

Special Report

Comparison of long-term financial implications for five veterinary career tracks

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Objective—To compare present values of expected income streams for 5 distinct veterinary medical career tracks.

Design—Present value model.

Sample Population—AVMA survey data.

Procedures—Present values of expected income streams (net of debt repayment) were created and ranked. Sensitivity to each independent variable was assessed.

Results—Career present value at 34 years after graduation (CPV₃₄) was highest for board-certified specialist (SP; \$2,272,877), followed by practice owner (PO; \$2,119,596), practice owner buying into practice after 10 years (PO-10; \$1,736,333), SP working three-fourths time (SP3/4; \$1,702,744), and general practitioner (GP; \$1,221,131). Compared with CPV₃₄ for SP, other career tracks yielded values of 93.3% (PO), 76.4% (PO-10), 74.9% (SP3/4), and 53.7% (GP). The model was robust to debt, interest rate, loan term, and discount rate but was sensitive to mean starting incomes and mean incomes.

Conclusions and Clinical Relevance—Greatest return on time and money invested by a veterinary student is through practicing full-time as an SP or through being a PO. Being an SP or SP3/4 was substantially more lucrative than being a GP and was comparable to being a PO. Practice ownership and working as an SP3/4 may be options for balancing financial gain with free time. Specialty training and practice ownership may be career tracks with the best potential repayment options for veterinarians with a large educational debt. Regardless of the amount of debt, the type of practice, mean incomes in a particular field, personal lifestyle, and professional interests are important factors when deciding among career tracks. (*J Am Vet Med Assoc* 2010;237:369–375)

The current trend in veterinary medicine is for increasing student debt without proportional increases in postgraduation income, which imparts a heavy economic burden on students and recently graduated veterinarians.^{1,2} Educational debt increased 12.0% from 2007 to 2008, with a mean indebtedness for 2008 graduates of \$119,803 and > 80% of all graduates having at least \$60,000 of educational debt.³ A wide variety of lifestyles, economic circumstances, and career objectives exist within the veterinary student population, and each individual must consider the potential monetary rewards of various career tracks when planning for a career in veterinary medicine. Although money should not be the only basis for career decisions, the impending economic circumstances within the veterinary profession should prompt students and young veterinarians to evaluate how to optimize the return on their investment—an investment of time and money in a veterinary education. Required investments, career options, and expected out-

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ABBREVIATIONS

CPV	Career present value
GP	General practitioner
PO	Practice owner
PO-10	Practice owner buying into practice after 10 years
SP	Board-certified specialist
SP3/4	Board-certified specialist working three-fourths time

comes are unique to the veterinary medical profession, as are the accompanying career decisions.

The traditional model of the lone practitioner-owner with a mixed-animal practice located somewhere in the countryside is quickly fading as the most popular and most economically viable way to practice veterinary medicine. Instead, 35.6% of 2008 veterinary medical graduates from US schools indicated that they intended to seek postgraduate education or board certification in a specialty field.³ This typically requires 3 to 4 additional years of training and, therefore, a delay of 3 to 4 years in debt repayment as well as a delay before earning higher wages. Because of the low salaries offered to veterinarians in internship and residency

programs in the United States, many veterinarians are forced to take on additional debt during these 3 to 4 years. In return, once the training is completed, these veterinarians typically have the opportunity to practice in a specialty field and to earn substantially higher incomes for the remainder of their careers.

Another popular career track is through ownership of a general practice. A few bold graduates begin buying into a practice their first year after graduation from veterinary school. However, a more typical scenario might be one in which graduates would practice as an associate veterinarian for up to 10 years before buying into a practice. Many young veterinarians spend much of their first 10 years of practice considering when and if to buy in.

Yet another trend in veterinary medicine relates to demographics because 76.9% of 2008 graduates were females.⁴ As the majority of the graduating veterinary student population has shifted from males to females, the demand for flexibility of scheduling and reduced hours has become more important. Many young women want to dovetail their veterinary career with starting a family; thus, they seek a way to maintain earning power and still have free time available for home life.

