



The Economic Impacts of Veterinary Medicine in Canada

Prepared for the Canadian Veterinary Medical Association

Final Report

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CVMA Economic Impact Report

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Executive Summary

Introduction

The Canadian Veterinary Medical Association (“CVMA”) engaged MNP LLP (“MNP”) to carry out an economic impact assessment of the veterinary profession across Canada to demonstrate the economic importance of the sector. The study included developing economic contributions of the veterinary sector, by province and nationally.

Industry Profile

Veterinarians provide a broad range of healthcare and medical services to animals, primarily focusing on their well-being and health. Around 85 percent of veterinarians work in veterinary practices, while the remaining 15 percent are employed in other sectors, including government, academia and industry.

Key Industry Statistics

- In 2022/2023, there were a total of **14,158 actively practicing veterinarians** in Canada.
- In 2022/2023 there were **4,830 accredited veterinary practice facilities** in Canada.
- Total revenues of veterinary practices in 2022/2023 in Canada were approximately **\$9.3 billion**.
- Veterinary practices in Canada **directly employed over 48,790 people**.

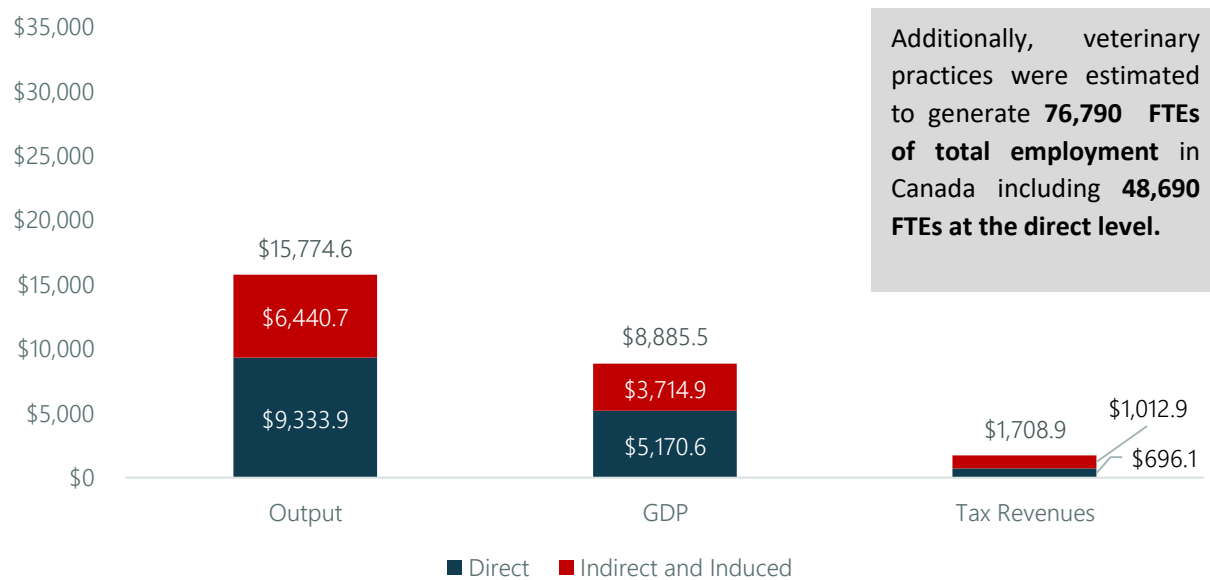
Economic Impacts of the Veterinary Practices

The economic impacts generated by veterinarians in Canada are shown in Figure A. In 2022/2023, veterinary practices in Canada generated the following economic impacts:

- \$15.7 billion in total economic output consisting of \$9.3 billion in direct output and \$6.4 billion in indirect and induced output.
- \$8.9 billion in total GDP consisting of \$5.2 billion in direct GDP and \$3.7 billion in indirect and induced GDP.
- \$1.7 billion in total revenue for all three levels of government consisting of \$696.1 million in direct government revenue and \$1 billion in indirect and induced government revenue.
- 76,790 total full-time equivalent jobs (FTEs) consisting of 48,690 direct jobs¹ and 28,100 indirect and induced jobs.

¹ Direct employment includes veterinarians, veterinary technologists and other practice staff.

Figure A: Economic Impacts of Veterinary Practices in Canada – 2022/2023



Economic Impacts of Veterinarians in Other Sectors

In 2022 there were approximately 2,049 veterinarians employed in other sectors such as educational institutes, laboratories, government institutes, industrial and pharmaceutical companies as well as consulting businesses and non-profit organizations. These veterinarians were estimated to earn approximately \$275.3 million.

The household spending of veterinarians employed in other sectors was estimated to generate approximately:

- \$229.8 million in output
- \$134.2 million in GDP
- 940 FTE jobs.
- \$48.5 million in taxes for all three levels of government.

Total Economic Contribution of Veterinarians by Province

Table A summarizes the total direct, indirect and induced impacts generated by veterinary practices and spending of veterinarians in each province.

Table A: Estimated Total Economic Impacts of Veterinary Sector in Canada by Province

Province	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Ontario	\$5,467.2	\$3,074.9	26,070	\$316.1	\$252.6	\$64.9
Quebec	\$2,949.7	\$1,643.7	14,920	\$108.4	\$156.3	\$27.5
British Columbia	\$2,722.1	\$1,560.6	13,890	\$170.0	\$139.9	\$22.2
Alberta	\$2,646.7	\$1,510.3	12,360	\$132.5	\$88.4	\$22.9
Saskatchewan	\$608.7	\$339.4	2,640	\$32.6	\$33.3	\$3.8
Manitoba	\$478.6	\$268.4	2,120	\$27.2	\$26.9	\$4.5
Nova Scotia	\$412.6	\$225.2	2,290	\$21.6	\$24.1	\$5.2
New Brunswick	\$334.9	\$182.4	1,700	\$13.8	\$17.3	\$2.8
Newfoundland	\$273.4	\$153.0	1,090	\$12.6	\$14.3	\$2.0
Prince Edward Island	\$110.5	\$61.8	650	\$5.8	\$7.3	\$0.7
Total	\$16,004.4	\$9,019.7	77,730	\$840.6	\$760.4	\$156.5

Potential Impact of Increased Veterinary Care

Increases in the number of mixed animal veterinarians would create incremental economic impacts through the associated practice expenses. In addition, increased access to veterinary care could allow livestock producers to increase their production.

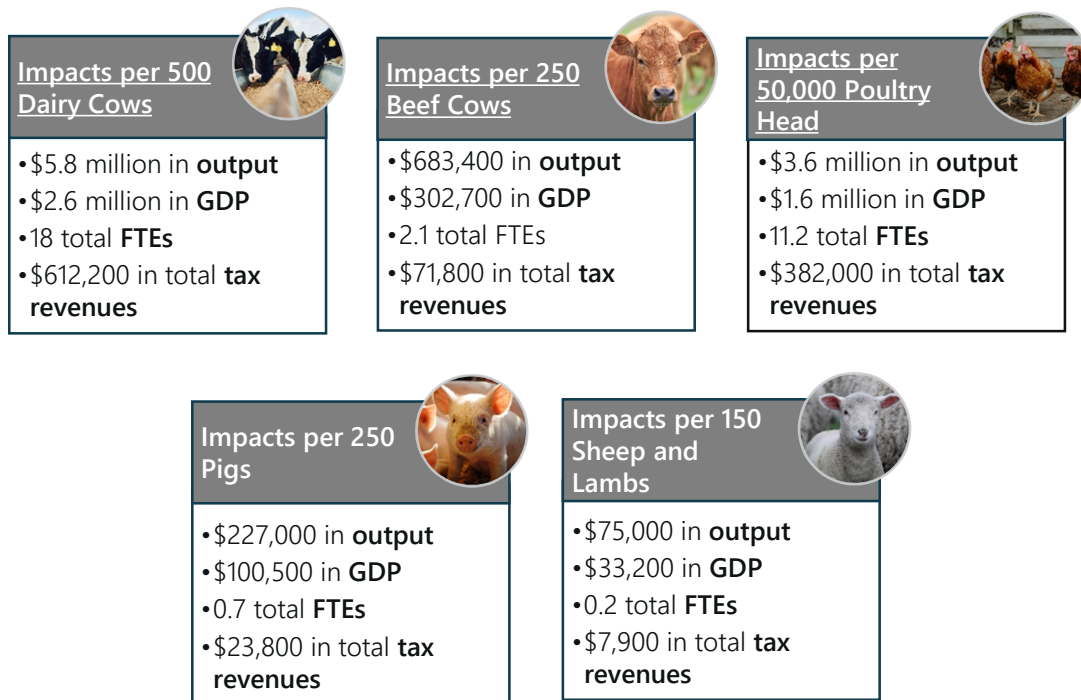
Table B shows the estimated impact per full-time veterinarian in a mixed animal practice.

Table B: Economic Impacts per Full-Time Veterinarian in a Large or Mixed Animal Practice

Category	Output (\$)	GDP (\$)	Employment (FTEs)	Federal Tax (\$)	Provincial Tax (\$)	Municipal Tax (\$)
Direct	\$708,500	\$368,100	3.0	\$26,500	\$20,300	\$30
Indirect and Induced	\$499,800	\$312,300	2.2	\$30,700	\$33,300	\$10,700
Total	\$1,208,300	\$680,400	5.2	\$57,200	\$53,600	\$10,730

Figure B illustrates the potential magnitudes of the impact to the economy of livestock producers growing their operations by livestock type.

Figure B: Total Direct, Indirect and Induced Economic Impacts by Animal



1. Introduction

1.1 Background and Purpose

The Canadian Veterinary Medical Association (“CVMA”) is the voice of the Canadian veterinary medical profession that provides leadership and advocacy for veterinary medicine in order to promote animal welfare and One Health. There are currently over 15,000 veterinarians and 3,800 veterinary practices in Canada² providing animal health services across several fields and specialties. These veterinarians and their support staff of veterinary technologists and customer service representatives provide care for small and companion animals, food and large animals, equine and other exotic species. Veterinarians also work in government, industry, academia and other specialized disciplines to advance animal and human health worldwide.

The veterinary profession plays a key role in protecting public health, food security, our environment and overall animal welfare.

To document the contributions of the sector CVMA engaged MNP LLP (“MNP”) to carry out an economic impact assessment of the veterinary profession across Canada.

The scope of the study included:

- Developing a profile of the veterinary profession across Canada including information on the types of services provided and a description of how the profession supports other sectors.
- Estimating the economic impacts generated by the veterinary profession across Canada.
- Providing regional breakdowns of economic impacts by province.
- Developing case studies demonstrating social and community contributions of the veterinary profession.
- Preparing a profile of the veterinary technologist occupation.

² Canadian Veterinary Medical Association. Available here: <https://www.canadianveterinarians.net/about-cvma/media-centre/statistics/>

1.2 Approach

In preparing this report, MNP carried out the following activities:

- Gathered and analyzed data provided by CVMA and provincial veterinary associations, as well as information available from previous workforce studies.
- Developed economic impact estimates of veterinarians for each of the 10 provinces in Canada following an input-output methodology using provincial multipliers published by Statistics Canada.
- Conducted interviews with representatives of the profession to inform case studies and fill gaps in available information.
- Developed case studies on broader economic and social contributions of the profession based on the information from interviews and additional research.

1.3 Structure of the Report

The remaining sections of this report are organized as follows:

- Section 2 provides an overview of veterinary medicine in Canada.
- Section 3 presents the economic impacts of veterinary medicine in Canada.
- Section 4 provides an overview of other types of occupations created by veterinary medicine.
- Section 5 presents case studies on broader community and social contributions of the profession.
- The appendices provide additional details on the economic impact methodology and relevant assumptions and background information about MNP.

1.4 Limitations

This report is not intended for general circulation, nor is it to be published in whole or in part without the prior written consent of MNP. The report is provided for information purposes and is intended for general guidance only. It should not be regarded as comprehensive or a substitute for personalized, investment or business advice.

We have relied upon the completeness, accuracy and fair presentation of all information and data obtained from CVMA and public sources believed to be reliable. The accuracy and reliability of the findings and opinions expressed in the presentation are conditional upon the completeness, accuracy and fair presentation of the information underlying them. As a result, we caution readers not to rely upon any findings or opinions for business or investment purposes and disclaim any liability to any party who relies upon them as such.




The findings and opinions expressed in the presentation constitute judgments as of the date of the presentation and are subject to change without notice. MNP is under no obligation to advise of any change brought to its attention that would alter those findings or opinions.





2. Veterinary Sector in Canada

2.1 Overview of the Veterinary Sector

Veterinary service refers to the broad range of healthcare and medical services provided to animals, primarily focusing on their well-being and health. Veterinarians work in various settings, offering medical and surgical care to a diverse array of animals, including companion animals, livestock, and exotic species. They provide guidance on nutrition and disease management, ensuring the health and well-being of both animals and humans. Additionally, they engage in research, educational roles, and inspections associated with their field. The types of services provided by veterinarians are summarized in Table 1.

