PERSPECTIVES IN
Animal Health and Welfare
VOLUME 2 / ISSUE 1 / 2023

Published ahead of issue
Received: February 2023
Accepted: June 2023

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https://doi.org/10.34074/piahw.002102

This publication may be cited as:

Brown, F., and Ma, S. (2023). Optimising staff utilisation in companion animal veterinary practice in Aotearoa/New Zealand. *Perspectives in Animal Health and Welfare*, 2(1), 1–20. https://doi.org/10.34074/piahw.002102

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ISSN 2816-0290

Optimising staff utilisation in companion animal veterinary practice in Aotearoa/New Zealand

Dr Francesca Brown and Dr Sylvia Ma

Abstract

Utilisation of all staff in companion animal veterinary practice has long been reported as sub-optimal in Aotearoa/New Zealand. Evidence shows that skill utilisation is poor, and this is likely impacted by the very low ratios of non-veterinarian staff to each veterinarian in a veterinary practice. This participative action research utilised co-design with a range of staff practising in companion animal clinical practice in Aotearoa/New Zealand, who self-selected as having experience with excellent utilisation. Participants were asked to imagine what a future with excellent utilisation in Aotearoa/New Zealand would look like. This research clarifies role definitions of a veterinarian, companion animal registered veterinary nurse and companion animal healthcare assistant, documents examples of task allocation in an interprofessional team, and develops models to show how ratios of 11:2–14:2 of non-veterinarian staff to veterinarians could be operationalised. The outcomes of achieving this model are likely be beneficial to staff, animals, clients and the business profitability. However, a significant number of barriers are present which may prevent implementation of this model. These include lack of trust, poor team culture, perceived or real skill gaps in veterinary nurses, current legal risks associated with task delegation by veterinarians, and insufficient time available to implement change. Whilst overcoming some of these barriers requires industry-led solutions, many can be resolved immediately within individual teams. Therefore, there is no need to wait for industry change to begin creating veterinary teams with excellent utilisation within individual veterinary practices.

Keywords

Veterinary, staff utilisation, workplace wellbeing, companion animal veterinary practice, veterinary nurse, animal healthcare assistant, business, animal welfare

Introduction

In recent decades, there have been significant advances in technology and diagnostic techniques for companion animal veterinary practice worldwide (Gyles, 2016). Concurrently, the expectations of pet owners have also grown, as pets are increasingly considered members of the family (Fox & Gee, 2017). A skilled interprofessional team is required to deliver this. These teams involve veterinarians (vets), veterinary nurses (VNs), animal healthcare assistants (AHCAs), customer service and administrative staff, and managers.

Utilisation of all staff in companion animal veterinary practice in Aotearoa/New Zealand has long been anecdotally reported as sub-optimal by vets and VNs. Brown (2022) concludes that Aotearoa/New Zealand veterinary clinics are operating at ratios of 1–2 VNs:1 vet, with limited use of AHCAs. Vets are also frequently performing tasks that are not vet specific. In addition, Harvey and Cameron (2019) show that VNs are not using their full range of skills in clinical practice. With poor staff wellbeing being a current major concern (Foote, 2020; Harvey & Cameron, 2020), this sub-optimal utilisation of veterinary staff is likely to be a contributing factor.

The link between poor utilisation of staff skill-sets and reduced wellbeing at work has been widely reported in literature (Brown, 2020; Page & Vella-Brodrick, 2008; Grawitch et al., 2006). Nelissen et al. (2017) state that high utilisation is one of the strongest predictors of job satisfaction; therefore, it is likely to contribute to the staff member's willingness to remain with an organisation. Aside from the impact on staff wellbeing, there are also financial benefits from reducing staff turnover. Davidson et al. (2010) and De Winne et al. (2019) demonstrate the negative financial impact of high employee turnover on businesses. Although this research is focused on non-veterinary employment sectors, it can be extrapolated. Lastly, utilising an inappropriate staff member for tasks could result in financial inefficiencies; for example, employing a vet on a higher salary than a VN to carry out tasks that a VN could perform. Ultimately, this may reduce the financial viability of a business, and/or reduce

staff salaries, and/or increase fees charged to clients.

Despite the literature being supportive of the benefits of better staff utilisation, there is limited research describing optimal ratios of non-veterinarian staff to vets. Ouedraogo et al. (2022) undertook a revenue and productivity analysis of veterinary practices and concluded that, in terms of revenue gain, the optimal ratio of non-veterinarian staff to vet is 9:1 for revenue gain and 8:1 for productivity gain.

Furthermore, multiple barriers preventing the improvement of staff utilisation in Aotearoa/New Zealand are identified by Brown (2022). These barriers include: lack of trust in the VNs, poor team culture, perceived or real skill deficits of the VNs, insufficient time available for training, current legislation restrictions, and lack of regulation of VNs. Clear role expectations and responsibilities are also essential for implementing excellent utilisation. This helps avoid conflict between roles when balancing the workload, as discussed by Young (2021) when looking at utilisation of veterinary nursing assistants (similar to ACHAs) in Aotearoa/New Zealand.

Currently, there appears to be a lack of clarity as to how veterinary practices can change their structures to improve utilisation. No clear models of excellent utilisation appear to exist in published literature for companion animal veterinary practices to consider and adapt for their own business contexts. Providing such a model would allow businesses to shift from awareness of poor utilisation to actioning change.

This research aims to provide guidelines for companion animal veterinary practices in Aotearoa/New Zealand to optimise staff utilisation and provide an example model as a conversation starter on how changes can be made in an individual business context. It utilised participatory action research methodology, incorporating end-user co-design; consulting employers, employees, and educators with experience in excellent utilisation, working in the veterinary sector to:

- clarify the role definitions for vets, VNs, and AHCAs and therefore their appropriate tasks;
- create a model of excellent staff utilisation;
- identify the benefits of excellent staff utilisation for the business;
- understand the barriers the Aotearoa/New Zealand companion animal veterinary sector faces in implementing a model of excellent utilisation.

Methodology

This research used participatory action research methodology, utilising focus groups which enabled collaboration with end users to present a solution for improving staff utilisation. End users included employers, employees, and educators from the veterinary sector, who were vets or VNs. The focus groups were preceded by participants completing a pre-focus-group survey to provide a baseline to start conversations in the focus groups. The survey findings were discussed in the focus groups, along with resolutions for any challenges that were identified. Ultimately, this allowed the focus groups to co-design solutions to improve staff utilisation in companion animal veterinary practice.

The use of participatory action research methodology to co-design solutions can foster positive change through shifting from the concept that experts know everything to enabling end users to be part of the research and design (Chevalier & Buckles, 2019). This has the potential to increase the acceptability and accessibility of research outcomes and facilitate change.

Participants were sought throughout the Aotearoa/New Zealand veterinary sector networks. This included the New Zealand Veterinary Association, Veterinary Council of New Zealand, New Zealand Veterinary Nursing Association, and through tertiary education providers that offer veterinary science or veterinary nursing training in Aotearoa/New Zealand and their alumni. Members of these networks were asked to express interest if they had prior experience in a companion animal veterinary practice with what they determined was excellent utilisation of staff, both domestically and/or internationally. The aim was to recruit six to eight participants per focus group. Initially, this sample size was met for the pre-focus-group survey, as this was completed asynchronously. However, the size of the synchronous focus groups was reduced due to scheduling difficulties. This is shown in Table 1, below. Table 2, below, shows the demographic range for the participants in each synchronous focus group.

This research was approved by Otago Polytechnic Research Ethics Committee (approval number 944). Confidentiality of participants was strictly maintained. Confidentiality was important to ensure meaningful conversations about changing industry norms were able to be held in a safe environment.

