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VETERINARY WORKFORCE WHITE PAPER

TO EVALUATE PROGRAMS DESIGNED TO ATTRACT, RECRUIT AND RETAIN VETERINARY PROFESSIONALS

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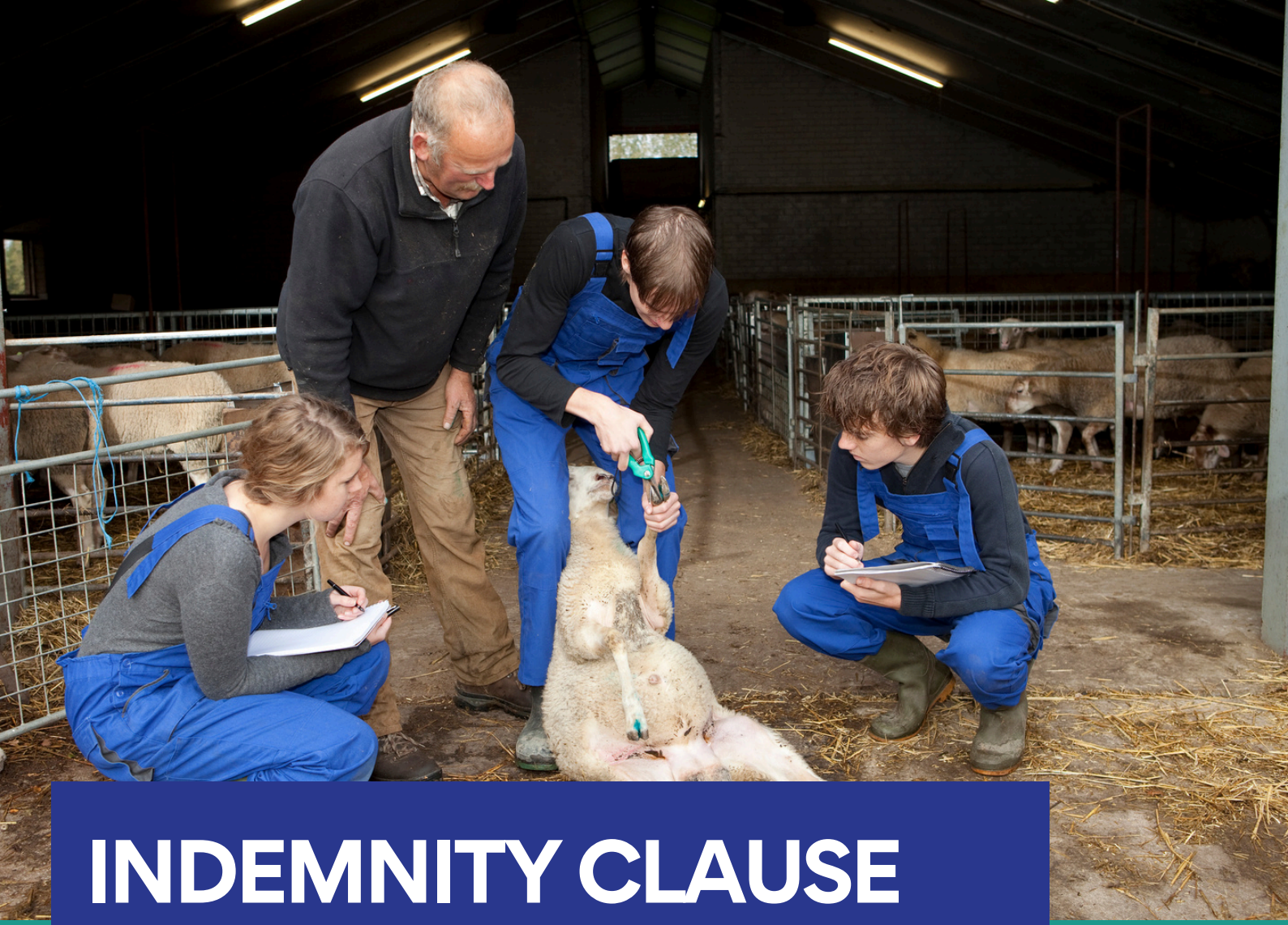
2023 Churchill Fellow
Awarded by the Winston
Churchill Memorial Trust



INDEMNITY CLAUSE

THE WINSTON CHURCHILL MEMORIAL TRUST
Report by Dr Bronwyn Orr, Churchill Fellow
2023 Churchill Fellowship
Evaluating programs designed to attract, recruit and retain veterinary professionals.

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Signed: Dr Bronwyn Orr Date 26/11/2024

EXECUTIVE SUMMARY

Project Introduction, Description and Purpose
This Churchill Fellowship set out to evaluate programs designed to attract, recruit and retain veterinary professionals. In doing so, a much larger body of work was discovered concerning the veterinary workforce.
Veterinarians work to help animals, owners and the community. They are experts on animal health and welfare, doctors to all species except Homo sapiens. However, shortages of veterinarians have been causing issues in almost all countries who recognise the registered profession. When communities can't access veterinarians, animal health and welfare, biosecurity, food safety and public health suffer. Given veterinarians are one of the smallest and most niche of the 'healthcare' professions, our issues often go undiagnosed until they reach crisis point.

This paper focuses on the findings that related to the original project, that is, the programs being used around the world to address the shortage of veterinarians in certain communities. However, it also touches on key risks facing the veterinary profession in the future.

Intended Audience: Governments (state and Federal), associations, universities, veterinarians.

DR BRONWYN ORR
2023 Churchill Fellow

Highlights: Spending five weeks talking about the veterinary profession with colleagues who are also passionate about the industry. Uncovering new insights about the profession and wider animal industries, the role of values in shaping government responses and discovering how lucky we are in Australia to have relatively family-friendly policies.

Conclusions and Recommendations: Shortages in select parts of the veterinary profession, namely rural and regional areas, government and equine practices, will continue until either the factors causing those shortages are addressed, or incentives offered are sufficient to overlay the underlying reasons.

If Australia's states, territories and Federal government decide that a) veterinary services are essential services and b) farm animal veterinary care is important to Australia, then there is a plethora of interventions that can be trialed to improve veterinary workforce shortages. Next steps should include:

- Identify gaps in veterinary workforce data and work to fill those gaps through targeted research projects
- Collaborate internationally on veterinary workforce discussions
- Promote veterinary workforce solutions to government, associations and universities
- Engage in discussions around the future of the veterinary workforce and urge development of a national workforce plan
- Participate in discussions with livestock producers and agricultural bodies around the role of veterinarians on farm

TRAVEL ITINERARY

- GUELPH, ONTARIO, CANADA
- ST-HYACINTHE, QUEBEC, CANADA
- CHICAGO, ILLINOIS, USA
- CHAMPAIGN, ILLINOIS, USA
- WASHINGTON DC, USA
- ABERDEEN, SCOTLAND, UK
- EDINBURGH, SCOTLAND, UK
- LONDON, ENGLAND, UK
- WELLINGTON, NEW ZEALAND

Travel Dates: 5th September 2024 - 8th October 2024

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This Fellowship wouldn't have been possible without the incredible support of individuals and organisations both in Australia and overseas. I would like to thank:

- The Winston Churchill Memorial Trust
- The Australian Veterinary Association
- Veterinary Support Group

In addition, I thank everyone who took the time to meet with me or answer my queries during the Fellowship.

I would also like to acknowledge the hard work of the Walk In Clinic For Animals team who kept the clinic running in my absence.

And finally, I would like to extend the biggest thanks to my family – Joshua, Deborah and Gordon – without whom, this Fellowship would have been impossible. It takes a village and I'm so very grateful to you all for taking such good care of our little girl.