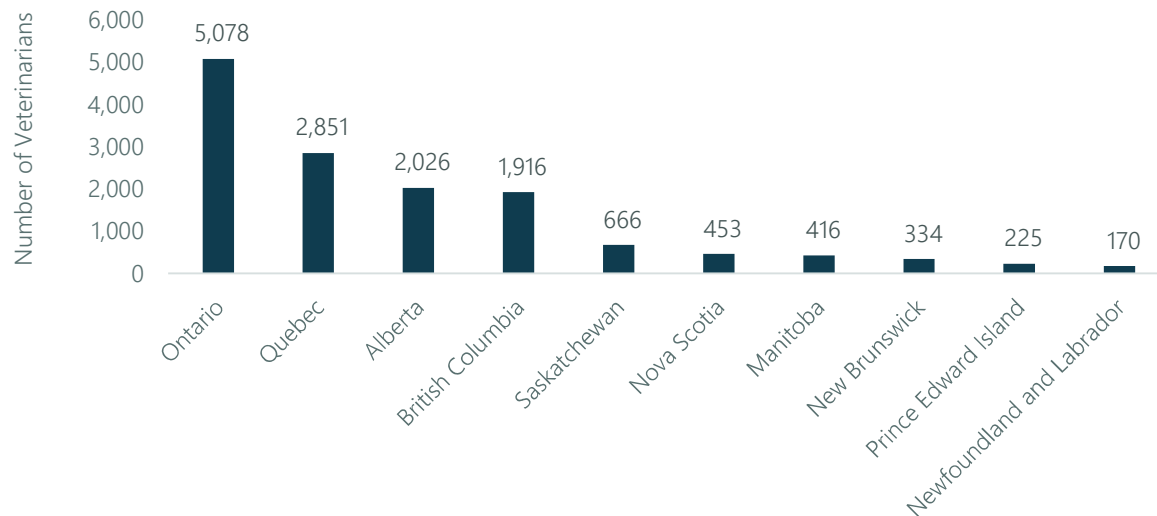
Table 1: Types of Veterinary Services

Category	Description
<p data-bbox="261 835 615 867">Companion or Small Animals</p> 	<p data-bbox="669 835 1419 1058">Companion animal veterinarians provide medical care and services to pets, such as dogs, cats, birds, reptiles and small mammals. Their work involves diagnosing and treating illnesses, performing surgeries, administering vaccinations, offering preventive care, and providing guidance on pet nutrition and behavior.</p>
<p data-bbox="355 1178 521 1209">Food Animals</p> 	<p data-bbox="669 1178 1419 1556">Food animal veterinarians, including aquaculture veterinarians, focus on the health and well-being of livestock and other food animals raised for human consumption, such as cattle, poultry, seafood and swine. Their responsibilities include disease prevention, herd health management, reproductive assistance, and ensuring the safety and quality of food products derived from these animals. Veterinarians working in these practices play an important role in food safety and security through veterinary oversight of agricultural operations to maintain animal health and welfare.</p>
<p data-bbox="396 1598 480 1629">Equine</p> 	<p data-bbox="669 1598 1419 1820">Equine veterinarians offer healthcare for both individual horses and the overall well-being of groups of horses. They play a crucial role in supporting various horse-related events like racing, rodeos, show jumping, and horse shows. Veterinarians are also vital in ensuring the health certification of horses meant for international export.</p>

Category	Description
<p data-bbox="305 260 574 289">Specialized Disciplines</p> 	<p data-bbox="670 260 1419 520">These are veterinarians with advanced training and provide specialized services in many clinical disciplines including surgery, internal medicine, medical imaging, anesthesiology, ophthalmology, veterinary pathology, dentistry, wildlife medicine and oncology. They may also work with a diverse range of non-traditional and exotic species in addition to animals housed in zoos and wildlife reserves.</p>
<p data-bbox="245 634 633 663">Government and Public Services</p> 	<p data-bbox="670 634 1419 856">These veterinarians work in government agencies responsible for ensuring the safety of the food supply. They regulate the import and export of livestock and food products and are responsible for the control of infectious diseases among livestock and wildlife. They also provide diagnostic/inspection services and ensure the health and safety of commercial food products.</p>
<p data-bbox="305 966 574 995">Research and Industry</p> 	<p data-bbox="670 966 1419 1304">These professionals work in research institutions, pharmaceutical companies, and various industries related to animal health. Some research is geared to improving animal disease prevention, diagnostic tests and treatment. Other research is in translational medicine where animal models are used to research and improve diagnosis and treatment of conditions in humans, as well as studying disease transmissible between animals and humans. In all cases, veterinary professionals care for animals participating in research trials.</p>
<p data-bbox="378 1344 501 1373">Academia</p> 	<p data-bbox="670 1344 1419 1488">These veterinarians are involved in teaching and studying animal health at veterinary colleges, universities, research institutions and labs. They also contribute towards advancement in human medicine and collaborate with researchers around the world.</p>

In 2022/2023, there were a total of 14,158 actively practicing veterinarians in Canada.³ As shown in Figure 1, Ontario has the largest number of active veterinarians (36 percent), followed by Quebec (20 percent), Alberta and British Columbia (with 14 percent each). The rest of Canada accounts for 16 percent of total veterinarians.

Figure 1: Number of Actively Practicing Veterinarians by Province

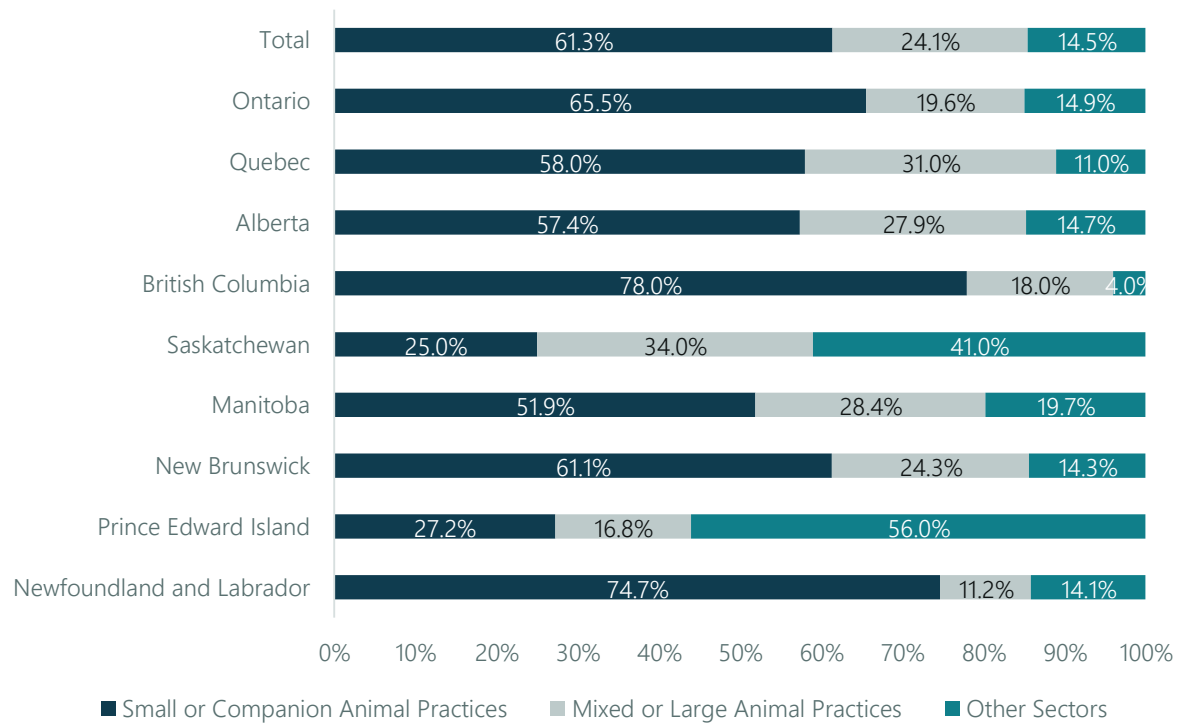


Source: Provincial Veterinary Associations and CVMA

Figure 2 shows the distribution of veterinarians by type of activity. Around 85 percent of veterinarians work in veterinary practices, while the remaining 15 percent are employed in other sectors, including government, academia and industry. Of those working in veterinary practices, approximately 72 percent are employed in companion animal practices and 28 percent are employed in mixed or large animal practices.

³ Actively practicing excludes retired and non-practicing veterinarians or students. Out of the 14,158 veterinarians, between 20 to 25 are estimated to be working in Yukon and Northwest Territories.

Figure 2: Distribution of Veterinarians by Area of Practice⁴



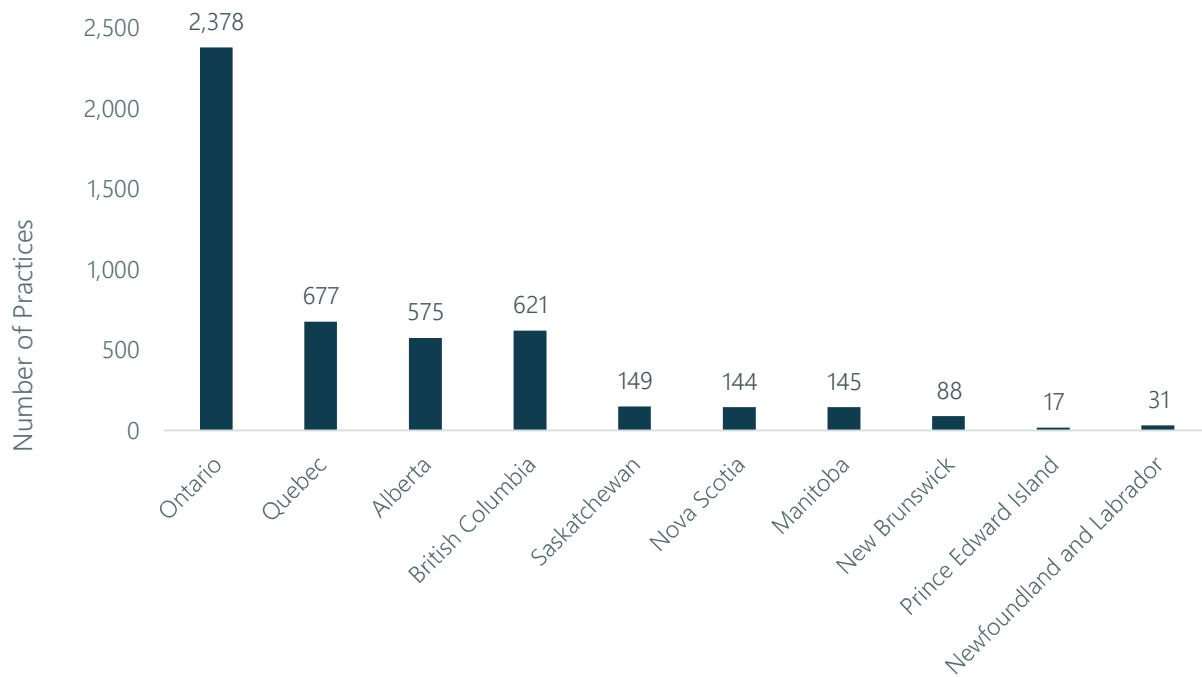
Source: Provincial Veterinary Associations and 2020 CVMA Workforce Study

In 2022/2023 there were 4,830 accredited veterinary practice facilities in Canada.⁵ As shown in Figure 3, the majority of practices were located in Ontario (49 percent), followed by Quebec (14 percent), British Columbia (13 percent) and Alberta (12 percent). All other regions accounted for the remaining 12 percent of practices.

⁴ Please note that information of veterinarians by type of activity was not available for Nova Scotia.

⁵ Out of the 4,830 veterinary practices, 5 are located in Yukon and Northwest Territories.

Figure 3: Number of Practices by Province



Source: Provincial Veterinary Associations and CVM

2.2 Veterinary Technologists and Technicians



Registered veterinary technologists and technicians (RVTs) are key members of the animal care team in a veterinary practice. They work under the supervision of a licensed veterinarian and assist in the treatment and management of animals by conducting laboratory tests, filling prescriptions, preparing animals for surgery, overseeing anesthesia, assisting in surgical procedures, monitoring progress, administering treatments, conducting certain dental procedures and capturing

diagnostic images.

In addition to veterinary practices, RVTs also work in zoos, wildlife rehabilitation, government and research laboratories, public education, and industry.⁶

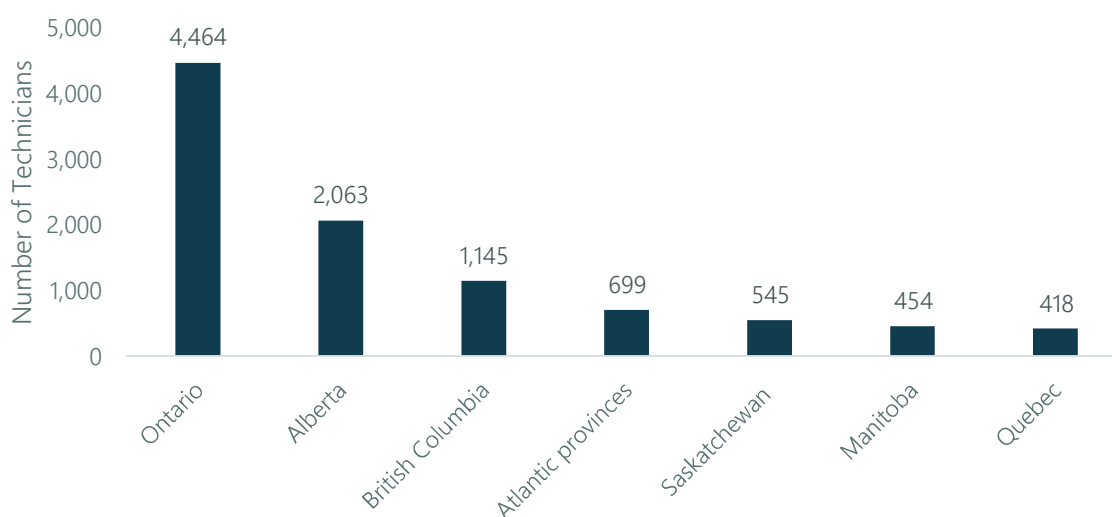
The requirements for becoming an RVT vary by province; however, all regulatory bodies mandate a

⁶ Canadian Veterinary Medical Association. Registered Veterinary Technician/Technologists. Retrieved from <https://www.canadianveterinarians.net/public-resources/careers-in-veterinary-medicine/registered-veterinary-technician-technologists/>

standardized level of knowledge and skills and registration with a licensing body. This entails graduating from an accredited post-secondary program in Animal Health, Veterinary Technology or Veterinary Technician, and successfully passing the Veterinary Technician National Examination (VTNE).⁷ Most training programs are two to three years in length and accreditation is done by the Canadian Veterinary Medical Association’s (CVMA’s) AHT/VT Program Accreditation Committee or, in Ontario, the Ontario Association of Veterinary Technicians (OAVT’s) College Accreditation Committee.⁸ In Quebec, the equivalent title for an RVT is “techniciens en santé animale certifiés” (TSAc) and those without a credential are “techniciens en santé animale (TSA)”. The professional association for technicians is the Association des Techniciens en Santé Animale du Québec (ATSAQ)⁹.