Of course, the most obvious career track is still that of being a GP and working full-time as an associate in a private practice. Most new graduate veterinarians still choose this career track. The complex interaction of economic and personal factors makes it difficult to choose the optimal career track. Furthermore, knowing which factors to prioritize and which to compromise is so daunting that many veterinarians never consider all of the career options.

One useful tool to evaluate the economics of these career tracks is a model that considers expected income streams, accommodates various debt repayment scenarios, and directly compares career tracks and their relative financial values over time. Our objective was to build such a model and to use it to compare the present value of expected income streams for 5 broad career categories and to assess the sensitivity of results to adjustments in input variables. These results can be used to compare the relative earning power of various career choices and to identify economic factors that should influence decisions the most. Although similar models have been developed for other careers and professions,

our required investments, career options, and expected outcomes are unique to the veterinary medical profession and thereby require a stand-alone analysis.

Materials and Methods

To construct the model, we obtained data from several AVMA surveys^{3,6} to create baseline values based on mean incomes for small animal-exclusive practices in various career tracks and the mean debt load for veterinary school graduates. Although trends for these values may change over time, 2005 was the most recent year in which a sufficient amount of reliable and national data was available to perform a meaningful comparison at the time of the study.

The 5 options for career tracks selected were GP (associate in a general practice), PO (buying into a general practice immediately after graduation from veterinary school), PO-10 (buying into a general practice after working as an associate for 10 years), SP (working full-time; nonowner), and SP3/4 (working three-fourths time; nonowner). Regardless of whether new veterinarians choose internships or residency programs, practice ownership, full-time versus part-time employment, or to work as an associate, the largest proportion (31.5% in 2008)³ opt for a small animal-exclusive practice. For this reason, all of the mean incomes for the study reported here were obtained from data for small animal-exclusive practice, but the model could apply to any form of practice if the values are changed appropriately.

We made several assumptions when establishing baseline values. The bulk of our income data was obtained from the 2007 AVMA *Report on Veterinary Compensation*.⁵ Because these data were based on 2005 incomes for veterinarians in practice, we also used new graduate incomes from 2005 (Table 1).⁶ All practice ownership and GP data were from private practice categories. However, incomes for SPs were not specific to private practice because a high percentage of these veterinarians may practice in academic or industry environments. Furthermore, we used a mean value across all small animal-exclusive environments for specialty practice and did not differentiate between specific board-certification fields (eg, veterinary dermatology vs veterinary surgery). For SP3/4s, mean SP income was multiplied by 0.75.

Table 1—Input variables for 5 career tracks* in veterinary medicine.^{5,6}

Variable	GP	PO	PO-10	SP	SP3/4
Mean starting salary (\$)	53,796	71,044	53,796 and 71,044†	103,000	77,250
Mean plateau salary (\$)‡	79,827	142,501	79,827 and 142,501†	185,346	139,010
Annual rate of salary increase (%)	15	15	15	15	15
Discount rate (%)	5	5	5	5	5
Mean debt at start of repayment (\$)	88,077	88,077	88,077	164,590	164,590
Interest rate on debt (%)	6.8	6.8	6.8	6.8	6.8
Period for loan repayment (y)	10	10	10	10	10

Values reported represent 2005 dollars.
 *The 5 career tracks were GP (associate in a general practice), PO (buying into a general practice immediately after graduation), PO-10 (buying into a general practice after working as an associate for 10 years), SP (working full-time; nonowner), and SP3/4 (working three-fourths time; nonowner). †Represents mean starting income for year 1 after graduation from veterinary school and mean starting income for the first year of practice ownership (ie, year 11 after graduation from veterinary school). ‡Represents mean salary after incremental increases from a starting salary.