	Pre-focus-group survey	Focus-group participants	Post-focus-group feedback
Educator	6	3	3
Employee	7	4	3
Employer	8	5	4
TOTAL	21	12	10

Table 1. Numbers of participants at each stage of the research.

Stage 1: Pre-focus-group survey

Prior to the focus groups, participants were asked to participate in a survey administered via Microsoft Forms. The survey asked participants to imagine a utopian companion animal veterinary clinic where all staff are utilised optimally under current Aotearoa/New Zealand law. They were asked to assign 180 tasks to a vet, a registered VN, an AHCA, or "other" role. The results were analysed prior to the focus group, examining responses stratified by focus group and by role in the veterinary sector of the participant, to determine what the existing understanding of the roles and responsibilities was. This provided the initial starting point for the focus-group discussions.

Stage 2: Focus group

The use of focus groups enabled collaboration with end users to present a solution to a key veterinary practice challenge of improving staff utilisation. Following the completion of the pre-focus-group survey, each focus group was held online using Microsoft Teams, at a time that suited most of the participants. Three focus groups were formed, according to industry roles: of employers, employees, and educators. Focus groups were recorded and notes were taken by two researchers. A semi-structured approach was used to facilitate the flow of conversation.

The pre-focus-group survey results were discussed and definitions for each role were created. Consideration was also given to existing legal limitations. Once clarity was established with each role, the focus group discussed how a companion animal veterinary clinic would operate when staff were utilised optimally in alignment with these role definitions. The focus groups then identified what outcomes would result from this excellent utilisation scenario, the barriers to implementing such a model and potential ways to mitigate these barriers.

Stage 3: Post-focus-group analysis

Findings from each of the three focus groups were examined for common themes and concepts. These findings were also compared between each of the focus groups. Using the themes and common concepts from the focus-group discussions, the researchers:

- created definitions for each role: vet, registered VN, AHCA and other;
- assigned appropriate tasks to each role;
- created a utilisation model that utilises staff as per the definitions and assigned tasks;
- summarised:
    - the outcomes of implementing this utilisation model
    - the perceived barriers to implementing this model
    - potential ways to mitigate each barrier.

Stage 4: Post-focus-group feedback

The outcomes above were then presented to the focus-group participants individually, in the form of a PowerPoint presentation. Each participant was asked whether they agreed with each aspect of the summary and to provide commentary where they disagreed. Participant feedback was collected through a Microsoft Form. A comparative review of the feedback was conducted, and the summary of outcomes amended based on the feedback themes.

Results

Participant information

As shown in Table 1, 21 participants completed the pre-focus-group survey. Due to scheduling difficulties, only 12 of the 21 survey participants attended the focus groups. Finally, ten of the focus-group participants

Focus-group participants	Gender	Cultural identity	Age range	Qualifications	Experience
Educator	All female	All NZ European	Under 30–late 40s	1 vet, 2 degree-qualified VNs	3–4 VNs to 1 vet, 2 with previous international experience
Employee	All female	All NZ European	<30–39	1 certificate, 2 diplomas, 1 degree VN	Up to 3–4 VNs to 1 vet, 1 with previous international experience, 3/4 described high utilisation of their skills
Employer	3 female, 2 male	4 x NZ European, 1 x overseas European	40–59	3 x Bachelor of Veterinary Science, 1 x Master of Veterinary Science, 1 x Certificate in Veterinary Nursing (Practice manager)	Range from 2:1–5:1 of other staff to vet, 3 with previous international experience

Table 2. Demographic information for the focus-group participants.

reviewed the post-focus-group analysis summary and returned their feedback.

Table 2 shows the demographic of the participants. All except one participant identified as New Zealand European, with the one exception identifying as overseas European. Ten participants were female, with two males appearing only in the employer focus-group. The age range in the employer group was all 40 years of age or older, whereas the employee group were all under 40 years of age. The educator and employee focus-group participants had more experience in clinics with higher ratios of support staff to vets than the employer group did. The educator and employer groups had a mix of vets and VNs, while the employee group contained VNs only. The educator focus-group had only animal healthcare and veterinary nurse educators.

Role definitions and task allocations

The pre-focus-group survey identified an unforeseen challenge. Regardless of the focus group, most tasks were assigned across the range of roles provided by the participants. This included vets being assigned tasks that do not require specific veterinary training and VNs being assigned tasks that are illegal for them to carry out, as they are legally defined as "significant surgical procedures" (New Zealand Government, 2020). These conflicting findings were used to open the focus-group discussions, with an initial focus on clarifying the role definitions.

After post-focus-group feedback was received by researchers, minor refinements were made, and the following role definitions were agreed upon by the participants:

Veterinarian:

- Diagnoses.
- Creates a treatment and/or management plan.
- Prescribes.
- Performs surgery.

Registered Veterinary Nurse:

- Undertakes tasks that are not restricted to vets by law and that require a nursing clinical assessment and decision-making; e.g., when to monitor only, when to report to a vet, when to request a change in management plan to the vet.
- They are the main patient advocate and caregiver enacting the diagnostic and/or management plan and providing nursing care.
- Serves as the primary client liaison for inpatients

and outpatients.

Animal Healthcare Assistant (also referred to as a Veterinary Nursing Assistant):

- Husbandry, including patient restraint.
- Cleaning/hygiene tasks throughout the practice.
- Some administering of medication tasks, but not in a client-facing context.

All other roles:

- Roles not requiring an animal-related qualification, but clinic-specific training provide:
    - Stock ordering/management across the practice
    - Front-of-house customer relations (not providing advice, first point of contact, to identify client needs and follow through with the right person).

- Roles with requirements for other specific animal training. For example:
    - Rehabilitation therapy
    - Hydrotherapy
    - Behaviour training
    - Acupuncture

Focus-group discussions also emphasised that the tasks needed to reflect an interconnectedness and interaction of roles within the veterinary team. Tasks were regrouped to demonstrate interconnection, and, with the help of the clarified role definitions, the tasks were re-assigned to appropriate roles. The regrouping and re-assignment was completed after the focus groups; however, a fully re-assigned task list was reviewed by each participant during the post-focus-group feedback. The comprehensive list is provided at https://www.slideshare.net/secret/lpAC0Di8uJgh7g. All task delegations assume appropriate training has been undertaken. This includes formal qualification and post-graduation on-the-job training to gain proficiency and increase the scope of skill competency.

Veterinary clinic staffing models

The discussion points regarding how staff could be utilised according to the definitions created were similar for all three focus groups. This resulted in only one staff-utilisation model being proposed and agreed upon by focus-group participants in the post-focus-group feedback.

Figures 1, 2 and 3 depict how a well-utilised team might be structured and operate, as proposed by the focus groups. This is one interprofessional team across the three figures, categorised by clinic area and function – Figure 1: reception and consulting zone, Figure 2: surgery, hospital and laboratory zone, and Figure 3: clinic management. The assumptions made in the model are that:

1. There is one vet in the surgical and hospital areas.

2. There is one vet carrying out consultations with clients.

3. There are:

    a. at least two consultation rooms (ideally three)
    b. two sterile surgical spaces
    c. a separate non-sterile surgical space
    d. a preparation/treatment room
    e. an area for hospitalised patients.

4. The practice has a veterinary case-load each day for two vets doing vet-only tasks.

The staff-utilisation ratios (non-vet staff:vet) in this model are 4:1 to 5:1 in the reception and consulting zone (Figure 1), 6:1 to 7:1 in the surgery, hospital, and laboratory zone (Figure 2), and 1–2 staff in clinic management roles (Figure 3). The clinic management roles are considered non-veterinarian roles in this model. Overall, this model therefore employs a total staff-utilisation ratio of 11–14 non-vet staff:2 vets.