As of 2022 there were nearly 10,000 RVTs in Canada, whose interests are represented by the Registered Veterinary Technologists and Technicians of Canada (RVTTC).¹⁰ Figure 4 shows the distribution of RVTs across Canada.

Figure 4: Number of Registered Veterinary Technicians by Province, 2022¹¹



Source: RVTTC/TTVAC 2023 Annual Report. p.14.

⁷ The Registered Veterinary Technologists and Technicians of Canada. Becoming an RVT. Retrieved from <https://rvtcareernavigator.ca/becoming-an-rvt/>

⁸ Canadian Veterinary Medical Association. Registered Veterinary Technician/Technologists. Retrieved from <https://www.canadianveterinarians.net/public-resources/careers-in-veterinary-medicine/registered-veterinary-technician-technologists/>.

⁹ Techniciens en Santé Animale du Québec. <https://atsaq.org/>

¹⁰ RVTTC/TTVAC 2023 Annual Report. p.14. Retrieved from <https://rvttcanada.ca/wp-content/uploads/RVTTC-AR-22-23-FINAL.pdf>

¹¹ Breakdown by province for Atlantic provinces was not available.

2.3 Linkages with and Support for Other Sectors

Figure 5 outlines the linkages between veterinary medicine and other sectors. The services provided by veterinarians extend beyond providing care for companion animals and livestock. They also impact public health and research.

Figure 5: Veterinary Medicine’s Support for and Linkages with Other Sectors

Veterinary Medicine				
Research and Industry	Public Health	Animal Health and Welfare	Education	
Services				
<ul style="list-style-type: none"> Laboratory Testing Biosecurity Research Development of Communication Materials, Manuals and Processes Pathogen Diagnostics Pharmaceutical Research and Development Vaccine development 	<ul style="list-style-type: none"> Zoonotic Diseases Human Animal Bond Water Well Testing Disease Surveillance Food Inspection Food Safety and Security Environmental Health 	<ul style="list-style-type: none"> Routine and Preventative Care Veterinary Nutrition Euthanasia and End of Life Care Emergency Treatment and Surgery Emergency Planning Site Inspection Services Specialist Treatments Humane Euthanasia Animal Welfare Advocacy 	<ul style="list-style-type: none"> Training of Veterinary Professionals Continuing Education Public Outreach Programs School and Educational programs Public Trust Promotion of Mental Health and Well-being in the Veterinary Profession 	
Industry				
Public Health Administration	Agriculture	Veterinary Practices	Non-Profit Organizations/Associations	Post-Secondary Institutions
<ul style="list-style-type: none"> One Health Initiatives Ensuring Safety of Food Preventing Spread of Disease Setting up the standards and practices 	<ul style="list-style-type: none"> Livestock Production Dairy Products Poultry and Egg Production Meat Processing Exports Pharmaceutical Distribution 	<ul style="list-style-type: none"> Companion animals Mixed animals Food animal Equine Zoo, exotic and wildlife Aquaculture 	<ul style="list-style-type: none"> Educational programs such as 4H Rodeos Cultural Events Industry Associations 	<ul style="list-style-type: none"> Colleges or Universities

3. Economic Impact Analysis

3.1 Overview of Economic Impact Analysis

In general, economic impacts are viewed as being restricted to quantitative, well-established measures of economic activity. The most commonly used of these measures are output, GDP, employment and government revenue:

- **Output** is the total gross value of goods and services produced by a given company or industry measured by the price paid to the producer. This is the broadest measure of economic activity.
- **Gross Domestic Product (GDP)**, or value added, refers to the additional value of a good or service over the cost of inputs used to produce it from the previous stage of production. Thus, GDP is equal to the unduplicated value of the goods and services produced.
- **Employment** is the number of additional jobs created. Employment is measured in terms of full-time equivalents (FTEs). One FTE is equivalent to one person working full-time for one year or one person-year of employment.
- **Government Revenues** are the total amount of revenues generated for different levels of government. Revenues arise from personal income taxes, indirect taxes less subsidies, corporate income taxes, taxes on products and royalties. Please note that because tax revenues can frequently change due to modifications in tax policy, the government revenues in this report are estimates only and subject to change. They should be viewed as approximate in nature.

Economic impacts may be estimated at the direct, indirect and induced levels:

- **Direct impacts** are due to changes that occur in "front-end" businesses that would initially receive expenditures and operating revenue as a direct consequence of the operations and activities of an industry, organization or project.
- **Indirect impacts** arise from changes in activity for suppliers of the "front-end" businesses.
- **Induced impacts** arise from shifts in spending on goods and services as a consequence of changes to the payroll of the directly and indirectly affected businesses.

To estimate the economic impacts generated by the veterinary sector MNP employed an input-output methodology using multipliers published by Statistics Canada. Input-output modeling is a widely used and widely accepted approach, making it recognizable by many different stakeholders and audiences. The structure of the approach also facilitates easy comparisons between reported results for different industries and organizations.

Data Sources

Data for the estimating the economic impacts of veterinary practices were obtained from:

- Provincial veterinary associations.
- CVMA's economic survey of veterinary practices for 2022.
- CVMA's reports on compensation and benefits for associate veterinarians for 2022.
- CVMA's national report on veterinarians employed in government, industry and academe for 2022.
- CVMA's 2020 Labour Market Study.

3.2 Economic Impacts of Veterinary Practices

The day-to-day operations of veterinary practices generate economic impacts through expenditures on goods and services, the employment of staff, and the generation of tax revenues for different levels of government.

According to CVMA's economic surveys, veterinary practices in Canada were estimated to generate between \$475,000 and \$1.2 million in revenues per full-time equivalent (FTE) veterinarian depending on location and type of practice. This translated into a total revenue for veterinary practices in Canada of approximately \$9.3 billion in 2022/2023.¹² As shown in Figure 6 practices in Ontario accounted for 34 percent of the revenues, followed by Quebec (19 percent), Alberta (17 percent) and British Columbia (16 percent). Operations in rest of Canada account for 13 percent of total revenues.

¹² CVMA's economic surveys define a FTE veterinarian as a veterinarian working 1,750 hours annually. Practice wide estimates of revenues and expenditures were developed using the total number of veterinarians and average annual hours worked.

Figure 6: Estimated Revenue of Veterinary Practices by Province



Source: Derived from CVMA, Economic Report - 2022

Veterinary practices were estimated to have incurred expenditures (including compensation of associate veterinarians) of between \$310,000 to \$770,000 per FTE veterinarian in 2022 depending on location and type of practice. This translated into spending of approximately \$6.9 billion by veterinary practices in Canada. Table 2 shows the distribution of expenditures typically incurred by veterinary practices. Drugs and supplies account for the largest share of these expenditures (39 percent) followed by employee compensation (38 percent). Other operating expenditures, including laboratory, rent and office expenditures and accounting and other professional services, accounted for approximately 23 percent of practice spending.

Table 2: Estimated Total Spending of Veterinary Practices (\$ millions)

Expenditure Category	Spending	Percentage of Total Expenditure
Drugs and Supplies	\$2,688.2	39%
Salaries, Wages and Benefits	\$2,573.2	38%
Laboratory	\$211.9	8%
Rent and Office Expenditures	\$510.7	7%
Accounting, legal and other professional services	\$213.6	4%
Other	\$654.6	4%
Total	\$6,852.2	100%

Source: Derived from CVMA, Economic Report - 2022

Table 3 shows the estimated total economic impacts of veterinary practices in Canada in 2022. Veterinary practices were estimated to generate:

- \$15.7 billion in total economic output consisting of \$9.3 billion in direct output and \$6.4 billion in indirect and induced output.
- \$8.9 billion in total GDP consisting of \$5.2 billion in direct GDP and \$3.7 billion in indirect and induced GDP.
- \$1.7 billion in total revenue for all three levels of government consisting of \$696.1 million in direct government revenue and \$1 billion in indirect and induced government revenue.
- 76,790 total full-time equivalent jobs (FTEs) consisting of 48,690 direct jobs¹³ and 28,100 indirect and induced jobs.

Table 3: Estimated Total Economic Impacts of Veterinary Practices in Canada

Category	Output (\$ millions)	GDP (\$ millions)	Employment (jobs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Direct	\$9,333.9	\$5,170.6	48,690	\$410.3	\$285.5	\$0.3*
Indirect and Induced	\$6,440.7	\$3,714.9	28,100	\$412.2	\$451.9	\$148.8
Total	\$15,774.6	\$8,885.5	76,790	\$822.5	\$737.4	\$149.0

*The majority of office space used by veterinary practices was assumed to be leased. Consequently, municipal tax revenues associated with office space have been included in the indirect municipal tax estimates.

¹³ Direct employment includes veterinarians, veterinary technologists and other practice staff.

3.3 Economic Impacts of Veterinary Practices by Province

Figure 7 through Figure 10 provide a summary of the direct, indirect and induced economic impacts generated by veterinary practices in each of Canada’s 10 provinces.

Please note that direct impacts are solely generated in the province where operations are located. Indirect and induced economic impacts are generated in both the province where operations are located and in other provinces due to supply chain linkages. For example, professional services (i.e., legal, marketing, etc.) and drugs and supplies may be procured from outside the province of operation.

In the provinces of Ontario, British Columbia, Alberta, and Quebec, between 74 and 90 percent of the indirect and induced impacts are generated within the province. For all other provinces, this figure ranges between 38 and 71 percent.

Detailed economic impacts by province are provided in Appendix B.

Figure 7 shows the distribution of the estimated total output generated by veterinary practices in 2022 by province. Ontario accounted for the largest share, with approximately 34 percent of the total output, followed by Quebec (18.6 percent), British Columbia (17.3 percent), and Alberta (16.6 percent). Saskatchewan and Manitoba, and Atlantic Canada each accounted for approximately 6.6 percent of total.

Figure 7: Estimated Economic Impacts by Province/Region of Operation – Output (\$ million) – 2022

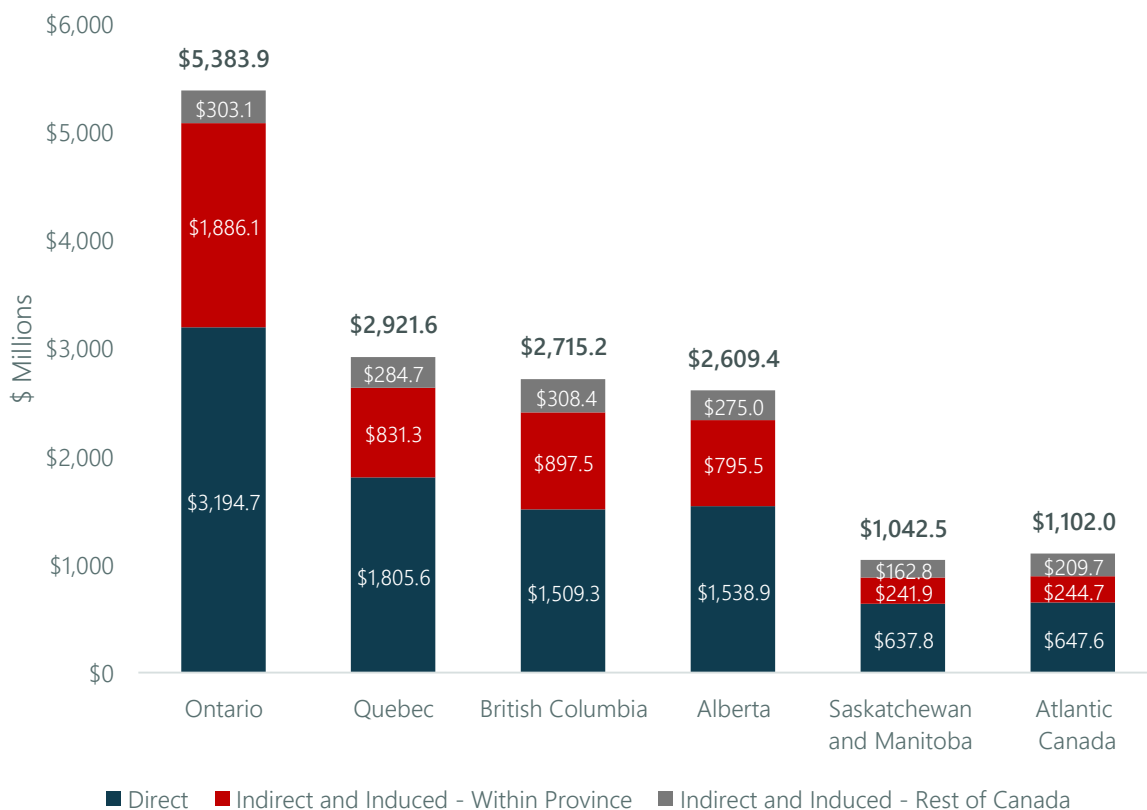


Figure 8 shows the distribution of the total GDP contributions produced by veterinary practices in 2022 by province. Direct impacts account for just over half of the total GDP impacts in all provinces, ranging between 54 and 61 percent of the total. As with output Ontario accounts for approximately 34 percent of total GDP, followed by Quebec (18.4 percent), British Columbia (17.6 percent) and Alberta (16.8 percent). Saskatchewan and Manitoba, and Atlantic Canada each accounted for approximately 6.6 percent of GDP.

