas of interest (SA, FA, MA, etc.); the location of the practice and number of colleagues in the practice; the size of center where the practice was located; the salary and benefits being offered; the expected number of hours worked/wk and evenings on-call/mo; the number of years they expected to be employed in their 1st job; the number of years they expected to stay within their chosen career path; and the number of years they expected to be practising veterinary medicine. They also ranked how "ideal" their 1st job was with regard to 4 factors: type of practice, its geographical location, number of veterinarians in the practice, and their expected responsibilities.

Section C, *Factors Influencing Career Paths in Veterinary Medicine*, focused on how the respondents' interests in practice type (SA, MA, FA, etc.) had evolved from the time of their preveterinary program to the present. They were also questioned as to how their formal veterinary education and summer work experiences had encouraged or discouraged their *initial* and *current* career path choices; initial was defined as the type of career the respondent was most interested in during his or her preveterinary program or in the formative years of their veterinary education. For some respondents, the initial and current career paths were the same. Respondents were also asked to rank each of the following 14 factors, on a scale from 1 to 5, as to the level of influence each factor had had on their choice of a place of employment: number of veterinarians/practice, geographical location of the practice, type of practice, progressiveness of the practice, wage and fringe benefits, expected hours of work and number of nights on-call, level of support and mentorship from owners/colleagues, level of responsibilities and caseload, size of center where clinic is located, prior established relationship with the veterinarian(s) at the practice, need to be close to family and/or friends, overall aesthetic appeal of the practice and its location, spousal and family considerations, and other (specify). The top 2 factors that had the greatest number of 1st place rankings were reported, followed by the top 2 factors that had the greatest number of 2nd place rankings, and so on for the 3rd, 4th, and 5th place rankings.

The final section, *Demographics,* gathered data on the respondents' age, gender, marital status, number of children, university attended in their preveterinary program, and parents' level of education.

Survey administration and analyses

The survey questionnaire was administered online by a company that specializes in on-line survey design and administration (Insightrix, Saskatoon, Saskatchewan). On April 15, 2007, approximately 6 wk prior to finishing their program, all

Table 1. Respondents by gender, urban or rural (farm/acreage) up-bringing, size of center raised in or nearby, and size of center of future employment

	Atlantic Veterinary College	Ontario Veterinary College	Western College of Veterinary Medicine	Total
Gender (n = 165[a]):				
Female	21 (84.0%)	77 (91.7%)	49 (87.5%)	147 (89.1%)
Male	4 (16.0%)	7 (8.3%)	7 (12.5%)	18 (10.9%)
Upbringing (n = 166):				
Urban	10 (40.0%)	58 (68.2%)	36 (64.3%)	104 (62.7%)
Rural	15 (60.0%)	27 (31.8%)	20 (35.7%)	62 (37.3%)
Size of center raised in (n = 166):				
Small population (≤ 10 000)	12 (48%)	22 (25.9%)	25 (44.6%)	59 (35.5%)
Large population (> 10 000)	13 (52%)	63 (74.1%)	31 (55.3%)	107 (64.5%)
Size of center of employment: (n = 88):				
Small population (≤ 10 000)	2 (22.2%)	13 (29.5%)	14 (40.0%)	29 (33.0%)
Large population (> 10 000)	7 (77.8%)	31 (70.5%)	21 (60.0%)	59 (67.0%)

[a] One person chose not to answer the question relating to gender

Table 2. Respondents' level (%) of interest in each type of veterinary practice from the time of their preveterinary program to graduation (n = 166)

	Type of practice					
Program year	Small animal	Equine	Food animal	Mixed animal	Other	Can't recall
Preveterinary	30.0%	12.5%	12.5%	32.5%	11.7%	0.8%
1st year	23.3%	13.3%	12.5%	40.0%	10.8%	0.0%
2nd year	30.0%	10.0%	13.4%	34.2%	11.7%	0.8%
3rd year	30.8%	16.7%	10.8%	27.5%	14.2%	0.0%
4th year	41.7%	15.0%	10.9%	23.3%	9.2%	0.0%

237 graduates received a covering letter that explained the purpose of the survey and provided instructions on how to access the survey online. The graduates were also provided with a personalized access code, which allowed them to access the survey as often as necessary, each time returning to the point where they had left off. The survey software also allowed the authors to monitor the response rates, which assisted in the decision on when to send out survey reminders. To encourage participation, the OVC and WCVM classes each received a $500 donation to their graduation fund. A similar donation was provided to the AVC graduates, except this donation was based upon survey participation ($10.00/completed survey), a total of $250 was donated to their class fund.

