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Veterinary Council of New Zealand

Issues relating to the provision of Emergency care, after hours – a systems view

August 2024

Report by:

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Acknowledgements:

This work would not have been possible without the voluntary contribution of a wide cross section of veterinarians from around the country. Deepest thanks to those who gave up their precious time and travelled to Wellington for a series of workshops, and then corralled other colleagues into a series of follow up discussion online. Thanks also to those veterinarians who attended the online sessions but were not part workshop participants. The online discussion helped add valuable nuance to the solid base of work achieved in the workshops.

The work of Priority Communications with some of the summary wording used in this report is acknowledged.

And of course thank you to VCNZ staff for seeking to use a systems thinking approach to understand this challenging issue.

Recommended citation:

Connolly, J.D., (2024). Issues relating to the provision of Emergency care, after hours – a systems view. (A report for the Veterinary Council of New Zealand). Hamilton, New Zealand: Deliberate.

Version:

Date	Comments	Authorised by
9 June 2024	Draft report issued for comment	Justin Connolly Director, Deliberate
21 July 2024	Second draft report issued for comment	Justin Connolly Director, Deliberate
30 August 2024	Final report issued.	Justin Connolly Director, Deliberate

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Executive summary

In late 2023 The Veterinary Council of New Zealand initiated an exploration of issues relating to the delivery of emergency care, after hours (ER-Ahs), using a systems thinking approach. This was based on the methodology of system dynamics.

A participatory approach to building an understanding of the issues was used. To ensure profession-informed findings, a group of nearly 20 vets were curated by VCNZ. They were brought together for three full-day workshops across several months at the end of 2023 and start of 2024. In between these workshops, they also enlisted some of their other colleagues to take part in short (1.5 hour) online discussions about the work that was going on in the workshops. Feedback from all for a was incorporated into the development of the causal diagram as best as possible.

Six themes across vet activity were identified as being related to ER-Ahs. These were:

1. Vet confidence, proficiency & willingness to do emergency care shifts
2. Client circumstances and expectations
3. Financial considerations
4. Medical knowledge and training
5. Veterinarian professional development in practices
6. Vet stimulation in work, wellbeing and job satisfaction

All themes had challenges or frustrations relating to the delivery of ER-Ahs and all will likely require action to help improve. A summary of the insights and tensions in each of these themes is outlined below[1]:

Vet confidence, proficiency, and willingness to do emergency care shifts:

- Decision making skills are grown and developed from doing emergency care, after hours. This builds confidence and competence.
- In doing emergency care, after hours, confidence and proficiency, willingness to do it, the frequency of shifts and vet wellbeing are strongly linked. They all improve or decline together.
- Non-technical skills are important in dealing with clients and the financial aspects of the business.

Client circumstances and expectations:

- Clients can have unrealistic expectations of emergency, after hours care. Meeting unrealistic expectations can further reinforce them. This overworks and fatigues vets, reducing their wellbeing.

[1] The wording used here to describe these insights and tensions were developed in conjunction with Priority Communications, for use in other VCNZ comunications. This wording is used here for consistency and their role in refining the wording is gratefully acknowledged.

- Vet concerns about liability increase the likelihood they accept non-emergency patients for emergency care, after hours, increasing the potential of overwork.

Financial considerations:

- Vets can feel pressure to discount fees because they think some clients can't pay; it's a small community; the patient will suffer; or other reasons.
- Pet insurance is growing in prevalence. This reduces the likelihood of fee discounting and enables appropriate vet fees. But only to a point.
- Trust between practices and commercial risk affect the likelihood a practice will share or outsource emergency care, after hours.

Medical knowledge and training:

- There is tension between the level of service vets believe is acceptable for emergency care, after hours and what a client expects.
- Some clients think they always need to see a vet rather than sometimes seeing another member of the veterinary team.

Veterinarian professional development in practices:

- Mentoring less experienced vets (and students) is important for the development of appropriate skills - especially non-technical skills.
- Vets often require non-technical skills (e.g. dealing with people or money) that are not developed in vet training or mentoring.
- A practice's ability to mentor is constrained by the number of experienced vets on staff. Mentors take time to grow and improving mentoring will take time.

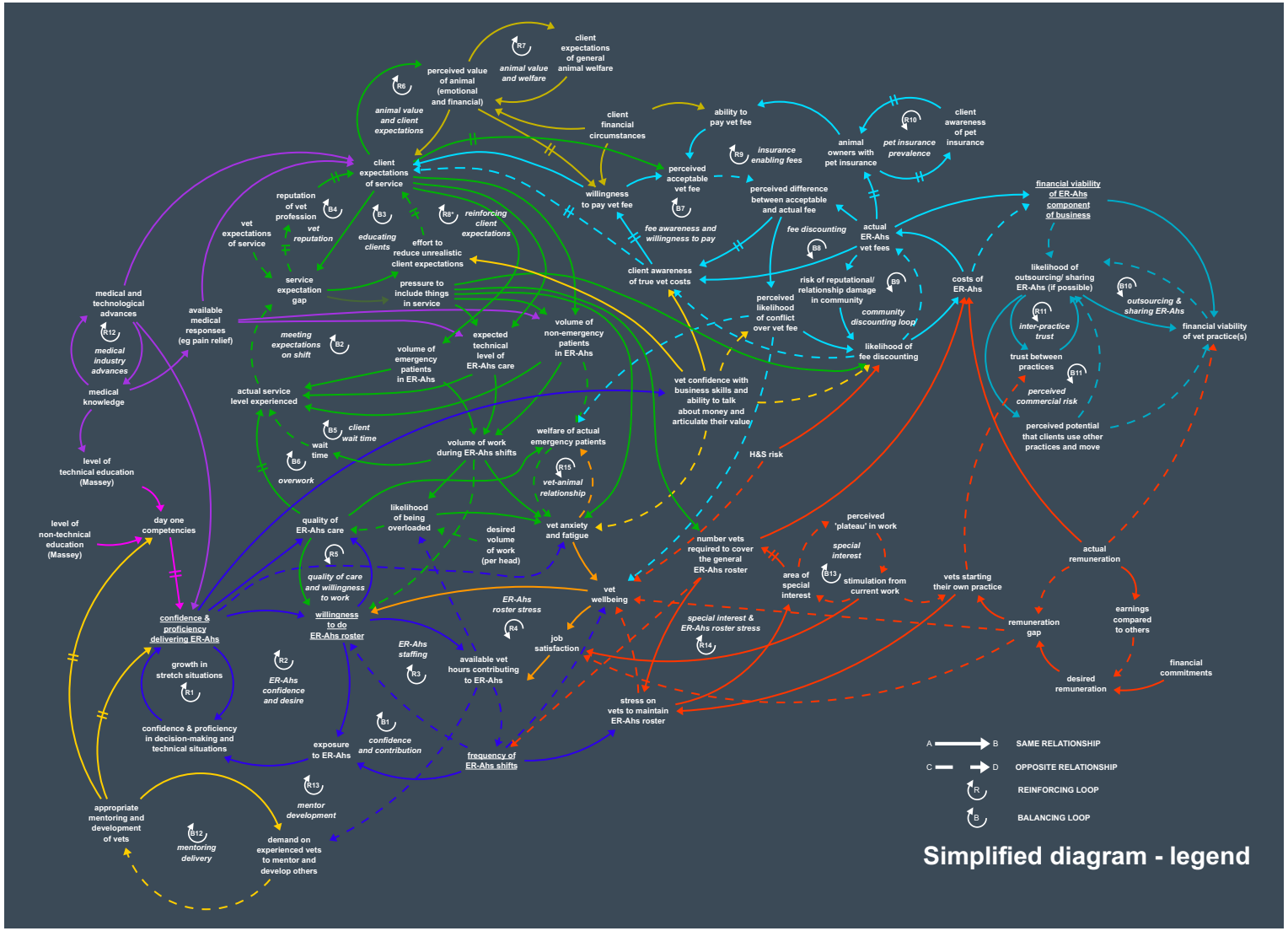
Stimulation at work, wellbeing, and job satisfaction:

- A vet's stimulation from work can plateau. They may pursue an area of special interest to compensate This reduces generalist knowledge in the practice and increases pressure for more vets to cover the emergency care, after hours roster.
- Perceived remuneration differences with colleagues, other practices or other industries can impact on job satisfaction and wellbeing.
- How emergency care, after hours is remunerated varies across the profession. This can make it difficult to compare staff or jobs, and potentially impacts on job satisfaction and wellbeing.

These insights and tensions can be used by the vet profession to help identify and focus action in multiple places to improve the delivery of ER-Ahs. These will be experienced in different ways and at varying intensities by the different practices, business types or regions around the country. There is no single unified experience of the challenges with ER-Ahs, therefore there is no single way to respond.

This report collates these tensions and a causal diagram to help guide action. It also provides a range of practice insights for dealing with systemic problems that people using this resource should bear in mind.

Simplified causal diagram describing issues relating to the delivery of emergency care after hours



1. Introduction

In late 2023 Deliberate was approached by the Veterinary Council of New Zealand (VCNZ) to support them in an investigation. This was in relation to issues relating to the provision of veterinary emergency care after hours (ER-Ahs). Emergency care provision is a requirement of the Council for all veterinarians in clinical practice. Yet many practices are experiencing challenges in its delivery. These challenges have been ongoing for some time but have more recently been accentuated by a veterinarian shortage across the country.

As a result, Deliberate was commissioned to run a series of workshops that took a systems thinking view on the issues relating to ER-Ahs This was to help VCNZ better understand the issues and challenges and help inform any potential action plan to deal with these that may be developed in conjunction with the wider industry.

This report summarises this process and its findings.

2. What is systems thinking?

The world that we live in is a highly interconnected place of causality and effect. The work of policy development often seeks to respond to undesirable behaviour or patterns being experienced in our natural environment and therefore seeks to influence these causes, to alter or improve the desired behaviour.

'Systems Thinking' is a name often applied to a range of approaches to thinking about issues holistically. One of these approaches is academic discipline of 'System Dynamics'. System Dynamics originated from the Sloan School of Management at the Massachusetts Institute of Technology, Cambridge, Massachusetts in the late 1960's.

Systems thinking, as articulated by the discipline of System Dynamics, is a conceptual framework and set of tools that have been developed to help make these patterns of interconnectedness clearer (Senge, 2006) . They help us understand the structure of a set of various interacting factors that create a behaviour that we are trying to understand. Once these interconnections are articulated, we can better understand which parts of a system are having the most influence on the behaviour, allowing us to identify areas of leverage in order to influence this.

Where the term systems thinking has been here, it refers to the qualitative concepts articulated by the discipline of System Dynamics (Sterman, 2000). The main qualitative tool that this discipline uses to understanding systems is called a causal loop diagram (CLD) or a causal diagram. Throughout this report the term 'causal diagram' has been used.

3. The fundamentals of causal diagrams – articulating system structure

At the core of a causal diagram is the desire to visually articulate the relationships between factors that best explain the behaviour of the system that you are trying to understand. This visual articulation of relationship is known as 'system structure'.

This section outlines important fundamental elements of system structure. These are:

- feedback loops;
- how feedback loops are correctly annotated; and
- the use of the 'goal/gap' structure (as this can explain how different loops dominant in a system at different times).

It is recommended that the reader familiarises themselves with these concepts, as an understanding of them is required to read the causal diagrams in this report and gain insight from them.

3.1. Feedback loops – the basic building blocks of a causal diagram

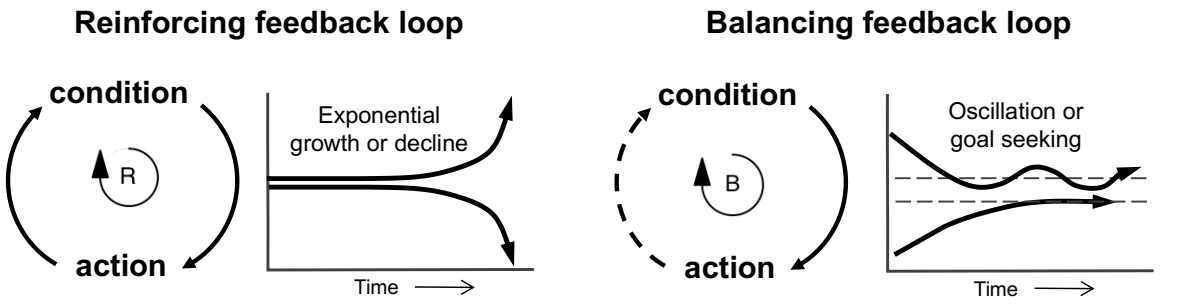
Systems thinking is especially interested in systems where loops of causality are identified – these are called feedback loops. There are two types of feedback loops, reinforcing and balancing (Senge, 1990).

In a reinforcing feedback loop, the direction of influence provided by one factor to another will transfer around the loop and influence back on the originating factor in the same direction. This has the effect of reinforcing *or spiralling* the direction of the original influence, and any change will build on itself and amplify. Reinforcing or spiralling loops are what drive growth or decline within a system.

In a balancing feedback loop, the direction of influence provided by one factor to another will transfer around the loop through that one factor (or series of factors) and influence back on the originating factor in the opposite direction. This has the effect of balancing out the direction of the original influence. Balancing loops are what create control, restraint or resistance within a system.

The two types of feedback loop are described in Figure 1.

Figure 1. The two types of feedback loops



Adapted from Senge (1990) & Ford (2010)

Feedback loops can be made up of more than two factors and can be mapped together to form a causal diagram). How these interact provide insight into how a wider system operates.