Outcomes of excellent utilisation

The outcomes of a high-utilisation model were predicted by each focus group (Figure 4). The points raised by the different focus groups were similar, despite participants holding different roles in the industry. These outcomes were categorised into benefits for individual staff (personal), for the whole team (team), for the business (financial), and for clients and pets (client/patient), and Figure 4 shows examples of what aspects were categorised into each of these groups.

Barriers preventing excellent staff utilisation and proposed mitigation strategies

The barriers identified in the focus groups were grouped into themes, shown in Table 3. They were similar for

each focus group. Mitigation strategies for the barriers are presented in Figure 5. In this figure some of the barrier themes are grouped, as the proposed mitigation strategies are similar.

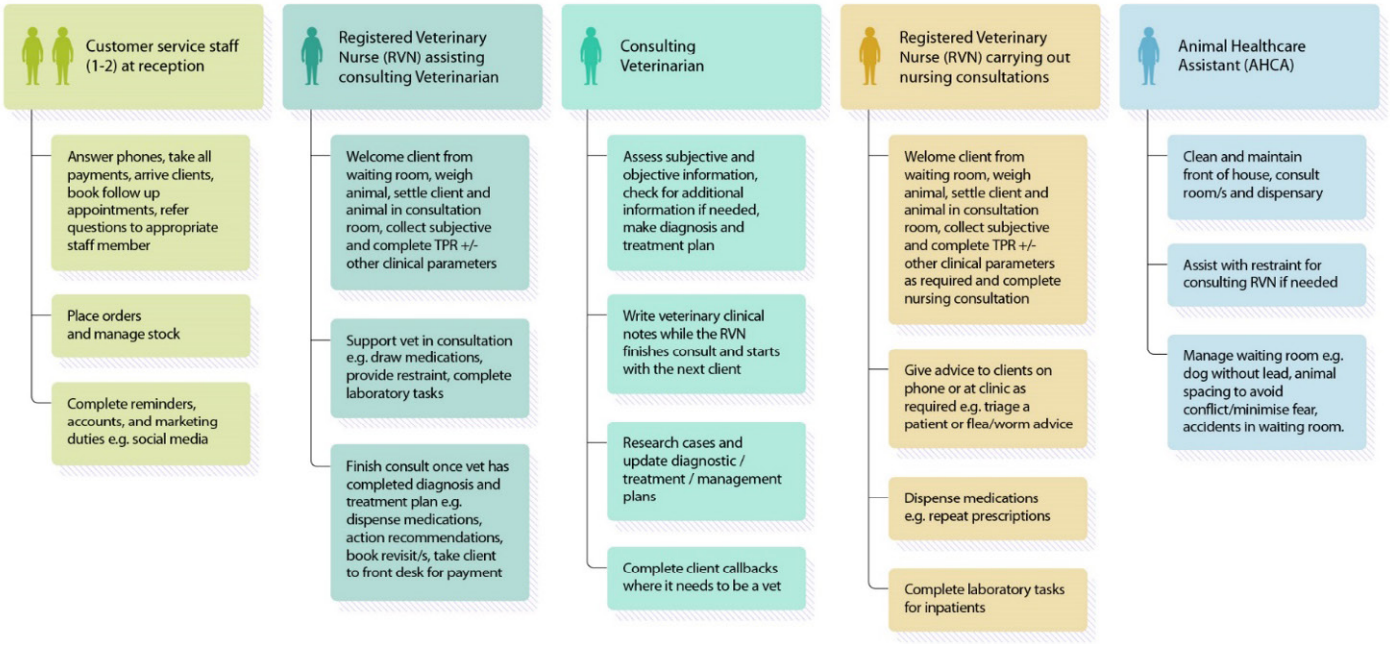

Figure 1. Model for excellent staff utilisation at a companion animal veterinary clinic – reception and consulting zone.

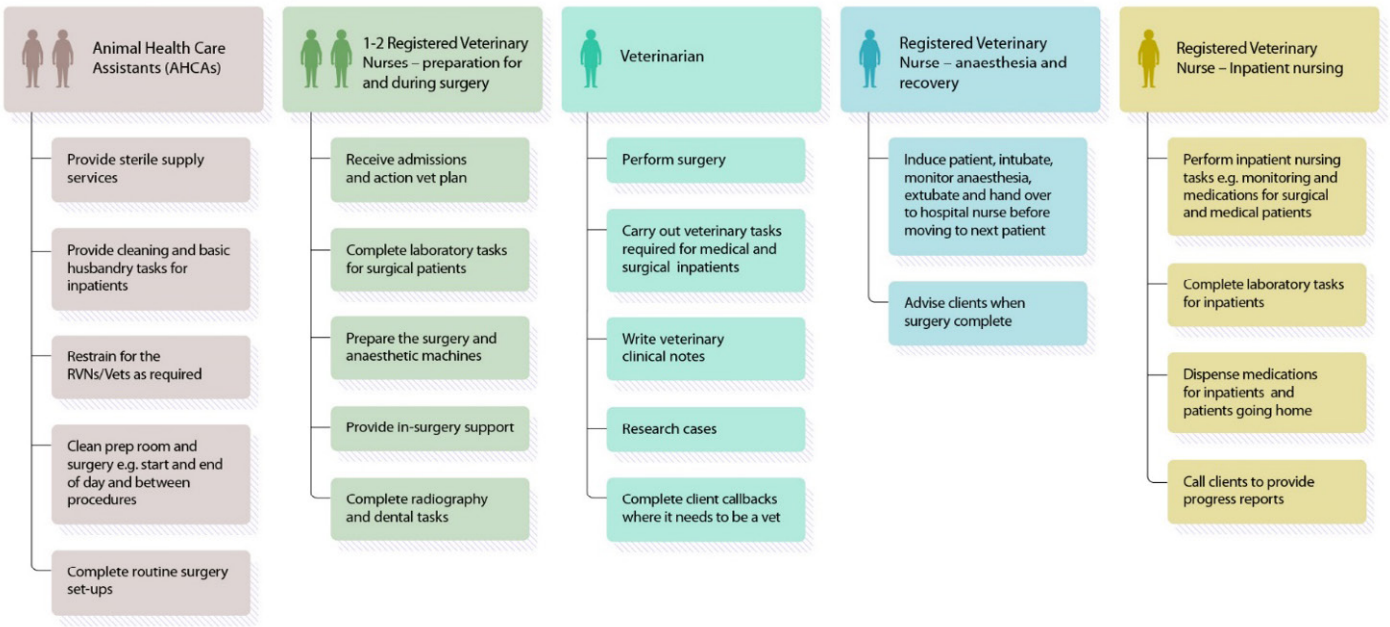

Figure 2. Model for excellent staff utilisation at a companion animal veterinary clinic – surgery, hospital, and laboratory zones.