ABBREVIATIONS

AI - Artificial Intelligence
AVA - Australian Veterinary Association
AVMA - American Veterinary Medical Association
BVA - British Veterinary Association
CAD - Canadian Dollar
CVMA - Canadian Veterinary Medical Association
GBP - Great British Pound
LLM - Large Language Models
MPI - Ministry of Primary Industries (NZ)
NZ - New Zealand
NZD - New Zealand Dollar
NZVA - New Zealand Veterinary Association
USA - United States of America
USD - United States Dollar
USDA -United States Department of Agriculture
UK - United Kingdom

KEY WORDS

- Veterinary
- Workforce
- Policy
- Government
- Demographics
- Programs
- Female

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INTRODUCTION

This White Paper, resulting from a Churchill Fellowship granted in 2023, arose from a desire to learn what other countries were doing to combat the shortage of veterinarians. As President of the Australian Veterinary Association in 2022-2023, I kept hearing from veterinarians both in Australia and overseas that they were struggling to find associates. The shortage seemed particularly acute in rural and regional areas, where veterinarians are expected to be on call 24/7 and often cover large geographical areas in their practices. The veterinary profession is a caring profession. Like many healthcare professionals, veterinarians are drawn to the field because they want to help. Help animals, help owners and help communities. It's also a profession deeply rooted in science, with just some of the roles veterinarians undertake outlined in Figure 1.

Globally, the veterinary degree is one of the hardest to get accepted into. There are limited spots and the course is gruelling. Students have to obtain high academic marks, often pass multiple interviews and produce a portfolio of work experience and volunteering – before even getting accepted into the degree.

In Australia and New Zealand, there are eight veterinary schools estimated to produce roughly 900 veterinary graduates each year from 2025 (1) . Australia has one of the highest vet student to general population ratios in the world, yet despite this, we struggle with shortages of veterinarians in certain areas. We are not alone in this struggle. The entire Anglosphere is also experiencing shortages of veterinarians, with Canada, the United States (USA), United Kingdom (UK), Ireland, South Africa and New Zealand reporting issues filling veterinary roles.

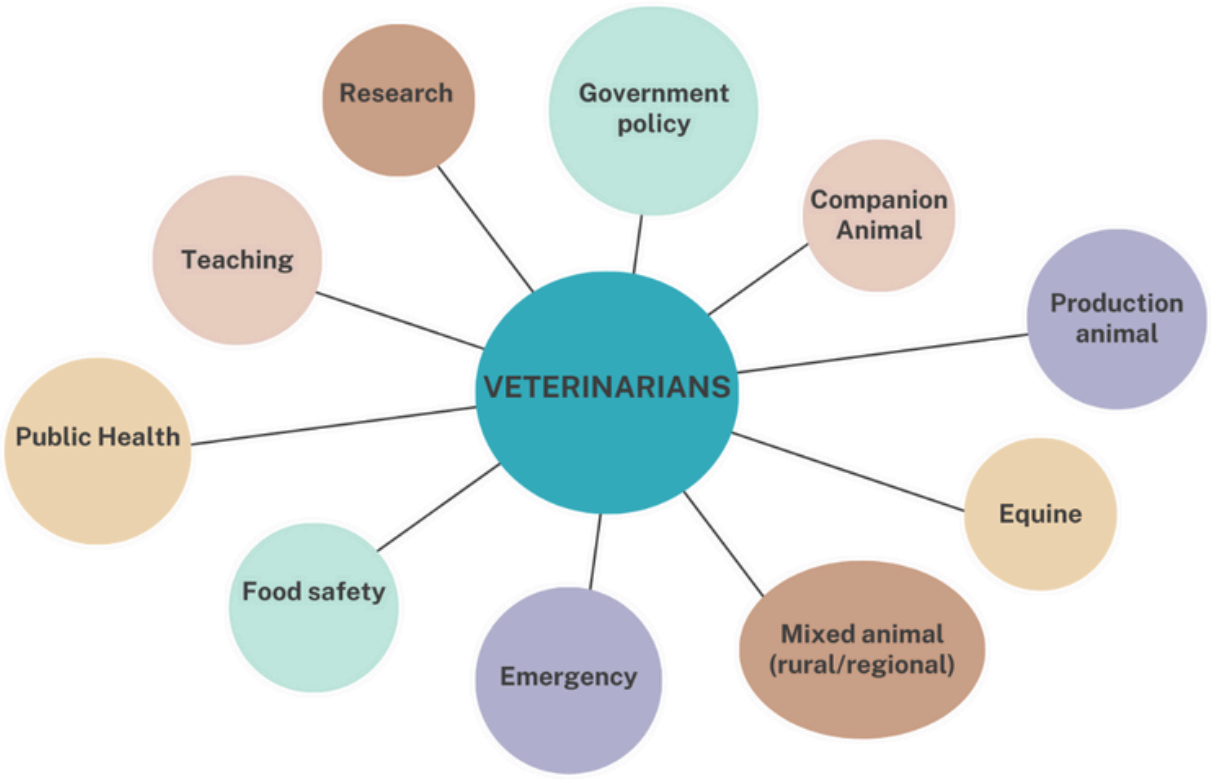


Figure 1: A selection of roles fulfilled by the veterinary profession (Source: Author)

As a veterinarian myself, I understand the challenges associated with the role. Long hours, low pay, client abuse, isolation, high student debt and workplace stressors most people couldn't even dream of. It's completely normal for a veterinarian to go from vaccinating a new puppy to euthanising a beloved family pet to preforming emergency abdominal surgery on a dog within the span of an hour.

The veterinary profession is remarkably similar in the USA, Canada, UK, New Zealand and Australia, even forming an 'Animal Health Quads Network' within each of their federal governments. Therefore, it makes sense to examine the policies and programs being used in these countries to attract, recruit and retain veterinary professionals to determine if any of these programs could be suitable in an Australian context.

Without a Churchill Fellowship, a project of this scale would have been impossible, given the lack of public investment in the profession. The learnings gained have been invaluable and no doubt will have a positive impact on the profession not just in Australia, but in all the countries visited as part of my Fellowship.

The remainder of this report will outline the key findings, next steps, and dissemination plan to identify a path out of our current workforce shortage.

MAIN REPORT

Brief overview of the veterinary profession

Veterinarians are registered professionals. In Australia, each state and territory has a regulatory board that is legally mandated to register veterinarians and regulate the profession to ensure the safety of the public. Canada and the USA have similar structures, with registration occurring at the state and provincial level, not the federal level. As the UK and New Zealand are not federations, registration occurs at the national level.

Veterinary training, professional standards and accreditation of overseas veterinarians are the purview of the state boards, however in Australia, most delegate this to the Australasian Veterinary Boards Council, a non-statutory body. By doing this, the veterinary profession is effectively self-regulated and gets to set the standards and say who does (and doesn't) get to be a veterinarian.

Veterinarians are governed by the state, territory or provincial Veterinary Surgeons Act or equivalent. This legislation, and its accompanying regulations, is enforced by the state (or national) boards, and is the primary piece of legislation that affects veterinarians. Ancillary pieces of legislation, such as animal welfare and pharmaceutical laws, also impact veterinarians, however the profession has far less influence over those Acts.

The veterinary profession is small. In countries like Australia, the USA and Canada, the ratio of veterinary doctors to human doctors is approximately 1:10 (2) . While it's impossible to know the true number of 'veterinarians' around the world, given the definition of, and minimum qualifications for veterinarians vary, Table 1 outlines the number of registered veterinary professionals in the Anglosphere.

Historically, the first professional veterinary school opened in the 18th century in Lyons, France to train men in the treatment of horses and farm animals. This focus on larger animals derived from their respective importance to transportation and food security at the time. It's only a relatively recent phenomenon that veterinarians have been called upon to treat pets or companion animals, with the pets being considered family members a trend only emerging in the last 50 years or so.

Until the 1970s, the majority of veterinarians were men. Stories like James Herriot in the UK embodied the myth of the farm veterinarian, a strapping country lad who could fix anything and would never say no to a cup of tea after a calving. Nowadays, the majority of veterinarians are women, with more than 80% of veterinary graduates in the Anglosphere identifying as female (1) .