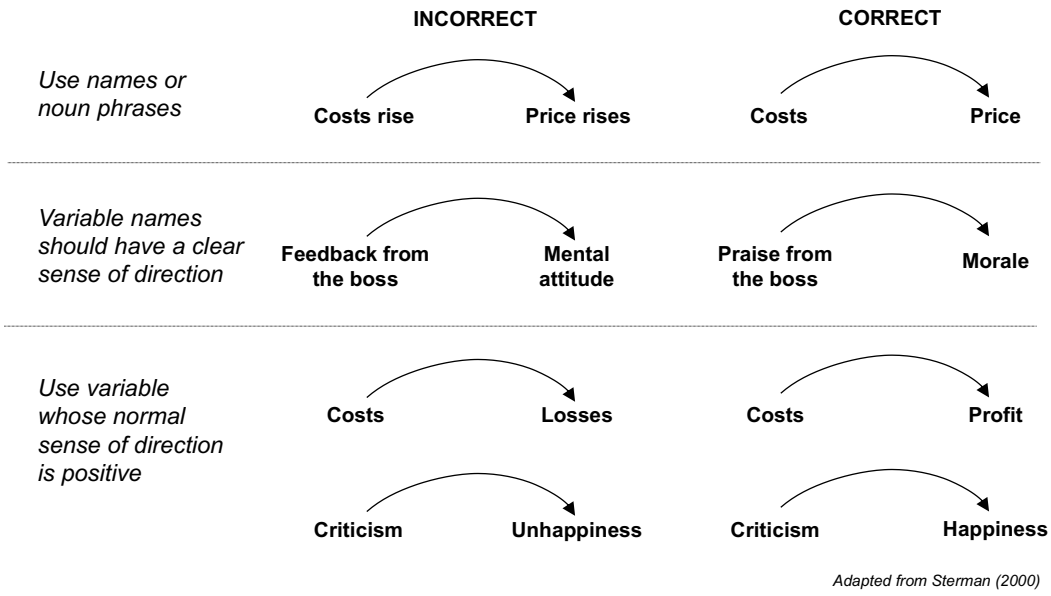
When feedback loops are described in this report, they describe the feedback loop operating by itself only. In other words, this describes their dynamics – *all other things being equal*.

3.2. Labelling factors

An important concept within causal diagrams is the concept of accumulation (or decumulation) –where do things build-up (or decrease) in your system? The simple analogy of a bathtub is often used to describe this (for more on this see section 4.5).

In causal diagrams, this concept of accumulation is captured by describing factors in such a way that their name implies that they can increase or decrease. This means that they should be described as nouns; have a clear sense of direction; and have a normal sense of direction that is positive. Examples to demonstrate this are shown in Figure 2.

Figure 2. Labelling factors



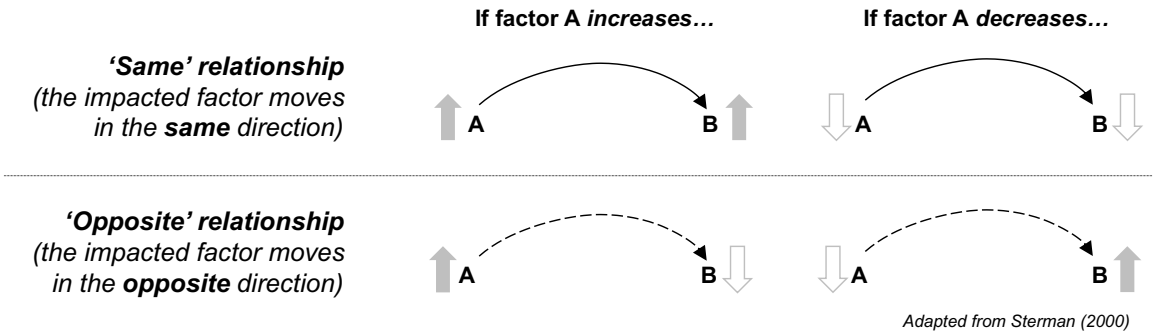
Adapted from Sterman (2000)

3.3. Annotating loops

Factors within causal diagrams are connected (and made into feedback loops) by arrows, which indicate that one factor has a causal relationship with the next. These arrows are annotated with either an ‘s’ or an ‘o’ which stands for ‘same’ or ‘opposite’. These terms correspond to the direction of change that any change in the first variable will have on the second variable.

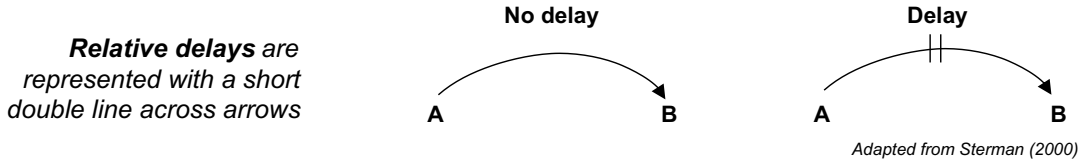
For example, if a directional change in one variable leads to a directional change in the next variable in the same direction, it is a same relationship. Likewise, if the second variable changes in the opposite direction, it is an opposite relationship. See Figure 3 for a visual description.

Figure 3. How arrows are labelled in causal diagrams



If there is a notable delay in this influence presenting in the second variable, when compared to the other influences described in the causal diagram, this is annotated as a double line crossing the arrow. An example of this is shown in Figure 4.

Figure 4. How delays are annotated on arrows



3.4. Goals and gaps – driving individual loop dominance.

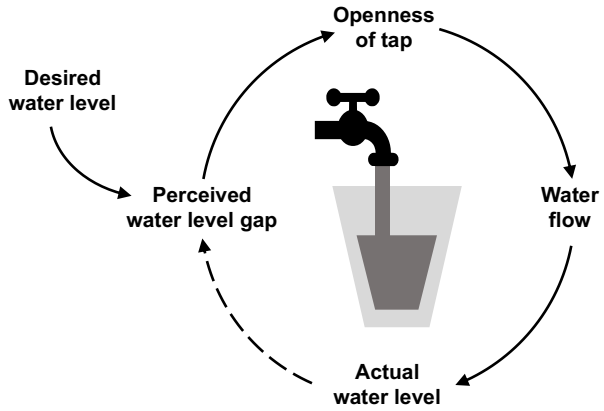
Realising that multiple loops are operating within a system is the first useful insight of systems thinking. A further useful insight is understanding that not all loops operate at the same strength all of the time. Different loops can dominate the dynamics of a system at different times. For example, a system might be dominated by a period of growth (a reinforcing loop), but when some kind of physical limit is approached (e.g. the available space in a pond for algae to grow) a balancing loop will start to dominate, therefore slowing the rate of growth.

One useful mechanism for gaining insight into the strength of a balancing loop is the 'goal/gap' structure. This is a structure that combines both a desired level of something (a 'goal'), with an actual level of something. This difference between these factors is the 'gap' between the desired and actual levels.

The higher the desired level and the lower the actual level, the greater the 'gap' or difference and the stronger the operation of the loops that this gap influences. The lower the desired level and the higher the actual level, the lower the 'gap' or difference, and therefore the weaker the operation of the loops that this gap influences.

The 'goal/gap' mechanism can be seen within the causal diagram in this report. A conceptual example is shown in Figure 5 which shows the act of filling a glass of water.

Figure 5. Example of a 'goal/gap' structure in a causal diagram – pouring a glass of water



Adapted from Senge (2006)

Initially, while the gap/difference between the desired and actual water level is high, the tap will be opened more and the strength of the water flow is higher.

As the desired level of water is approached the gap/difference reduces, so the tap is closed further, weakening the flow of water (you don't want the water to overflow the glass), until it is fully closed when the water level reaches the desired amount (Senge, 1990).

4. The methodology used

The insights in this report were developed from a series of workshop run with a cross section of veterinarians from different practice profiles, species interests, and geographies around New Zealand. A systems thinking approach was used (see previous sections) and in particular, a participatory model building approach based on the work of Vennix (1996) and Hovmand et al. (2013).

The participatory approach meant that workshop participants took a lead role in determining what the frustrations and issues with ER-Ahs were, what the factors that were contributing to them were, and how those factors influenced each other. These deliberations resulted in the causa diagram that is described in this report.

The process was as follows:

1. A selection of veterinarians that might contribute to this process was identified by Seton Butler at VCNZ. Much effort went into this list to ensure that they represented a variety of: geographies (e.g. north/south island, urban/rural); practice types (e.g. large/small, private/club); species interest (e.g. dairy, companion animal, equine); and veterinarian profile (e.g. gender balance; a mixture of GP's and vets with an emergency care focus; managers and business owners; the NZVA and recent graduates were also included).
2. A series of three workshops were run in Wellington over a period of a couple of months. In these workshops the challenges were discussed and the causal diagram was developed or reviewed. Most of the causal diagram was developed by Deliberate in between workshops.
3. In between the workshop a series of online discussions were held with all workshop participants, grouped by their perspectives (e.g. equine, or club, etc). In these meetings additional participants were invited along by the workshop participants, to widen the group of people that were inputting to and testing the causal diagram being developed.

It is important to note that two version of the causal diagram were developed in the course of this work. The detailed version was the primary diagram that was created during the workshops. While this is the main repository of the detail that was discussed, it was acknowledged that this was possibly too complex a diagram to be used by people who were not involved. Therefore, a more simplified version of the diagram was developed by Deliberate. This synthesised the main insights and feedback loops and is the causal diagram described in the main body of this report.

The original detailed version is described in Appendix 1.

As noted above, the participants were vets. So these diagrams are from a vets perspective.

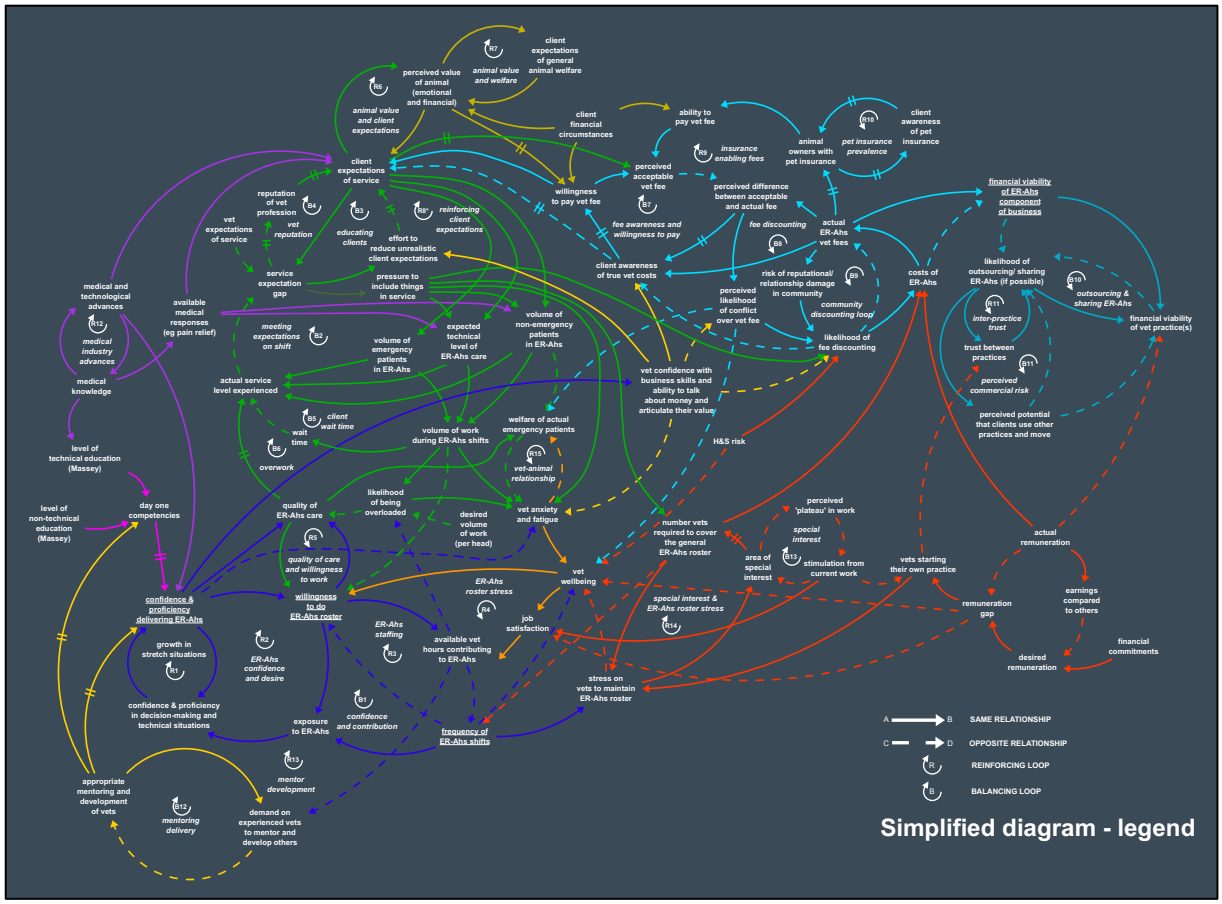
5. Dynamics captured in the causal diagram (simplified)

As noted the in the previous section, two versions of the same diagram were created in this course of this work. The detailed version is described in **Error! Reference source not f ound.**This section describes the simplified version of the causal diagram by providing an overview of it and describing the six main areas of the diagram.

5.1. Overview of the diagram

The simplified version of the causal diagram is shown in Figure 6. A larger version of this is provided in Appendix 1.

Figure 6. Simplified causal diagram



5.1.1. Conceptual indicators of relative health of ER-Ahs delivery

During the workshops, discussions with participants between workshops, and the development of the causal diagram during and after the workshops, four main factors were identified as being good relative indicators[2] of a healthy state of emergency care delivery. These are shown as bolded and underlines factors. They are listed and described below:

[2] While these factors are considered good relative indicators, it is not suggested that they would all be easily measured and are not suggested as any kind of perfomrance metric. Rather, they are considered indicators of the attitue and culture associated with delivering Er-Ahs.