We also assumed that income for each career track would start at a low value, increase up to a mean value, and then remain at a plateau at that mean value (Table 1). Mean starting income for a GP was estimated on the basis of the mean starting salary for new graduates employed at small animal-exclusive private practices.⁶ For mean starting income for a PO, we used the mean value for owners in the first 1 to 2 years after graduation from veterinary school as a best estimate.⁵ Mean starting income for a PO-10 for year 1 after graduation from veterinary school was identical to that of a GP, and for the first year of practice ownership (ie, year 11 after graduation from veterinary school), we used the mean starting income for a PO.⁵ Mean starting incomes for SPs were not directly available; thus, the value for the first year was estimated as the 25th percentile of small animal-exclusive SPs.⁵

Mean debt load at the completion of veterinary school was obtained directly from published data for 2005.⁶ However, we assumed a veterinarian in a residency training program would add \$50,000 of principal to that debt load. Although specific data did not exist for additional debt load of veterinarians in residency training programs, the amount was deemed reasonable on the basis of the following: mean debt load after 4 years of veterinary school was \$88,077 in 2005, it was assumed residency training would require a total of 4 years (including a 1-year internship), modest salaries would be earned during internship and residency programs, tuition expenses (if any) would generally be much lower during internship and residency programs than during veterinary school, and modest inflation could be expected. The interest rate on all loans was set at 6.8%, which was a common rate for federally subsidized loans available in recent years.

By use of the baseline data points, we initially developed a model that would estimate the future value of income streams by incorporating mean starting incomes for each corresponding career track and increasing the income stream each year by 15% until the overall mean incomes were met. This formula is meant to represent the salary increases at the beginning of a career as new practitioners become more efficient and productive during the first few years of employment. Once the national mean was met for a specific career track, the future values were held constant for the remainder of the career (which was projected out for 40 years). Initially, this assumption of a plateau (static) income may appear unrealistic; however, all amounts represent 2005 dollars (thus negating an increase attributable to inflation), and major improvements in skills or shifts in services later in a career are rare.

These future values were then converted back to present values by use of the following equation:

$$PV_n'(ct) = FV_n(ct)/(1 + r)^n$$

where $PV_n'(ct)$ is the present value as a function of the career track (ct) chosen, $FV_n(ct)$ is the future value as a function of the ct chosen, r is the discount rate, and n is the number of years after graduation from veterinary school.

Present value calculations take into account the discount rate (ie, opportunity cost of receiving money

today vs next year or far in the future). Other than the influence of inflation (which we assumed was 0% in our model to maintain values in 2005 dollars), use of a present value calculation appropriately weights the investing of money for a positive return today with the lost opportunity that receiving an equivalent amount of money in the future entails. We assumed a discount rate of 5%.

The present value calculation also included the possibility of debt repayment. Debt payments were calculated by use of the following equation:

$$\text{Monthly payment} = (\text{monthly rate} + [\text{monthly rate}/((1 + \text{monthly rate})^{\text{months}} - 1)]) \times \text{principal}$$

where monthly rate is the annual interest rate divided by 12 to yield a monthly rate, and months is the number of years multiplied by 12 to yield the total number of monthly payments. The value for monthly payments was calculated and then multiplied by 12 to yield a net annual loan repayment. To be consistent with regard to 2005 dollars, these annual loan payments were adjusted for inflation at a rate of 3%/y. Once these calculations were performed, the present value equation was modified to include the reduction in income as follows:

$$PV_n''(ct) = (FV_n'(ct) - \text{annual loan payment})/(1 + r)^n$$

This equation was used for the lifetime of the loan, and then the model reverted back to the previous equation (ie, PV_n') for the remainder of the career. Notice that PV_n' and PV_n'' were identical when the annual loan payment was 0.