Figure 8: Estimated Economic Impacts by Province/Region of Operation – GDP (\$ million) – 2022

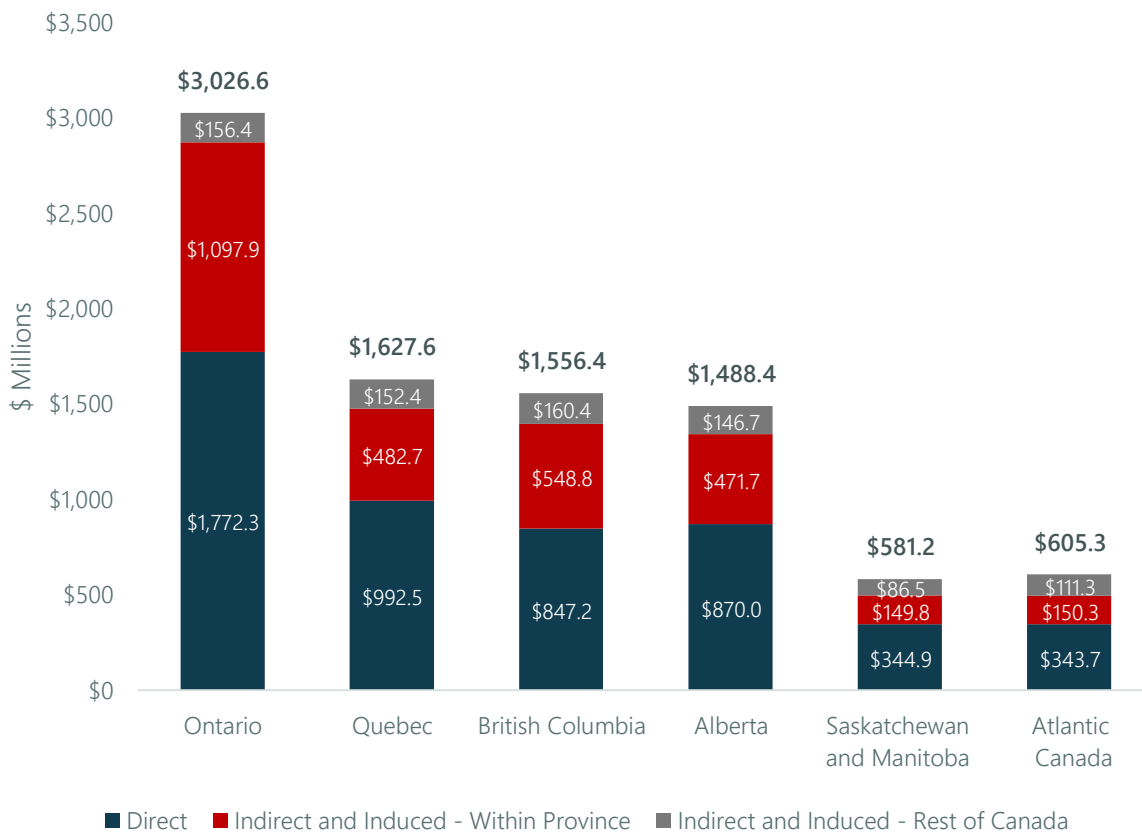


Figure 9 shows the distribution of total estimated employment created by veterinary practices in 2022 by province. In 2022, approximately 76,790 jobs were estimated to be created. The largest share of these positions, around 34 percent (25,730 jobs), was located in Ontario, followed by Quebec (19 percent), British Columbia (18 percent), and Alberta (16 percent). Direct employment made up the majority, accounting for 48,690 jobs, which is roughly 63 percent of the total employment generated.

Figure 9: Estimated Economic Impacts by Province/Region of Operation – Employment (FTEs) – 2022

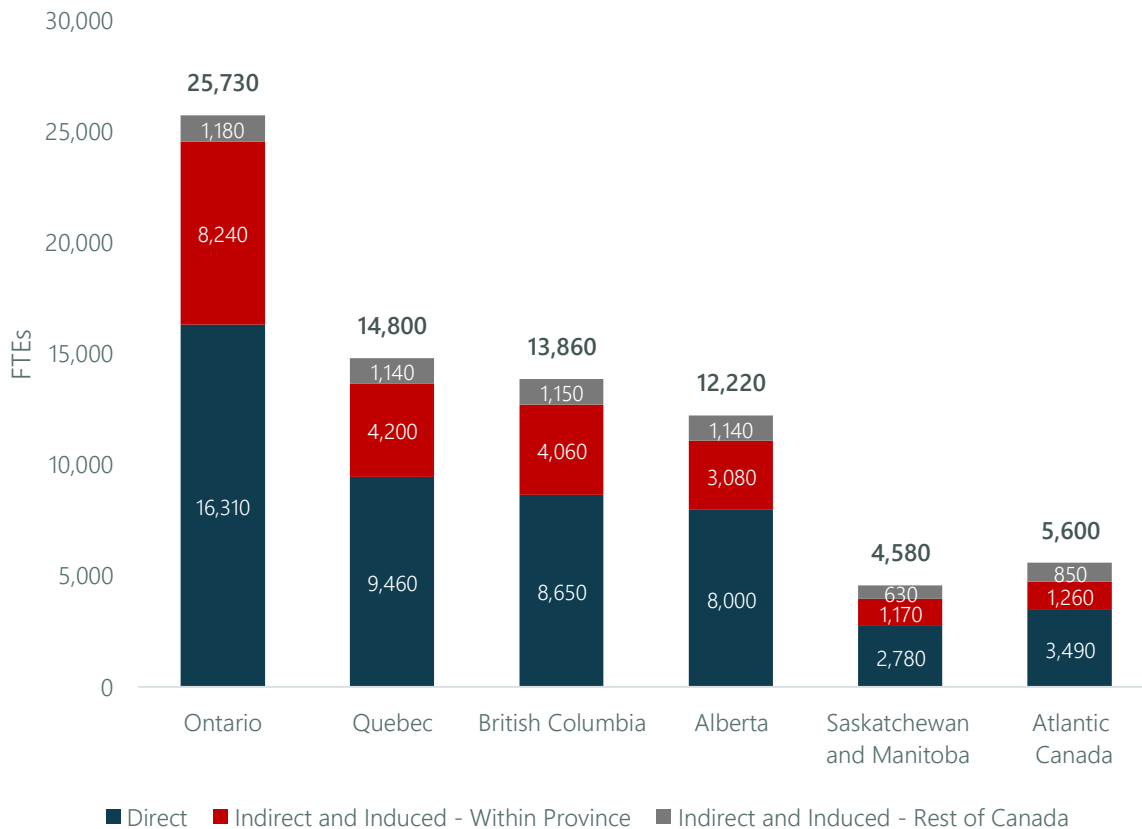
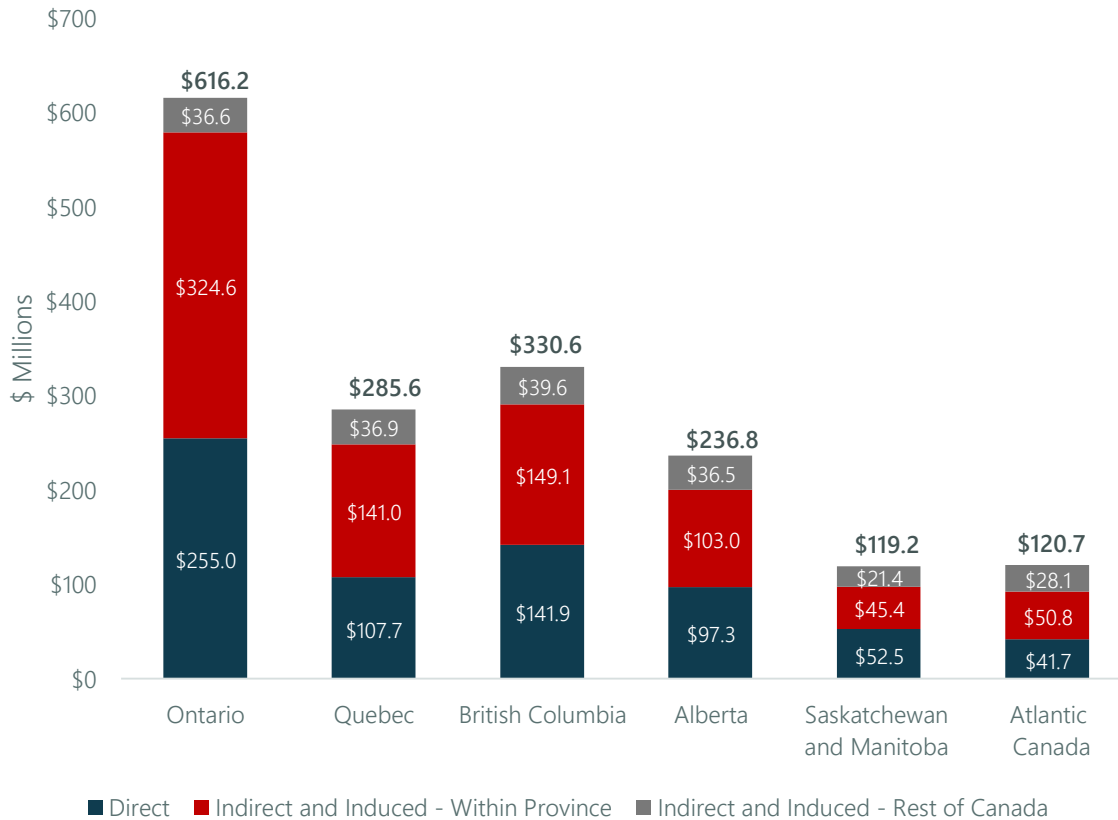


Figure 10 shows the distribution of total taxes generated by veterinary practices in 2022 by province. In total, these operations contributed \$1.7 billion in taxes to all three levels of government. A significant portion of these taxes (59 percent) were generated indirectly. Ontario made the largest contribution, accounting for 36 percent of the total taxes generated.

Figure 10: Estimated Economic Impacts by Province/Region of Operation – Taxes (\$ million) – 2022



3.4 Economic Contributions of Veterinarians Employed in Government, Industry and Academia

In addition to veterinarians working at and running veterinary hospitals and practices, veterinarians are employed by other sectors. This includes veterinarians working at educational institutes, laboratories, government institutes, industrial and pharmaceuticals companies as well as consulting businesses and non-profit organizations. The work of these veterinarians contributes to the Canadian economy through the activities of the organizations for which they work and through their household spending.

In 2022 there were approximately 2,049 veterinarians employed outside of veterinary practices in other sectors who were estimated to earn approximately \$275.3 million.

The household spending of veterinarians employed in other sectors was estimated to generate approximately:

- \$229.8 million in total output.
- \$134.2 million in total GDP
- 940 FTE jobs.
- \$48.5 million in taxes for all three levels of government.

Table 4 summarizes the impacts generated by spending of veterinarians by province. Ontario accounted for the largest share of impacts (between 34 percent and 38 percent) followed by Alberta and Saskatchewan (between 10 percent and 16 percent) while Quebec accounted for between 10 percent to 15 percent.



Table 4: Estimated Economic Impacts of Spending by Veterinarians Working in Other Sectors

Province	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Ontario	\$83.3	\$48.3	340	\$6.8	\$7.9	\$2.7
Alberta	\$37.3	\$21.9	140	\$2.9	\$2.4	\$1.2
Saskatchewan	\$34.6	\$20.5	140	\$2.7	\$3.7	\$1.0
Quebec	\$28.1	\$16.1	120	\$1.9	\$3.5	\$0.9
Prince Edward Island	\$13.0	\$7.5	60	\$1.1	\$1.7	\$0.5
Manitoba	\$10.2	\$6.1	40	\$0.8	\$1.1	\$0.3
Nova Scotia	\$8.9	\$5.2	40	\$0.7	\$1.0	\$0.3
British Columbia	\$6.9	\$4.2	30	\$0.6	\$0.7	\$0.2
New Brunswick	\$5.3	\$3.1	20	\$0.4	\$0.7	\$0.2
Newfoundland	\$2.2	\$1.3	10	\$0.2	\$0.3	\$0.1
Total	\$229.8	\$134.2	940	\$18.1	\$23.0	\$7.4

3.5 Total Economic Contribution of Veterinarians by Province

Table 5 summarizes the total direct, indirect and induced impacts generated by veterinary practices and spending of veterinarians in each province. Veterinarians in Ontario accounted for the largest share of impacts (between 34 percent and 42 percent) while veterinarians in Quebec recorded the second highest share, accounting for approximately 13 percent to 21 percent of all impacts, followed by British Columbia (14 percent to 20 percent) and Alberta (12 percent to 17 percent). Operations in all other provinces accounted for approximately 1 percent to 4 percent of the impacts.