Table 1. Relative indicators of healthy emergency care delivery

Relative indicator of healthy emergency care delivery:	Description:
Confidence and proficiency delivering ER-Ahs:	Vets feel that they are confident and proficient enough to deliver ER-Ahs shifts. While this is part technical (vets are assumed to have an active annual practicing certificate), it is also non-technical. It was regularly raised during discussions that many vets feel they have low confidence or proficiency in the important *non-technical* skills required to deliver ER-Ahs. These include things like soft/power skills to be able to deal with clients, and the ability to discuss money and payment difficulties.
Willingness to do ER-Ahs roster:	Vets are willing to contribute to the ER-Ahs roster and this does not make them unduly uncomfortable or nervous – outside of the obvious discomfort of it being shift work.
Frequency of ER-Ahs shifts:	The frequency of ER-Ahs shifts for people in practice is maintained at an appropriate level. This does not determine what an appropriate frequency of shifts is for any vet or practice. But it does recognise that there are many practices where the frequency may be too high, which is both a contributing factor to the issue of delivering ER-Ahs, as well as a result of the issues contributing to it.
Financial viability of ER-Ahs component of business:	The above three factors all relate to the personal experience of vets doing ER-Ahs shifts. This factor relates to the financial viability of the ER-Ahs component of the business. This was regularly noted as an issue as – whether it is being tracked or not – there was widespread recognition that many businesses do not break even on the ER-Ahs component. The ER-Ahs component of the business does not need to be a separate entity or may not even be measured separately in any detail. It is a conceptual framing to highlight that the ER-Ahs service costs to deliver and needs to recoup fees for that.[3]

5.1.2. Summary of areas of the diagram

The tensions and insights discussed in the workshops and captured by these diagrams have been grouped into six areas to help make them more accessible. These groups are not perfect

[3] This does not mean that participants were saying that it had to make a profit. There was discussion of businesses that make the commercial decision to run ER-Ahs at a loss as a way of gaining exposure to new clients. This is discussed in the details version of the diagram, see Appendix 2.

and are not intended to reduce the complexity of the issues highlighted. They are intended to make them more accessible. Note that many areas still interact with others, so interventions in one area will likely have flow on impacts in other areas. Or they may be impacted by other areas.

These areas are:

1. Vet confidence, proficiency & willingness to do emergency care shifts
2. Client circumstances and expectations
3. Financial considerations
4. Medical knowledge and training
5. Vet professional development in practices
6. Vet stimulation in work, wellbeing and job satisfaction

They are described in detail in Table 2 and shown as shaded areas in Figure 7.

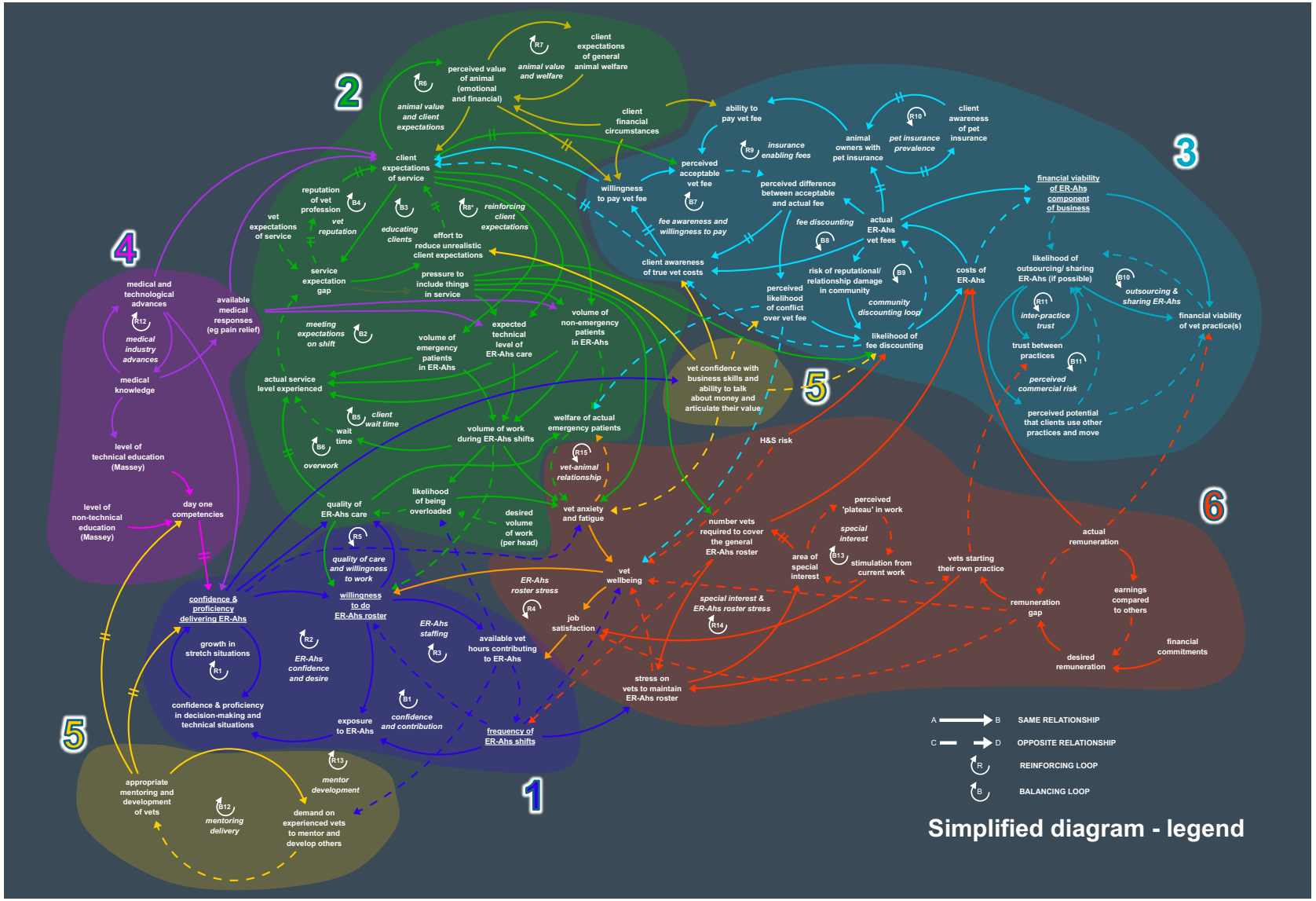
The remainder of this section will explain the factors and influences within each of these areas of the diagram.

Table 2. Areas within the causal diagram

Theme in diagram (colour = shading)	Elements of that theme (colour = arrows and factors)	Description of theme area
1 Vet confidence, proficiency & willingness to do ER-Ahs shifts	Vet confidence, proficiency & willingness to do emergency care shifts	This theme covers the interconnected influences of confidence and proficiency in vet practice (both technical as well as non-technical (e.g. power/soft skills); the impact this has on willingness to operate in the ER-Ahs roster; and the influence these have on the availability of vets for the roster and the resulting roster frequency.
2 Client circumstances and expectations	Circumstantial influences on clients.	These relate to the number of animals they have; the value they perceive in those animals (both emotionally and financially); the extent they believe animals are worthy of high quality care in their own right; commercial market expectations of animal care (i.e. offshore markets).
	Client expectations of service and the volume of ER-Ahs work.	This area synthesises and includes the pressure veterinarians are under to meet clients' expectations of service; as well as the impact of this on the actual levels of service experienced by vet; the reputation of the veterinarian industry in the longer-run; and the extent veterinarians may be overworked as a result.
3 Financial considerations	Financial transactions and clients' ability to pay.	This theme covers the costs required for ER-Ahs care and the actual fees charged for it. It also covers clients' ability and willingness to pay veterinarian fees; the role of pet insurance; and the influences on veterinarians discounting fees.
	Financial viability of ER-Ahs, general practice and sharing ER-Ahs between practices.	The financial viability of the both the ER-Ahs component of a business and the overall business. This also includes the likelihood of sharing ER-Ahs between practices, inter-practice trust and the commercial risks with sharing ER-Ahs.
4 Medical knowledge and training	Medical advances.	The role and influence of ongoing medical advances in the veterinarian field, including the availability and awareness of these (amongst vets and the public).
	Massey veterinarian training and graduate preparedness.	This area covers the role of Massey[4] veterinarian training. This includes both the technical and the non-technical training gained while at Massey. These contribute to day one competencies.
5 Vet professional development in practices	Veterinarian professional development in practices.	This includes the influences of mentoring and training within practices on veterinarians (primarily recent graduate but not exclusively). Has a strong focus on the non-technical elements of being a veterinarian.
6 Vet stimulation in work, wellbeing and job satisfaction	Vet wellbeing and job satisfaction.	This covers the influences on vet anxiety and wellbeing, both from within and outside veterinarian practice.
	Stimulation from work and remuneration.	This theme covers the professional and intellectual stimulation vets get from their work. This includes the impact of those vets that have a special interest focus to their work (anecdotally from the workshop, this related primarily to mixed species practices) and/or a desire to start their own practice. This also covers actual remuneration and relative remuneration to others.

[4] References to Massey refer to the Massey School of Veterinary Science - Tāwharau Ora, the only school in New Zealand. However, actions in this area could be considered that influence overseas veterinarian schools as well – for example through New Zealands accreditation standards.

Figure 7. Simplified causal diagram - shaded



5.2. Vet confidence, proficiency & willingness to do emergency care shifts

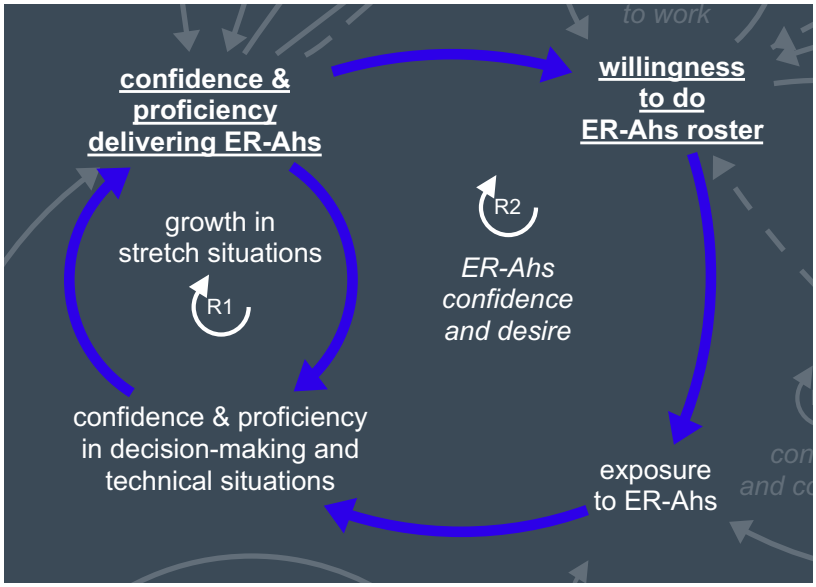
This section describes three of the four relative indicators of healthy emergency care service: vets confidence and proficiency delivering ER-Ahs; their willingness to do ER-Ahs shifts; and the frequency of those shifts.

5.2.1. Vet confidence, proficiency and willingness

Vet's 'confidence & proficiency delivering ER-Ahs' describes not just vets' confidence and proficiency in the *technical* skills required to deliver emergency care, but also the *non-technical* skills. Workshop participants talked about the need for confidence in decision-making skills and a level of soft (or power) skills. For example, decision-making skills included things like handling situations outside of the relative stability of the daytime practice (and availability of other staff to ask questions). This is represented by the factor 'confidence & proficiency in decision-making and technical situations'. Another example is soft/power skills, which include the ability to deal with all sorts of clients by oneself, or without the support of other staff like during the day.

It was noted that doing ER-Ahs shifts both required and built these skills. Therefore 'confidence & proficiency delivering ER-Ahs' has been linked in a reinforcing loop (*growth in stretch situations* R1) with 'confidence & proficiency in decision-making and technical situations'. This reinforcing loop will spiral – if vets are doing ER-Ahs they are both building and using these skills, both of which spiral off each other. If on the other hand they are not doing ER-Ahs, this limits their ability to build the skills, which further erodes their confidence.

Figure 8. Vet confidence, proficiency and willingness



To build these skills they must first be exposed to ER-Ahs. This is represented by the factor 'exposure to ER-Ahs. This is in turn dependent on vets willingness to contribute to the ER-Ahs roster, which is shown as the factor 'willingness to do ER-Ahs'. The more willing vets are to be on the roster, then the greater their 'exposure to ER-Ahs' which further builds their

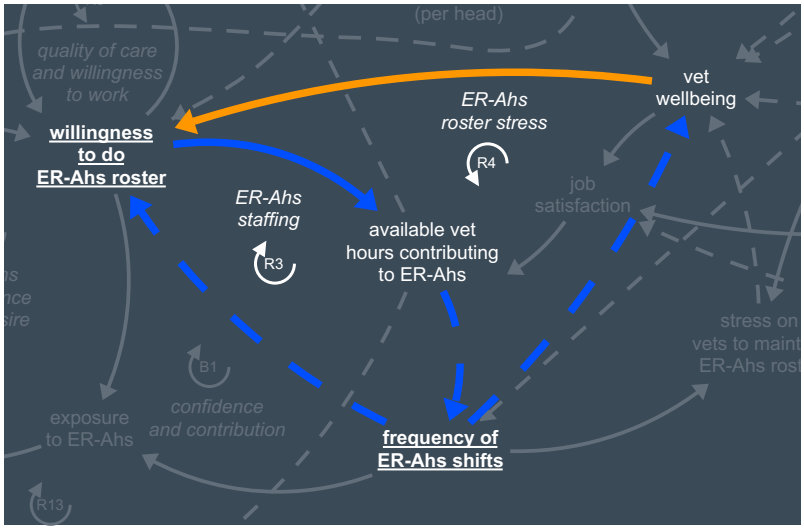
confidence and proficiency. Yet their willingness is itself partly dependent on their 'confidence & proficiency delivering ER-Ahs'. This forms another spiralling loop called *ER-Ahs confidence and desire* (R2).

There was some discussion in the workshop about whether there were generational factors that changed in society over time, that may also be influencing this. While this is acknowledged is likely, this has not been shown in the diagram. But should be kept in mind.

5.2.2. Willingness, frequency of shifts and vet wellbeing

Vets 'willingness to do ER-Ahs roster' interacts with the 'frequency of ER-Ahs shifts' in another spiralling loop called *ER-Ahs staffing* (R3). Here, more willingness increases the 'available vet hours contributing to ER-Ahs'[5], which reduces (opposite relationship) the average 'frequency of ER-Ahs shifts' that vet would need to do. The lower the frequency of shifts required of vets in a practice, the greater (opposite relationship) the likely willingness of vets in the practice to contribute to the roster.