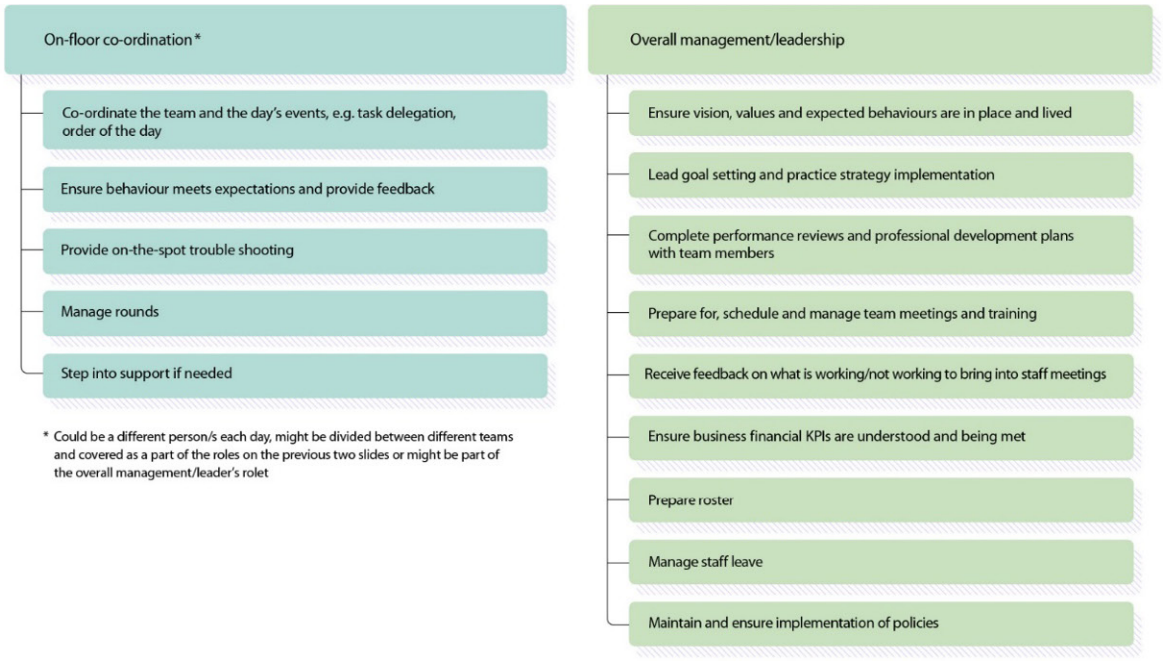

Figure 3. Model for excellent staff utilisation at a companion animal veterinary clinic – managing the team.

Themed barriers to excellent utilisation	
Vet trust of VNs	Unwillingness of vets to give up VN tasks
VN skill	Clarity on scope of practice/legislation including regulation of VNs
Team culture not accepting	Client trust/acceptance of VNs
Finding staff to fill roles	Financial – perception that it is not affordable
Time to implement training and change	Physical building capacity

Table 3. Themed barriers to excellent utilisation.

Figure 4. Outcomes when staff are utilised well in a companion animal veterinary clinic.

VN skill/Vet trust in VNs/Client trust in VNs/Unwillingness of vets to give up VN tasks

1. Qualification consistency (theory and practical)
2. Understanding of work ready vs proficient
3. Registration of VNs
4. VN professional identity and career development including microcredentials and postgraduate education
5. Interprofessional education – understanding the interconnected team roles and how to implement

Scope of practice and legislation

1. Use the definitions and tasks in this study to create clarity on roles and the current legal boundaries
2. Regulation through voluntary and eventually compulsory regulation

Financial

1. Utilising the most cost-effective staff member for the task
2. Financial modelling of excellent utilisation coupled with fair pay for staff to show how it is practical

Team culture and finding staff

1. Setting the team vision/values and behaviours and living these each day
2. Setting the expectations about who does what within the practice – role clarity
3. Employing people who will live the values
3. Paying staff well and utilising their skills
4. Developing career pathways for all staff
5. Marketing the opportunities available in the practice

Time to implement training and change

1. Industry businesses need to actively make time to work on the business (make time for the important but not urgent stuff)

Physical building capacity

1. Planning for excellent utilisation during rebuilds/new veterinary clinics – e.g., number of consultation rooms and surgery spaces

Figure 5. Barriers and proposed barrier mitigation to realise excellent staff utilisation.

Discussion

In the current climate of veterinary shortages and reduced veterinary wellbeing in Aotearoa/New Zealand, veterinary practices stand to benefit significantly from higher staff utilisation. The role of this research to drive actionable change and foster meaningful conversation across the Aotearoa/New Zealand industry can be represented by the ABCD model (The Natural Step, 2014):

- "A" – Awareness and visioning – the awareness of the potential to improve staff utilisation; defining success in terms of excellent utilisation ratios and how that is operationalised in a utilisation model.
- "B" – Baseline mapping – identification of where we are now and the current barriers to implementation.
- "C" – Creative solutions – creation of potential mitigation strategies to overcome barriers to implementation.
- "D" – Decide on priorities – this step lies outside of the scope of this research as priorities are best determined by veterinary businesses individually, in their unique contexts. However, this discussion will touch on prioritisation methods that would help implementation.

This participative action research, utilising end users, is one of the first attempts to examine and clarify the current understanding of role responsibilities in Aotearoa/New Zealand veterinary clinics. The collaborative method employed by this research allowed end users to create a practical model for operationalising utilisation ratios of 11–14 non-vet staff:2 vets.

Despite separating participants based on industry roles of employees, employers and educators, all three focus groups had recurring points of discussion and similar post-focus-group feedback. This resulted in the collation of all feedback analysis into one single utilisation model. This was one of the major outcomes of this research. The potential future of veterinary clinic operation is articulated in Figures 1, 2 and 3. The focus groups designed these solutions that walk through a day in the reception and consulting zone; and the zone where surgery is performed, medical patients are managed and laboratory tasks are carried out; and determine what clinic management is required to allow the day to operate smoothly.

Interestingly, this high amount of agreement between participants was not present initially, when conducting the pre-focus-group survey. Conducted individually and anonymously, the pre-focus-group survey results showed a large amount of disagreement regarding which role should perform which task in a veterinary clinic, including instances of incorrectly assigning legally regulated veterinary tasks. For the most part, this disagreement did not follow any trend according to the industry role or veterinary role of the participants for any task. However, vets did not appear to understand the overall potential of an AHCA, as they did not allocate many tasks to this role. In contrast, VNs assigned tasks to an AHCA role more frequently, suggesting VNs had more clarity regarding what an AHCA could perform. All participants were self-selected based on their belief of prior experience with excellent utilisation and their drive to improve utilisation in Aotearoa/New Zealand. Yet it was apparent early on that, regardless of role, qualification or prior experience, there was a need for role clarification before further discussions around utilisation could be held.

The existing lack of clarity surrounding staff roles appears to be a major factor contributing to poor staff utilisation. The role definitions defined in the results section and the assigned task responsibilities (found at https://www.slideshare.net/secret/lpAC0Di8uJgh7g) provide a fundamental understanding for the Aotearoa/New Zealand veterinary industry, which is a prerequisite for improving staff utilisation. This document has been designed to be used within veterinary practices to optimise staff utilisation.

During the process of assigning task responsibilities in the focus groups, an important concept of interconnectedness of tasks and roles needed to be explored and emphasised. When the pre-focus-group survey was administered, participants indicated that they struggled to assign tasks to roles because they viewed the tasks in isolation. Vets wanted to maintain oversight and assumed that if the tasks were delegated to other roles, this oversight would be lost. Participants needed to understand that delegating tasks did not imply complete disconnection from them.

The lack of understanding around how an interconnected interprofessional team could function is a likely factor limiting better utilisation of non-vet staff. It also helps to explain some of the disagreement of the initial pre-focus-group survey results. Once the connections between tasks and the teamwork were able to be re-presented, the tasks were able to be assigned more readily to the appropriate role. This was achieved

by forming clear role definitions and considering the interactive components of each task and interaction between roles.

Figure 6 represents an overview of the interconnected interprofessional veterinary practice team. This diagram places the client and the patient at the centre, with the clinic roles and responsibilities supporting the client/patient–clinic relationship around the outside. This figure represents the function of a clinic as an interprofessional team.