Table 5: Estimated Total Economic Impacts of Veterinary Sector in Canada by Province

Province	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Ontario	\$5,467.2	\$3,074.9	26,070	\$316.1	\$252.6	\$64.9
Quebec	\$2,949.7	\$1,643.7	14,920	\$108.4	\$156.3	\$27.5
British Columbia	\$2,722.1	\$1,560.6	13,890	\$170.0	\$139.9	\$22.2
Alberta	\$2,646.7	\$1,510.3	12,360	\$132.5	\$88.4	\$22.9
Saskatchewan	\$608.7	\$339.4	2,640	\$32.6	\$33.3	\$3.8
Manitoba	\$478.6	\$268.4	2,120	\$27.2	\$26.9	\$4.5
Nova Scotia	\$412.6	\$225.2	2,290	\$21.6	\$24.1	\$5.2
New Brunswick	\$334.9	\$182.4	1,700	\$13.8	\$17.3	\$2.8
Newfoundland	\$273.4	\$153.0	1,090	\$12.6	\$14.3	\$2.0
Prince Edward Island	\$110.5	\$61.8	650	\$5.8	\$7.3	\$0.7
Total	\$16,004.4	\$9,019.7	77,730	\$840.6	\$760.4	\$156.5

3.6 Economic Impact of Increased Access to Large Animal Veterinary Care

According to the findings of a labour market study conducted by CVMA in 2019, capacity within the veterinary population is stretched and, in some provinces, exceeded. This shortage of veterinary supply to meet demand can be more prominent in specific parts of the country, notably in rural and remote areas. The study also noted that recruitment and salary competition from corporations and small animal practices in urban areas puts further strain on recruitment efforts of rural and large animal practices.¹⁴

To understand the economic impact of a shortage of large animal veterinarians, the number of large animals from the 2021 Canadian Census of Agriculture¹⁵ was compared to an estimate of the number of actively practicing large animal veterinarians across the country. In 2021 there were approximately 30,300,000 large animals throughout Canada and about 125,800 livestock farms. From the veterinary data collected through the CVMA and provincial veterinary associations, MNP estimated that approximately 3,300 veterinarians work in large or mixed animal practices across Canada. This translates into a ratio of approximately 9,200 large animals per veterinarian or between 35 to 40 farms per veterinarian on a national basis. This ratio varies from province to province and is impacted by factors such as the density of feedlots (in Alberta and Saskatchewan, for example) or other food animal production operations, such as hog farming (in Manitoba, for example). The prairie provinces have the highest ratios of large animals to large animal or mixed animal practices:

- *Manitoba*: 39,800 large animals per veterinarian
- *Saskatchewan*: 17,100 large animals per veterinarian
- *Alberta*: 13,400 large animals per veterinarian

A lack of access to veterinary care affects the ability of producers to grow their operations. To illustrate the potential magnitudes of the impact on the economy of producers growing their operations we estimated the economic impact for an average sized herd/flock by type of animal. As shown in Figure 11:

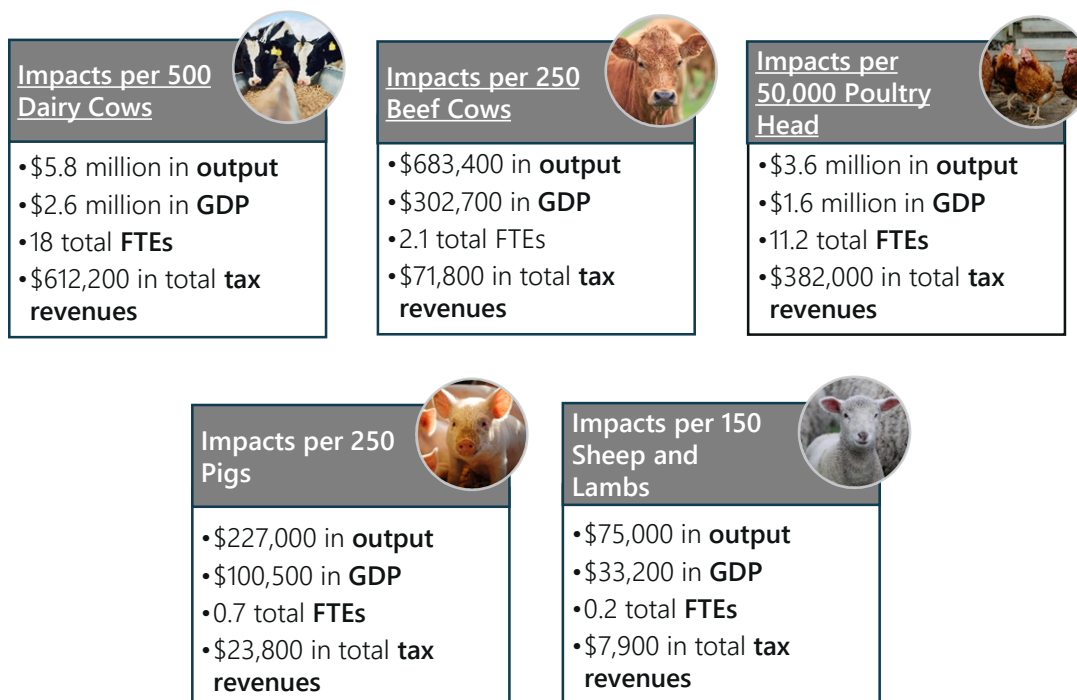
- An additional 500 dairy cows contribute \$5.8 million in total output, \$2.6 million in total GDP and \$0.6 million in total tax revenues annually.
- An additional 250 beef cows contribute \$0.68 million in total output, \$0.30 million in total GDP and \$0.07 million in total tax revenues annually.
- An additional 50,000 head of poultry contribute \$3.6 million in total output, \$1.6 million in total GDP and \$0.38 million in total tax revenues annually.
- An additional 250 pigs contribute \$0.22 million in total output, \$0.1 million in total GDP and \$0.02 million in total tax revenues annually.

¹⁴ 2020 CVMA Workforce Study Final Report. Retrieved from <https://www.canadianveterinarians.net/media/ak3lonad/2020-cvma-workforce-study-final-report.pdf>

¹⁵ 2021 Canadian Census of Agriculture. Retrieved from https://www150.statcan.gc.ca/n1/en/subjects/agriculture_and_food/animal_production?sourcecode=3438

- An additional 150 sheep and lambs contribute \$0.075 million in total output, \$0.033 million in total GDP and \$0.008 million in total tax revenues annually.

Figure 11: Total Direct, Indirect and Induced Economic Impacts by Animal



In addition to the impacts associated with additional livestock production, the operation of each veterinary practice also creates economic impacts. Table 6 shows the annual economic impacts generated per full-time veterinarian working in a mixed animal practice. These impacts primarily occur in the community in which the clinic is located.

Table 6: Economic Impacts per Full-time Veterinarian in a Large or Mixed Animal Practice

Category	Output (\$)	GDP (\$)	Employment (FTEs)	Federal Tax (\$)	Provincial Tax (\$)	Municipal Tax (\$)
Direct	\$708,500	\$368,100	3.0	\$26,500	\$20,300	\$30
Indirect and Induced	\$499,800	\$312,300	2.2	\$30,700	\$33,300	\$10,700
Total	\$1,208,300	\$680,400	5.2	\$57,200	\$53,600	\$10,730

3.7 Comparison of Economic Impacts with Other Industries

To provide perspective on the size of the economic impacts of veterinary sector, it is useful to compare the impacts with those created by other industries and initiatives. Four such industries are:

- **Beef Production:** The direct GDP generated by the veterinary sector (\$5.1 billion) is equivalent to 23 percent of the direct GDP (\$21.8 billion) generated by the beef industry in Canada¹⁶.
- **New Home Construction:** Veterinary practices in Canada were estimated to have generated direct and indirect employment of 63,500 FTEs, which is equivalent to the direct and indirect employment supported by the construction of around 29,600 new homes in Canada. That is equivalent to 11 percent of new home starts in 2022.¹⁷
- **Fertilizer Industry:** The direct and indirect employment generated by the veterinary sector (63,500 FTEs) is equivalent to 83 percent of the direct and indirect employment created by the fertilizer industry in 2020.¹⁸
- **Physicians Offices:** The total economic impacts generated by a veterinarian in a veterinary practice are higher than those generated by a physician working outside of a hospital or institutional setting. For each physician there is roughly \$600,000 of total GDP generated and 4.1 FTEs of employment.¹⁹ For each veterinarian there is roughly \$740,000 of total GDP and 5.2 FTEs of employment.

¹⁶ Government of Canada. (2022, April 25). Driving economic growth by advancing Canada's global reputation for top-quality beef. Retrieved from <https://www.canada.ca/en/agriculture-agri-food/news/2022/04/driving-economic-growth-by-advancing-canadas-global-reputation-for-top-quality-beef.html>

¹⁷ Canadian Home Builders' Association. Residential Construction in Canada, Economic Performance Review 2022. Retrieved from <https://www.chba.ca/impacts>

¹⁸ Fertilizer Canada. Economic Impact 2020. Retrieved from <https://fertilizercanada.ca/economic-impact-report-2020/contribution-to-our-economy/>

¹⁹ Canadian Medical Association. (2020, November 4). The Economic Influence of Physicians' Offices. Retrieved from <https://www.cma.ca/sites/default/files/pdf/Advocacy/The-Economic-Influence-of-Physicians-Offices.pdf>

4. Types of Jobs Created by Veterinary Practices

Veterinary practices in Canada directly created 48,690 FTE jobs in 2022. Of these jobs, 5,400 were veterinarians who are also practice owners, 6,600 were associate veterinarians employed in the practices, and approximately 36,690 were veterinary technologists and other practice staff. Approximately, 49 percent of the jobs in a practice, excluding the practice owner(s), are skilled positions requiring post-secondary credentials, professional certification or significant experience, and 46 percent are semi-skilled which typically require high-school completion and vocational training or job-specific courses. The remaining five percent are unskilled positions for which on-the-job training or workplace instruction is all that is typically required. Table 7 shows the types of jobs created by veterinary practices.

Table 7: Types and Occupation of Jobs Created by Veterinary Practices

	CATEGORY	DESCRIPTION	OCCUPATIONS	HOURLY WAGE RANGE	SHARE OF WORKFORCE
SKILLED	Associate Veterinarians	Associate veterinarians typically work full-time or part-time as employees in veterinary clinics instead of owning their own practice. Becoming a veterinarian requires completing a degree in veterinary medicine and successful completion of an examination leading to a national certification. Veterinarians must also obtain a license from the relevant provincial regulatory body.	<ul style="list-style-type: none"> Veterinarian 	\$40 - \$80	15%
	RVTs	Becoming a registered veterinary technologist requires graduation from an accredited post-secondary program in Animal Health, Veterinary Technology or Veterinary Technician, and successfully passing the Veterinary Technician National Examination (VTNE)	<ul style="list-style-type: none"> Registered Veterinary Technologist Animal Health Technologist 	\$20 - \$30	22%

CATEGORY		DESCRIPTION	OCCUPATIONS	HOURLY WAGE RANGE	SHARE OF WORKFORCE
	Management	Education requirements are typically a Bachelor's degree or above and significant experience in the relevant field. In some cases, professional certification may be required.	<ul style="list-style-type: none"> • Office Manager • Veterinary Practice Manager • Hospital Manager 	\$21 - \$46	12%
SEMI-SKILLED	Administrative and Clerical	The education and training requirements for these occupations vary from a high school diploma to a post-secondary certificate or diploma.	<ul style="list-style-type: none"> • Receptionist • Non-Registered Assistant • Kennel Assistant 	\$15- \$25	46%
UNSKILLED	Other Occupations	Occupations in this group typically require on job training and do not require formal education, however, some experience may be required.	<ul style="list-style-type: none"> • Students • Groomer 	\$15 - \$18	5%

Source: CVMA Economic Report – 2022, CVMA Non-DVM Wage Reports – 2022 and CVMA Associate DVM Reports – 2022.

5. Case Studies



The contributions of Canadian veterinary medicine extend well beyond the economic impacts outlined in this report. Veterinarians, veterinary technologists and technicians, administrative staff and all other roles played by those working in the industry have a profound impact on the well-being of not only animals, but of Canadians themselves. These contributions are obvious in some ways, such as the quality care that veterinarians provide for family pets. Others are less obvious but equally as important – this includes the

critical roles they play in protecting public health through vaccine development, or the regulation of the transport and humane treatment of food animals. Veterinarians are also expert advisors in emergency planning to ensure that livestock and other animals are evacuated safely during floods and wildfires. Further, they contribute to the development of international standards for animal welfare and donate their time to educate the public on how to achieve healthier outcomes for pets.

The range of critical services that the industry provides is significant. However, the demand for veterinary services continues to grow, and supply is challenged to keep pace. The capacity of veterinarians and their teams is often stretched in areas across the country, and the impacts of this are broad. The following case studies highlight some of the important social, community and other contributions of the industry, and also illuminate some of the challenges facing the industry. Information to develop the case studies was collected through interviews with and information provided by industry professionals and through secondary research using publicly available resources.

5.1 Case Study #1 – Public Health and Safety

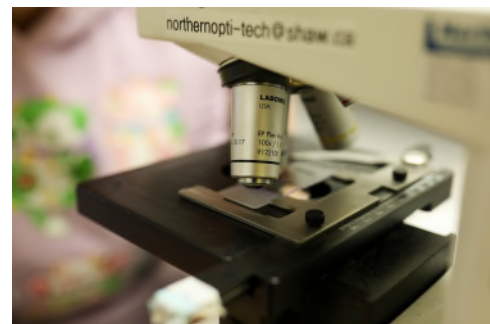
Backdrop

As experts in the intersection of animal and human interaction, veterinarians play a critical role as a first line of defense against animal diseases that threaten public health. The impacts of the COVID-19 pandemic across Canada, and the world, has placed a spotlight on the connections between human, environment, and animal health. While only one example, the pandemic reaffirmed the importance of a 'One Health' approach to understand the critical links between those three factors. Veterinarians have contributed to the advancement of this approach for decades, using an integrated approach to promote public health and safety and protect against infectious diseases.