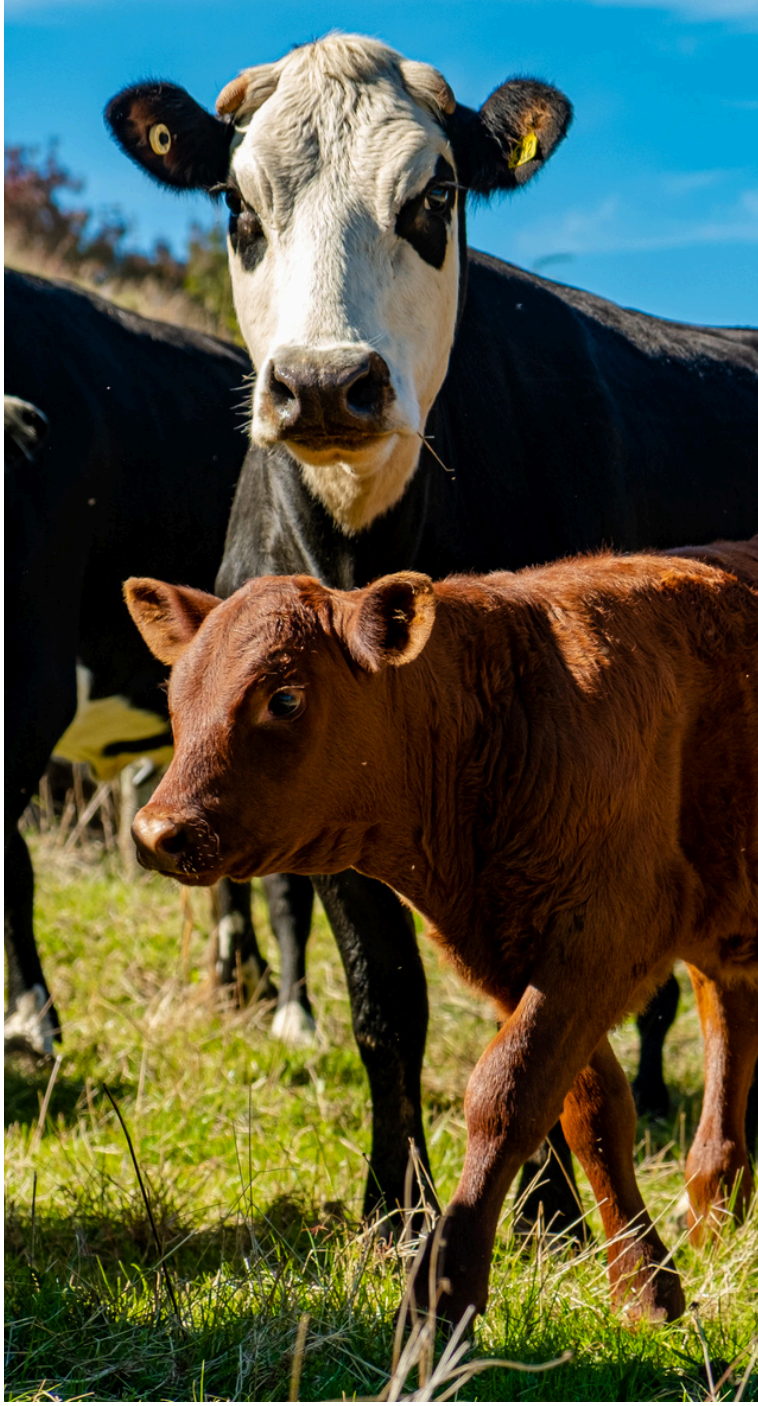
Table 1 - Number of registered veterinarians

Country	Number of registered veterinarians
United States of America (2023)	127,131 (3)
United Kingdom (2024)	30,272 (4)
Canada (2023)	15,459 (5)
Australia (2023)	15,261 (6)
New Zealand (2023)	3,277 (7)

In a relatively short period of time, the veterinary profession has experienced several large, disruptive demographic and workforce changes. Until the 1960s, most veterinarians were men who worked with farm animals and owned part or all of a veterinary clinic, or worked for the government in food safety and public health. Now, 60 years later, most veterinarians are female, work with pets and don't own their own clinic. Generational changes mean veterinarians today want to work fewer hours, more flexible shifts and are sometimes less inclined to 'give things a crack'. Many women give birth to children, and the paradigm shift associated with caregiving can result in changes to working habits. These changes are sometimes viewed in a negative light by those who miss the 'good old days', however the reality is, the veterinary profession has undergone a demographic change experienced by many professions over the same period, and there is no going back.

Areas of the industry that previously were the first choice for veterinarians, such as farm animals and government work, are now less desirable. And consequently, it is these areas that are experiencing the shortage of veterinarians most acutely.

Desirability of a field is dependent on many factors – pay, conditions, recognition, flexibility, location etc. It's no secret that veterinarians have always followed paid work. The profession was created because there was a demand for people who could keep the means of transportation moving, and who could treat and eliminate risks to food security and public health. As the veterinary profession operates in the free market, veterinary professionals have to work where there were people willing to pay them. There is no Medicare or public hospitals for animals in Australia.



Previously, farm animal work, often through government direct and indirect subsidies, paid enough to attract veterinarians. Likewise, public health and government work used to sponsor veterinary students and offer well-paid careers, thereby attracting professionals. However, in countries like Australia, we have seen a reduction in both farm animal and government work over time. The proportion of the veterinary workforce employed by government has never been lower, and with Enterprise Bargaining Agreements (EBAs) dictating the pay rates available to public vets rather than the free market, it's no wonder they struggle to attract and keep veterinarians.

Likewise, ceasing government programs like the Brucellosis and Tuberculosis Eradication Campaign (BTEC) that ran for 27 years in Australia from the 1980s, and subsequently helped support rural practices via a regular source of revenue, have resulted in farm animal vets competing for a dwindling supply of work from farmers who want veterinarians in a crisis, but don't want to pay for them all the other days of the year. One of the biggest themes that has emerged from this Fellowship is the veterinary shortage in most countries is likely a distribution problem. That is, rather than a true shortage, which would mean we simply don't have enough registered veterinarians to meet the needs of paying clients; certain segments of the industry cannot attract, recruit or retain veterinarians.

From an economic perspective, the global veterinary sector was estimated to be worth $120.12 billion USD in 2022 (8) . However, it is difficult to accurately capture the true value of the profession, given the contributions veterinarians make to areas such as food safety, market access, industry certification and more. As a component of the pet industry, the veterinary sector is growing steadily in value and has attracted significant capital investment from conglomerates like Walmart in the USA and private equity firms. The relatively recent corporatisation of the veterinary industry, leading to approximately 60% of veterinary clinics in the UK (9) , 30-40% of clinics in the USA (10) and 20% of clinics in Australia (11) under corporate control as of 2024, may have further impacts on the profession and workforce.

Despite the growing value of veterinary care as a market segment, access to affordable veterinary care has never been more restricted. As the costs of veterinary services continue to rise, many animal owners are being priced out of veterinary care entirely, forcing them to seek animal health advice elsewhere.

Veterinary Graduates

There are approximately 15,000 registered veterinarians in Australia. We are a small profession – by comparison, there are approximately 140,000 doctors and 450,000 nurses registered in Australia (12) . Veterinarians undertake long and gruelling training, with the university degree(s) taking between 5-7 years on average. Despite the length of training, there is no money to be made in delivering veterinary degrees. It's the most expensive course to provide, given veterinary schools generally require specialised teaching hospitals, stables, farms, anatomy and laboratory facilities not to mention a suite of academic staff including veterinary radiologists, surgeons, internal medicine specialists, behaviourists, parasitologists, virologists and microbiologists. Unlike human medicine which is both directly and indirectly subsidised by the public health system in places like Australia, the veterinary degree is a cost borne by the university and student, with only a fraction of the expenses covered by the Department of Education. Veterinary degrees are usually only offered by universities due to historical reasons, prestige or the 'halo effect' of attracting ancillary students.

Despite these costs, there are eight universities (soon to be nine) in Australia and New Zealand that offer an accredited veterinary degree. In the USA, at least 13 new veterinary schools have been proposed and are working through the accreditation process. Newer 'distributed' models of veterinary schools, where the clinical components of the degree are pushed out onto existing veterinary clinics and hospitals, certainly improve the financial proposition of offering veterinary degrees for universities, although the current model of unpaid training provided by external businesses may be unsustainable long term.