Interconnectedness is an essential characteristic that must be understood for excellent utilisation to be realised. Clinic roles are not isolated or performing disconnected tasks. Rather, each task requires connection and communication between roles. This is an opportunity to explore how the veterinary sector may be educated on this importance. This may involve ways for veterinary and veterinary nurse educators to better deliver interprofessional education in the veterinary sector, so that graduates are equipped with this understanding and can develop interprofessional skills (Kinnison et al., 2016).

As discussed in the introduction, high utilisation of staff has shown a strong correlation with staff wellbeing and job satisfaction (Brown, 2020; Page & Vella-Brodrick, 2009; Grawitch et al., 2006, Nelissen et al., 2017). Further to that, Krekel et al. (2019) carried out a comprehensive meta-analysis of 339 independent research studies and found a strong positive correlation between employee satisfaction, employee productivity and customer loyalty, which ultimately led to greater profitability.

When discussing the outcomes of implementing an excellent utilisation model, the focus-group participants generated ideas that were aligned with the main themes that Krekel et al. (2019) found. The perceived benefits are widespread across all areas of the veterinary practice – improving individual staff wellbeing, a clinic's teamwork and culture, better outcomes for clients and patients, as well as potentially increasing financial gain for the business. The details of each of these themes are summarised in Figure 4. Based on these themes, measures of success could include staff wellbeing surveys (measuring improvements in personal wellbeing and team function), client-satisfaction surveys, and financial metrics (such as profit margins for specific services). Determining success should start with the collection of baseline information on each of these and repeating the measures regularly.

Many barriers appear to exist to prevent veterinary clinics in Aotearoa/New Zealand from immediate implementation of excellent utilisation. Aside from the lack of clarity around roles and interprofessional teams already discussed, the focus groups also identified the following: the current legal restrictions, poor team culture, perceived or real deficit in the skill of staff, reduced availability of staff and the significant time investment needed to evaluate businesses and make change. Figure 5 details this further, along with proposed mitigation strategies. Although some of these mitigation strategies require input and change from educators and regulatory bodies, the vast majority are measures that should be implemented within the individual business. Time is a precious resource in the veterinary industry. Staff are constantly busy meeting the immediate demands of clients and providing for the immediate needs of animals. Ultimately, this generates business income. These tasks are important in nature and have an aspect of time urgency. However, if a business spends all its time on immediate needs, the business reduces the time spent on other issues that are highly important as well but are less time urgent. Therefore, these meaningful projects are often delayed.

The Eisenhower Decision Matrix (Figure 7) is a useful framework for illustrating how tasks and projects should be prioritised to enable businesses to improve (Eisenhower, 2017). When veterinary practices are constantly operating in the "Do – Important and urgent" quadrant, they are unable to attend to tasks in the "Plan – Important but not urgent" quadrant. In a clinical setting, the "Plan" quadrant may be seen as tasks where there will be no adverse patient outcomes if delayed. The result is these tasks may never be completed or may be forgotten about altogether.

However, "Plan" tasks are important for improving all work outputs of the "Do" quadrant that the team is performing daily. These may include setting team expectations, strategic planning, addressing issues with process and conducting clinical audits. It is essential for businesses to schedule time to work within the "Plan" quadrant.

A universal starting point to improve staff utilisation is the practice vision and values (Brown, 2020). Achieving a clear values framework is crucial for developing behaviour expectations and culture within a team – commonly addressed as 'the way things are done here'. This is essential to establish before working on the operational details. The utilisation models shown in Figures 1, 2 and 3 provide a practical vision of excellent utilisation and could serve as a blueprint for

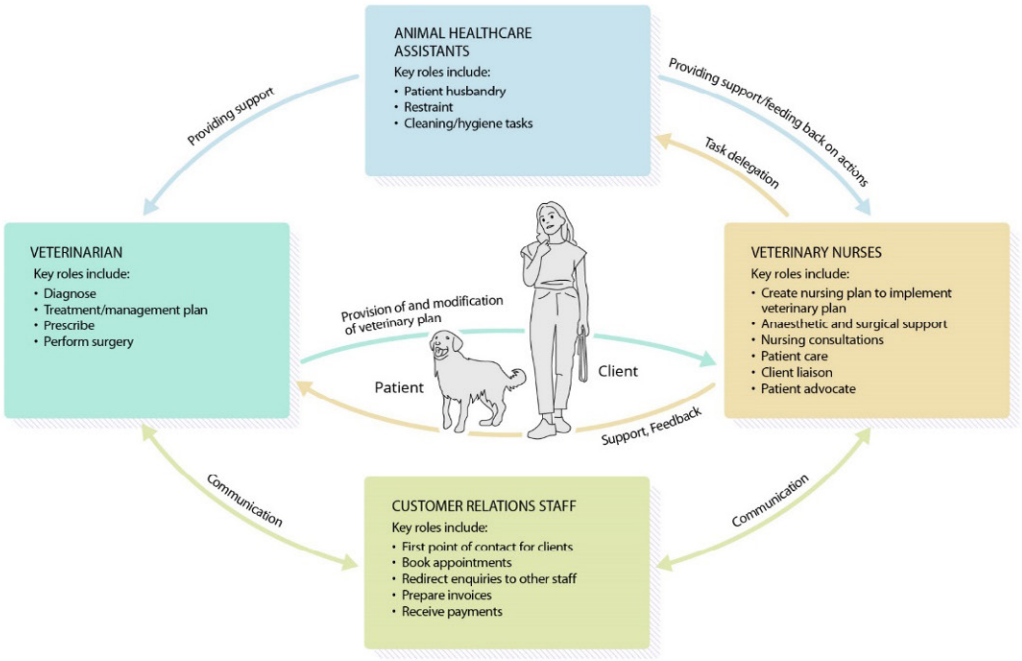

Figure 6. The interconnected interprofessional veterinary practice team.

the development of a business's own vision with respect to utilisation.

One recurring theme voiced by the participating VNs in the employee focus-group was that they felt new vets joining a veterinary practice are given free rein to dictate what the individual VN or AHCA can do when working with them. In effect, VNs described having to build a new relationship and regain trust with every new vet, repetitively. Not only did this feel demoralising for the VNs, but it may also reduce team efficiency. As part of developing a clear team culture and behaviour expectations, explicitly stating the scope of roles and specific responsibilities would help empower non-vet staff to retain ownership over their skills. All new individuals joining the practice should gain a clear understanding of this as part of their induction. The practice should provide support whenever there are reservations about the scope of responsibilities for the practice roles and any misunderstanding about the practice culture. This would help non-vet staff feel trusted and valued by removing some of the power imbalance when faced with a new vet. The role definitions and suggested task allocations from this research will be helpful for individual practices when defining their own practice-specific roles and responsibilities of staff.

Another related major barrier identified by the participants was lack of trust of VNs, by both vets and clients. Lack of trust was the foundation in the model of the five dysfunctions of a team described by Lencioni (2010). A team without trust is dysfunctional and does not promote psychological safety of staff in a workplace. Developing a team with high levels of trust is pivotal to success in all areas of the business.