The loan repayment scenario is slightly more complicated for the career of an SP because most veterinarians in internship and residency programs cannot afford to make loan payments while living on the meager salaries offered by most institutions. For this career track, debt repayment was delayed for 4 years. In addition, to account for the financial realities of living on such meager salaries, we included an additional \$50,000 of debt. To calculate realistic payments, we accounted for additional interest compounded over 4 years as well as the additional principal (\$50,000) by use of the following equations:

$$\begin{aligned} \text{Debt with interest} &= \text{original debt} \times (1 + \text{interest rate})^4 \\ \text{Total SP debt} &= \text{debt with interest} + \text{new principal} \end{aligned}$$

Thus, the PV_n' for SP and SP3/4 was calculated by use of the equation for PV_n' for the first 4 years after graduation from veterinary school (representing the period of training), followed by the equation for PV_n'' starting at year 5 and continuing through the lifetime of the loan, and then by the equation for PV_n' again.

The other scenario considered was the option for PO-10. In this scenario, GP data were used by tracking the increase in salaries (future values) for 10 years after graduation from veterinary school. At year 11, new ownership was assumed, so income was changed to the mean starting salary for a PO, which was then increased

by 15%/y until it met the national mean, at which point it reached a plateau (ie, became static). This created a 2-phase pattern for both future and present values, which represents the actual short-term reduction in income many owners experience during the first years when buying into a practice. We did not include debt associated with buying into a practice in the debt calculations because this money is converted to value directly through ownership equity. Similarly, we did not account for the value of practice equity at the end of the career timelines. By removing these 2 activities (paying for a practice and accumulation of equity) from consideration, we basically made the simplifying assumption that the net financial impacts of these investment decisions were somewhat separate from the ability of a PO to earn an income as a veterinarian. In contrast to SPs, we assumed that PO-10s would begin student debt repayment in the first year after graduation from veterinary school and continue for the lifetime of the student loan.

By use of all of these assumptions about timing of career shifts, loan repayment, salary increases, and starting salaries, a projected income stream in future values was developed and then converted to a present value figure on an annual basis. The most meaningful comparison of career tracks can be accomplished by summation of the $PV_n(ct)$ incomes for each year for a specified number of years and then comparison of these totals, as indicated by use of the following equation:

$$CPV_n(ct) = \sum_1^n PV_i(ct)$$

where $CPV_n(ct)$ is the CPV for the ct as a function of the career track and total number of years worked, and PV_i is the annual present value generated by that career track for each year worked. We generated a $CPV_n(ct)$ for each year up to 40 (Table 2). This allowed us to compare the potential long-term value for each career track and to assess the number of years a veterinarian would need to work in 1 career track to financially outperform another career track.

The last step was to assess sensitivity of the model to changes in various inputs. Each input variable was systematically changed by 25%, and the resulting $CPV_n(ct)$ values were compared with the baseline values and with the relative rank order. Loan term was changed from 10 years to 30 years, rather than the 25% variation applied to all other variables, because these 2 time frames are the most commonly used for loans. Also, a separate scenario was considered in which income increased at 2%/y for 10 years after the mean income value was attained to reflect the possibility of continued increases in productivity over a career.

The time point of 34 years was selected for comparison of CPV_n values for sensitivity testing; the 2005 mean age of veterinarians at the time of graduation from veterinary school was 28 (rounded to nearest whole number),⁶ and a realistic age for retirement or at which to begin an exit strategy would be 62. This yielded 34 years of full production for the typical practitioner, which made the CPV at 34 years after graduation from veterinary school (ie, CPV_{34}) a suitable gauge of the relative value for the various career tracks over

Table 2— CPV_n of expected income streams for 5 career tracks* in veterinary medicine.