Figure 9. Willingness, frequency of shifts and vet wellbeing



At the same time, the 'frequency of ER-Ahs shifts' has an opposite relationship with 'vet wellbeing'. In other words, the higher the frequency of shifts, the lower the vet wellbeing because they get overloaded. The lower their wellbeing, the lower their willingness to contribute. This completes another reinforcing loop called *ER-Ahs roster stress* (R4)

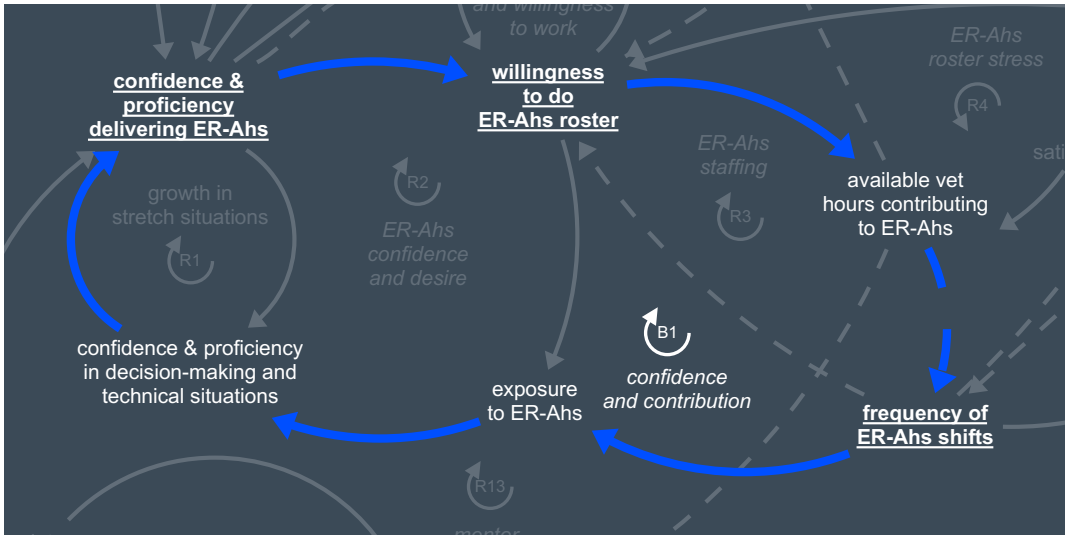
5.2.3. Confidence and contribution in balance

The previous subsections have described reinforcing loops yet there is also an important balancing loop connecting these factors. This is the *confidence and contribution* loop (B1),

[5] There was much discussion in the workshops around how to best represent a conceptual factor relating to the number of vets available to contribute to the roster. As it is not the number of vets per se, and many vets may not be full time and therefore may only be smaller contributors to the roster, the term 'available vet hours contributing to ER-Ahs' was agreed. This represents the number of vets hours that can be contributed to the roster, and is a function of the number of vets and their relative FTE contribution to the business.

which describes how all these factors come into balance. If vets get enough 'exposure to ER-Ahs' then they build decision-making skills and build confidence and proficiency, their willingness increases as do the available vet hours to contribute to the roster. Therefore shift frequency reduces to an appropriate level and any additional requirement for exposure to ER-Ahs to build confidence/proficiency reduces.

Figure 10. Confidence and contribution in balance

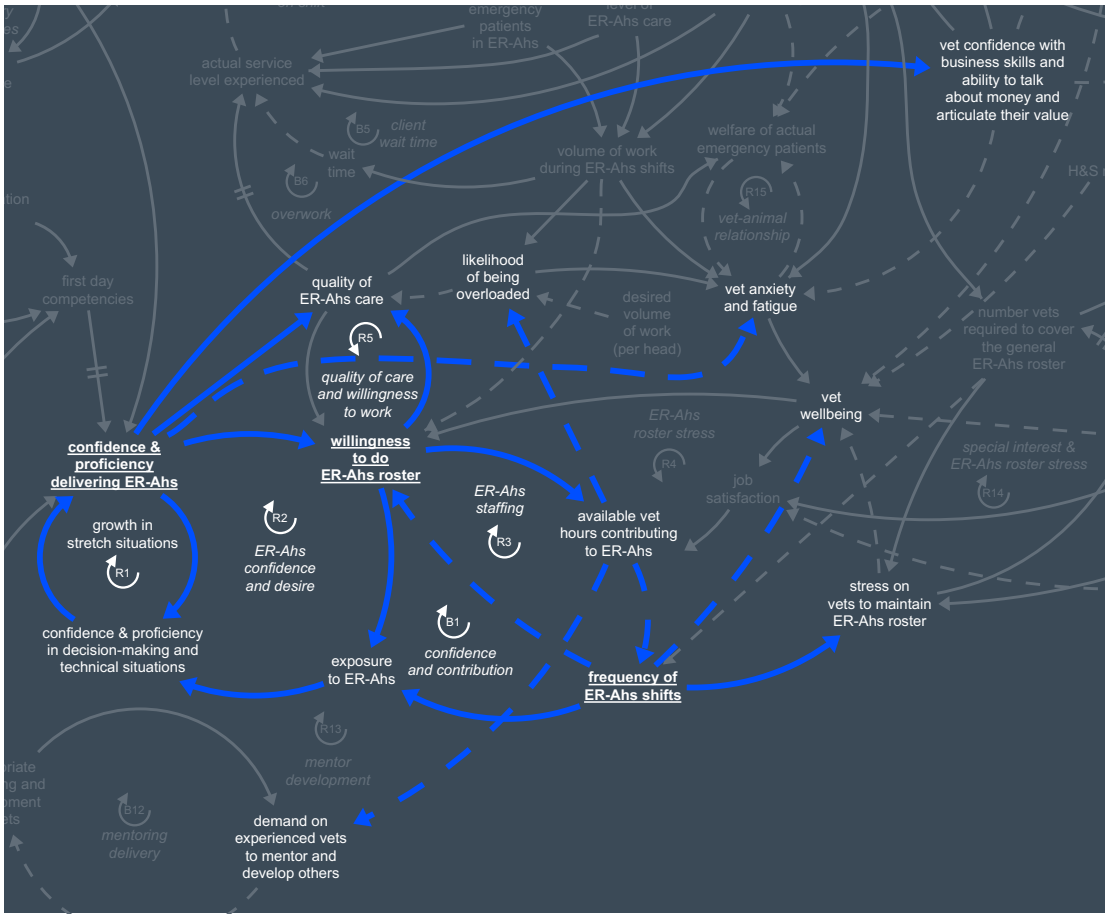


5.2.4. How confidence, proficiency and willingness influence other areas

The factors described in this subsection have many influences on each other. They also influence other parts of the diagram. These are described below and may be read in conjunction with the other relevant related sections of this report:

- Both 'confidence & proficiency delivering ER-Ahs' and 'willingness to do ER-Ahs' have a same influence on the 'quality of ER-Ahs care'.
- 'Willingness to do ER-Ahs' is also in a reinforcing loop (*quality of care and willingness to work* (R5)) with 'quality of ER-Ahs care' – the better one is the better the other is.
- 'confidence & proficiency delivering ER-Ahs has a same influence on vet confidence with the necessary business skills.
- 'Available vet hours contributing to ER-Ahs' has an opposite influence on the 'demand on experienced vets to mentor and develop others'. In other words, when there are few vets able to do the roster, this is exactly the time when there is also pressure on them to mentor others – in order to take the pressure of the vets in the roster.
- Confidence & proficiency has an opposite influence on 'vet anxiety and fatigue'. The greater their confidence the proficiency, the lower the elements of anxiety that come from those.
- The 'frequency of ER-Ahs shifts' has a same influence on the 'stress on vets to maintain the ER-Ahs roster'.

Figure 11. How confidence, proficiency and willingness influence other areas



5.3. Client circumstances and expectations

Client expectations were a common area of discussion during the workshops. There are also many factors influencing these and client expectations are involved in many overlapping feedback loops. These are described in this subsection.

5.3.1. General client circumstances and their perception of animals needs

General client circumstances are those circumstances which vets have no (or very little) control over. These can be summarised as their personal financial circumstances and their general expectations of animal's needs.

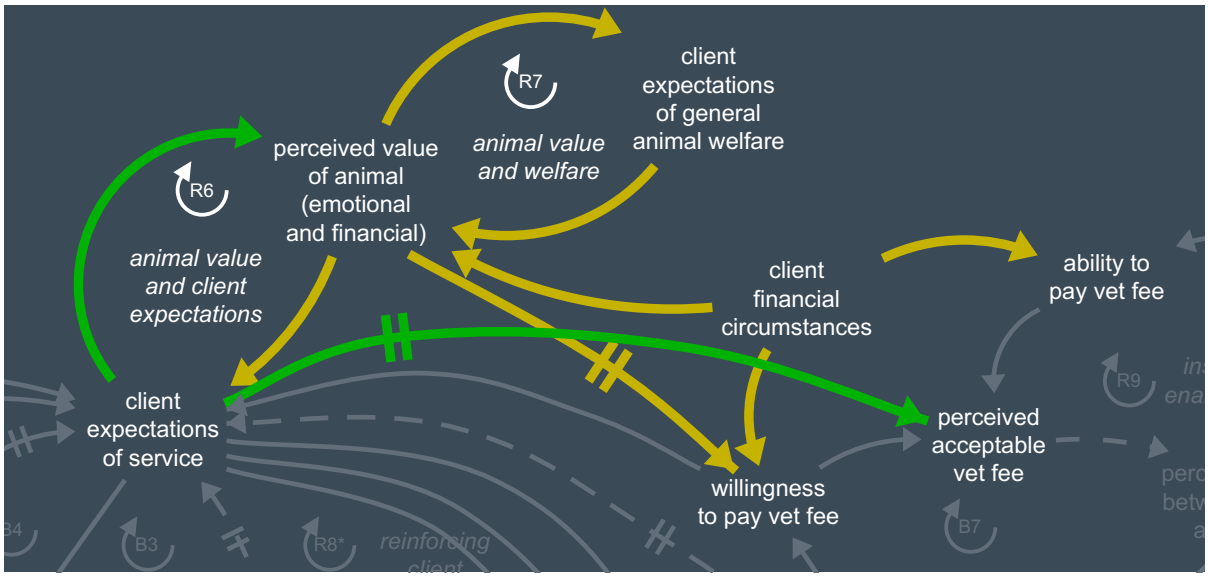
The important factor here is that represented as 'perceived value of animal (emotional and financial)'. This describes an increasing value that has been placed on animals and pets in recent decades. In effect this reflects changes in the average animal-human bond for most pet owners, but also for many farmers. For example, over recent decades the position of pets as 'members of the family' has increased, perhaps because the average family size has reduced, and the number of families that do not have children increasing. This was perceived to increase the likelihood that pets were more valued as family members. This factor has an

important reinforcing relationship with ‘client expectations of service’ from the vet (*animal value and client expectations* (R6)).

There has also been an increasing appreciation that animals are considered sentient and have rights to a good life themselves, both in the pet world and the animal production world. This is represented by the factor ‘client expectations of general animal welfare’, and this has been trending up in recent decades. In other words, there is a greater appreciation that animals are entitled to a good quality of life for themselves. While this applies to pets, it is also an example of changing attitudes across international markets for New Zealand’s primary products. This also forms a reinforcing loop with the ‘perceived value of animal (emotional and financial)’, called *animal value and welfare* (R7).

‘Client financial circumstances’ also influence the perceived value of animals. People were perceived to have more disposable income than in decades past and were choosing to spend more of that on their pets.

Figure 12. General client circumstances and their perception of animals needs



5.3.2. Volume of work on shifts – meeting and reinforcing client expectations

The loops described in this subsection are a very important part of the diagram. They describe the relationship between ‘client expectations of service’, the volume of patients presenting to ER-Ahs and the volume of work done on ER-Ahs to meet clients expectations. Importantly, several loops operating here conflict or compete.

Firstly, consider the reinforcing loop *reinforcing client expectations* (R8*)[6]. As ‘client expectations of service’ rise, these have a same relationship with the volume of emergency and non-emergency patients presenting, and the level of technical care expected. These are

[6] The asterisk beside this loop label indicates that it is a label for multiple loops on a similar pathway. As described above.

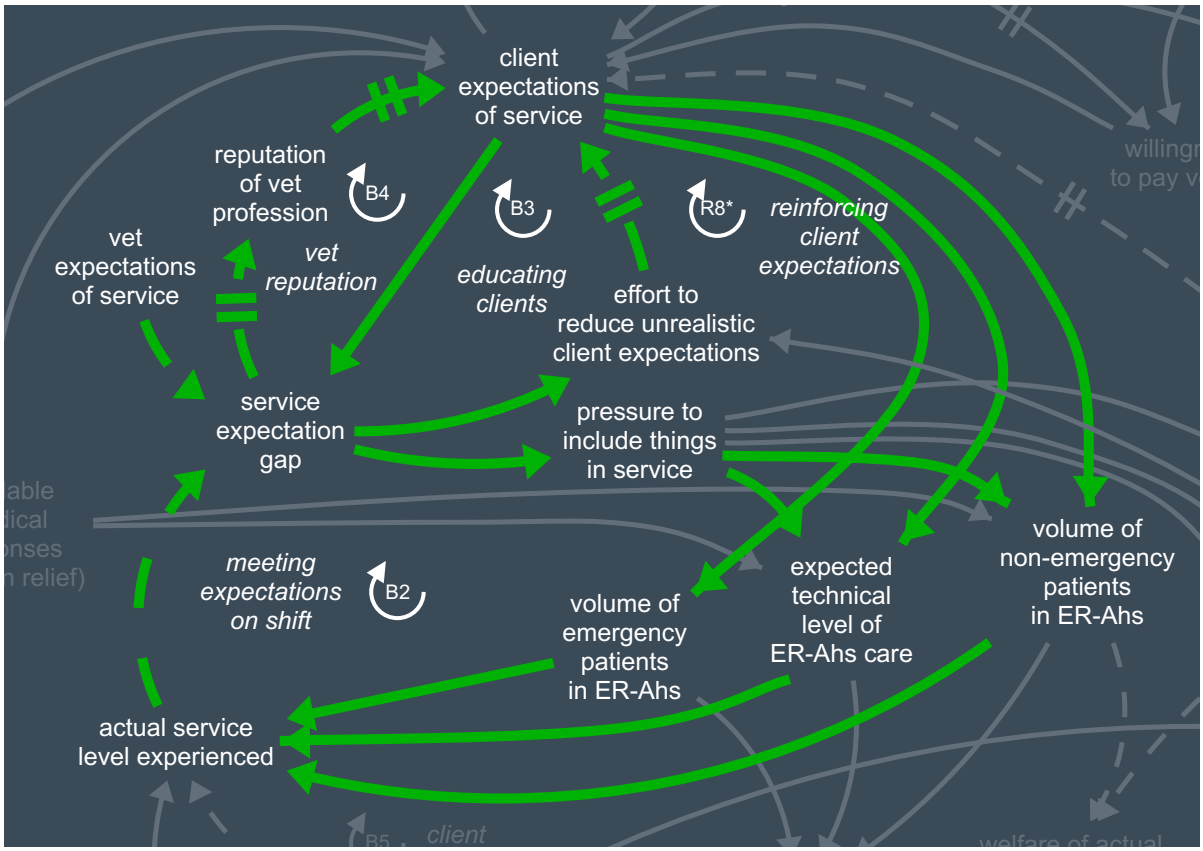
represented as the factors ‘volume of emergency patients in ER-Ahs’, ‘volume of non-emergency patients in ER-Ahs’, and the ‘expected technical level of ER-Ahs care’ and R8* is effectively the same loop via these three different pathways. In other words, the greater the client expectations, the greater number of cases and level of service expected and delivered on ER-Ahs shifts.