The participants identified that the reason for this lack of trust from a vet was low confidence in the technical skill-levels of VNs and AHCAs. There is also a general opinion that VNs and AHCAs should be ready to perform at full capacity upon graduation. Interestingly, the expectation for a graduate vet is different – graduate vets are generally mentored until they reach proficiency. There needs to be widespread acknowledgement that all new graduates, regardless of qualification and employment role, are work-ready but not proficient. The focus groups suggested that career-development plans need to be implemented for VNs and AHCAs too. These should not only grow the graduate into a fully proficient VN or AHCA, but also provide opportunities for ongoing development and extension of skills and interests. Career-development plans are important for all staff at all stages of their careers, within any business, and will help support both individual and business success (Serbes, 2017). Outside of the individual clinic setting, the educator focus-group acknowledged that the animal healthcare and veterinary nursing education sector currently has a lack of consistency of training across Aotearoa/

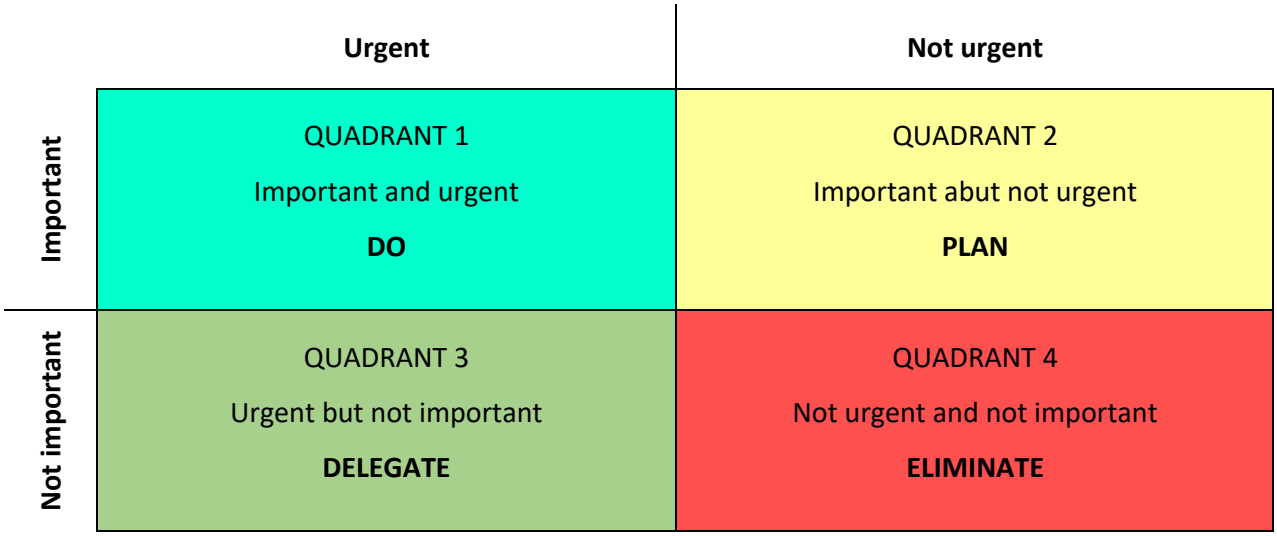

Figure 7. The Eisenhower Decision Matrix.

New Zealand, resulting in the lack of consistency of graduates. Work is currently underway at Te Pūkenga (Te Pūkenga, 2023) to address this through the unification of programmes of delivery within Aotearoa/New Zealand.

The absence of formal registration was also cited as a reason why vets will not delegate tasks to VNs, as vets understand that they are legally responsible for any risk. This is further compounded by the lack of trust within teams. If team members trust that each person is adequately trained within their scope of skills, then lack of registration should not be a significant barrier to delegating appropriate tasks. Currently in Aotearoa/New Zealand, the Allied Veterinary Professional Regulatory Council sets the standards for obtaining and maintaining VN registration (Allied Veterinary Professional Regulatory Council, 2020). However, registration is only on a voluntary basis. There is an opportunity for the Aotearoa/New Zealand veterinary sector to embrace this as an industry standard in the absence of statutory regulation, by encouraging and supporting VNs to gain and maintain voluntary registration. Titles such as Veterinary Nurse could be reserved for those that have current voluntary registration, to automatically demonstrate a level of competency that can be trusted.

Training around working within interprofessional teams as part of undergraduate education and continuing professional development would also help build trust within a team (Kinnison et al., 2016). All team members would learn how their roles interact and how each team member is essential to the overall outcome of the patient.

Lastly, vets need to be able to demonstrate trust of VNs in front of clients. If clients see that the vet trusts their VNs to undertake the tasks delegated to them, then clients will also extend trust to VNs. Bulińska-Stangrecka and Bagieńska state that "a trust-based team generates effective co-operation, and as a result organizational innovation is strengthened" (2019, para. 1). This is a pertinent point when considering the barrier of trust. The need for effective co-operation and innovation within veterinary interprofessional teams is essential to realise the model presented in this research.

The ability of veterinary practices to sustain this model financially was another major barrier raised by participants. This is a complex issue that requires further exploration; however, this research has raised three assumptions which can be addressed immediately. To predict financial costs of implementing the proposed model requires further modelling work for the Aotearoa/New Zealand landscape. However, existing research supports the notion that increasing staff utilisation is financially viable and beneficial. The analysis carried out by Ouedraogo (2022) identifies non-vet:vet staff ratios, which are higher than the model presented in this paper, as being financially viable. Acer Consulting (2019) further supports the premise that practice income increases significantly when additional veterinary technicians (the American equivalent of VNs) are employed per vet.

Three assumptions raised in this research relating to financial viability are discussed below:

Assumption 1: Clients will not pay more for veterinary care, so it is not possible to employ more staff. Although this assumption is a commonly reported sentiment by both employers and employees in the veterinary sector, it has not been thoroughly researched. It is possible that the impact of cost on the client's willingness to pay is over-emphasised. This is currently being investigated by the authors, with interim results suggesting that although clients perceive veterinary care to be expensive, they understand why, and cost is not a major concern when clients receive the expected level of service.

In addition, it is likely that a high utilisation model requires more non-vet staff, but fewer vets. The same tasks vets are performing right now will be performed by a more appropriate non-vet role instead. Reducing the need to employ a vet will help improve the profit margin of each task, as well as alleviate the pressure from the current international vet shortage (Lily, 2022; Zhang, 2022; New Zealand Veterinary Association, 2022).

Assumption 2: The only fee-generating staff are veterinarians. A traditionally held assumption that vets can be the only fee-generating staff perpetuates poor utilisation of other staff. If the business perspective shifts focus to fee-generating services, rather than fee-generating staff, it is possible to attribute revenue generation to a wider range of staff. Anaesthetic monitoring, nursing consultation, hospital nursing care, and provision of accommodation for day and overnight stays are examples of services that do not directly involve a vet. If fees are allocated and standardised to the provision of services, instead of to a member of staff, there will be a less restrictive perspective as to who is generating revenue. This will logically allow the most appropriate staff member to perform tasks that they are better suited to.

This can be demonstrated with the following example: The veterinary practice offers ten-minute nail-clip appointments for $20. This corresponds to $120 per hour revenue for that service. If the service is performed by an appropriately remunerated experienced vet, the labour cost of this service is $65 per hour, using an average mid-range salary of $130,000 per annum (careers.govt.nz, 2022). Assuming employee costs are 25% of business costs (Watson, 2001) in this example, this requires all staff to generate a revenue that is four times their salary. A vet performing the nail clip would therefore be undercharging for the service by $140 per hour. However, an appropriately remunerated experienced VN, earning $30 per hour (New Zealand Veterinary Nursing Association, 2022), would only be required to generate $120 per hour in revenue. Therefore, utilising a VN to perform nail clips would be more financially appropriate and allows the vet to be available for other, higher-fee-generating tasks. A time-driven activity-based model (Demeere et al., 2009) can be used to rethink how veterinary services should be charged based on actual cost of doing business. This will help shift the focus from fee-generating staff to fee-generating services. Increasing the profit margin for each service can then be achieved by careful consideration of the staff providing the service.