Year†	GP	SP	PO	PO-10	SP3/4
1	41,987	25,100	59,235	41,987	25,100
2	89,988	58,433	126,126	89,988	58,433
3	144,422	91,132	201,251	144,422	91,132
4	204,045	123,207	285,252	204,045	123,207
5	261,087	189,791	378,847	261,087	168,606
6	315,652	265,813	482,518	315,652	221,426
7	367,840	351,939	581,475	367,840	282,140
8	417,748	448,915	675,924	417,748	351,284
9	465,469	557,576	766,065	465,469	429,462
10	511,092	664,781	852,088	511,092	506,798
11	560,099	767,222	939,572	574,187	580,793
12	606,772	865,099	1,022,889	643,291	651,578
13	651,222	958,606	1,102,239	718,976	719,283
14	693,556	1,047,930	1,177,810	794,547	784,034
15	733,874	1,141,542	1,249,783	866,520	854,243
16	772,273	1,230,697	1,318,328	935,065	921,109
17	808,842	1,315,606	1,383,610	1,000,347	984,791
18	843,670	1,396,472	1,445,782	1,062,519	1,045,440
19	876,840	1,473,487	1,504,994	1,121,731	1,103,202
20	908,430	1,546,835	1,561,387	1,178,124	1,158,212
21	938,516	1,616,690	1,615,094	1,231,831	1,210,604
22	967,170	1,683,218	1,666,244	1,282,981	1,260,500
23	994,459	1,746,579	1,714,958	1,331,695	1,308,020
24	1,020,448	1,806,922	1,761,352	1,378,089	1,353,278
25	1,045,200	1,864,392	1,805,537	1,422,274	1,396,380
26	1,068,773	1,919,125	1,847,618	1,464,355	1,437,430
27	1,091,224	1,971,252	1,887,695	1,504,432	1,476,525
28	1,112,605	2,020,896	1,925,863	1,542,601	1,513,759
29	1,132,968	2,068,177	1,962,215	1,578,952	1,549,219
30	1,152,362	2,113,206	1,996,835	1,613,572	1,582,991
31	1,170,832	2,156,091	2,029,806	1,646,543	1,615,155
32	1,188,423	2,196,934	2,061,208	1,677,945	1,645,787
33	1,205,176	2,235,832	2,091,114	1,707,851	1,674,960
34	1,221,131	2,272,877	2,119,596	1,736,333	1,702,744
35	1,236,327	2,308,159	2,146,722	1,763,459	1,729,205
36	1,250,798	2,341,760	2,172,556	1,789,293	1,754,406
37	1,264,581	2,373,762	2,197,159	1,813,897	1,778,407
38	1,277,708	2,404,239	2,220,592	1,837,329	1,801,266
39	1,290,209	2,433,265	2,242,908	1,859,645	1,823,035
40	1,302,115	2,460,909	2,264,162	1,880,899	1,843,768

Values reported represent 2005 dollars.
†Represents the number of years (n) after graduation from veterinary school.
See Table 1 for remainder of key.

the span of a veterinarian's career. In sensitivity testing, 1 variable at a time was modified from the baseline values, and the results then were evaluated with regard to the rank order of $CPV_{34}(ct)$ values; we considered any alteration of the relative rank of $CPV_{34}(ct)$ as an indication of high sensitivity. We also evaluated the number of years required for various career tracks to outperform competing career tracks; any shift of > 2 years in the time point at which the rank orders of any 2 career tracks changed was used as an indication of moderate sensitivity. By gauging sensitivity of the model to all the input variables, we can suggest the relative influence of personal data or career-choice data on individual decisions and analysis of career options.

Results

Analysis of the baseline results indicated that the $CPV_{34}(ct)$ was highest for an SP (\$2,272,877), followed by a PO (\$2,119,596), then by a PO-10 (\$1,736,333), and then by an SP3/4 (\$1,702,744; Figure 1; Table 2).