Veterinarians are also of vital importance in ensuring that food derived from aquatic and terrestrial animals that are consumed by Canadians and those around the world is free of contamination from toxins or pathogens such as E. coli, salmonella, listeria, and other bacteria that can be transferred between animals and people. Veterinarians play an important role in educating livestock producers, processors, and others along the supply chain about the best practices with respect to prudent antibiotic use and food safety to reduce the risk of bacteria-related illnesses. They also assist in monitoring of marine environments to identify safe harvesting areas. Through research, development of codes of practice and inspection verifications, veterinarians ensure that production of food derived from animals is of high quality and free of microbial, chemical, or other contaminants that threaten human health.²⁰

Role of Veterinary Medicine in Disease Monitoring and Surveillance

Recent health emergencies, from Ebola disease outbreaks to the COVID-19 pandemic, have increased public awareness of zoonotic diseases.²¹ Zoonotic diseases are of global concern, and are not limited by borders, as demonstrated through many recent examples. An estimated 60 percent of known infectious diseases and up to 75 percent of new or emerging infectious diseases are zoonotic in origin.²² Veterinarians are integral in the detection and identification of such diseases. They work closely with all levels of government, universities, producers, and public health officials to understand and monitor where diseases currently exist. This allows them to map the spread of disease in real-time and



²⁰ Veterinarians and Public Health by American Veterinary Medical Association. Retrieved from <https://www.avma.org/resources-tools/one-health/veterinarians-and-public-health>

²¹ An Overview on the Zoonotic Aspects of COVID-19. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10132798/>

²² The Global Governance of Emerging Zoonotic Diseases. Retrieved from <https://www.cfr.org/report/global-governance-emerging-zoonotic-diseases>.

Zoonotic diseases are infectious diseases that can be spread between animals and humans; can be spread by food, water, fomites, or vectors.

Source: A Tripartite Guide to Addressing Zoonotic Diseases in Countries, Food and Agriculture Organization of the United Nations

conduct epidemiological forecasts and risk assessments accordingly.²³ An example of this was the spread of Lyme disease in Quebec. A team of veterinarians and researchers engaged in cluster analysis and created a map to give municipalities or regions at highest risk an indication of whether they need to focus on environmental deterrents or focus on public education for preventive measures such as body

checks, using repellents and bathing or showering after being in high-risk tick areas. The results from the initiative lead the team to identify 20 at-risk municipalities and educate the authorities about the preventive measures to keep the disease in check.²⁴

Veterinarians lead and support various mitigation efforts related to the management of disease prevention and outbreak response. One such effort is through vaccination programs which are of particular importance and have significant impact on public health outcomes. Veterinarians support vaccine development through their leading roles with organizations such as the University of Saskatchewan's infectious disease and vaccine research institution, known as the Vaccine and Infectious Disease Organization (VIDO). In 2022, VIDO opened the Vaccine Development Centre (VDC), which has capabilities to manufacture both human and animal vaccines and will increase Canada's biomanufacturing capacity.²⁵ In October of 2023, VIDO signed a memorandum of understanding with the Centre for Veterinary Vaccine Innovation and Manufacturing at the Pirbright Institute in the UK, further advancing research and innovation in animal health. This partnership will "contribute to global animal health, including process development and vaccine manufacturing for emerging infectious diseases of livestock, specifically those that affect primarily low-and-middle income countries".²⁶

Veterinarians are also employed with the federal government, where they work within diverse teams of experts aiding in the registration and licensing of components of vaccines through Health Canada.²⁷

"You cannot mitigate what you do not know or anticipate." (In reference to the importance of disease surveillance)

- Dr. Brian Evans, Former Chief Veterinary Officer of Canada

²³ MNP Interview

²⁴ Modelling Spatiotemporal Patterns of Lyme Disease Emergence in Québec. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8470240/>

²⁵ New VIDO Vaccine Development Centre Opens. Retrieved from <https://wcvmtoday.usask.ca/ocn-articles/2022/news-new-vido-vaccine-development-centre-supports-vaccine-innovation-protecting-canadians,-animals.php>

²⁶ USask's VDO signs agreement with Pirbright to advance vaccine manufacturing. Retrieved from <https://news.usask.ca/articles/research/2023/usasks-vido-and-pirbright-expand-collaboration-to-advance-vaccine-manufacturing.php>

²⁷ ibid

Role of Veterinary Medicine in Food Safety and Security

As the global population grows, so does the requirement for a safe and secure supply of food. Canada's agricultural and agri-food industry plays a key role in providing food products to its citizens and other countries. Canada is the fifth largest exporter of agricultural and agri-food products and in 2022, Canada's red meat exports totaled \$9.5 billion.²⁸ Canada produces two percent of the world's beef supply and is projected to be the seventh largest beef exporter in the world.²⁹ In 2021, Canada also exported \$8.79 billion of fish and seafood led by lobster, mussels, and salmon.³⁰ To ensure the safety and suitability of these products, veterinarians play a critical role in epidemiological surveillance of animal diseases.³¹ The Canadian Food Inspection Agency (CFIA), which employs approximately 600 veterinarians regulates veterinary biologics including vaccines in Canada and plays an important role in this process³². The CFIA is involved in herd testing, ante- and post-mortem examination, slaughter and sample collection when animal disease is detected and for the detection of chemical, pathogen, or antibiotic residues. An example of this is highlighted in the detection of bovine tuberculosis (TB) in a cow from a cow-calf operation in Alberta in 2016. The CFIA provided an emergency response to the situation, including coordinating with the province and industry associations to communicate with livestock producers about the management of the emerging situation. The potential economic consequences of a TB outbreak were highlighted by the compensation of \$42.8 million that was paid for transportation, disposal, and destruction of nearly 12,000 animals.³³



In instances where outbreaks result in halting trade or exports, the economic damage can be severe. For example, it is estimated that the economic impact on the livestock industry and the cow-calf sector as a result of the bovine spongiform encephalopathy (BSE) between 2000 and 2003 was a loss of \$6.3 billion.³⁴ Another major threat to food safety, and consequently public health, is the presence of antimicrobial

²⁸ Facts & Figures, Canadian Meat Council (CMC). Retrieved from <https://cmc-cvc.com/industry/facts-figures/>

²⁹ Canada's Beef Industry Fast Facts. Retrieved from <https://canadabeef.ca/wp-content/uploads/2021/09/Canada-Beef-Fast-Fact-Sheet-2021.pdf>

³⁰ Canada's Fish and Seafood Trade in 2021 by Fisheries and Oceans Canada. Retrieved from <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41079486.pdf?>

³¹ The role of Veterinary Services in Food Safety by World Organization for Animal Health. Retrieved from <https://www.woah.org/app/uploads/2008/09/en-role-des-services-veterinarie-securite-sanitaire-des-aliments.pdf>

³² MNP Interview

³³ Bovine Tuberculosis in Western Canada (2016) – Case Response Overview. Retrieved from <https://inspection.canada.ca/animal-health/terrestrial-animals/diseases/reportable/bovine-tuberculosis/investigation-western-canada/overview/eng/1529621742332/1529621742743>

³⁴ Canada's Beef Cattle Sector and the Impact of Bovine Spongiform Encephalopathy (BSE) on Farm Family Income. <https://www150.statcan.gc.ca/n1/en/catalogue/21-601-M2004069>

resistant zoonotic pathogens in food. Scientific studies suggest that a large majority of antibiotics used in primary animal production can contribute to the transfer of antimicrobial resistant bacteria into the human body system.³⁵ The World Health Organization considers antimicrobial resistance (AMR) as one of the top ten threats for global health.³⁶ AMR has had a sizeable impact on the Canadian economy, reducing Canada's gross domestic product by an estimated \$2 billion in 2018 and the economy is expected to lose between \$13 and \$21 billion per year, if resistance rises.³⁷ Canada has been actively addressing AMR, notably through Health Canada's regulatory changes in 2018, requiring that medically important antimicrobials (MIA's) for veterinary use be sold through prescription only. This oversight is intended to preserve the effectiveness and minimize the spread of AMR through proper use of MIA's.³⁸

While many Canadians may be most familiar with the veterinarians who care for their family pets, it is important to recognize the vital role that they play in the protecting public health through the examples noted in this case study. In addition to private clinics, veterinarians, and other veterinary medical professionals, including registered veterinary technologists and technicians, are employed with federal, provincial, and municipal governments with a range of focuses. These include research and innovation, disease surveillance, emergency response, food and animal inspections and many others. They provide a multitude of services to ensure the protection of public health, the safety of products derived from our aquaculture, agriculture and agri-food industry and support market access. Veterinarians are also involved in developing and promoting animal health policies and their implementation at the community level and the maintaining of an effective and sustainable veterinary infrastructure through Chief Veterinary Officer roles at the federal and provincial level.

As the world becomes increasingly interconnected, it is evident that those involved in human health and those involved in animal health need to work together to protect public health. Veterinarians are a key part of this, who through a One Health approach, work to enhance epidemiologic understanding of zoonotic diseases, build global surveillance systems for early detection, evaluate efficacy of medicines and the safety of animal feeds, drive innovation and perform many other critical activities to attain optimal health for people, animals, and the environment.³⁹

³⁵ Antimicrobial Resistance in the Food Chain: A Review. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3734448/>

³⁶ Antimicrobial resistance a global threat. Retrieved from <https://www.unep.org/explore-topics/chemicals-waste/what-we-do/emerging-issues/antimicrobial-resistance-global-threat>

³⁷ When Antibiotics Fail – The Expert Panel on the Potential Socio-Economic Impacts of Antimicrobial Resistance in Canada. Retrieved from https://cca-reports.ca/wp-content/uploads/2023/05/Updated-AMR-report_EN.pdf

³⁸ Responsible Use of Medically Important Antimicrobials in Animals. <https://www.canada.ca/en/public-health/services/antibiotic-antimicrobial-resistance/animals/actions/responsible-use-antimicrobials.html>

³⁹ One Health by American Veterinary Medical Association. Retrieved from <https://www.avma.org/resources-tools/one-health#:~:text=Veterinarians%20work%20collaboratively%20with%20multiple,and%20resilient%20communities%20and%20ecosystems.>

5.2 Case Study #2 – Humanitarianism and Animal Well-being

Backdrop

The Canadian Veterinary Medical Association, and the wider veterinary medical sector, acknowledges that veterinarians have an opportunity and obligation to help animal owners, caretakers, handlers, and policy-makers protect and improve animal welfare.⁴⁰ Veterinary engagement in animal welfare and well-being encompasses a wide range of activities that extend beyond the prevention and treatment of diseases. Veterinarians and veterinary medical professionals play an active role in advocacy and promotion of animal welfare and well-being, through engagement and education of best practices of animal care to animal owners, livestock producers and the wider public. They also play a key role in scientific research, in the development of animal welfare legislation and standards, as well as in development of animal welfare programs.⁴¹



Veterinary Impact on Animal Welfare and Well-being



Veterinary professionals continuously endeavor to improve the quality of life for all animals, through advancements in nutrition, emergency care, diagnostics, education and public awareness. The combination of these efforts has resulted in longer animal life spans, healthier companion and food animals and improved overall animal well-being. There is also an increased focus on the reduction of pain in animals. For example, where in tranquilizing animals was seen as an acceptable practice for pain reduction, this practice has now been replaced with the use of pain assessment tools to monitor acute

⁴⁰ The Roles of Veterinarians in Ensuring Good Animal Welfare. Retrieved from <https://www.canadianveterinarians.net/related-resources/the-roles-of-veterinarians-in-ensuring-good-animal-welfare-joint-american-veterinary-medical-association-federation-of-veterinarians-of-europe-canadian-veterinary-medical-association-statement/>

⁴¹ Role of Veterinarians in Animal Welfare and Inter-sectorial collaboration. Retrieved from <https://www.woah.org/fr/animal-welfare-conf2016/Abstracts/3.4.%20WVA.pdf>

pain in animals and the use of targeted pain-relieving medications.⁴² This is attributed to research conducted to better understand the pain and feelings of animals and administer care accordingly.

There has been increased transparency into food production systems, and in turn the quality of life of food animals, providing Canadians with a better understanding of where our food products come from.⁴³ Particular light has been shed on animal processing, including the transporting of animals from farms to abattoirs. There is believed to be a much greater awareness among the industry and the public around the standards associated with transport whether regulatory or voluntary, and much of this is attributed to the influence of veterinarians. Veterinarians conduct research and play a critical role in developing codes of conduct by advancing the scientific research that drives regulatory change and improvement of animal care standards. They also serve as regulators of these standards. Of note, the Canadian Food Inspection Agency (CFIA) employs approximately 600 veterinarians, and in addition to overseeing inspection processes, regulates the humane transport of animals and the humane treatment of food animals in federal abattoirs.⁴⁴

A further example of veterinary impact on animal welfare and well-being is their involvement in the animal disposal processes.

Veterinarians play an important role not only in understanding the science and physiology of animal suffering during processing but also managing public perception by helping society understand the complexity of this field.