There have never been more veterinary students (and consequently veterinary graduates) than there are now. However, most countries are still reporting a shortage of veterinary professionals, so what is going on?

Where is the data?

Almost all jurisdictions complaining about a shortage of veterinarians lack robust data. No jurisdiction I encountered has been collecting ongoing, comprehensive, lifetime data on veterinarians, and even fewer do workforce planning with data they do have. If you asked most states or countries if they had enough veterinarians right now to meet their needs, or if they will in the future, they would respond with – "we don't know". Data is the biggest missing puzzle piece in any discussion around veterinary workforce issues – with most jurisdictions needing to resort to anecdotal evidence in lieu of robust data analysis.

Veterinary workforce attrition is frequently attributed as the main cause of the current veterinary workforce shortage. Workforce attrition can be defined as the slow and gradual shrinkage of the working population over time, or in the case of the veterinary profession, it's used to describe those vets who choose to leave the profession prior to retirement age.

Why do vets leave the profession? Like any wicked problem, it's complicated. However, despite the research that has been done on this topic, the biggest issue is that the extent of the problem is unknown. It's anecdotally used by many to explain the shortage – we have an attrition problem, people are leaving the profession, and therefore we have a shortage. However, it's not quite that simple.

No jurisdiction I encountered tracks veterinarians throughout their entire working career. Despite being a registered profession, veterinarians are usually registered at the state or provincial level, not federally, which means if a veterinarian moves states, they are often 'lost' to the system. In the USA and Canada, the VAULT system administered by the American Association of State Veterinary Boards (AASVB) can track enrolled participants, but only if they use it for their entire working career (13) and the comprehensiveness of data gathered on these veterinarians is minimal.

Currently, boards would struggle to adequately track a participant across their career if they changed their name (such as when they get married), took time out for caring responsibilities (such as raising a family) or moved jurisdictions, given most regulatory boards have not designed their systems to capture this data in a coherent manner. The only jurisdiction I encountered during this Fellowship who were trying to develop a comprehensive 'lifetime' tracking system for veterinarians by assigning them a unique identifier (similar to a Medicare or Social Security number) was Quebec in Canada; however, funding for this workforce project is limited to three years. It's unclear if this increased data collection process will continue beyond this point.

So, currently, when a veterinarian moves jurisdictions, takes time out from work, moves into a non-registered field (but still works as a veterinarian) or any number of eventualities, they disappear for a period of time from our systems. Unlike the AHPRA system in Australia for human healthcare professionals, there is no national data collection system for veterinarians (14) in Australia. There have been early talks about changing this, however these discussions are still in their infancy, and most importantly, are currently unfunded beyond an exploratory phase.

Where are the shortages?

Generally, the most acute shortages of veterinarians are being felt across three areas globally: rural and regional practices, government work and equine practices. While there are likely many small animal, metropolitan veterinary practices also struggling to find staff across the world, the most severe shortages are being experienced in these three fields.

Rural and Regional

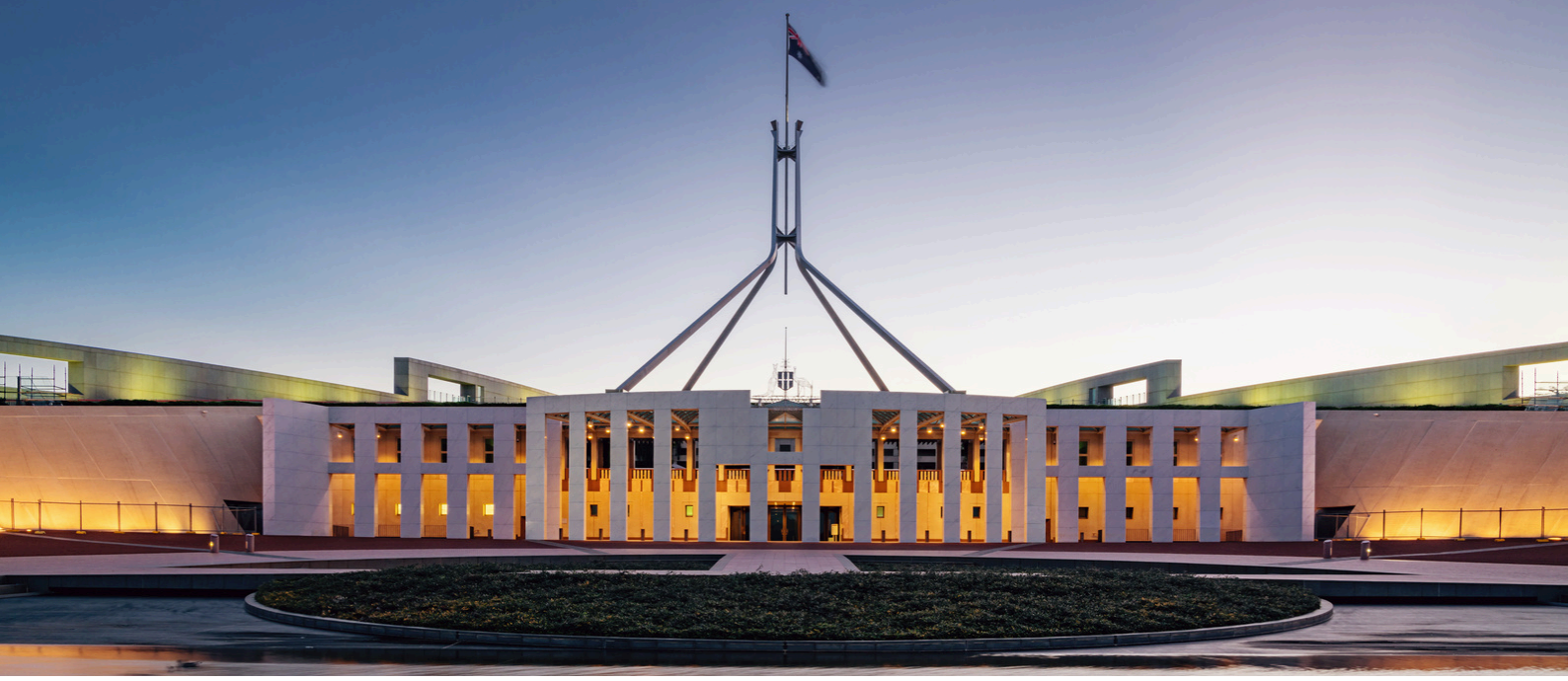
Attracting professionals to rural and regional areas is a perennial, global problem. It's not just veterinarians; it is difficult to get doctors, nurses, pharmacists, physiotherapists and dentists to work rurally also. The reasons for this are complex and multifactorial, and include job-specific factors such as differences in pay, hours and scope of work compared to urban jobs, as well as society-wide factors such as access to housing, childcare, quality education and healthcare. As most households now have at least two people working in them, suitable jobs in the community have to be found for both people, often in disparate fields.

Generally, working and living rurally is a very different lifestyle choice compared to working and living in a city. A veterinary professional in the city has far more choice over where, how and when they work. They can refuse to do on-call and afterhours, work reduced hours, treat only one species or perform limited duties and they can ask for higher compensation due to more clinic competition.

Rural communities have been struggling with community attrition with some time, particularly in countries like Australia where most of the population lives in a handful of large cities. To combat the decline of rural professionals, there are two choices facing industry and government – make rural living more attractive (incentive approach) or make rural living compulsory (punishment approach).

The veterinary programs currently on offer around the world to attract and retain veterinarians rurally are largely incentive programs. However, there are examples in other industries such as medicine taking a more punishment-centric approach. For example, rural bonding of graduates in the traditional sense, links a seat at university with compulsory time served in a rural community upon graduation, similar to the Bonded Medical Program in Australia for doctors (15) . A more extreme punishment approach is the 19AB Medicare restrictions placed on foreign trained and international doctors who want to work in Australia (16) . The 19AB Medicare restrictions essentially force overseas doctors to work rurally in Australia for 10 years before they have billing restrictions removed and can finally move to a city.