At the completion of the survey, the data were analyzed by using statistical analysis software (SPSS, Version 14; Chicago, Illinois, USA; Statistix, Version 8.1; Tallahasee, Florida, USA). A combination of descriptive and analytical statistics was used to assess the data at a significance level of $P < 0.05$ (two-tailed). A backward (likelihood ratio) multinomial logistic regression model was used to determine the factors (statements) associated with the respondents entering into a food animal-related (FAR) practice, which included either MA or FA practice.

Results

Background and demographics

The class of 2007 was comprised of 237 graduates; 166 (70.0%) responded to the survey. All responses were received between April 16 and May 23, 2007. Response rates varied across the 3 colleges: AVC 41.7% (25/60), OVC 80.2% (85/106), and WCVM 78.9% (56/71). The response rates of Canadian and international students attending the AVC differed (P = 0.02); 22 of the 60 (36.7%) AVC graduates were international students and 5 (22.7%) participated in the survey. Seventy percent of the AVC respondents were raised in the Maritimes; 91.8% of the OVC respondents were raised in Ontario; and 94.6% of the WCVM respondents were raised in western Canada.

All respondents (n = 166) completed Sections A (Background Information) and D (Demographics), whereas only 88 respondents had a place of employment confirmed at the time of the survey and could answer Section B (Background on Your First Job/Position as a Veterinarian). A total of 120 were able to complete Section C (Factors Influencing Career Paths in Veterinary Medicine).

Table 1 provides a breakdown of respondents by: gender; rural or urban upbringing; having been raised in a small (≤ 10 000) or large (> 10 000) center; and the size of the center (small or large) where they were gong to be employed. Of the 37.4% (62/166) respondents who had a rural upbringing, 43.5% (27/62) had been involved in 4-H.

The respondents' average age was 12.3 y at the time of their 1st meaningful interaction with a veterinarian and their average age at the time of deciding on becoming a veterinarian was 13.0 y. Only 18.6% of respondents had a family member or friend who was a veterinarian. The respondents averaged 4.2 y of postsecondary education prior to entry into veterinary college. Most (75.9%; 126/166) respondents had at least 1 other degree or diploma, 84.1% (106/126) of which had a Bachelor of Science (BSc). Only 7.8% (13/166) reported having a BSc in Agriculture or Animal Science; most (9/13) of whom were WCVM respondents.

Canadian respondents had an average student debt of $43 125 (median = $40 000). Numerically, the WCVM respondents had the highest ($50 405) and the OVC respondents the lowest ($37 720) debt loads ($P$ = 0.10).

Table 2 shows how the respondents' veterinary career path aspirations changed from the time of their preveterinary program

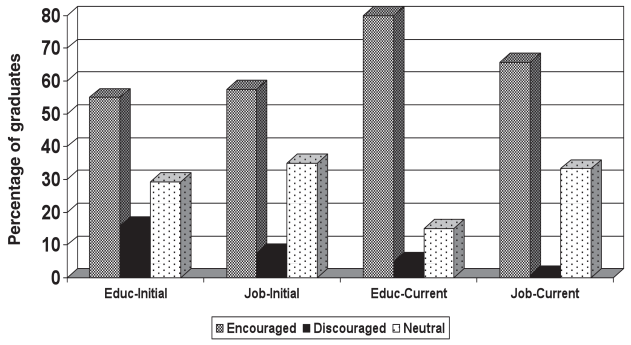

Figure 1. Percentage of respondents indicating whether their veterinary education (Educ) and summer work experiences (Job) influenced (encouraged, discouraged, neutral) their initial and current career path choices.

to time of graduation. At the time of their 1st year of veterinary college, 52.5% of respondents were interested in either an MA or sn FA career; however, the level of interest in MA or FA practice declined to 34.2% by the time of graduation (4th year).