- Dr. Rick James-Davies, Director General, Canadian Food Inspection Agency (CFIA)

Veterinarians assess the insensibility of

animals, ensuring as much of a stress and pain-free euthanasia as possible, when required.⁴⁵ For example, in response to a recent Avian influenza outbreak in North America, veterinarians assessed the current process in place to depopulate millions of infected birds to ensure they were disposed of in as humane and efficient manner as possible thus preventing further spread of the virus. In these instances, veterinarians and their teams work directly with producers to develop plans and assist with the disposal process.⁴⁶ Veterinarians are constantly researching and evaluating to improve humane mass euthanasia, when circumstances such as Avian influenza, arise.⁴⁷

⁴² 2022 AAHA Pain Management Guidelines for Dogs and Cats. Retrieved from https://www.aaha.org/globalassets/02-guidelines/2022-pain-management/resources/2022-aaha-pain-management-guidelines-for-dog-and-cats_updated_060622.pdf

⁴³ Food system transparency vital in post-pandemic world. Retrieved from

<https://www.canadiancattlemen.ca/features/food-system-transparency-vital-in-post-pandemic-world/>

⁴⁴ MNP Interview and Humane Transport and Animal Welfare. <https://inspection.canada.ca/animal-health/terrestrial-animals/humane-transport/eng/1300460032193/1300460096845>

⁴⁵ MNP Interview

⁴⁶ Avian Influenza Handbook, Chicken Farmers of Canada. Retrieved from <https://www.chickenfarmers.ca/wp-content/uploads/2022/05/Avian-Influenza-Handbook-Version-1.3-web.pdf>

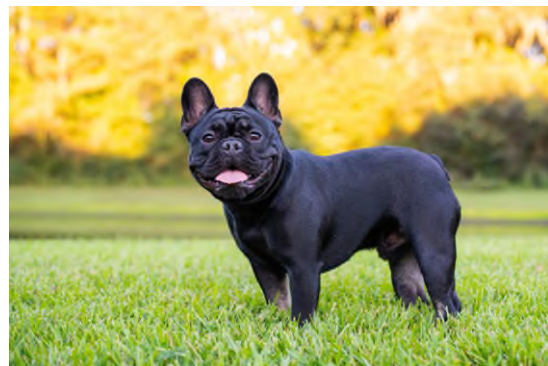
⁴⁷ MNP Interview

The veterinary medical sector also understands the value of a united voice, particularly with respect to advocacy. A recent example is the joint position of the CVMA, Federation of Veterinarians in Europe (FVE) and the American Veterinary Medical Association (AMVA) on their endorsement of the World Veterinary Associations (WVA) position on the Use of Horses for Production of Biologics and Therapeutics. The recommendations include important positions related to the welfare of horses used to produce and harvest Pregnant Mare Serum Gonadotropin (PMSG). PMSG, which circulates in the blood of pregnant mares, is used to increase reproductive performance in various animals. Media has drawn attention to instances in which blood is collected inhumanely from mares, highlighting the need for higher standards of care and continued research into synthetic analogs.⁴⁸

During emergency situations, involvement of veterinarians leads to healthier and humane outcomes for animals. For example, during recent forest fires in Western Canada, veterinarians played a key role in coordinating resources to ensure large animals could be transported safely and humanely to appropriate locations and out of danger. When planning for such large-scale emergency situations, such as floods, wildfires or other mass evacuations, veterinarians are key advisors to municipal, federal, and provincial governments. They provide experienced and practical recommendations to ensure considerations for medications, housing, transport, cage space and care during emergency situations are taken into account and animals can be safely and humanely taken care of.⁴⁹ This is often a collaborative effort, evident in the combined efforts of Agriculture and Agri-Food Canada, Environment and Climate Change Canada, the CFIA, provincial and territorial governments and the CVMA to produce *Emergency Preparedness for Farm Animals*.⁵⁰

Public Advocacy and Education for Animal Well-being

Education and awareness related to animal welfare and well-being are ongoing priorities of the veterinary sector. Efforts are continuously made by all involved in the profession, from individual veterinarians to animal healthcare teams to national organizations such as the CVMA. As an example, the CVMA organizes Animal Health Week, a public awareness campaign that highlights a new animal health-related topic each year. Previous years have raised awareness of the One Health Approach, Habitat Protection and Pandemic Prevention and most recently the importance of the roles of



⁴⁸ Joint AVMA-FVE-CVMA Statement on Animal Welfare in the PMSG Industry. Retrieved from <https://www.canadianveterinarians.net/related-resources/joint-avma-fve-cvma-statement-on-animal-welfare-in-the-pmsg-industry/>

⁴⁹ MNP Interview

⁵⁰ Emergency Preparedness for Farm Animals. Retrieved from <https://www.getprepared.gc.ca/cnt/rsrscs/pblctns/frm-nmls/index-en.aspx?wbdisable=true>

each member of veterinary teams.⁵¹

Other examples of public awareness and advocacy focus on specific desired outcomes related to improving animal well-being. For example, there has been an increased popularity among the brachycephalic (BC) breeds of dogs (short-muzzled dogs) such as bulldogs and boxer dogs. This popularity may be attributed to their presence in popular culture and media. These breeds of dogs are prone to a number of chronic conditions including respiratory problems leading to lower quality of life and affecting animal welfare.⁵² Veterinarians are advocating for reduced public profile of these breeds by educating the advertising and movie industries, as well as informing the general public about the harms of continued breeding of animals to produce extreme conformations.⁵³

Another example is veterinarians' support of regulations around fireworks to reduce risks to animals⁵⁴ and efforts at educating the public about how to care for pets and livestock during a fireworks event.⁵⁵ Fireworks are a completely foreign experience for many animals and as they come without warning, include loud noise and visual stimulation, they can lead to anxiety in animals.⁵⁶

Veterinary Impact through Canadian and Global Organizations

Veterinarians also play an active role in advancing animal health and welfare in Canada and abroad through participation in organizations including the World Organisation for Animal Health (WOAH). Dr. Brian Evans, the CVMA's current Treasurer, served as Canada's delegate on the WOA for 13 years, where his expertise helped develop international standards related to animal health, veterinary



public health and other critical policies recognized globally. In addition to serving on national and international organisations, individual veterinarians often go above and beyond to share their expertise and improve animal outcomes. This is demonstrated by a veterinarian from Ontario who, following his passion for veterinary work and care for animals, traveled to India to provide volunteer vet care to support

⁵¹ Animal Health Week, CVMA. Retrieved from <https://www.canadianveterinarians.net/veterinary-resources/practice-tools/animal-health-week-ahw/ahw-2023/>

⁵² News Release: The Canadian Veterinary Medical Association Calls On Regulators, Breeders, and the Public to End Extreme Breeding in Animals. Retrieved from <https://www.canadianveterinarians.net/about-cvma/media-centre/media-releases/news-release-the-canadian-veterinary-medical-association-calls-on-regulators-breeders-and-the-public-to-end-extreme-breeding-in-animals>.

⁵³ MNP Interview

⁵⁴ MNP Interview

⁵⁵ Retired veterinarian calls for fireworks regulations: 'It puts your animal's life at risk' CTV News. Retrieved from <https://atlantic.ctvnews.ca/retired-veterinarian-calls-for-fireworks-regulations-it-puts-your-animal-s-life-at-risk-1.6213351>.

⁵⁶ How fireworks harm nonhuman animals. Retrieved from <https://www.animal-ethics.org/how-fireworks-harm-nonhuman-animals/>

animal rescue work.⁵⁷ Through Veterinarians Without Borders, veterinarians have been working in communities in Africa, Asia, Latin America, and remote areas in Canada contributing towards reducing disease prevalence.⁵⁸ These commitments showcase the role of veterinarians by undertaking pro bono work for the welfare of animals across the globe.

In Canada, veterinarians support and serve on welfare groups, including Animal Health Canada,⁵⁹ and also help develop Canadian standards in the livestock industry through codes of practice, such as the Code of Practice for the Care and Handling of Beef Cattle.⁶⁰ Through organizations like The Farley Foundation, created by veterinarians to help low-income pet owners,⁶¹ and Toronto Wildlife Centre, a wildlife rescue organization providing care to sick and orphaned animals,⁶² veterinarians have contributed towards animal well-being in their communities. This example and the many others listed in this case study highlight only a few of the many contributions of the veterinary medical profession to animal well-being, from individual pet care to development of industry standards around the world.

⁵⁷ Vet hopes animal rescue work in India will inspire others to treat creatures kindly, CBC. Retrieved from <https://www.cbc.ca/news/canada/toronto/cliff-redford-markham-ontario-veterinarian-trip-india-youtube-1.5274834>

⁵⁸ Veterinarians Without Border, Our Organization. Retrieved from <https://www.vetswithoutborders.ca/site/our-organization>

⁵⁹ Animal Health Canada Members List. Retrieved from <https://www.animalhealthcanada.ca/members>

⁶⁰ National Farm Animal Care Council – Code of Practice for the Care and Handling of Beef Cattle Appendix H – Participants. Retrieved from <https://www.nfacc.ca/beef-cattle-code#appendixh>

⁶¹ The Farley Foundation, About. Retrieved from <https://www.farleyfoundation.org/about/>

⁶² Toronto Wildlife Centre, About us. Retrieved from <https://www.torontowildlifecentre.com/about-us/>

5.3 Case Study #3 – Access to Veterinary Care

Backdrop

Across Canada, demand for veterinary services is increasing. The supply, however, is not rising to meet the demand. The shortage of veterinary professionals can be attributed to many factors, including but not limited to training, recruitment, retention, and retirement. Currently, Canadian veterinary colleges are merely keeping up with replacing retirements. According to the 2020 CVMA Workforce Study, in 2019, the fall graduating class represented 2.9 percent of the total Canadian veterinarian population, however the expected annual retirement rate of veterinarians is 3 percent.⁶³

The shortage of veterinary professionals is impacting all corners of the profession. It is affecting the quality of care for companion animals (in urban and rural settings)⁶⁴, the services available to livestock producers in rural areas⁶⁵, and is impacting the ability of veterinarians to provide emergency care at the level expected by animal owners in many instances.⁶⁶ The current shortage of veterinary professionals is also resulting in serious negative impacts to the health and well-being of the veterinary workforce.⁶⁷

Access to Care for Companion Animals

Pet ownership saw a significant increase during the COVID-19 pandemic.⁶⁸ This has increased the demand on an already limited supply of veterinary services in many areas across Canada. A high number of first-time owners may not necessarily have all the information and tools to ensure effective primary care for their pets. In turn, this leads to situations of stress when they are unable to access veterinary services as quickly as in the past due to often or potentially overbooked veterinary clinic services or difficulty accessing urgent or



⁶³ 2020 CVMA Workforce Study. Retrieved from <https://www.canadianveterinarians.net/media/4qeojjm5/2020-cvma-workforce-study.pdf>

⁶⁴ National shortage of veterinarians puts pressure on clinics, pet owners. Retrieved from <https://www.ctvnews.ca/lifestyle/national-shortage-of-veterinarians-puts-pressure-on-clinics-pet-owners-1.6263064>

⁶⁵ Cattle rancher worries as northern Alberta vet clinic reduces services. Retrieved from <https://www.cbc.ca/news/canada/edmonton/alberta-vet-shortage-high-prairie-1.6943604>

⁶⁶ Veterinary shortage forcing animal clinics to rotate emergency overnight services in Saskatoon. Retrieved from <https://globalnews.ca/news/10002540/veterinary-shortage-emergency-overnight-services-saskatchewan/>

⁶⁷ Veterinary Workforce Shortage, CVMA Priority Areas, Retrieved from <https://www.canadianveterinarians.net/policy-and-outreach/priority-areas/veterinary-workforce-shortage/>

⁶⁸ Pet ownership and psychological well-being during the COVID-19 pandemic. Retrieved from <https://www.nature.com/articles/s41598-022-10019-z>

emergency care in an appropriate period of time.⁶⁹ Additionally, due to increasing inflation resulting in higher costs associated with pet care including veterinary services many owners are unable to afford their pets.⁷⁰ Consequently, humane societies and animal shelters are seeing animal surrender numbers rise, increasing the demand for veterinary care services to distressed animals that experience trauma after being separated from their homes.⁷¹

Accessing Veterinary Care in Rural Settings

In the face of an increasing urbanization of society, a challenge exists to effectively recruit and retain veterinarians and other qualified staff in rural areas.⁷² Veterinarians may also experience challenging working conditions in rural areas as they often travel long distances and face increased on-call duties due to limited availability of veterinarians in the areas. The shortage of veterinary services in rural areas leads to increased attrition among veterinarians due to unsustainable workloads. It also reduces the ability to perform preventative work and early diagnosis among large animals and may hinder the development of the livestock sector in rural areas. Consequently, this can have negative impacts on Canada's agricultural economy.⁷³

The agriculture and agri-food sector is a major contributor to the Canadian economy, generating nearly \$143.8 billion (around 7 percent) of Canada's gross domestic product.⁷⁴ Many residents and businesses in rural areas that are dependent upon agriculture and livestock operations are impacted by a shortage of local veterinary services. If

livestock producers cannot access care for disease prevention, urgent care, and overall herd health, it may harm other businesses along the supply chain, such as transportation, feed and other suppliers.

"The rural areas being impacted harder is a reflection of our increasingly urbanized society."

- Dr. Trevor Lawson, President, Canadian Veterinary Medical Association (CVMA)

As outlined in the *MNP Case Study: Public Health and Safety*, Health Canada regulations require medically important antimicrobials (MIAs) to be sold only under veterinary prescription. In order for a veterinarian

⁶⁹ MNP Interview

⁷⁰ 2021 Animal Shelter Statistics. Retrieved from https://humanecanada.ca/wp-content/uploads/2022/12/HC_animal_shelter_statistics_2021.pdf

⁷¹ Local humane societies see rise in pets being surrendered hope to keep owners and animals together, CBC. Retrieved from <https://www.cbc.ca/news/canada/kitchener-waterloo/kw-humane-society-see-more-pets-being-surrendered-1.6726527>

⁷² MNP Interview Findings

⁷³ Shortage of veterinarians in rural and remote areas, Summary report. Retrieved from https://www.fve.org/cms/wp-content/uploads/Shortage_Vets_Rural_Areas10July2020.pdf

⁷⁴ Overview of Canada's agriculture and agri-food sector. Retrieved from <https://agriculture.canada.ca/en/sector/overview>

to write a prescription, a veterinarian-client-patient-relationship (VCPR) must first be established.⁷⁵ In areas experiencing a veterinary shortage, or lack of access to care, establishing a VCPR may take time and result in stress for livestock producers as well as pet owners.

To improve access to care for livestock producers and pet owners, many veterinarians have adopted technology such as telehealth to improve delivery of veterinary care services and increase the range and speed of vet services delivered.⁷⁶ Using photos and videos from farmers or pet owners, vets are often able to diagnose both companion and large animals and advise the owners about necessary care. However, despite adoption of technology to improve communication and access to care, many veterinary services and treatments require in-person attendance and provision of urgent and emergency care remains a significant challenge in the livestock sector.