The differentiation of non-emergency patients from emergency patients is an important one. One of the recuring comments from workshop participants was that clients often expect the same level of service from ER-Ahs as they do from the day practice and it was discussed that this was not its intent. This will be expanded on later.

The greater the levels of this work (actual emergency patients, non-emergency patients, and the level of technical care each receive) delivered in ER-Ahs, the greater the ‘actual service level experienced’. The ‘client expectations of service’ and the ‘actual service level experienced’ form a goal/gap relationship (see section 3.4). The greater the actual service delivered, the lower the gap between that and the client expectations (in other words – it meets client expectations!). If this gap is low (i.e. expectations are met) then the reputation of the vet profession is increased (an opposite relationship) and this further reinforces or raises client expectations. In short – continually delivering on client expectations in part encourages them to rise. This is a loop that has probably been operating in the vet profession for many decades[7].

[7] It is noted that this is not unusual and is a feedback loop experienced in most professions or industries. It is also noted that some of this may be because of complicated ‘over-delivery’ dynamics driven by competition within the industry. While this is likely to be partially true, it has not been included as a key influence in the diagram – there was general agreement within the workshop that the bulk of such mal-aligned expectations were consistently experienced across vets, and not only due to competition.

Figure 13. Meeting and reinforcing client expectations



A strong theme in the workshop discussion was that client expectations for ER-Ahs care were often higher than what vets would consider necessary for emergency care. That is, it was not seen by veterinarians as the same as the service delivered during the daytime clinic, and was instead provided as an emergency provision – to get people through to when the day clinic would be open. This tension between client expectations and vets' expectations of service is shown as another goal/gap relationship (see section 3.4) where the generalisation is that client expectations are assumed to be higher than vet expectations of what is acceptable to get a patient through to daytime clinic hours. Therefore, 'vet expectations of service' has an opposite relationship with the 'service expectation gap', while 'client expectations' has a same relationship. In other words, the greater client expectations of service, the greater the gap between their expectations and vets' expectations of what is acceptable for emergency care.

This difference in expectations (gap) influences two types of activity. It can increase 'pressure to include things in service' or increase 'effort to reduce unrealistic client expectations'. In other words, vets can seek to meet client expectations or adjust them to be more realistic. It is noted that 'unrealistic expectations' is used here to describe client expectations that are not aligned with what vets deem appropriate for emergency after hours care. It was noted in the workshop discussions that the veterinary industry is a service industry and therefore will always involve an element of meeting client expectations. However, there was general agreement that the level of service that should be expected by clients in an emergency after hours situation is not the same as what they should expect in daytime clinic hours.

Vets efforts to meet expectations is represented by the *meeting expectations on shift* loop (B2). This is driven the 'service expectation gap' which puts pressure on vets to include more

things in the ER-Ahs service (the factor 'pressure to include things in service'). This is predominantly through the addition of services that would normally be done during daytime clinic hours – i.e. accepting an increased 'volume of non-emergency patients in ER-Ahs' or undertaking more tests and procedures that would normally wait until daytime (therefore increasing the 'expected technical level of ER-Ahs care'). An increase in either or both increases the 'actual service level experienced', decreases the 'service expectation gap', and thus eases the 'pressure to include things in service', bring actual service more in line with expectations. This loop operates in the immediacy of an ER-Ahs shift.

This loop describes important dynamics that seem to have been operating in the vet profession for years. It is likely that this loop has dominated the industry for some time and ironically it only achieves increased client expectations in the longer term (due to its link with *reinforcing client expectations* (R8*)), which means that there remains a gap between vet and client expectations for ER-Ahs.

This is not the only loop operating here though. It is important to note the balancing loop *educating clients* (B3). This is primarily driven by the difference between 'vet expectations of service' and 'client expectations of service' and describes the dynamic of vets attempting to reduce unrealistic client expectations. Here a gap between client and vet expectations can lead to 'effort to reduce unrealistic client expectations' (same relationship), which in turn can lead to a reduction in 'client expectations' (opposite relationship), thus bringing both client and vet expectations closer together. It is noted that this may be a more difficult pathway, as vets[8] need confidence to push back on unrealistic client expectations (more on this later), but it is an important balancing loop. One that anecdotal comments in the workshops would suggest may not have been operating very strongly in the profession to date. Although there were examples provided from practices that this loop is operating well in some individual clinics.

The final loop to describe in this area is the *vet reputation* loop (B4). This describes the dynamic that the reputation of the vet industry (at a practice level or at a profession level) is linked to meeting the expectations of clients. This will balance over time – if expectations are met they will continue to be increased over time until there is a sustained difference between what is actually experienced and what is expected. This will reduce the reputation of the vet(s) and eventually reduce expectations of clients – but through loss of faith in delivery. This loop highlights the importance of seeking to actively reduce the gap between 'client expectations', and 'vet expectations' and the 'actual service level experienced' – either through increased delivery or reducing clients' unrealistic expectations. Or both.

Another important factor to note here is the 'welfare of actual emergency patients'. Any increase in non-emergency patients can reduce (opposite relationship) the 'welfare of actual emergency patients', due to the added stress on the vets' time. Similarly, if the 'quality of ER-Ahs care' is reduced through overwork, this can also reduce the 'welfare of actual emergency

[8] The vet perspective described here was usually that of an employee vet. It is noted that an employer vet may have commercial incentive to push back less, in order to charge more. However the primary point made by workshop participants was that all vets (beginning with employees) need to have confidence to push back on unrealistic expectations. Such skills will only be useful if they ever become business owners.

patients' as vets will be pressured during shifts and won't be able to provide the same level of care to actual emergency patients.

5.3.3. Unintended impacts of meeting expectations –client wait time and vet overwork

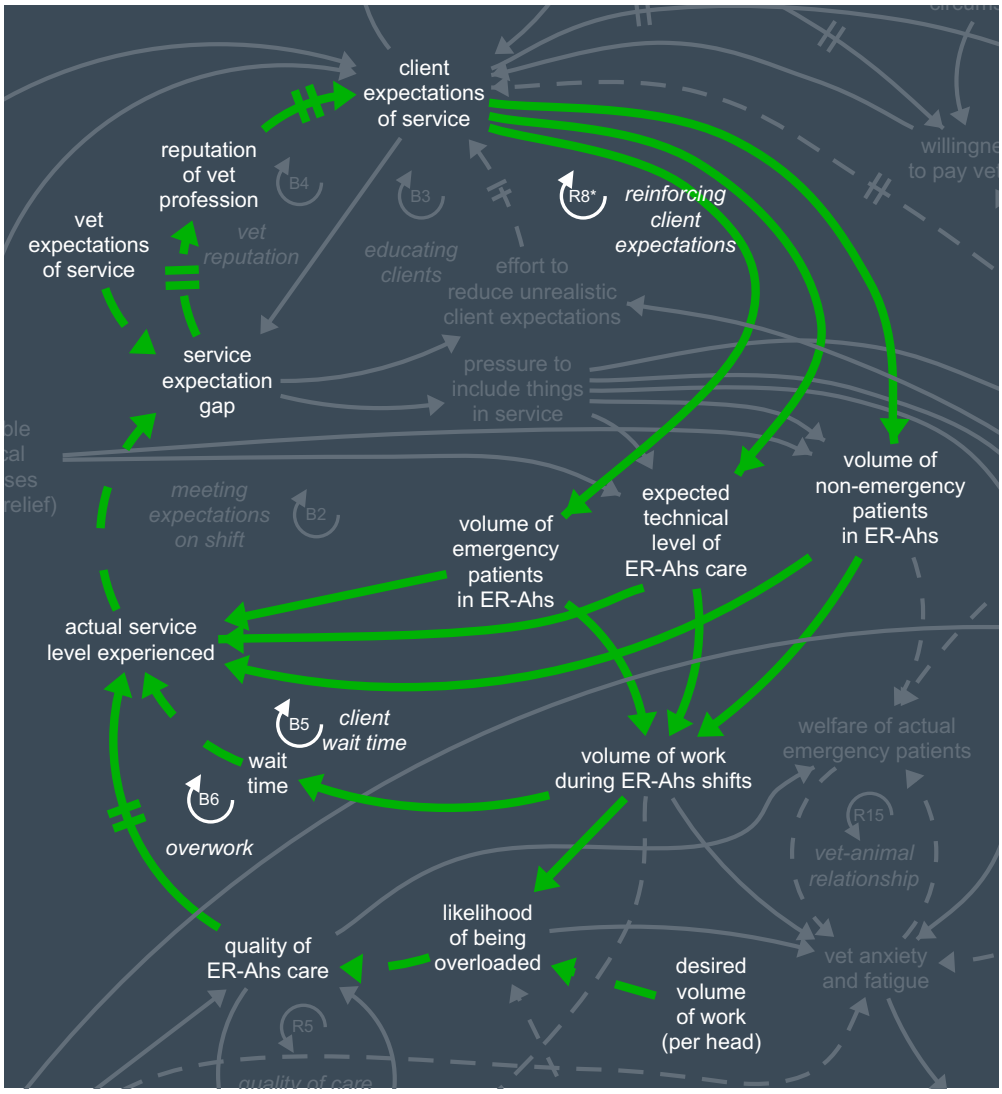
In addition to the important dynamics described in the last section, this section describes two important unintended impacts of seeking to meet clients' expectations (i.e. when they are not being met) – client wait time and vet overwork.

Assuming the reinforcing loop *reinforcing client expectations* (R8*) is operating, this increases the 'volume of work during ER-Ahs shift' over time. Any increase in the volume of work done on shifts has two unintended consequences. Firstly, client 'wait time' will increase and vets 'likelihood of being overworked' will increase, reducing the 'quality of ER-Ahs care' provided on shift.

Ironically, both reduce the 'actual service level experienced' and form balancing loops with the 'reputation of the vet profession' and 'client expectations'. These are represented as *client wait time* loop (B5)) and *overwork* loop (B6).

The overwork loop is also influenced by the factor 'desired volume of work (per head)' (see Figure 14). 'Desired' in this instance may also be considered 'optimal' for whatever situation each vet or practice is in – as this is inherently a situation-dependent thing. The higher this, the lower the 'likelihood of being overloaded'. This factor has been included to represent that there is no single appropriate amount of work for a vet on a shift. This will always be situation dependent.

Figure 14. Unintended impacts of meeting expectations –client wait time and vet overwork



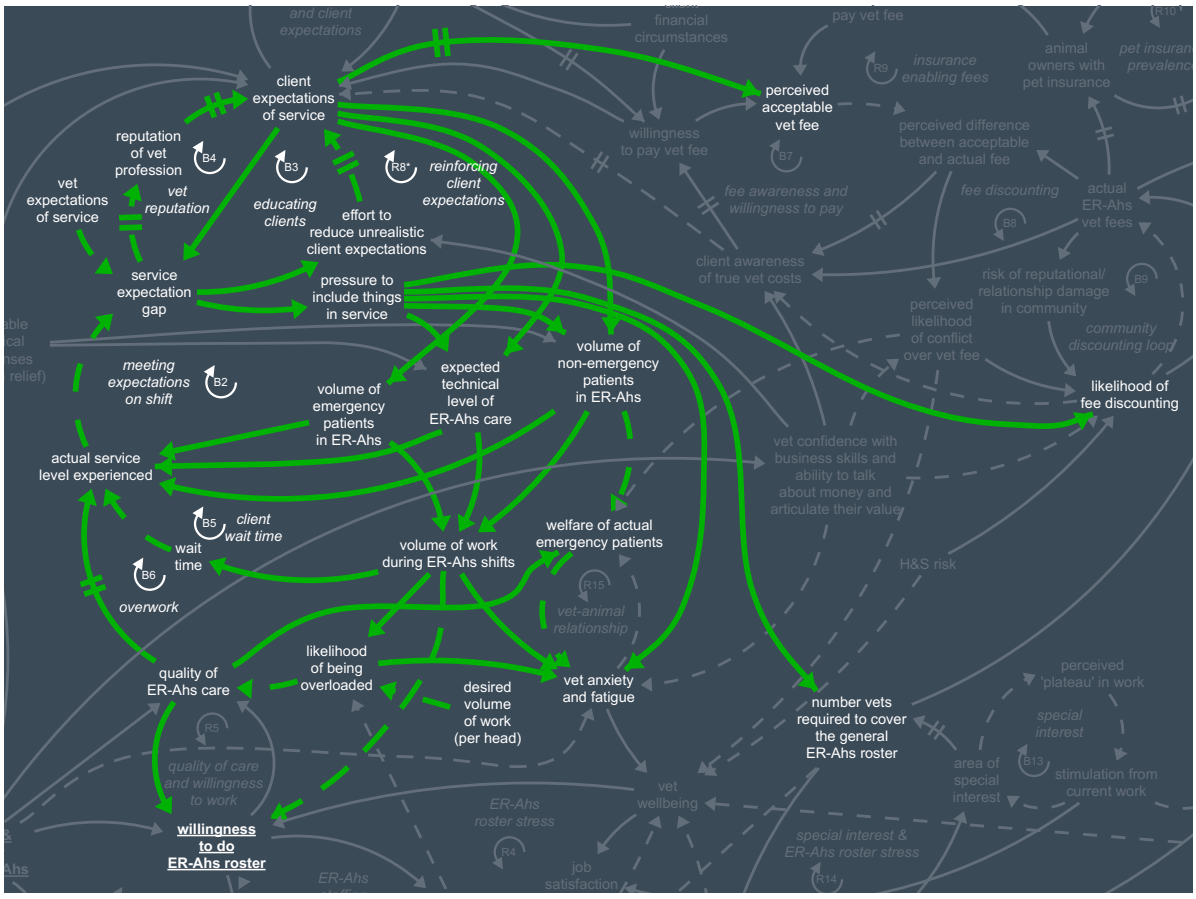
5.3.4. How client circumstances and expectations influence other areas

In addition to the influences the factors described above have on each other, they also influence other parts of the diagram. These are described below and may be read in conjunction with the other relevant related sections of this report:

- ‘Client expectations of service’ has a same influence on the ‘perceived acceptable vet fee’.
- ‘Client financial circumstances’ has a same influence both a clients’ willingness and ability to pay vet fees.
- The ‘perceived value of animal (emotional and financial)’ can have a same influence a clients’ willingness to pay. Importantly, it does not alter their *ability* to pay. This tension is explored more in section 5.4.1.
- The ‘quality of ER-Ahs care’ has a same relationship with ‘willingness to do ER-Ahs roster’. If the quality is reduced (e.g. through overwork) this can reduce the willingness to do ER-Ahs.