When asked whether their careers were more guided by a need for personal fulfillment or by a sense of responsibility to society and the care of animals, 56.7% of respondents answered that they were more guided by either "all personal satisfaction" or "largely personal satisfaction." Approximately 40% were "neutral" in answering this question; the remaining 4.1% identified with serving society.

Figure 1 shows how summer work experience and formal veterinary education influenced the respondents' initial and current career path choices. In both instances, summer work experience and formal veterinary education encouraged students in their initial and current career path selections.

Characteristics of first job

Approximately 40% of respondents were joining a practice where they either had worked as a summer student or had some other personal interaction with the clinic and/or owners. Over 50% (88/166) had a position in private practice confirmed at the time of the survey; these percentages varied by college: AVC 36.0% (9/25), OVC 51.8% (44/85), and WCVM 62.5% (35/56). Most (94.3%) were hired as employees, 2 were becoming partners, and 3 were to be employed on a locum tenens basis. The majority (93.2%) of respondents planned on working full-time. Over half (43/83) of the respondents had a written contract with their future employer/partners and 44.6% (37/83) had already discussed the option of a partnership.

Table 3 provides the breakdown of the respondents' anticipated type of employment, 6 mo postgraduation. Almost 60% of the OVC respondents were interested in an exclusively SA position, whereas $< 30\%$ of the AVC and WCVM respondents were interested in this type of position. The opposite was true of MA practice, with $> 35\%$ of AVC and WCVM respondents having an interest in this type of practice, as opposed to 17.6% for the OVC respondents. Of the 45 respondents interested in MA practice, 15 (33.3%) favored dairy and beef practice, 9 (20.0%) favored SA practice, 4 (8.9%) favored equine (EQ) practice, and 17 (37.8%) had no particular species preference.

Table 3. Breakdown of the respondents (%) by their college of origin and the type of employment they anticipate having 6 months after graduation

Type of anticipated employment/ studies	Atlantic Veterinary College (n = 25)	Ontario Veterinary College (n = 85)	Western College of Veterinary Medicine (n = 56)	Total (n = 166)
Exclusively small animal	28.0	57.6	26.8	42.8
Exclusively equine	4.0	7.1	5.4	6.0
Exclusively food animal	4.0	4.7	5.4	4.8
Mixed animal	36.0	17.6	37.5	27.1
Internship	24.0	10.6	10.7	12.7
Graduate studies	4.0	2.4	10.7	5.4

Table 4. Respondents' level (%) of satisfaction with respect to 4 characteristics of their first place of employment ($n = 88$)

Level of satisfaction	Practice type	Geographical location	Number of practitioners	Level of responsibilities
Ideal	54.5	30.7	37.5	34.1
Moderate	39.8	43.2	43.2	54.5
Neutral	5.7	22.7	14.8	11.4
Poor	0.0	3.4	4.5	0.0
Not at all	0.0	0.0	0.0	0.0

On a percentage basis, the average amount of time that the graduates who were interested in MA practice planned on spending in each area of practice was as follows: SA 45.2%, beef 24.4%, EQ 14.6%, dairy 11.9%, and other 3.9%. Areas of interest for the MA respondents differed ($P < 0.01$) by college with the emphasis of the OVC respondents being SA, while the WCVM respondents were more oriented towards beef and dairy practice. Overall, 21 respondents were pursuing internships: 12 SA, 8 EQ, and 1 FA.

Table 4 shows the respondents' level of satisfaction with respect to 4 different characteristics related to their future place of employment. The majority of the respondents ranked their level of satisfaction to these 4 practice attributes as either "ideal" or "moderate."

Respondents were joining practices that averaged 4 full-time and 1 part-time veterinarians. While not statistically significant ($P = 0.06$), it appeared that the EQ and SA respondents had a preference for larger practices (≥ 4 veterinarians), as compared with their MA and FA colleagues.