By comparison, the rural veterinary incentive programs on offer around the world, and detailed in the 'Who has the answers?' section of this document are relatively gentle in their approach.



Government

Every country contacted as part of this Churchill Fellowship described a shortage of government veterinarians. Veterinarians are employed by jurisdictions around the world to provide food safety inspection in abattoirs and other food plants, import and export inspection and certification of animals and animal products, animal welfare, 16 biosecurity, policy and many other aspects of state, provincial and federal Departments of Agriculture (or their equivalent).

Shortages of government veterinarians is concerning given the important role they play in ensuring food safety, market access and preventing human and animal disease outbreaks. While the reasons for government veterinary shortages are complex, it is a little simpler than rural and regional veterinary shortages. Firstly, some government veterinary jobs are considered undesirable by modern standards. For example, abattoir veterinarians have a vital role that ensures market access and helps protect food safety, animal welfare and product integrity, however, hiring abattoir veterinarians is notoriously difficult given the role requires long hours, rural locations, difficult working conditions, repetitive and often uninteresting work and set pay dictated by government-wide agreements.

Other government jobs are difficult to hire for, for different reasons – most vets are trained to expect a clinical veterinary career upon graduation and a desk job doesn't align with this vision. Additionally, pay can be uncompetitive due to enterprise-wide agreements that struggle to keep pace with private-market rates.

Taking a broader view, it's important to note that the veterinary industry as a whole, largely falls into a 'portfolio gulf' in government, whereby only a small section of the workforce (approximately 15-20% of all registered veterinarians) are under the purview of the relevant agricultural Ministry due to their work with farm animals or in government. This means that the vast majority of the workforce (the other 80-85%) fall outside the scope and concern of governments, given they primarily work with non-food animals such as pets and horses.

Despite most state, provincial and federal jurisdictions having Chief Veterinary Officers employed by the government, CVOs are primarily concerned with wider animal and public health matters, and veterinary workforce concerns are mostly constrained to the impact on the government veterinary workforce, and occasionally the livestock veterinary workforce depending on the jurisdiction.

Equine

Many regions are struggling with having sufficient equine veterinarians to meet demand. This area of the workforce has patchy shortages, due in part to the erosion of equine racing industries in jurisdictions across Canada and the US, which have seen huge decreases in track attendance, dozens of track closures and a general move towards casinos replacing horse racing gambling. In those areas where demand for equine veterinarians is still high, there are several factors at play influencing the shortage. Firstly, there appears no shortage of veterinarians interested in equine medicine before and during veterinary school. Indeed, hundreds of veterinarians complete equine internships around the world every year. However, these interns often don't stay in the equine field due to pay, hours, culture, challenging clients, safety and the availability of clinic positions.

The equine world generally is a tale of two cities. There has always been a contingent of horse owners who are wealthy and spend inordinate amounts on their equids, including veterinary care. These are the polo ponies, the racing and breeding thoroughbreds, the equestrian horses, and the private school pleasure ponies. The other camp, horses owned by people of lower financial means who struggle to pay even the day-to-day, high running costs of keeping horses, also struggle to pay their vet bills. Despite a need for equine veterinary services in a lot of areas, the financial proposition to have a vet available 24/7 is not present. This is where the free-market nature of veterinary services clashes with community expectations, leading to a shortage that has no easy fix outside of government intervention.

Who has the answers?

Before delving into the specific policies and programs employed by various jurisdictions to address veterinary workforce issues, it's important to spend time considering how culture, values and philosophical approaches directly influence program and policy development.

Despite Canada, the US, UK, New Zealand and Australia being part of the Anglosphere, sharing pop culture, language, religious influences and even history in the case of the Commonwealth countries, they all differ widely in their values, culture and philosophy towards government intervention, the value of animals, the veterinary profession and wider society.

Fundamental differences in the economic system, such as whether a country has a more socialist or capitalist approach, are overlaid by similarly significant cultural differences such as gender equality. All of these factors directly influence government policy and workforce dynamics. Despite the veterinary profession in Canada, the USA, UK, New Zealand and Australia sharing the same challenges, workforce demographics and even education and accreditation, the economic system, history and culture of countries dramatically shape their response to issues.

For example, the difference in approach to pregnancy, child birth and infant rearing by veterinarians differs widely between countries depending on the social policies of the country. In Australia, it's common for the primary carer, usually a woman, to take 6-12 months off work after giving birth. Many women then return to work in a part- time capacity. By comparison, in the USA it's not uncommon for women to only take 3-6 weeks off after birth (usually unpaid), then return to work in a full-time capacity. The reason for these differences is not because American women and Australian women see child rearing differently, it's because Australia has legislation and welfare policies in place which enable women to do these things. The USA by comparison, has limited social policies and protections surrounding birth and child rearing, and therefore women are forced to return to work much sooner. The impact of these social policies on the workforce is dramatic for an industry that will soon be 80%+ women – in Australia, maternity leave contracts to cover the primary carer are normal and common, and returning to work in a reduced capacity is legally protected and expected. In the USA, pregnancy and childbirth in the workplace appear to be treated no differently than a broken hand or an overseas holiday. No extra coverage is required, and therefore having a large female demographic doesn't impact the workforce, unlike in Australia

All this to say, there are some incredible policies and programs being trialled around the world right now to address veterinary workforce issues. However, their applicability to an Australian context must be considered through this wider cultural lens. The programs outlined below are loosely grouped according to the section of the veterinarian pipeline they are targeting.

Student Selection and Support

Becoming a veterinarian begins well before you apply to veterinary school. Students must meet high academic standards, with most universities now requiring prior experience numbering hundreds of hours, a portfolio of work and interviews. It is one of the most oversubscribed degrees internationally, with a general student application to student seat ratio of 2:1. This means at least half of all people who apply to veterinary school don't get offered a place, particularly those who apply straight out of school as is the case in Australia, New Zealand and the UK. In some regions, where there aren't many veterinary school places available either due to funding or geography, the ratio can rise to as high as 3:1 in New Zealand and 10:1 in some states of the USA and provinces in Canada (17) .

Other than a few select universities around the world who reserve veterinary seats specifically for students from certain demographic backgrounds (e.g. Atlantic University in Canada having spots reserved for Indigenous students (18)), all veterinary schools use grades as the gatekeeping metric for assessing student suitability.

There are two reasons frequently cited for using academic marks as the first (and primary) barrier for entry to a veterinary degree:

1. Given the degree is so oversubscribed, there needs to be a way to filter applicants, and marks are quantitative, standardised, easy and 'fair'.
2. The belief that because the veterinary degree is so gruelling, students must meet a certain academic standard prior to entry in order to prove they have 'what it takes' to complete the degree.