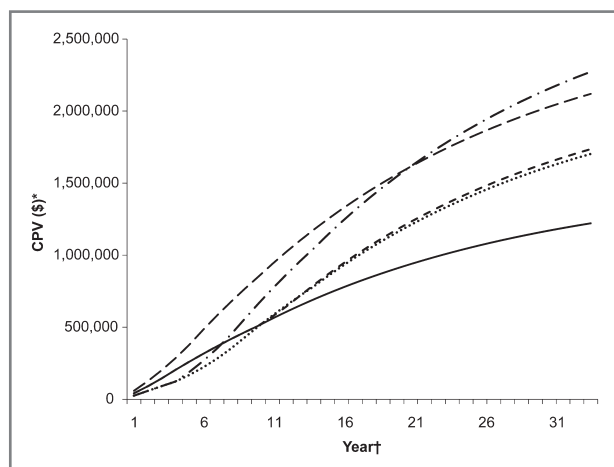


Figure 1—The CPV_n of expected income streams for 5 career tracks in veterinary medicine. The 5 career tracks were GP (associate in a general practice [solid line]), PO (buying into a general practice immediately after graduation [long-dashed line]), PO-10 (buying into a general practice after working as an associate for 10 years [short-dashed line]), SP (working full-time; nonowner [dashed-and-dotted line]), and SP3/4 (working three-fourths time; nonowner [dotted line]). *Values reported represent 2005 dollars. †Year represents the number of years (n) after graduation from veterinary school.

The lowest $CPV_{34}(ct)$ was for a GP (\$1,221,131). As a percentage of the CPV_{34} for an SP, the other career tracks yielded values of 93.3% for a PO, 76.4% for a PO-10, 74.9% for an SP3/4, and 53.7% for a GP.

The absolute value of CPV_{34} for an SP was nearly twice that for a GP, but it was only 7.2% greater than that for a PO. In fact, the CPV_n for an SP was less than the CPV_n for a PO until year 21 after graduation from veterinary school. However, the CPV_n for an SP surpassed the CPV_n for both a PO-10 and GP by year 8 after graduation and was greater than that for an SP3/4 after year 4. The CPV_n for a PO-10 was identical to the CPV_n for a GP for the first 10 years because we assumed that the PO-10 practiced as a GP for the first 10 years after graduation. Starting in year 11, the CPV_n for a PO-10 was always greater than the CPV_n for a GP.

One interesting comparison was the earning power of an SP3/4, compared with that for a GP or PO-10. By use of the baseline assumptions, the CPV_{34} for an SP3/4 was approximately 1.4 times that for a GP, and yet it would involve substantially fewer hours of work throughout the bulk of a veterinarian's career. However, the CPV_{34} for a PO-10 was greater than that for an SP3/4, although by only 2.0%. This comparison suggested that practicing as an SP3/4 is financially comparable to an associate buying into a practice 10 years into a veterinary career.

Sensitivity testing revealed that the model was robust to both increases and decreases of 25% in the debt, interest rate, loan term, and discount rate across all categories. Because a 5% discount rate may be deemed somewhat high in the absence of inflation, the lack of appreciably different results attained by use of discount rates of 2%, 3%, and 4% was noteworthy. The model was not sensitive to changes in the rate of salary increase, except for 1 category: decreasing the rate of salary increase for POs from 15% to 11% yielded moderate sensitivity

by decreasing the number of years until the CPV_n for an SP was greater than the CPV_n for a PO (from 21 years to 19 years). Increases in productivity throughout a career yielded little sensitivity in the results attained.

The model was moderately to highly sensitive to changes in the mean starting incomes and particularly the mean incomes for all categories. High sensitivity was defined as a change in the rank order of $CPV_{34}(ct)$, whereas moderate sensitivity was defined as a change of > 2 years for the point at which a $CPV_n(ct)$ surpassed the performance of another career track.

The most sensitive of these were changes in the mean incomes of POs and PO-10s. An increase or decrease in these mean incomes yielded a change in the rank order of the $CPV_{34}(ct)$. Decreasing the mean PO income by 25% made the SP3/4 a more lucrative career track than both the PO and PO-10 and decreased the number of years an SP would have to work to earn more than a PO from 21 to 12. An increase of 25% in the mean salary of a PO changed the rank order of the $CPV_{34}(ct)$ by making PO the most lucrative of all careers and by making the PO-10 career track more lucrative than the SP3/4 career track.