- The greater the ‘pressure to include things in service’ the greater the ‘number of vets required to cover general ER-Ahs roster’; and the greater the ‘likelihood of fee discounting’ (both same relationships).
- The ‘pressure to include things in service’, ‘volume of work during ER-Ahs shifts’, ‘likelihood of being overloaded’ and the ‘welfare of actual emergency patients’ all influence ‘vet anxiety and fatigue’.

Figure 15. How client circumstances and expectations influence other areas



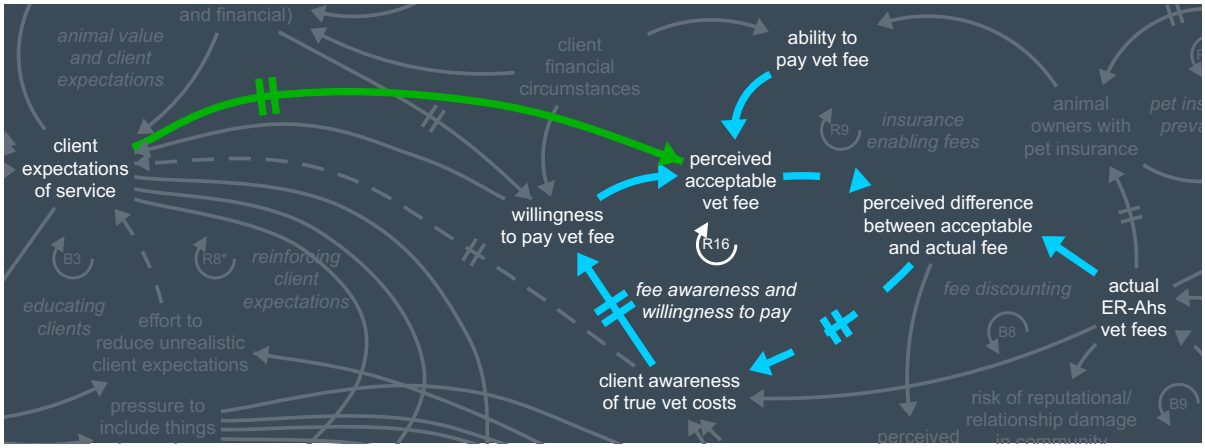
5.4. Financial considerations

There are a range of influences on clients’ ability to pay and their willingness to pay, not all of which vets can influence. There are also a range of influences on the likelihood that vet fees are not fully charged, or are discounted, which vets are able to influence. Both sets of influences are linked to the financial viability of emergency care and clinics in general, which in turn impact on the likelihood of businesses sharing emergency and afterhours services.

5.4.1. Acceptable fees and clients' willingness and ability to pay

The fee that a client finds acceptable is shown as 'perceived acceptable vet fee'. This is influenced by a combination of 'client expectations of service', their 'willingness to pay vet fee' and their 'ability to pay vet fee' (all same relationships)[9].

Figure 16. Acceptable fees and clients' willingness and ability to pay



The 'perceived acceptable vet fee' forms a goal/gap (or difference) with the 'actual ER-Ahs fees'. The greater the 'actual ER-Ahs vet fees', the *greater* the 'perceived difference between acceptable and actual fee' (same relationship). The greater the 'perceived available vet fee', the *lower* the perceived difference (opposite relationship).

This difference (or gap) has a delayed influence on 'client awareness of true vet costs'. In other words – the more aligned someone's idea of an acceptable fee is with the actual fee, the more likely they are to be aware of the true costs of veterinary service. In turn, this has a delayed influence on a clients' 'willingness to pay vet fee'. This forms the reinforcing loop *fee awareness and willingness to pay* (R16) which describes the dynamics that the greater awareness that clients have of true vet costs, the more willing they will be to pay the actual vet fee required.

5.4.2. Perceived conflict over fees and fee discounting

The greater the 'costs of ER-Ahs', the greater the fees required to cover it ('actual ER-Ahs vet fees).

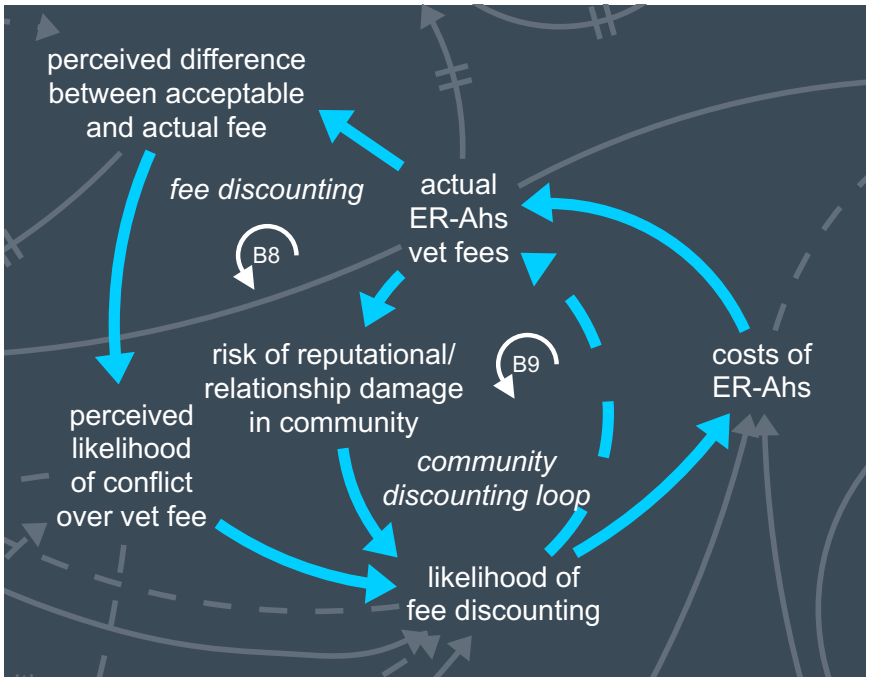
That said, when there is a reasonable sized 'perceived difference between acceptable and actual fee' (the difference between the actual fee and the perceived acceptable fee), this can increase the likelihood of fee discounting. A difference (or gap) can increase the 'perceived likelihood of conflict over vet fee' (same relationship) which can increase the 'likelihood of fee

[9] Like all factors in the diagram, these three influences are not necessarily complete list of influences on 'perceived acceptable vet fee'. Only some relevant to the ER-Ahs issue have been included. However, for this factor in particular, the influence of clients perceived comparable service in the human health care system was noted by some workshop participants.

discounting' (same relationship), which can reduce the 'actual ER-Ahs vet fees' (opposite relationship). This reduces the perceived difference (gap) – in other words, discounting the fees (*discounting fees* loop (B8)) is a way of bringing the actual fees into line with the perceived acceptable fees. There was consensus in the workshops that this was a loop that was regularly operating in the vet industry[10].

Ironically, discounting only increases the 'costs of ER-Ahs', putting further upwards pressure on the 'actual ER-Ahs vet fees' that need to be charged.

Figure 17. Perceived conflict over fees and fee discounting



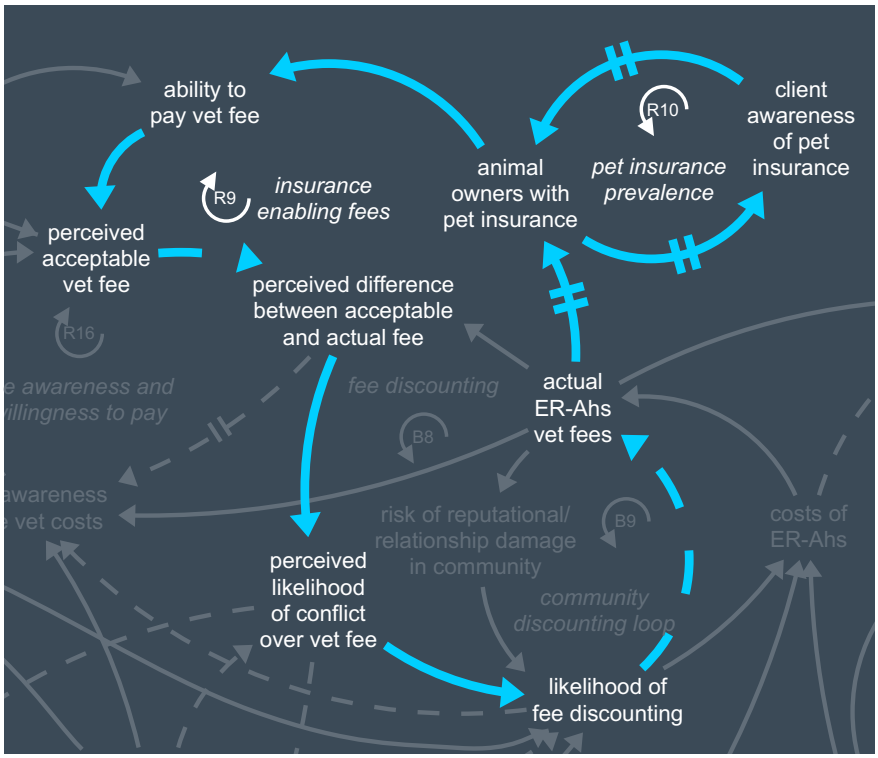
Another loop that discounts fees is the *community discounting loop* (B9). This loop describes the dynamics of vets that are based in more smaller locations and are very much a part of the community. For example, it can be difficult for vets to charge full price for their services because they may have children going to school with their clients' children, or play sport with clients, etc. This is represented by the factor 'risk or reputational/relationship damage in community' and the higher the fees, the higher this risk, therefore the higher the 'likelihood of fee discounting' (all same relationships), which then reduces the actual fees (opposite relationship).

[10] It is noted that the dynamics of discounting are not not an exclusive experience of the vet industry. It is reasonable to expect that they are experienced in most industries. However the dynamics noted here were a strong aversion to inter-personal conflict and a desire to ensure animals received good care. It may be the case that in other industries discounting dynamics are more likely linked to competition.

5.4.3. The influence of pet insurance

It was noted by workshop participants that pet insurance is playing an increasing role in the financial considerations of pet owners. It was noted that as actual fees have increased, then over time so has the number of 'animal owners with pet insurance' (same relationship). This does increase a clients' 'ability to pay vet fee' which increases the 'perceived acceptable vet fee', reduces the perceived difference, perceived likelihood of conflict, and discounting, enabling greater 'actual ER-Ahs vet fees' to be charged in the longer term. See reinforcing loop R9 – *insurance enabling fees*.

Figure 18. The influence of pet insurance



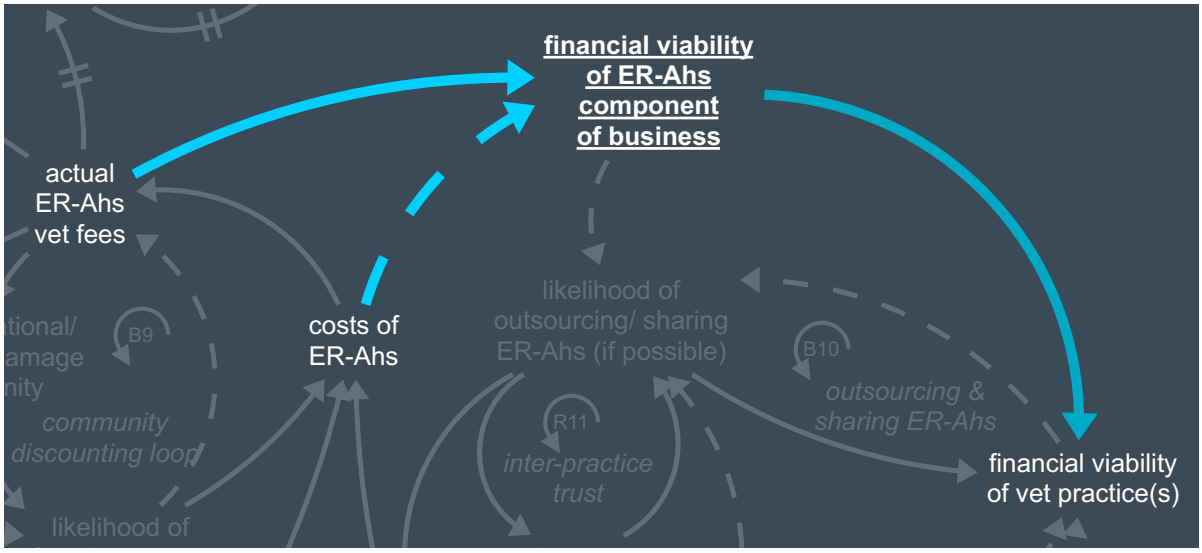
At the same time, more pet owners with insurance will have a word-of-mouth effect meaning more people become aware of pet insurance, which over time will increase its prevalence. This is shown by the reinforcing loop R10 – *pet insurance prevalence*.