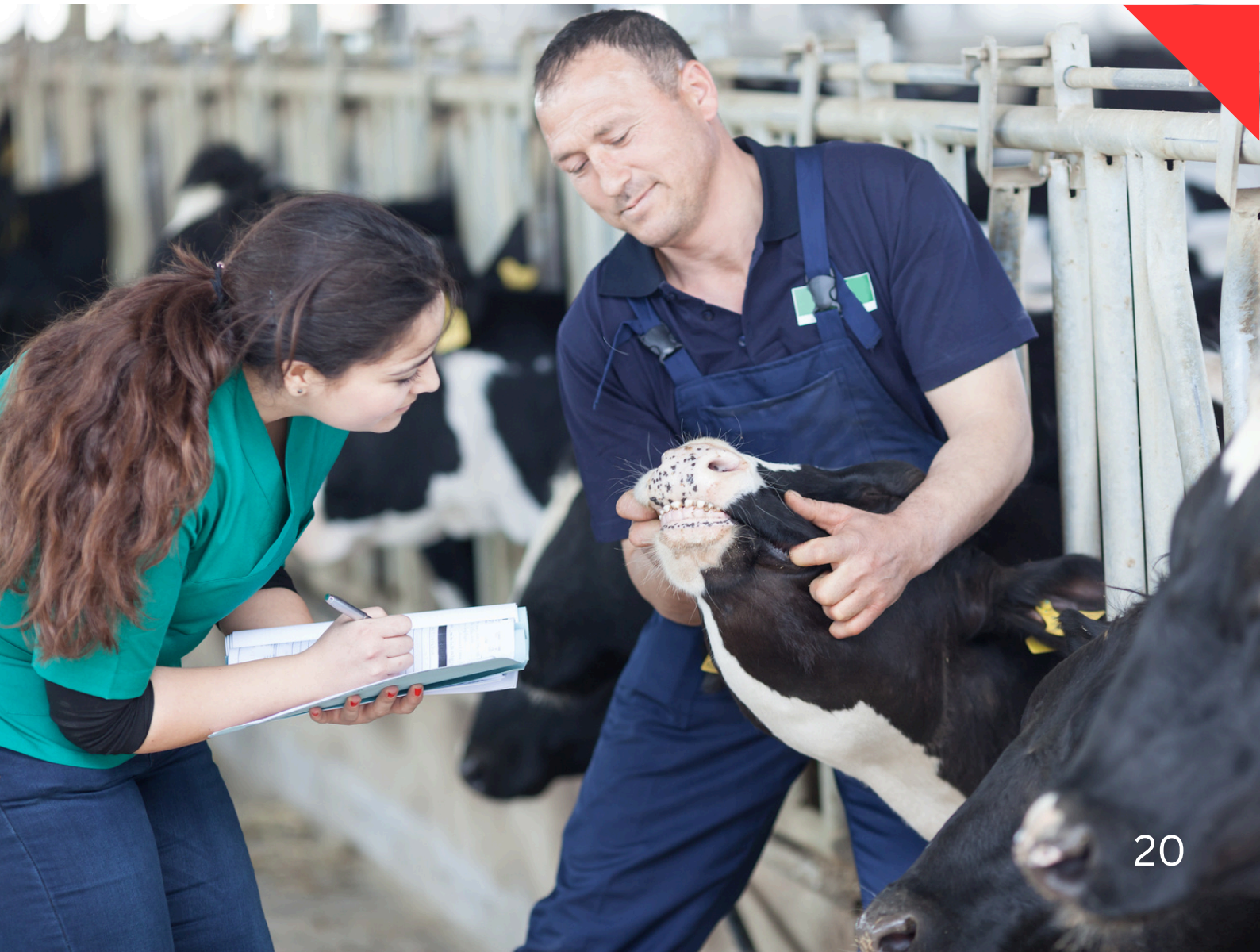
On the first point, it is well established that academic marks prior to university are often deeply embedded in privilege, class and socioeconomic status (19) . It doesn't matter if you were born a genius, if you attended an underprivileged school that perhaps didn't offer all the core subjects required for veterinary degree entry (as is often the case in rural and regional areas), or you grew up in a disruptive household that didn't provide an environment conducive to study and exam preparation, you won't achieve the standard required for entry.

On the second point, there is scant evidence that you have to achieve certain grades prior to entering veterinary school to either a) pass veterinary school or b) become a good veterinarian. As many mature age students show, grades can change and improve over time, and while an easy screening tool, it's paternalistic to think that if you don't meet this initial hurdle, you couldn't possibly complete a veterinary degree, or become an excellent veterinarian.

Fortunately, there are some veterinary schools around the world who have acknowledged these issues and are taking steps to rectify them. In the UK, the Royal Veterinary College at the University of London offers the Veterinary Gateway program (20) that aims to provide an alternative pathway for undergraduate students from diverse and disadvantaged backgrounds. Also in the UK, the University of Nottingham offers the Pathways to Veterinary Medicine Program to support disadvantaged students as they navigate the various hurdles that must be leaped prior to getting accepted into veterinary school (21) . In Canada, the Atlantic Veterinary College within the University of Prince Edward Island takes students primarily from four Atlantic Canadian provinces; Prince Edward Island, Nova Scotia, New Brunswick and Newfoundland and Labrador (18) . These provinces have funded one seat per year specifically for an Indigenous applicant, in an attempt to widen participation in veterinary medicine (22) . In the USA, 'affirmative action' is no longer legal and therefore these sorts of seats aren't available at USA veterinary schools.

Once admitted to veterinary school, students face between 4-6 years of heavy workloads, high student debt and expensive extramural studies (EMS). It can be difficult for students from disadvantaged backgrounds to complete the degree, and most students have to take out both tuition and living expense loans to make it through. Unlike other university degrees, veterinary students from day one enjoy contact hours and study in excess of a full-time job. On university 'breaks' between semesters or at the end of the academic year, students are travelling the country at their own expense to work for free at farms and veterinary clinics to meet EMS requirements. Many students have to pay 'double rent' during these EMS experiences, whereby they are paying rent at the location of their placement as well as at their university campus, with no external support.

As a result, any scholarships or grants that might be available to students are very attractive. In the USA, students can apply for the Health Professions Scholarship Program and join the USA Army Veterinary Corps in return for financial support (23) . The UK has a similar program for students willing to join the British Army (24) . Other than signing over years of your life in return for financial aid, scholarships for veterinary students tend to be piecemeal, although some Canadian provinces offer support to students willing to do rural placements, such as Quebec (25) and Nova Scotia (26) .



Individual Veterinarian Incentives

In an attempt to correct the shortage of veterinarians in specific fields, many states, provinces and countries offer incentives to individual veterinarians. In New Zealand, the Voluntary Bonding Scheme for Veterinarians delivered by the Ministry for Primary Industries (MPI), is one of the original rural veterinary incentive schemes. Created more than a decade ago, this program provides $55,000 NZD over five years to veterinary graduates who are willing to work in a rural and regional area (27) . A 2020 review of the program was largely positive and found it had supported hundreds of Massey University veterinary graduates to work rurally (28) . However, despite these positives, the program does have some issues that require addressing such as a lack of strong data to support outcomes and a lack of payment indexing which will reduce the attractiveness of the program over time.

In the USA, the Veterinary Medicine Loan Repayment Program administered by the United States Department of Agriculture (USDA) is similar to the MPI program. It provides up to $25,000 USD for veterinary graduates who commit to at least three years in a designated veterinary shortage area (29) . These shortage areas are proposed by the states and counties each year and are more reliant on self-assessment than actual data. The program hasn't yet been reviewed, however the USDA have commissioned other work in this area through the Farm Journal Foundation (30) .

In Ontario, Canada, they recently launched their version of a rural bonding scheme called the Veterinary Incentive Program which offers up to $50,000 CAD over five years to veterinarians who practice in northern and underserviced communities (31) . It will be good to monitor this program, and all the other rural incentive programs, to determine their effectiveness over the coming years.

A unique, innovative approach to veterinary shortages that targets the individual veterinarian is also being explored in Ontario. The College of Veterinarians of Ontario who acts as the regulator, is piloting a limited licensure trial of foreign veterinary graduates. These veterinarians come to Ontario and are allowed to only work on a limited license, for example pig medicine only or poultry medicine only. They wouldn't have to sit the full exams currently required for international graduates, and would be able to start working much faster than previous candidates. Limited licensure is a controversial topic in veterinary medicine, as veterinarians are graduated to be omnicompetent – this means we have the ability to treat any animal that presents (except Homo sapiens). The idea of allowing foreign vets to be registered and earn money as veterinarians, but only have to prove capability in one species or discipline, is shunned by many in the profession. Ontario, however, take a regulatory sandbox approach to legislation (32) , which allows them to test and trial innovative ideas and gather important data on what works, and what doesn't. The rest of the veterinary world will be monitoring this trial closely.

Direct Veterinary Clinic Subsidies

A common approach by governments around the world to address the veterinary shortage is to directly subsidise veterinary clinics, particularly in rural and regional areas. This is essentially an acknowledgement that the free market approach to veterinary services doesn't work perfectly when a country or state values things other than pure economic output. For example, in Scotland, crofters or people who live on small rural holdings in a semi-self-sufficient manner, are both legally and culturally protected (33) . As a result, the Agriculture and Rural Economy Directorate of the Scottish Government runs the Highlands and Island Veterinary Services Scheme (34) . This scheme provides funds directly to a group of veterinary clinics in the Scottish Highlands and islands that deliver veterinary services to crofters. It's been in operation for more than 100 years now, and in some instances provides more than £100,000 GBP to veterinary clinics, as well as locums and transportation support. Without this subsidy, it's unlikely veterinary services would be provided to many crofters and it is possible that many of these clinics would have closed by now.