Assumption 3: Profit is largely generated by mark-ups on products instead of service fees. Adding significant mark-ups to products instead of ensuring service fees are appropriately calculated to cover the actual cost of a service offered is a common practice in the veterinary sector that creates risk to business sustainability. It also redirects the focus away from the core of the business, which is the provision of veterinary services.

All products sold through a veterinary clinic, except those that are for vet use only (such as anaesthetic agents used at the practice), can be sourced by clients elsewhere. This includes prescription-only pharmaceuticals and over-the-counter products, such as pet food. It may be logical to assume the risk of losing business to online pharmacies and pet-food suppliers can be significant.

Furthermore, pharmaceuticals should only be prescribed when required. For some medications, such as antimicrobials, the global aim is to reduce usage over time, across the industry (World Health Organization, 2021). When a veterinary practice is reliant on pharmaceutical sales for income, it becomes necessary to question the ethics, conflicts of interest and sustainability of this approach.

An example is the common practice of recommending three-monthly worming and flea treatment regimes. Clients are routinely recommended to purchase anthelmintics every three months without prior diagnosis of a parasite infection in the patient. It is possible that many patients may not require anthelmintic treatment with such frequency. In addition, although not yet as prevalent as it is in ruminants and horses,

anthelmintic resistance is an issue of major concern (von Samson-Himmelstjerna, 2021). If revenue generation and profit margins were redirected to services, routine faecal testing may be recommended instead of routine anthelmintic use. By taking an individual animal risk-assessment approach, a monitoring plan can be created for each patient and unnecessary anthelmintic use can be reduced. Switching the business model to service-based instead of product-based would reduce the reliance on product sales and increase the value of veterinary service, without negatively impacting revenue.

When considering all three assumptions, it is feasible to consider that shifting the financial business model to a time-driven activity-based model (Demeere et al., 2009) would mitigate some significant perceived barriers related to financial sustainability. A high-utilisation operational model can be implemented, while business viability is more strongly secured through veterinary services that cannot be found elsewhere.

Limitations of this study

The participants were mostly female and of New Zealand European ethnicity (Table 2). This is reflective of the New Zealand veterinary sector, which has seen the proportion of female veterinary graduates each year be over 80% for many years. Veterinary nursing graduates are also over 95% female, as is typical of care professions. In terms of ethnicities, Jillings et al. (2021) identified that Māori and Pasifika were under-represented in veterinary science applicants, while Europeans were over-represented. Without other ethnicities present in the discussion, there is a risk that the results may be skewed to a New Zealand European perspective. Increasing the diversity of participants should be explored in future studies. Male VNs were also not present in this study and should also be recruited in future studies.

Focus groups were arranged into educators, employees, and employers, to reduce the risk of power imbalance between participants, particularly between employers and employees. Educators, employees and employers are also likely to have different drivers that influence their perspectives. However, where groups consisted of both vets and VNs, the risk of power imbalance remained. In the educator focus-group, the vet was the dominant voice. To mitigate this, other participants were able to give feedback individually during the post-focus-group reviews. This feedback aligned with the results and themes from the focus-group discussions. The employee focus group consisted of all VNs, which lacked the voice of employee vets. Had employee vets been present, they may have presented some alternative viewpoints when it came to task delegation. In the employer focus-group, four were vets and one was a practice manager who had previously trained as a VN. There was no evidence in the discussions that the vet–VN power imbalance existed in this focus group. Overall, the potential power imbalance between vets and VNs was unlikely to have impacted the results in this study; however, there are gaps in representation in the discussions. As well as addressing the gaps in representation, future studies could also separate vets and VNs, to further test this assumption.

All focus groups represented a mix of both New Zealand-based experience and international experience with high ratios of staff utilisation. However, the ratios they had experience with were still lower than what has been proposed in this study as well as those presented by Ouedraogo et al. (2022). This may have contributed to the proposed utilisation model with a ratio of 11–14 non-vet staff:2 vets as opposed to 9–10 non-vet staff:1 vet in Ouedraogo et al. (2022). Whether this is a result of a small sample size or because the Aotearoa/New Zealand industry would benefit from lower utilisation ratios compared to overseas industries, or due to the significant change in model required, is worth investigating further.

Conclusion

Improving utilisation in companion animal veterinary practices will have significant benefits for individual staff, the team, clients and their animals, and the companion animal veterinary business. Although full and appropriate utilisation of staff is only one piece of the puzzle to improving staff wellbeing, it is an essential one. A major shift needs to be made in Aotearoa/New Zealand companion animal veterinary practice to move to excellent utilisation, with an increase in non-vet staff per vet staff by a factor of three.

To enable this shift, a significant number of the barriers need to be mitigated by individual businesses. Further structural changes around education and regulation will also help create the framework to drive change. However, individual practices should not wait for this latter change to happen before instigating their own changes. Individual business improvements can be implemented that are not reliant on the external frameworks. Spending time, as a whole practice, on planning and harnessing the skills of the entire team

to co-create the changes will allow shifts in utilisation to happen. The research presented in this paper can be used as a reference to examine how this utilisation model could be implemented or varied for each specific practice situation.

Further research

Future research might aim to follow companion animal veterinary practices that have implemented recommendations and/or the model in this study. These case studies could examine how this research was applied, with particular interest in how businesses took the next step in the ABCD model – deciding on their priorities and how they measured the success.

Concurrently, another study examining staff utilisation in Aotearoa/New Zealand rural veterinary practices is underway. These rural practices largely treat production animals and, due to the nature of the work being herd based rather than individual-animal based, operate differently to companion animal practices. Investigation of Aotearoa/New Zealand equine veterinary practices has been proposed for later research. These practices have different needs and companion animal veterinary practice data should not be extrapolated.

In addition, research is needed that increases the voice of the minority in the veterinary sector in Aotearoa/New Zealand. This has the potential to make the industry more visible to a more diverse representation of Aotearoa/New Zealand and offer unique perspectives on the industry.

Finally, although not addressed by the focus groups in this study, the moral distress faced by vets and VNs, as identified by Quain et al. (2021), as a fundamental cause for undercharging in the veterinary sector warrants further investigation. This may be a major barrier to creating financial sustainability, despite other changes proposed in this research.

Acknowledgements

This research was approved by Otago Polytechnic Research Ethics Committee (approval number 944).

Thank you to Dr Jane Jones BVSc and Dr Angela Young BVSc for your support in the focus groups by taking notes.

Thank you to Toby Eglesfield from Shape Creative, for producing Figures 1, 2, 3 and 6.

References

Acer Consulting. (2019, January 21). *Exploring the value that registered veterinary technicians bring to Ontario companion animal practices*. https://www.canadianveterinarians.net/media/a1jfcwfp/exploring-the-value-that-registered-veterinary-technicians-bring-to-ontario-companion-animal-practices.pdf

Allied Veterinary Professional Regulatory Council. (2020). *Join the register*. https://www.avprc.org.nz/join-the-register

Brown, F. (2020). Profit and staff wellness: Can we have both in veterinary practice in New Zealand? *Scope: Health and Wellbeing*, *5*, 65–78. https://doi.org/10.34074/scop.3005010

Brown, F. (2022). Opportunities for New Zealand veterinary practice in the utilisation of allied veterinary professional and paraprofessional staff. *Scope: Health and Wellbeing*, *7*, 36–44. https://doi.org/10.34074/scop.3007002

Bulińska-Stangrecka, H., & Bagieńska, A. (2019). HR practices for supporting interpersonal trust and its consequences for team collaboration and innovation. *Sustainability*, *11*(16), 4423. https://doi.org/10.3390/su11164423

Careers.govt.nz. (2022). *Veterinarian*. Retrieved April 30, 2023, from https://www.careers.govt.nz/jobs-database/animal-care-and-conservation/animal-care/veterinarian/

Chevalier, J. M., & Buckles, D. J. (2019). *Participatory action research: Theory and methods for engaged inquiry*. Taylor & Francis Group.