Impact of Veterinary Shortages on Animal Health Team Well-being

Various studies on the mental health of veterinarians published in journals such as the Journal of the American Veterinary Medical Association⁷⁷ and the Canadian Veterinary Journal⁷⁸ indicate that the mental health of Canadian veterinarians is poor compared with the mental health of the general population. Some of the factors contributing to this are increasing expectations from pet owners, overwhelming workloads, and impacts of the global pandemic,⁷⁹ causing empathic distress and/or compassion fatigue among veterinarians.

In recognition of the challenges faced by veterinarians around stress and mental health, the CVMA has formed the CVMA Wellness Advisory Group (“WAG”) to develop and promote veterinary wellness initiatives.⁸⁰

Some of these initiatives include:

Based on a survey of 1272 veterinarians across Canada, 89.2% suffered from burnout in the form of one or a combination of high exhaustion, high depersonalization, and low professional efficacy.

Jones-Bitton, A, Gillis, D, Peterson, M, McKee, H. Latent burnout profiles of veterinarians in Canada: Findings from a cross-sectional study. *Vet Rec.* 2022:e2281. <https://doi.org/10.1002/vetr.2281>

⁷⁵ Veterinary-client-patient-relationship (VCPR) in Ontario. Retrieved from <https://www.amstewardship.ca/factsheet/animal-owners/veterinarian-client-patient-relationship-vcpr-in-ontario->

⁷⁶ Veterinary Telemedicine, CVMA. Retrieved from <https://www.canadianveterinarians.net/media/ililtnnn/cvma-veterinary-telemedicine-guidelines.pdf>

⁷⁷ Prevalence of mental health outcomes among Canadian Veterinarians. Retrieved from <https://pubmed.ncbi.nlm.nih.gov/31961276/#:~:text=Results%3A%20Approximately%2010%25%20of%20Canadian,and%20significantly%20lower%20mean%20resilience.>

⁷⁸ A survey of veterinarian mental health and resilience in Ontario, Canada. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6973204/>

⁷⁹ Addressing causes of burnout in veterinary medicine – AVMA News. Retrieved from <https://www.avma.org/news/addressing-causes-burnout-veterinary-medicine>

⁸⁰ MNP Interview

- 1) The Working Mind Courses – a program available to all veterinarians in Canada to address mental health challenges caused by workplace stresses.
- 2) Togetherall – leading online mental health service available to all veterinarians in Canada to provide peer to peer anonymous safe space and access to resources, courses, and self-assessments for veterinary well-being.
- 3) Veterinary Health and Wellness Resource Hub – curated information portal with trusted sources including evidence-based programs and articles.
- 4) Time to Talk about Mental Health in Vet Med – A campaign that organizes quarterly webinars addressing vets and staff well-being and other mental health topics.

While there is an increased awareness noted around the levels of burnout and stress experienced by veterinarians and their teams, there is a need for industry stakeholders, government, institutions, and veterinarians to work together to find a viable solution to address the workforce shortage. A lack of veterinary care can be detrimental to communities and impact livelihoods and our economy.

Appendices

APPENDIX A – ECONOMIC IMPACT METHODOLOGY

MNP's approach to economic impact modelling is based on published Statistics Canada multipliers and input-output modelling. A step-by-step overview of our approach to estimating the economic impacts is provided below.



Step 1: Collected Information on Number of Veterinarians, Revenue, Expenditures and Employment at Veterinary Practices

MNP collected information on numbers of veterinarians by province and area of practice from CVMA and provincial veterinary associations. Information on revenues, expenditures and employment was collected from the CVMA's economic survey of veterinary practices. The survey provides estimates per FTE veterinarian working 1,750 hours annually. Practice wide estimates were developed using the total number of active veterinarians and mean/median annual hours worked as per the associate DVM reports published by CVMA. Please note that data from the economic survey was not available for Quebec, Prince Edward Island and Newfoundland and Labrador therefore national averages were used for these provinces.

Step 2: Applied Statistics Canada's Input-Output Multipliers to Estimate Economic Impacts

Statistics Canada's input-output multipliers were then used to estimate the economic impacts of operations of veterinary practices. The expenditure profiles collected in Step 1 were compared with

Statistics Canada Supply and Use tables⁸¹ to identify the relevant industry multipliers to be applied.

Step 3: Made Appropriate Adjustments to the Economic Impacts

Estimates generated by the multipliers such as labour income, employment and taxes were then compared with the financial information collected in Step 1. Based on the comparisons, appropriate adjustments were then made to the impacts generated by the multipliers e.g., direct GDP, induced impacts and direct labour income taxes were adjusted based on the labour income information collected in step 1.

⁸¹ The Supply and Use Tables show the goods and services used by each industry in the production of their goods and services along with the costs of primary inputs used in production.

APPENDIX B – ECONOMIC IMPACTS BY PROVINCE

Table 8: Estimated Economic Impacts of Veterinary Practices – Ontario

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Ontario						
Direct Impacts	\$3,194.7	\$1,772.3	16,310	\$159.3	\$95.6	\$0.05
Indirect and Induced Impacts	\$1,886.1	\$1,097.9	8,240	\$132.6	\$133.9	\$58.13
Rest of Canada						
Indirect and Induced Impacts	\$303.1	\$156.4	1,180	\$17.4	\$15.2	\$4.01
Total Impacts						
Direct Impacts	\$3,194.7	\$1,772.3	16,310	\$159.3	\$95.6	\$0.05
Indirect and Induced Impacts	\$2,189.2	\$1,254.3	9,420	\$150.0	\$149.1	\$62.14
Total	\$5,383.9	\$3,026.6	25,730	\$309.3	\$244.7	\$62.19

Table 9: Estimated Economic Impacts of Veterinary Practices – Quebec

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Quebec						
Direct Impacts	\$1,805.6	\$992.5	9,460	\$49.1	\$58.6	\$0.04
Indirect and Induced Impacts	\$831.3	\$482.7	4,200	\$39.8	\$78.8	\$22.36
Rest of Canada						
Indirect and Induced Impacts	\$284.7	\$152.4	1,140	\$17.6	\$15.4	\$3.85
Total Impacts						
Direct Impacts	\$1,805.6	\$992.5	9,460	\$49.1	\$58.6	\$0.04
Indirect and Induced Impacts	\$1,116.0	\$635.1	5,340	\$57.4	\$94.2	\$26.21
Total	\$2,921.6	\$1,627.6	14,800	\$106.5	\$152.8	\$26.25

Table 10: Estimated Economic Impacts of Veterinary Practices – Alberta

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Alberta						
Direct Impacts	\$1,538.9	\$870.0	8,000	\$62.5	\$34.7	\$0.08
Indirect and Induced Impacts	\$795.5	\$471.7	3,080	\$49.8	\$36.0	\$17.18
Rest of Canada						
Indirect and Induced Impacts	\$275.0	\$146.7	1,140	\$17.3	\$15.3	\$3.89
Total Impacts						
Direct Impacts	\$1,538.9	\$870.0	8,000	\$62.5	\$34.7	\$0.08
Indirect and Induced Impacts	\$1,070.5	\$618.4	4,220	\$67.1	\$51.3	\$21.07
Total	\$2,609.4	\$1,488.4	12,220	\$129.6	\$86.0	\$21.15

Table 11: Estimated Economic Impacts of Veterinary Practices – British Columbia

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
British Columbia						
Direct Impacts	\$1,509.3	\$847.2	8,650	\$89.1	\$52.8	\$0.04
Indirect and Induced Impacts	\$897.5	\$548.8	4,060	\$61.6	\$69.8	\$17.67
Rest of Canada						
Indirect and Induced Impacts	\$308.4	\$160.4	1,150	\$18.7	\$16.6	\$4.26
Total Impacts						
Direct Impacts	\$1,509.3	\$847.2	8,650	\$89.1	\$52.8	\$0.04
Indirect and Induced Impacts	\$1,205.9	\$709.2	5,210	\$80.3	\$86.4	\$21.93
Total	\$2,715.2	\$1,556.4	13,860	\$169.4	\$139.2	\$21.97

Table 12: Estimated Economic Impacts of Veterinary Practices – Saskatchewan

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Saskatchewan						
Direct Impacts	\$349.4	\$188.7	1,520	\$15.1	\$12.1	\$0.04
Indirect and Induced Impacts	\$130.0	\$80.3	620	\$9.0	\$12.4	\$1.90
Rest of Canada						
Indirect and Induced Impacts	\$94.7	\$49.9	360	\$5.8	\$5.1	\$1.39
Total Impacts						
Direct Impacts	\$349.4	\$188.7	1,520	\$15.1	\$12.1	\$0.04
Indirect and Induced Impacts	\$224.7	\$130.2	980	\$14.8	\$17.5	\$3.29
Total	\$574.1	\$318.9	2,500	\$29.9	\$29.6	\$3.33

Table 13: Estimated Economic Impacts of Veterinary Practices – Nova Scotia

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Nova Scotia						
Direct Impacts	\$225.6	\$117.2	1,410	\$8.8	\$8.4	\$0.003
Indirect and Induced Impacts	\$101.4	\$62.8	540	\$7.4	\$10.5	\$3.62
Rest of Canada						
Indirect and Induced Impacts	\$76.7	\$40.0	300	\$4.7	\$4.2	\$1.24
Total Impacts						
Direct Impacts	\$225.6	\$117.2	1,410	\$8.8	\$8.4	\$0.00
Indirect and Induced Impacts	\$178.1	\$102.8	840	\$12.1	\$14.7	\$4.86
Total	\$403.7	\$220.0	2,250	\$20.9	\$23.1	\$4.86

Table 14: Estimated Economic Impacts of Veterinary Practices – Manitoba

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Manitoba						
Direct Impacts	\$288.4	\$156.2	1,260	\$13.9	\$11.3	\$0.02
Indirect and Induced Impacts	\$111.9	\$69.5	550	\$8.2	\$10.7	\$3.18
Rest of Canada						
Indirect and Induced Impacts	\$68.1	\$36.6	270	\$4.3	\$3.8	\$0.99
Total Impacts						
Direct Impacts	\$288.4	\$156.2	1,260	\$13.9	\$11.3	\$0.02
Indirect and Induced Impacts	\$180.0	\$106.1	820	\$12.5	\$14.5	\$4.17
Total	\$468.4	\$262.3	2,080	\$26.4	\$25.8	\$4.19

Table 15: Estimated Economic Impacts of Veterinary Practices – New Brunswick

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
New Brunswick						
Direct Impacts	\$195.2	\$101.9	1,030	\$4.5	\$4.6	\$0.00
Indirect and Induced Impacts	\$71.0	\$42.7	380	\$4.9	\$8.4	\$1.56
Rest of Canada						
Indirect and Induced Impacts	\$63.4	\$34.7	270	\$4.0	\$3.6	\$1.11
Total Impacts						
Direct Impacts	\$195.2	\$101.9	1,030	\$4.5	\$4.6	\$0.00
Indirect and Induced Impacts	\$134.4	\$77.4	650	\$8.9	\$12.0	\$2.67
Total	\$329.6	\$179.3	1,680	\$13.4	\$16.6	\$2.67

Table 16: Estimated Economic Impacts of Veterinary Practices – Prince Edward Island

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Prince Edward Island						
Direct Impacts	\$57.0	\$31.4	400	\$2.1	\$2.1	\$0.00
Indirect and Induced Impacts	\$15.2	\$9.7	90	\$1.1	\$2.0	\$0.13
Rest of Canada						
Indirect and Induced Impacts	\$25.3	\$13.2	100	\$1.5	\$1.5	\$0.52
Total Impacts						
Direct Impacts	\$57.0	\$31.4	400	\$2.1	\$2.1	\$0.00
Indirect and Induced Impacts	\$40.5	\$22.9	190	\$2.6	\$3.5	\$0.65
Total	\$97.5	\$54.3	590	\$4.7	\$5.6	\$0.65

Table 17: Estimated Economic Impacts of Veterinary Practices – Newfoundland and Labrador

Category	Output (\$ millions)	GDP (\$ millions)	Employment (FTEs)	Federal Tax (\$ millions)	Provincial Tax (\$ millions)	Municipal Tax (\$ millions)
Newfoundland and Labrador						
Direct Impacts	\$169.8	\$93.2	650	\$5.9	\$5.3	\$0.002
Indirect and Induced Impacts	\$57.1	\$35.1	250	\$3.8	\$6.3	\$1.11
Rest of Canada						
Indirect and Induced Impacts	\$44.3	\$23.4	180	\$2.7	\$2.4	\$0.66
Total Impacts						
Direct Impacts	\$169.8	\$93.2	650	\$5.9	\$5.3	\$0.00
Indirect and Induced Impacts	\$101.3	\$58.5	430	\$6.5	\$8.6	\$1.77
Total	\$271.1	\$151.7	\$1,080	\$12.4	\$13.9	\$1.77

APPENDIX C - ABOUT MNP

For over 60 years, MNP has proudly served and responded to the needs of clients in the public, private and not-for-profit sectors. Today, MNP is the fifth largest Chartered Professional Accountancy and business consulting firm in Canada and is the only major accounting and business consulting firm with its head office located in Western Canada. MNP has more than 117 locations and over 7,100 team members across the country.



MNP Consulting Services

MNP Consulting provides a broad range of business and advisory services to clients including:

- Strategy Development and Planning
- Stakeholder Engagement
- Performance Measurement
- Economic Analysis
- Research
- Data and Analytics
- Business Plans and Feasibility Studies
- Performance Improvement
- Financial Analysis

About MNP's Economics and Research Practice

Economic and industry studies are carried out by MNP's Economics and Research practice. Based in Vancouver, the Economics and Research practice consists of a team of professionals that has a successful track record of assisting clients with a wide variety of financial and economic impact studies. Our work has encompassed a wide range of programs, industries, company operations and policy initiatives, and has helped clients with decision-making, communication of economic and financial contributions, documentation of the value of initiatives and activities, and development of public policy.



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