In Canada, like every country I visited, I asked most agricultural officials I met if they thought rural veterinary services were part of their responsibilities. As in, was it core government business for farmers to be able to access veterinary services even in remote areas of their province.

They all emphatically stated that it was. As a result of these values, Canadian provinces deliver numerous programs that support veterinary clinics in rural and regional areas. In Ontario, they have the Veterinary Assistance Program which specifically states it "helps promote the viability of the livestock industry by supporting the provision of veterinary services to livestock producers". This program provides grants to offset remote travel by veterinarians, cost of locums and continuing education expenses (35) .

In some Canadian provinces, like Newfoundland and New Brunswick, farm animal veterinary clinics are directly owned by, and veterinarians employed by, the provincial government. There are essentially no private farm animal veterinary services, and instead the government subsidies farm animal veterinary care by providing facilities and professionals when they otherwise might not be present (36,37) .

The USDA delivers a program adjacent to their Veterinary Medicine Loan Repayment Program called the Veterinary Services Grant Funding. This second fund provides money directly to veterinary clinics for either education, training and recruitment of veterinary staff or upgrades to rural veterinary clinics, such as a grants to purchase a new ultrasound or radiography unit (38) .

Indirect Veterinary Clinic Subsidies

A much larger, and more financially significant group of programs, are what I call 'indirect veterinary clinic subsidies.' These programs are generally designed to support animal health or livestock producers, however the mechanism for that support is often payments for veterinary care. Consequently, these act as indirect subsidies to rural veterinary clinics.

The largest program, in both cost and scope, is probably the Animal Health and Welfare Program delivered by UK's Department of Environment, Food and Rural Affairs (DEFRA) (39) . The Pathway is an ambitious program designed to improve the UK's farm animal health and welfare outcomes, and involves a suite of initiatives funded in part, from the UK's Brexit-induced savings now they don't have to pay EU agricultural subsidies. One of the Pathway's initiatives is reimbursement to commercial livestock farmers who utilise a veterinarian to develop animal health and welfare plans. This essentially establishes a relationship between the client (farmer) and veterinarian, therefore opening the door for further veterinary work. Another component of the Pathway are payments for endemic disease investigation work, which again acts as an indirect subsidy to veterinary clinics.

New Zealand trialled a similar, time-limited (and funding-limited) program after severe flooding in late 2023, which paid for farmers to have a veterinarian attend their property and assist with animal health and welfare (40) .

In Quebec, the Integrated Animal Health Program (PISAQ), acts as a Medicare-like system for farm animal veterinary visits, whereby a portion of each vet bill is paid for by the government. Other programs, such as disease investigation, testing and eradication, are also part of PISAQ and act to support rural and regional veterinary clinics (41) . Nova Scotia has a similar program called the Farm Animal Health Program, which support cattle, sheep, pig and mink farmers to access and pay for farm animal veterinary visits. For example, the Cattle Herd Health Assistance Program reimburses a portion of veterinary consultations for dairy farmers up to 13 times per year, and up to four times per year for beef farmers (42) .

In Australia, since the Brucellosis and Tuberculosis Eradication Campaign (43) ended in the mid-1990s, very few similarly ambitious animal health programs have emerged which could be considered an indirect subsidy to rural veterinary practice. The only current scheme is NABSnet in Northern Australia, which helps fund a small amount of ad hoc disease investigation work by select veterinarians to help protect biosecurity, as well as support veterinary students do EMS in the north (44) . Otherwise, there are no general veterinary subsidy (or farm animal health and welfare subsidy) programs in Australia.

Future of Veterinary Medicine

Despite our internal concerns about the profession, ultimately, we will be shaped by those who use our services. Normally a very conservative and traditional profession, there has been increased advocacy and lobbying efforts from professional associations like the AVMA, CVMA, AVA, NZVA and BVA to government asking for intervention and change. Some of these calls have been warmly received, but many have fallen on deaf ears. Despite being positively perceived by the wider public, the veterinary profession is small and often doesn't have the appetite to do what it takes to really sway votes such as industrial action, publicly supporting (or opposing) pro- vet politicians or adequately funding lobbying efforts on par with other professions.

Therefore, our future will be written by those who use veterinary services. The pet owners, the farmers, the horse breeders and the governments who want international market access for their animal products. Currently, veterinarians provide a useful service to many animal owners who enjoy healthier animals, improved productivity and market access. However, veterinarians must continue adapting to the demands of animal owners. Workforce shortages, while stressful and difficult for veterinary businesses to manage, encourage innovation and alternative service provision to meet the demands of users. For example, there has been a global rise in veterinary paraprofessionals, such as the new Veterinary Professional Associate in Colorado, USA (45) which will act as a mid-level practitioner entitled to diagnose disease and perform select surgeries. The main drive for developing this role was the shortage of veterinarians and the accessibility of veterinary care.

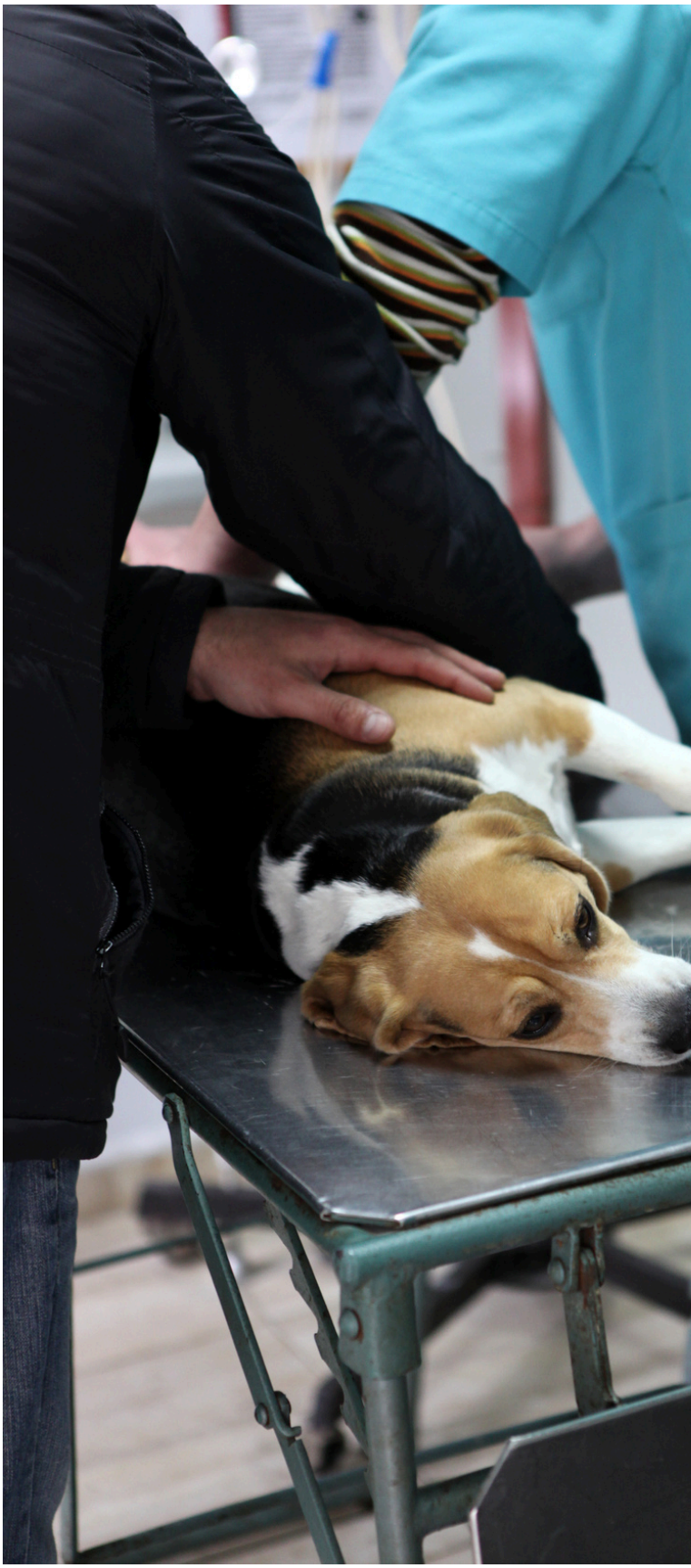
It's imperative the profession tackles veterinary workforce issues with urgency. Rural communities aren't suddenly going to change; therefore, market intervention appears the only sure way to ensure these communities continue to have access to veterinary services. Governments (and communities) need to decide if it matters to them whether a region has veterinary services or not. If they do see value in these services, then government at all levels needs to intervene with incentive programs or other initiatives. If they do not see value, then more communities will lose their local vet, and it's unlikely they will ever return.