5.4.4. The financial viability of the ER-Ahs

The financial viability of the ER-Ahs component of the business has already been highlighted as an important indicator of relative healthy ER-Ahs delivery (see section 5.1.1). This is represented in the simplest way possible in this diagram – the 'financial viability of ER-Ahs component of business' is a function of the 'costs of ER-Ahs' (opposite relationship – the greater the costs the lower the financial viability), and the 'actual ER-Ahs vet fees' (same relationship – the greater the fees the greater the financial viability).

This has a similar flow on effect to the financial viability of the overall practice. The greater the ‘financial viability of ER-Ahs component of business’, the greater the ‘financial viability of vet practice(s)’ (a same relationship).

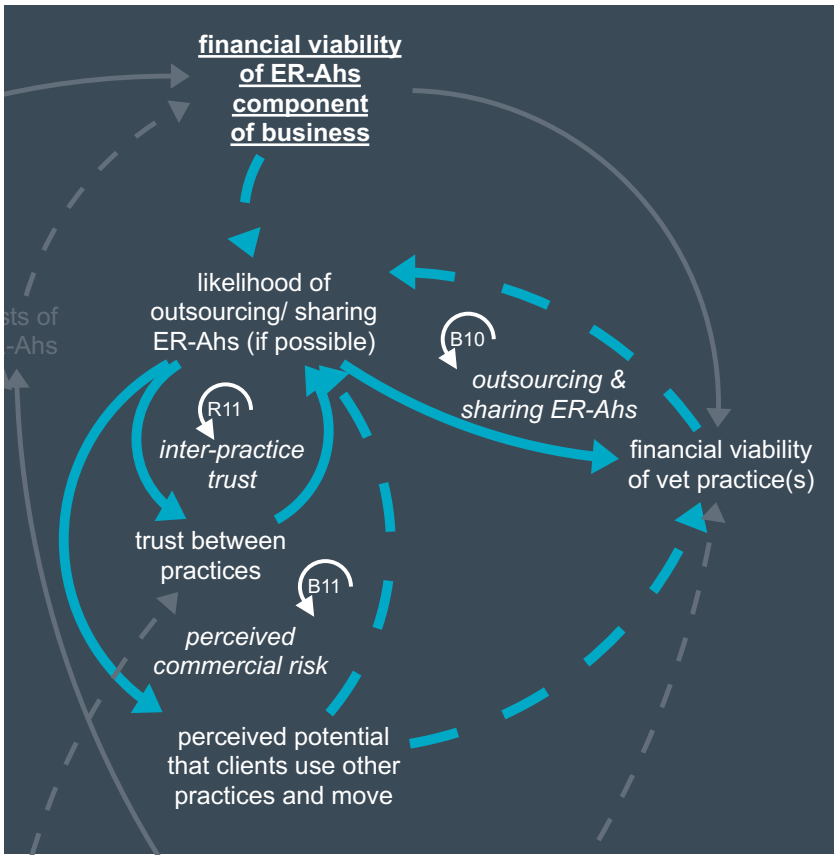
Figure 19. The financial viability of the ER-Ahs



5.4.5. Inter-practice trust and the (potential) sharing of ER-Ahs

The financial viability of the ER-Ahs component of the business (and the practice in general) is an important influence on the ‘likelihood of outsourcing/ sharing ER-Ahs (if possible)’. The lower the financial viability, the greater the likelihood of outsourcing/sharing (opposite relationship).

Figure 20. Inter-practice trust and the (potential) sharing of ER-Ahs



It is noted that the outsourcing factor has the caveat '(if possible)' in it. This is to indicate that not all practices may be able to share or outsource their ER-Ahs. Primarily because of geographic location or practice type. For example, practices that are situated remotely have fewer (or no) other practices with which they can realistically share their ER-Ahs work; and practices that specialise in companion animals are not practically able to share ER-Ahs with a large animal vet. It is therefore recognised that these loops become more relevant when the similarity and proximity of practices to each other is increased.

Outsourcing or sharing ER-Ahs operates in a balancing loop with the financial viability of vet practices (*outsourcing & sharing ER-Ahs* (B10)). The lower the financial viability of the practice, the greater the likelihood of sharing/outsourcing (opposite relationship). Similarly, the greater the likelihood of sharing/outsourcing, the greater the 'financial viability of the vet practice(s)' (same relationship).

In addition, sharing/outsourcing ER-Ahs both enables, and is dependent on, the level of 'trust between practices'. This factor represents the level of trust that exists between practices and would be required to share/outsource ER-Ahs. This forms a reinforcing loop (*inter-practice trust* (R11)) which can either spiral up if trust and relationships between practices are healthy, or spiral down, if trust and relationships between practices are not healthy. Trust between practices is likely to be heavily influenced by historical dynamics within regions and between practices/individuals.

Even if there is strong trust between practices, there may still be some commercial risk. These dynamics are represented by the *perceived commercial risk* loop (B11). This is a balancing

loop where an increase in the sharing/outsourcing of ER-Ahs will increase the 'perceived potential that clients use other practices and move' (same relationship). Yet this perceived risk also *reduces* the 'likelihood of outsourcing/ sharing ER-Ahs' (opposite relationship).

At the same time, if clients do use other vets and then move practice, this can reduce the financial viability of a vet practice.

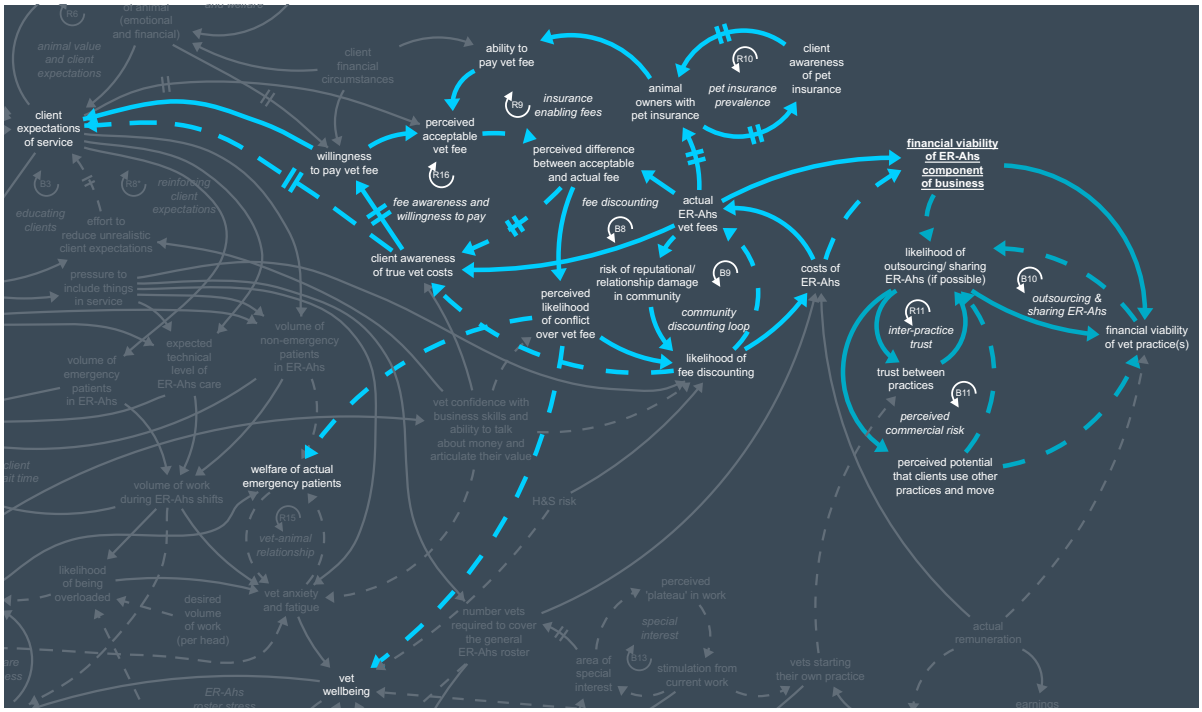
It is noted that there are many factors influencing whether ER-Ahs is outsourced or shared and provide insight into the many elements of trust and relationships that need to be in place for this to be achieved successfully.

5.4.6. How financial considerations influence other areas

In addition to the influences the factors described above have on each other, they also influence other parts of the diagram. These are described below and may be read in conjunction with the other relevant related sections of this report:

- The 'client awareness of true vet costs' and their 'willingness to pay vet fee' both influence 'client expectations of service'. The former with a delayed opposite influence, the latter with a same influence.
- The 'perceived likelihood of conflict of vet fee' has an opposite relationship with both the 'welfare of actual emergency patients' and 'vet wellbeing'. The greater the perceived conflict, the lower those two factors.

Figure 21. How financial considerations influence other areas



5.5. Medical knowledge and training

The impact of advances in medical knowledge is important and fairly constant (it is always rising). The role that the Massey School of Veterinary Science – Tāwharau Ora (Massey)[11] plays in veterinarian training and graduate preparedness is also critical and is an important area of influence, yet there are significant delays before cohorts flowing through Massey have an impact in the industry.

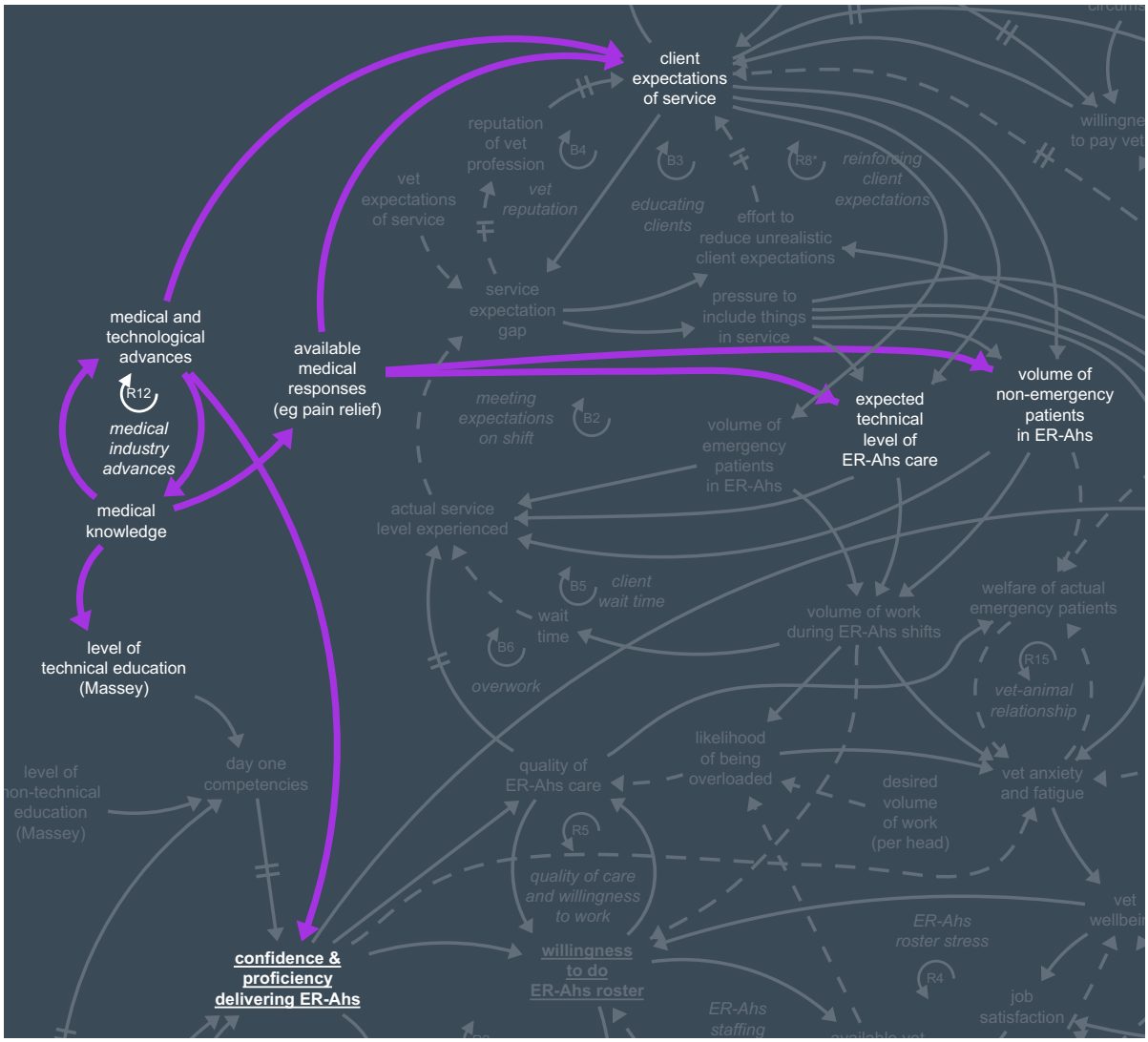
5.5.1. Medical knowledge and advances

'Medical knowledge' and 'medical and technological advances' are represented in a reinforcing loop called *medical industry advances* (R12). This represents the dynamic of these two things reinforcing each other over time.

'Medical knowledge' has a same relationship with 'available medical responses (e.g. pain relief)', which itself has a same relationship with 'client expectations', the 'expected technical level of ER-Ahs care' and the 'volume of non-emergency patients in ER-Ahs'. These represent the dynamics that workshop participants described, where the availability of a medicine (like pain relief) leads to a greater expectation that this would be available or prescribed, whether this was in response to an actual emergency or not.

[11] Or other veterinary schools abroad. See earlier footnote to Table 2.