Table 5 provides a breakdown of total annual earnings (wages and expected bonuses and dividends). The mode was \$60 000–\$70 000 and 85.3% of respondents expected to have earnings in the \$50 000–\$80 000 range. A percentage of respondents were also offered other employee benefits: continuing education allowance (86.3%), paid membership dues (76.1%), health coverage plan (64.8%), paid vacation time (60.2%), after-hours premium (44.3%), vehicle allowance (37.5%), and disability insurance (23.9%).

Respondents opting for SA employment expected to work an average 40.3 h/wk, whereas the MA, FA, and EQ respondents expected to work at least a 47.2 h/wk ($P < 0.01$). Similarly, those entering SA practice expected to average 2.2 nights on-call/mo, while the EQ, MA, and FA respondents expected to work at least 8.3 nights/mo ($P < 0.01$). Respondents expected

Table 5. Percent of responders within each annual salary range (000's), stratified by type of practice ($n = 88$)

Type of practice	< $50	$50–60	$60–70	$70–80	$80–90	> $90
Exclusively small animal	4.9	17.1	61.0	9.8	4.9	2.4
Exclusively food animal	0.0	0.0	28.6	57.1	14.3	0.0
Exclusively equine	50.0	25.0	25.0	0.0	0.0	0.0
Mixed animal	3.1	21.9	53.1	15.6	6.3	0.0

to stay with their 1st employer for 5.3 y and to remain within the same type of practice for 20.0 y.

Factors associated with career path (job) choices

One-hundred and twenty respondents ranked 14 factors, on a scale of 1 to 5, as to each factor's level of influence when it came to choosing a place of employment. The 2 most influential factors were "type of practice" and the expected "level of support and mentorship from owner/colleagues." The top 2 factors for the 2nd level of rankings were the "progressiveness of the practice" and the "level of support and mentorship from owner/colleagues." The top 3rd level rankings were "wage and fringe benefits" and the "level of support and mentorship from owner/colleagues." The "progressiveness of the practice" and "wage and fringe benefits" were the top 2 factors in the 4th and 5th rankings. In general, most respondents ranked "level of support and mentorship from owner/colleagues" as one of the top 5 determinants when it came to choosing a place of employment.

For the univariate and multivariate analyses, the SA-oriented and EQ-oriented respondents were collapsed into a new variable called nonfood animal related (non-FAR), while the MA and FA oriented respondents were collectively labeled as FAR. There was no difference ($P = 0.10$) in the proportion of female respondents who intended to enter non-FAR versus FAR practice. Respondents with grandparents who were raised on a farm were more likely to enter into FAR practice than were those with grandparents who were raised in an urban area [$P < 0.01$; odds ratio (OR) = 3.2]. Similarly, respondents with parents who were raised on a farm were 5.8 times more likely to enter into FAR ($P < 0.01$). Those with a rural upbringing (farm or acreage) were 6.7 times more likely to pursue a career in FAR versus non-FAR practice ($P < 0.01$). Respondents who were raised in, or nearby, a small center (population of $\leq$ 10 000) were 12.8 times more likely to go into FAR practice than were their non-FAR colleagues who came from a larger center (> 10 000) ($P < 0.01$). And a greater percentage of those who self-assessed their knowledge of agriculture as "good" or "excellent" at the time of entry into veterinary college were more likely to become FAR practitioners than were those who self-assessed their knowledge as "average," "poor," or "having no interest in agriculture" ($P < 0.01$; OR = 6.5).

The aforementioned factors, along with gender and college of graduation, were offered to a backwards stepwise logistic regression model (Table 6). Three factors emerged as being associated with pursuing a FAR career: being raised in a small center ($P < 0.001$), being male ($P = 0.019$), and having a good to excellent knowledge of agriculture at the time of entry into veterinary college, as determined by a self-assessment ($P = 0.021$). Univariate analysis of size of center by college of graduation revealed that when taken together, the AVC and WCVM respondents were more likely to have been raised in small centers than were their OVC counterparts ($P < 0.01$; OR = 2.50). Similarly, a greater proportion of the AVC and WCVM respondents self-assessed their knowledge of agriculture as good to excellent as compared with the OVC respondents ($P < 0.01$; OR = 2.50).