High sensitivity also was evident with increases in the mean salaries of GPs, decreases in the mean and mean starting salaries of SPs, and increases in the mean starting salaries of POs. Moderate sensitivity was evident with decreases in mean and mean starting salaries for GPs, decreases in mean starting salaries for POs, and increases in mean and mean starting salaries for SPs.

Because there is competition for residency positions, many new veterinarians (an unknown number) are willing to take unpaid positions in exchange for the opportunity for training that will lead to board certification. When this scenario was evaluated, the CPV_{34} for an SP was still ranked first, although the CPV_{34} for an SP3/4 was ranked fourth. If additional debt were incurred during this 4-year period, rankings relative to CPV_{34} for a GP probably would not change, but the relative returns for a PO would obviously be even more competitive with those for an SP or SP3/4.

Not all veterinarians in internship programs will continue through residency training. In 2005, the Veterinary Internship Residency Matching Program matched veterinarians for 498 internships and 217 residency programs.^a Although a considerable number of internships and residency programs admittedly are filled outside the matching program, these numbers suggested that fewer than half of the veterinarians in an internship continued on to residency training. For veterinarians who complete an internship but not a residency program (either by choice or by failure to match), the financial outcomes do not vary greatly from that for a GP who did not complete an internship. If it is assumed that the mean plateau salary after salary increases for a GP was identical to that of a GP who did not complete an internship but that the salary increases were over a period that was 1 year less, then the CPV_n for an SP would exceed the CPV_n for a GP 1 year sooner and the CPV_{34} for a GP would be equal to 97% of the CPV_{34} for a GP who did not complete an internship. In contrast, if it is assumed that the mean plateau salary after salary increases was 5% greater than that for a GP who did not

complete an internship, then the CPV_n for an SP would exceed the CPV_n for a GP in the same year as for the baseline assumptions, and the CPV_{34} for a GP would be equal to 104% of the CPV_{34} for a GP who did not complete an internship.

Discussion

Sensitivity of the model described here to many of the income variables indicated that it was not a good predictor of absolute career earnings and value; instead, it can be used to provide an indication of relative value of various career tracks. We believe that regional differences in income as well as economic trends and inflation will affect the results for the various career tracks proportionately; these differences in income will certainly affect the absolute CPV_n of any career, but the rank order will remain relatively constant regardless of regional or national economic circumstances in the future.

Results for the model clearly revealed that the greatest return on time and money invested by a veterinary student comes through practicing full-time as an SP or through the PO career track. In general, results for the model indicated that being an SP, either full- or part-time, was substantially more lucrative than being a GP and was comparable to being a PO in financial returns.

However, there is a wide range of mean incomes for SPs, and the specific area of expertise has a substantial influence on financial outcome. Of the specialties commonly encountered in private practice, board-certified veterinary surgeons in 2005 had the highest mean income (\$183,092), whereas board-certified veterinary behaviorists had a mean income of \$90,892.⁵ Because the model we developed was highly sensitive to these mean income values, the relative financial value of an SP depends highly on the specialty that a veterinarian might choose to pursue.

Practice ownership is also a relatively lucrative venture. Results for the model revealed that a PO can earn substantially more than can a GP but that the biggest financial gains will be made by those who purchase early during their veterinary career. However, for older practitioners with a minimum of 3 or 4 years remaining before retirement, buying into a practice is still more lucrative than is continuing to practice as a GP.

Because time and a healthy balance between work and lifestyle are important to many veterinarians, practice ownership could possibly offer a way to maintain earning power while working fewer hours. Data from the AVMA⁵ indicate that the mean number of hours worked per week by female veterinarians who are small animal POs is actually less than that of female veterinarians who are working as associates at small animal practices. Working three-fourths time as an SP is also an option to balance financial gains with free time. The CPV_{34} for an SP3/4 was higher than that for a GP, but it also was more than that of a PO-10. In fact, by just 11 years after graduation from veterinary school, mean earnings for an SP3/4 had outpaced that for a GP.