Ultimately, technology will play a huge role in the demand (or lack thereof) for veterinary services. Livestock producers will utilise technological solutions that save them money and improve animal health and productivity, likely further decreasing their demand for veterinary services. For some producers, the only connection they will have remaining with their veterinarians is to access pharmaceutical products.

Pet owners of the future will also embrace technology and use these services to augment their own knowledge and involvement in their pet's health. For example, medical wearables will become more common, at home diagnostic tests will be more available, and using AI and other LLM technologies to check symptoms and prevent disease will become widespread. Younger generations have different ways of communicating, and will want to be able to chat and receive information at all times of the day and night, as well as have access to their pet's medical records whenever they want. Veterinarians will need to adapt to these requirements from pet owners, otherwise they will seek care elsewhere.

As a society, we are entering a post-information age. Professionals, once widely valued for their ability to store and process information in their heads after years of training and experience, are slowly decreasing in status, as information becomes more accessible and technological tools are developed that mimic many of the functions of professionals. White collar workers will be significantly impacted by the development of AI and associated tools over the coming decade. While veterinarians still perform many physical tasks, such as surgery, many other tasks undertaken by veterinarians such as radiography, blood collection and physical examination, can also be performed by adequately trained paraprofessionals. With the introduction of AI scribing tools over the past year or so, many consulting veterinarians are now saving 1-2 hours each day. Add a few more technological solutions on top of this, and you can clearly see how veterinarian hours can be freed up. This will naturally reduce the need for more veterinarians, and act to relieve some of the workforce shortage pressures.

We must plan for the future. The veterinary profession must change and adapt to meet the needs of animal owners, otherwise we will be left behind. I would encourage the profession to be open, have mature conversations and plan for future workforce needs to ensure veterinarians remain central to animal health. Now is the time for visionary leadership in the profession.



CONCLUSIONS

This Churchill Fellowship sought to evaluate programs designed to attract, recruit and retain veterinary professionals to help address veterinary workforce issues in Australia. A pipeline approach was taken to the workforce – from student selection and training, through to support for veterinary graduates, direct and indirect veterinary subsidies and any other policies or programs which might have an impact. It involved meeting with government officials, regulators, veterinary schools and associations in Canada, USA, UK and New Zealand, as well as follow-on meetings in Australia to close the loop. A plethora of programs were discovered, however there were a few key themes which have major implications for Australian states, territories and the Federal Government.

Almost all of the programs examined in this Fellowship lacked strong data. Any programs Australia looks to implement must be designed with data collection and analysis in mind from the beginning. Fortunately, Australia appears to be heading down this path with the Australian Chief Veterinary Officer holding a forum in August 2024 to explore establishing a National Veterinary Data Workforce Taskforce (46) . The Taskforce is expected to convene in late 2024 and start developing a data plan in 2025.

Data collection and analysis must be both robust and purpose-driven, focusing on amassing a data set that enables questions such as, 'where do veterinarians work across their career?' and 'how do demographics affect veterinarian working hours?' to be answered.

The values of a state, province or country strongly determine its solutions to a problem. In the case of veterinary workforce issues, the two most important questions that need to be answered before solutions can be developed appear to be:

1. Are veterinary services considered essential, and if so, how much are we willing to intervene to secure those services?
2. Does farm animal health and welfare matter to our livestock producers, and if so, is the accessibility of veterinary services a limiting factor to achieving good health and welfare?

The reason I recommend these two questions are considered, is because it gets to the core of what a jurisdiction values. If they answer 'no' or 'not much' or 'we leave veterinary services to the free market' to the first question, then the reality is there is little to no appetite for intervention and rural and regional veterinary services will continue to retract. If they answer 'no' to the second question, then it doesn't matter if more farm animal veterinarians are produced, or rural practices are subsidised, veterinary services are not wanted and government investment is likely unwarranted.

Clearly, many jurisdictions in Canada, the USA, UK and New Zealand have answered those two questions and agree that veterinary services are essential, and animal health and welfare matters to their producers. However, it's not clear if those sentiments are shared by all Australian jurisdictions. Given Australia's love of deregulation in the agricultural industry, there is almost no appetite for market intervention via direct or even indirect subsidies. Additionally, we know that only 20- 30% of livestock producers in Australia regularly engage private veterinarians. As that figure is 20 years old now (47) , it's likely the number of producers who engage vets in Australia has dropped further, given many livestock veterinary treatments have been descheduled to over-the-counter, and few livestock accreditation programs in Australia require compulsory veterinary visits.

If jurisdictions within Australia have an appetite for change, then there are countless models for intervention from overseas that can be emulated. Veterinary workforce issues, particularly in rural and regional areas, equine practices and government, are not going to go away on their own. There are no signs these issues will self-correct, and therefore access to veterinary services will go one of two ways – it will continue on its current trajectory, worsening for those in rural and regional areas in particular, or, it will improve with direct market intervention. The consequences for reduced veterinary access are clear – animal health and welfare, biosecurity and market access will be at risk. It's up to Australia to choose which direction it wants to go in.

RECOMMENDATIONS

- Agencies like the Office of the Chief Veterinary Officer and universities identify gaps in veterinary workforce data and work to fill those gaps through targeted research projects
- Associations like the Australian Veterinary Association and organisations like the Department of Agriculture, Fisheries and Forestry collaborate internationally on veterinary workforce discussions
- The profession promotes veterinary workforce solutions to government, associations and universities
- All parties engage in discussions around the future of the veterinary workforce and urge development of a national workforce plan
- Associations like the Australian Veterinary Association participate in discussions with livestock producers and agricultural bodies around the role of veterinarians on farm

DISSEMINATION AND IMPLEMENTATION PLAN

- Promote findings to countries visited during Fellowship via the Animal Health Quads Network
- Disseminate findings in shorter industry articles and blogs online
- Highlight key findings and recommendations at veterinary conferences such as the Australian Veterinary Association and VetExpo
- Meet with National Veterinary Workforce Data Taskforce to discuss findings
- Conduct further veterinary workforce research in Australia and overseas

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Appendix A: Author Biography

Dr Bronwyn Orr is a veterinarian based in Canberra, Australia. She holds a Bachelor of Veterinary Science from James Cook University (2013), Master of Science majoring in International Animal Welfare, Ethics and Law from The University of Edinburgh (2017), Membership with the Australian and New Zealand Veterinary College in Animal Welfare (2018), Doctor of Philosophy (Science) from The University of Sydney (2022) and is a Graduate of the Australian Institute of Company Directors (GAICD) (2022).

Bronwyn has worked across private practice, government, academia, industry and NGOs, and currently provides professional consulting services in Australia and overseas via her company Veterinary Support Group. She keeps her clinical hand in by operating Australia's first urgent veterinary care centre in Canberra, Australia, and writes a weekly blog called 'Vet Matters' on issues affecting the global veterinary sector. In 2022-2023 she became Australia's youngest President and Chair of the Australian Veterinary Association.

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My weekly blog about the veterinary industry can be found here:
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