Davidson, M. C. G., Timo, N., & Wang, Y. (2010). How much does labour turnover cost? A case study of Australian four- and five-star hotels. *International Journal of Contemporary Hospitality Management*, *22*(4), 451–466. https://doi.org/10.1108/09596111011042686

Demeere, N., Stouthuysen, K., & Roodhooft, F. (2009). Time-driven activity-based costing in an outpatient clinic environment: Development, relevance and managerial impact. *Health Policy*, *92*(2–3), 296–304. https://doi.org/10.1016/j.healthpol.2009.05.003

De Winne, S., Marescaux, E., Sels, L., Van Beveren, U., & Vanormelingen, S., (2019). The impact of employee turnover and turnover volatility on labor productivity: A flexible non-linear approach. *The International Journal of Human Resource Management*, *30*(21), 3049–3079, https://doi.org/10.1080/09585192.2018.1449129

Eisenhower. (2017, February 7). *Introducing the Eisenhower matrix*. https://www.eisenhower.me/eisenhower-matrix/

Foote, A. (2020). Moral distress, compassion fatigue and burn-out in veterinary practice. *The Veterinary Nurse*, *11*(7), 292–295. https://doi.org/10.12968/vetn.2020.11.7.292

Fox, R., & Gee, N. R. (2017). Great expectations: Changing social, spatial and emotional understandings of the companion animal–human relationship. *Social and Cultural Geography*, *20*(1), 43–63. https://doi.org/10.1080/14649365.2017.1347954

Grawitch, M. J., Gottschalk, M., & Munz, D. C. (2006). The path to a healthy workplace: A critical review linking healthy workplace practices, employee well-being, and organizational improvements. *Consulting Psychology Journal: Practice and Research*, *58*(3), 129–147. https://doi.org/10.1037/1065-9293.58.3.129

Gyles, C. (2016). Advances in veterinary practice. *Canadian Veterinary Journal*, *57*(8), 811–812. https://pubmed.ncbi.nlm.nih.gov/27493278/

Harvey, L., & Cameron, K. (2019). Comparison of expectations between veterinarians and veterinary nurses in tasks and responsibilities in clinical practice. *The Veterinary Nurse*, *10*(6), 327–331. https://doi.org/10.12968/vetn.2019.10.6.327

Harvey, L. C., & Cameron, K. E. (2020). Stress and compassion fatigue in veterinary nurses in New Zealand. *The Veterinary Nurse*, *11*(1), 42–46. https://doi.org/10.12968/vetn.2020.11.1.42

Jillings, E., Curtis, E., Gardner, D., Parkinson, T., Hecker, K., & Cogger, N. (2021). Widening access to veterinary education: Descriptive analysis of ethnicity, societal representation, and educational background of applicants to veterinary education in Aotearoa New Zealand. *New Zealand Veterinary Journal*, *69*(3), 147–157. https://doi.org/10.1080/00480169.2021.1885519

Krekel, C., Ward, G., & De Neve, J-E. (2019, March 3). Employee wellbeing, productivity, and firm performance. Saïd Business School WP 2019–04. https://doi.org/10.2139/ssrn.3356581

Kinnison, T., Guile, D., & May, S. A. (2016). The case of veterinary interprofessional practice: From one health to a world of its own. *Journal of Interprofessional Education and Practice*, *4*, 51–57. https://doi.org/10.1016/j.xjep.2016.05.005

Lencioni, P. M. (2010). *The five dysfunctions of a team: A leadership fable*. John Wiley & Sons.

Lily. (2022, May 20). *It's never been a better time to be a vet… so why is there a shortage?* VetX International. https://www.vetxinternational.com/its-never-been-a-better-time-to-be-a-vet-so-why-are-we-short-of-them/

Nelissen, J., Forrier, A., & Verbruggen, M. (2017). Employee development and voluntary turnover: Testing the employability paradox. *Human Resource Management Journal*, *27*(1), 152–168. https://doi.org/10.1111/1748-8583.12136

New Zealand Legislation. (2020, July). *Animal Welfare (Care and Procedures) Amendment Regulations 2020*. https://www.legislation.govt.nz/regulation/public/2020/0172/latest/LMS329995.html

New Zealand Veterinary Association. (2022). *Veterinary shortage in New Zealand*. https://nzva.org.nz/professionals/advocacy-consultation/advocacy/vet-shortage-nz/

New Zealand Veterinary Nursing Association. (2022). *Employment guidance – 2022 wage guidelines*. https://nzvna.org.nz/assets/Uploads/NZVNA_2022-Wage-Guidelines-V2.pdf

Ouedraogo, F. B., Lefebvre, S. L., & Salois, M. (2022). Nonveterinarian staff increase revenue and improve veterinarian productivity in mixed and companion animal veterinary practices in the United States. *Journal of the American Veterinary Medical Association*, *260*(8), 916–922. https://doi.org/10.2460/javma.21.11.0482

Page, K. M., & Vella-Brodrick, D. A. (2008). The 'what', 'why' and 'how' of employee well-being: A new model. *Social Indicators Research*, *90*(3), 441–458. https://doi.org/10.1007/s11205-008-9270-3

Quain, A., Ward, M. P., & Mullan, S. (2021). What would you do? Types of ethical challenging situations depicted in vignettes published in the veterinary literature from 1990 to 2020. *Veterinary Sciences*, *9*(1), 2. https://doi.org/10.3390/vetsci9010002

Serbes, M. (2017). Importance of career development for individuals and organizations. *International Journal of Social Sciences & Educational Studies*, *4*(2), 145–148. https://doi.org/10.23918/ijsses.v4i2sip144

Te Pūkenga. (2023). *Tētahi tū whakahaere hou — A new kind of organisation*. https://tepukenga.ac.nz/our-work

The Natural Step. (2014, June 17). *Applying the ABCD method*. https://www.naturalstep.ca/abcd

von Samson-Himmelstjerna, G., Thompsont, R. A., Krücken J., Grant, W., Bowman, D. D., Schnyder, M., & Deplazes, P. (2021). Spread of anthelmintic resistance in intestinal helminths of dogs and cats is currently less pronounced than in ruminants and horses – yet it is of major concern. *International Journal of Parasitol Drugs and Drug Resistance*, *17*, 36–45. https://doi.org/10.1016/j.ijpddr.2021.07.003

Watson, D. (2001). Determining the value of a veterinary practice. *Journal of the American Veterinary Medical Association*, *219*(1), 28–30. https://doi.org/10.2460/javma.2001.219.28

World Health Organization. (2021). *WHO strategic priorities on antimicrobial resistance: Preserving antimicrobials for today and tomorrow*. https://apps.who.int/iris/bitstream/handle/10665/351719/9789240041387-eng.pdf

Young, A. (2021). The art of delegation: Integration of the veterinary nursing assistant into New Zealand veterinary practice. *The Veterinary Nurse*, *12*(10), https://doi.org/10.12968/vetn.2021.12.10.484

Zhang, S. (2022, July 6). The great veterinary shortage. *The Atlantic*. https://www.theatlantic.com/health/archive/2022/07/not-enough-veterinarians-animals/661497/

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