The increasing competition for residency positions is an important factor for many veterinarians who are considering pursuing specialty board certification. In 2005, the Veterinary Internship Residency Matching

Program received 635 applicants for residency programs, and only 217 (34%) were matched.^a The opportunity for residency positions might increase for those willing to take an unpaid position. Despite this initial sacrifice, the CPV_{34} for an SP is still the most valuable (rank order 1), and the CPV_{34} for an SP3/4 remains more valuable than that for a GP. Although the model was highly sensitive to this scenario according to our definition, the financial value of specialty training is evident if the choice is for a high-earning specialty, such as veterinary surgery. For those who are not particularly interested in developing proficiency with the business dimensions of practice ownership, or who want to spend time working in a practice and not on a practice, specialty training is financially worth the sacrifices made during residency training. The possibility of owning a specialty practice may be the highest avenue to earnings in veterinary medicine because the mean income of an SP PO in 2005 was \$213,042.⁵ Use of this value for mean income of an SP yields a CPV_{34} for an SP PO that is easily more than twice that of a GP.

The higher income stream associated with being an SP is not without risk or compromise. For example, SPs are most often found in urban environments; the cost of living in most metropolitan areas is higher than that of a PO in suburbia, and living in an urban environment is a lifestyle choice not suitable for all. The increasing numbers of veterinarians seeking specialty training may lead to market saturation in the future, which would decrease the incomes of SPs. In addition, it is difficult to get accepted into residency programs, and involvement in a residency training program often involves moving a household to a new location, typically requires a veterinarian to work hard and long for low pay, and may require sacrifices by other family members.

Results indicate that over the course of an entire career, the financial implications of completing an internship without continuing to specialty training are relatively minor. Therefore, decisions in this regard are best based on an individual's degree of self-confidence at the time of graduation from veterinary school combined with short-term financial considerations. Veterinarians pursuing internships without subsequent residency training would still be able to become POs and attain the accompanying financial rewards.

Personal strengths and weaknesses may influence the relative risk, reward, and incomes in any of these career tracks. Veterinarians who are particularly adept at running a business stand to gain substantial benefits in addition to a higher salary as a PO through accumulation of wealth in the form of practice equity, making this career track perhaps even more attractive than pursuit of specialty training. Conversely, many excellent veterinarians are not equally capable as business managers, and the phenomenon of no-value, low-income practices can be the product of good veterinarians running unsuccessful businesses.⁷ These individuals will not likely be able to achieve the PO incomes assumed in this analysis and may actually incur accompanying financial losses through erosion of equity in the practice they have purchased. Consequently, many graduates without a business interest may find more personal satisfaction as well as financial gain by becoming an SP rather than a PO.

The fact that data and assumptions for this analysis were predicated on a pre-2008 economic environment is worthy of mention. Because economic conditions have changed dramatically since 2008, it is not safe to assume that the recent downturn would have the same proportionate impact on all the career tracks and scenarios evaluated. In particular, relatively minor differences between alternative career tracks suggested by this study should be viewed with some caution. However, we have no reason to believe that the major conclusions we have identified would not be robust for the post-2008 economy.

Many possible career options exist in veterinary medicine in addition to those considered in this analysis. To the extent that income streams associated with opportunities such as public health, industry, government, and academia can be compared in a relative sense with the incomes for the career tracks described here, the results can reasonably be extrapolated, with appropriate qualitative adjustments for the amount of additional postgraduate training that may be required for any particular career option.

Decisions about career tracks, specialization, and practice ownership should not be overly influenced by debt burden (assuming debt payments can be made after meeting living expenses within any particular time period), despite the daunting figures many graduates face as they begin their veterinary careers. Not surprisingly, results of our model suggested that specialty medicine and practice ownership may be the career tracks with

the best potential repayment options for veterinarians with a large educational debt. Regardless of the amount of debt, the type of practice, mean incomes in a particular field, personal lifestyle, and professional interest are critically important factors to consider when deciding among career tracks.

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