Table 6. Backward (likelihood ratio) multinomial logistic regression model showing the factors associated with choosing a career in food animal related (FAR) practice

	β	$S_{\bar{X}}$	Wald	df	*P*-value	Exp (β)
Constant	-1.449	0.479	9.165	1	0.002	0.235
Small center	2.418	0.463	27.251	1	0.001	11.227
Gender (male)	1.554	0.660	5.541	1	0.019	4.732
Knowledge of agriculture	1.013	0.438	5.360	1	0.021	0.363

R^2 = 0.322 (Cox and Snell); 0.434 (Nagelkerke)
β = beta coefficient
$S_{\bar{X}}$ = standard error of the mean
Wald = Wald Statistic
df = degrees of freedom
Exp (β) = Exponential of beta coefficient

Discussion

As with any survey, the data are prone to certain biases, such as, a nonresponse bias, which arises when the characteristics of the respondents differ from those of the nonrespondents. This bias is mitigated by having a high response rate. In this survey, the OVC and WCVM response rates were approximately 80%, whereas that of the AVC was only 41.7%. The AVC's lower response is partially attributed to the poor response by the international students who may not have identified with what was ostensibly a Canadian study. However, even after accounting for the international students, the response rate amongst the Canadian AVC graduates was lower than that of the OVC and WCVM graduates. This lower response rate may have been related to the fact the AVC graduates completed their final "rotations" before the graduates of the other 2 colleges; hence, some AVC graduates had already left the college. Those graduates that had left early may not have received the survey reminders and may have also been less interested in completing the survey. Lastly, these results represent one class, at one point in time, and caution is required before extrapolating the data to other graduating classes and across time.

In addition to a response bias, the data may also have been affected by a recall bias, which arises when the respondents' recollections of the type or timing of an event are inaccurate. Such a bias may have been introduced into the data relating to when the respondents had their first interaction with a veterinarian, when they decided on becoming a veterinarian, and what type of practice they were most interested in over the course of their veterinary education. We, however, believe that the decision to enter veterinary college is a major one and that most respondents would have a fairly good recollection of when (their age) they

decided to become a veterinarian and the type(s) of veterinary practice they were most interested in at the various time points of their formal veterinary education. Based upon the respondents' recollections, 45% were interested in a FAR career at the time of entry into veterinary college. This is significant, because it challenges the perception that veterinary colleges are not attracting enough students who are interested in FAR practice (12–15). However, it is possible that many MA respondents choose this type of practice because they have not yet formed a strong conviction for a specific type of practice. That is, do they come into the program wanting to become MA practitioners, or are they primarily interested in MA practice because they do not have a strong conviction for specific type of practice (species) and hence they see MA practice as being the best option to gain the widest exposure to all facets of private practice?

While there is a myriad of opinions on how to select and educate students who are interested in FAR practice, what is frequently overlooked when it comes to attracting and retaining these students is the role of practitioners. As per previous reports (16,17), many of the respondents had their first meaningful interaction with a veterinarian at a very young age and the average age when the respondents decided on becoming a veterinarian was 13.0 y. Veterinarians must be cognizant that they wield considerable influence when it comes to encouraging or discouraging young adolescents from pursuing a career in veterinary medicine. But of even greater influence is how practitioners mentor veterinary students during their summer work experiences. Figure 1 shows that the students' summer work experiences encouraged, and sometimes discouraged, the respondents in pursuing either their initial or current choice of a career path. The importance of good mentorship was reiterated in the respondents' ranking of the factors that most influenced their choice of a place of employment. It was clear from these data that new graduates place a significant value on working in an environment that provides good mentorship and support.

Given the concerns regarding a perceived shortage of FAR practitioners, it was important to examine what factors were associated with choosing a FAR career. For this analysis, those who were raised on a farm or an acreage were combined into 1 group ("rural upbringing"). It could be argued that these respondents represent 2 different populations and should be analyzed as such. However, we contend that students raised on an acreage or a farm share many of the same agricultural experiences, which enhance their access to, and understanding of, food animal production. Furthermore, the delineation between a rural and an urban upbringing is becoming less clear; the 2006 Canadian Agricultural Census (2006) shows that 15.5% of Canadian farms are now located in or around a census metropolitan area (center $>$ 100 000) (18). Based on these data, we elected to categorize those that came from an acreage as having a rural upbringing versus creating another category or grouping them with the respondents who were raised in an urban area.

The logistic regression analysis identified 3 main factors that were significantly associated with entering FAR practice. Being raised in a small center was not only the most important factor within the constellation of rural factors, but overall it was the main factor associated with respondents choosing a FAR career path. The 2nd and 3rd most important factors were being male and the respondents' self-assessment that they had a good to excellent knowledge of food animal production at the time of entry into veterinary college. This latter factor is essentially a proxy for having been exposed to livestock production and/or having taken agriculture-oriented classes at the time of their preveterinary program. These results are very similar to those found in the previous WCVM study, wherein 2 factors were significantly associated with entering FAR practice, namely, having been raised in a small center and having a Bachelor of Science in agriculture. There was, however, a notable difference between the results of the 2 studies and this related to gender. In the current study, gender was not a significant factor in the univariate analysis, but it emerged as a significant factor after controlling for other variables. This finding is in contrast to the WCVM study, where there was no significant association between gender and becoming a FAR practitioner. This discrepancy may be explained by the demographics of the 3 graduating classes. The 3 colleges had approximately the same percentage of female respondents; however, only 25.9% of OVC respondents came from small centers versus 44.6% for WCVM and 48.0% for AVC respondents. It appears that gender is not an important FAR determinant if the graduates have a good understanding of agriculture and/or have been raised in a rural environment, which was the case in the previous WCVM study. Conversely, if the population of graduates is largely urban based, there may be some unknown bias towards a greater percentage of males entering FAR practice. Perhaps the male graduates were preferentially mentored by FA-oriented faculty members and private practitioners.

Based upon the regression analysis, if there truly is a shortage of FAR practitioners, veterinary colleges should select applicants who come from small centers and who have self-assessed their knowledge of agriculture as good to excellent. Essentially, this describes people who are raised in rural areas and, preferably, come from livestock operations. However, targeting this demographic is overly simplistic. The number of farms in Canada has been in continuous decline since 1941 (19); hence, the number of applicants that possess the key determinants for becoming a FAR practitioner is also in an inexorable decline. Because of Canada's changing rural-urban demographics, veterinary colleges can expect to be faced with a dwindling pool of academically qualified rural-based students. Lastly, while the model identified male respondents as being more likely than female respondents to enter FAR practice, the significance of this finding is somewhat moot with regards to selection procedures, because the *Canadian Human Rights Act* prohibits the selection of students based on gender (20).

Overall, the results of this study were very similar to those of the WCVM study. Furthermore, in the current study, there were more similarities than differences between respondents from the 3 veterinary colleges. The most significant difference was that the WCVM and the AVC graduated a higher percentage of students having a rural background and, as a result, these colleges also produced a greater proportion of FAR respondents. We surmise that as the farming population in Canada continues to consolidate, the pool of veterinary applicants interested in

food animal production will contract, and all 3 colleges will become increasingly populated by urban-based students. Lastly, as was found in the previous study, new graduates are drawn to practices that provide proper mentorship and support; hence, practitioners should not underestimate the value that new graduates place on working in a supportive environment.

Authors' contributions

Drs. Jelinski and Campbell instigated the research, secured the funding, and administered the survey to the WCVM graduates. Dr. Jelinski was also responsible for analyzing the data and drafting the manuscript. Drs. Lissemore and Miller provided input into the survey instrument, administered the survey to the graduates of their respective colleges, and assisted in the drafting of the manuscript.

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