Figure 22. Medical knowledge and advances



‘Medical and technological advances’ also increase client expectations for a similar reason. These also increase vets ‘confidence & proficiency delivering ER-Ahs’.

5.5.2. Massey School of Veterinary Science

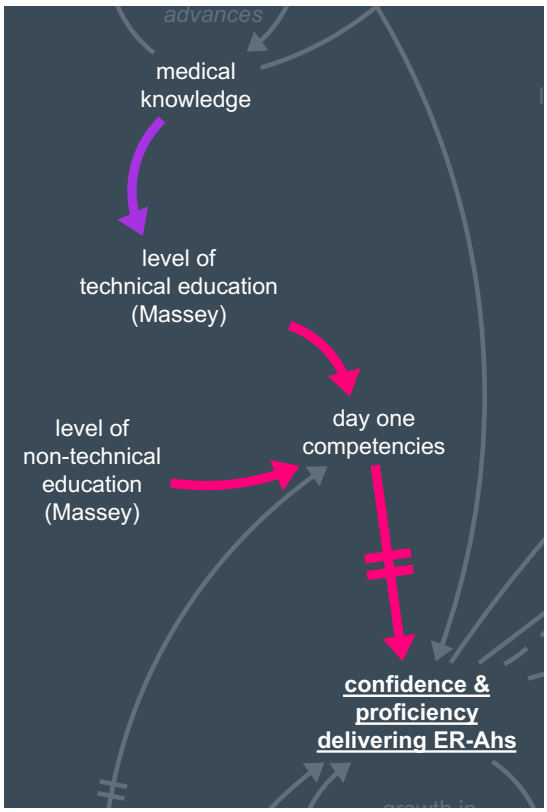
The Massey School of Veterinary Science – Tāwharau Ora (Massey) is the only veterinary school in New Zealand, so obviously plays an important role in training vets. The type of education that Massey provides is divided into two types – technical and non-technical.

The ‘level of technical education (Massey)’ describes the *medical* education that students receive. This covers things like science knowledge, clinical and surgery skills required to be a vet.

The ‘level of non-technical education (Massey)’ describes the *non-medical* education that students receive. This covers things like business and interpersonal skills, and an understanding of legal and legislative issues.

Both technical and non-technical skills contribute to ‘day one competencies’ of vets. That is, the skills and competencies they go into the vet profession with. This has a delayed influence on vets ‘confidence & proficiency delivering ER-Ahs’. It is delayed because Massey has a minimum 5-year lead time to produce graduate vets.

Figure 23. Massey School of Veterinary Science



5.6. Veterinarian professional development in practices

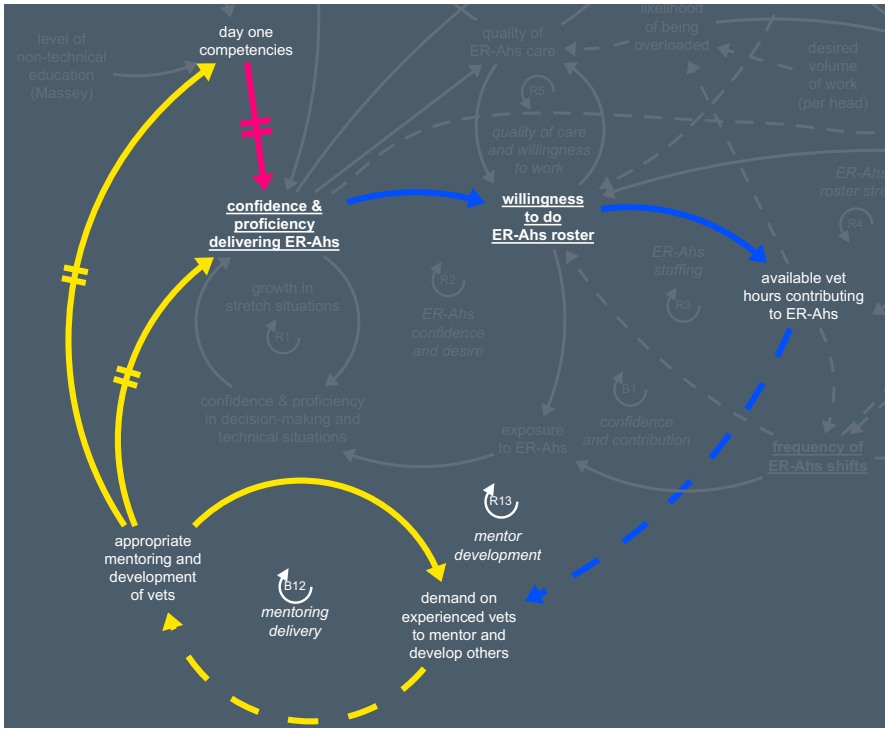
Once vets have graduated, professional development within practices through on the job training and mentoring has an important continued influence on their confidence and proficiency. This naturally relates to technical skills but perhaps more importantly, the non-technical skills required to deliver good veterinary services. While there are likely to be variances in the technical skills of all vets, this diagram assumes that all vets are technically competent and hold an Annual Practicing Certificate. The focus on mentoring explained here has a focus on the mentoring and development of relevant non-technical skills (beyond the technical skills development of recent graduates) – for example business practices, soft/power skills for dealing with people, and dealing with perceived conflict.

5.6.1. Mentoring and development

In-practice mentoring is an important way that vets continue to develop skills throughout their career. While there is a strong focus on mentoring relevant technical skills with recent graduates, mentoring of important non-technical skills may continue to apply to vets throughout their career.

The act of mentoring and the ongoing development of vets through support and training is represented by the factor ‘appropriate mentoring and development of vets’. The word ‘appropriate’ is used as there will be many different needs of many different vets, in the different practice situations that exist across the country. Mentoring and development, over time (delay) will have a same influence on the ‘day one competencies’ of graduate vets and vets ’confidence & proficiency delivering ER-Ahs’. These two pathways recognise that mentoring can happen when a trainee vet is on placement (‘day one competencies’) and in an ongoing way when they are working in a practice (‘confidence & proficiency delivering ER-Ahs’). It should be noted that the delays involved with mentoring are significant, as the mentors come from the current vet population – if those skills are not already well developed in existing vets, they will be challenging to nurture in mentees.

Figure 24. Mentoring and development



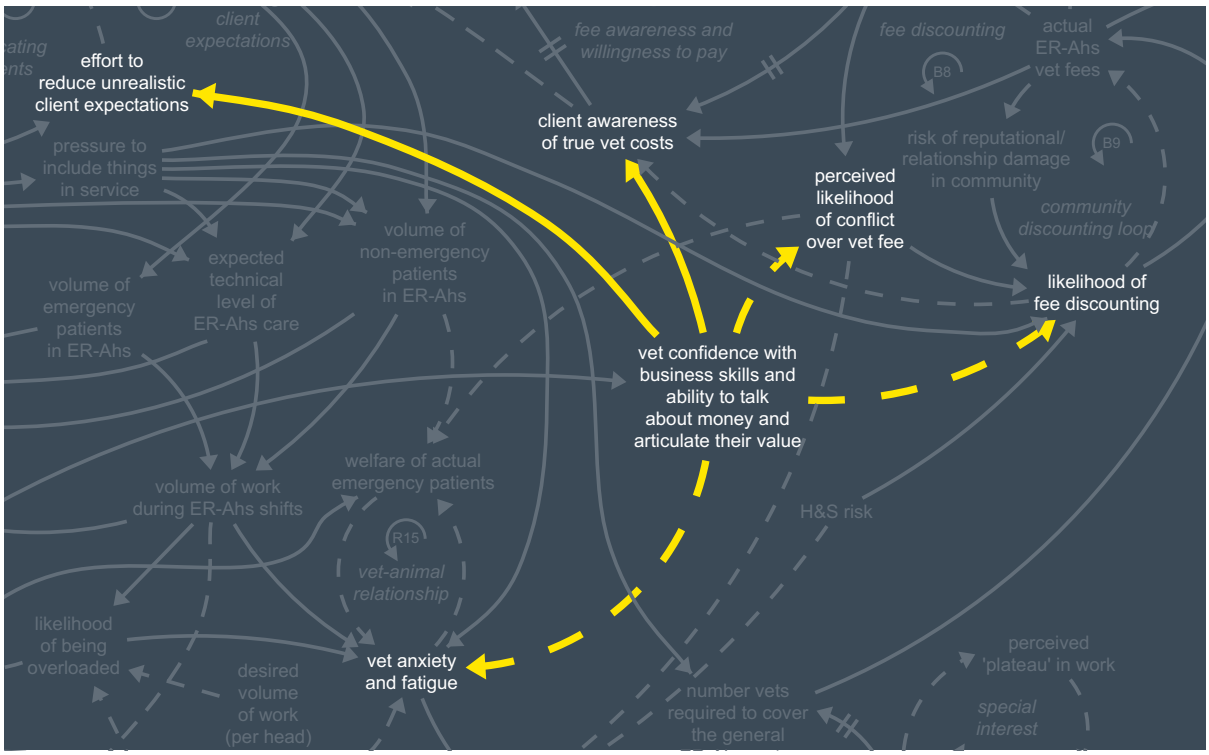
Ensuring the ‘appropriate mentoring and development of vets’ places a ‘demand on experienced vets to mentor and develop others’ (same relationship). If there is strain on the ER-Ahs roster and the ‘available vet hours contributing to ER-Ahs’ are low, this can also increase the ‘demand on experienced vets to mentor and develop others’. The flow on impact of this demand on vets to mentor is that this has an opposite influence on mentoring, creating a balancing loop called *mentoring delivery* (B12). In other words, the ability of a practice to mentor and develop people is constrained by the availability of experienced staff in its practice.

Over time, the act of mentoring can develop more vets, build confidence and proficiency, increasing vets willingness and the number of vets doing ER-Ahs, which will decrease the demand (on average) on experienced vets, which further enables more mentoring. This is captured as reinforcing loop *mentor development* (R13), but it is noted that this loop will take some time to operate (many years).

5.6.2. Vet confidence with the necessary business skills

The other major component of professional development was noted as being the confidence that vets have with the necessary business skills to operate as a vet. This recognises that being a vet requires many more skills than just the technical medical skills. This includes a range of skills such as: being proficient in the processes of the business/practice; having good people skills (often called soft or power skills) to be able to deal with clients in difficult situations; the ability to articulate the value that they are adding with any necessary procedures and their associated costs; as well as confidence and skills dealing with financial issues from a business point of view – that is, being fully aware of the costs incurred by the business and the need to recover them in fees. These skills have been represented in the diagram with the comprehensive factor: 'vet confidence with business skills an ability to talk about money and articulate their value'. In the diagram this has been framed as 'vet confidence' but this applies to both individuals and to the vet/practice *team* – i.e. allied vet professionals, administrative staff, etc.

Figure 25. Vet confidence with the necessary business skills



This factor influences several other factors. It has a same relationship with both 'client awareness of true vet costs' and 'effort to reduce unrealistic client expectations' – the higher this factor the *higher* these other factors. While it has an opposite relationship with 'vet anxiety and fatigue', the 'perceived likelihood of conflict over vet fee', and 'likelihood of fee discounting' – the higher this factor the *lower* these other factors. These connections highlight the impact that such soft/power skills have on multiple parts of the business, client expectations, and vet wellbeing.

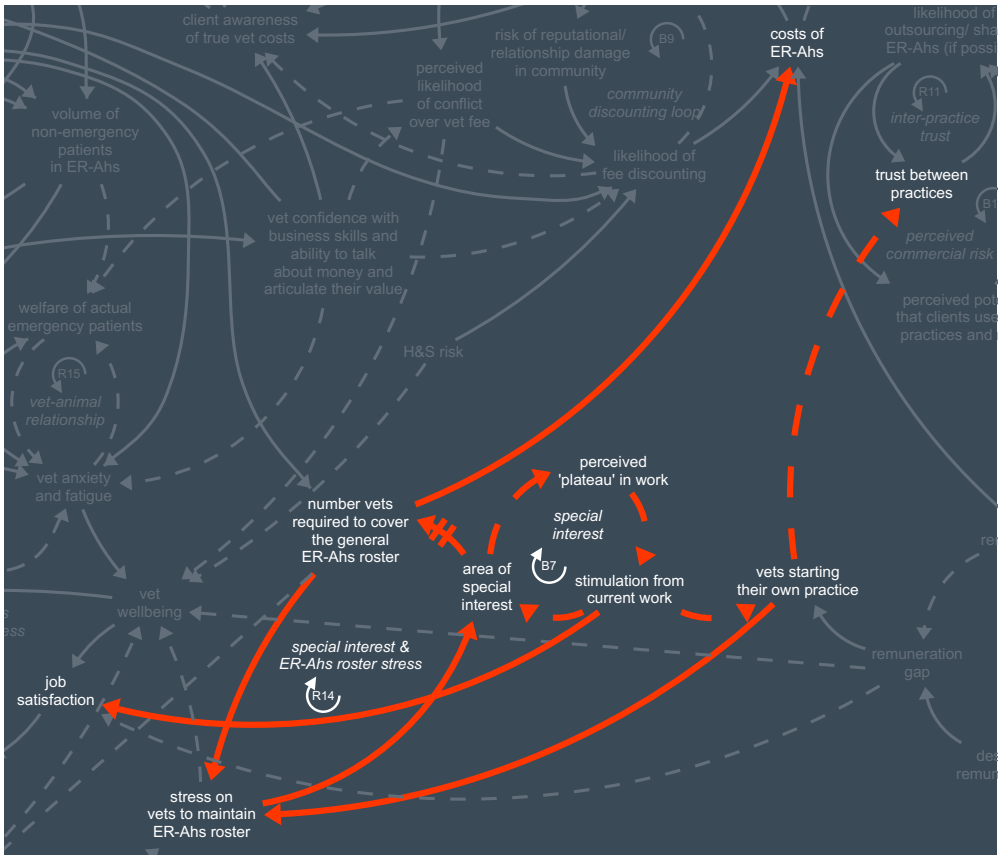
5.7. Vet stimulation in work, wellbeing and job satisfaction

Vet wellbeing and job satisfaction is an important element of ensuring that ER-Ahs services, as well as the wider vet profession, are in a healthy state. There are many influences on whether vets are stimulated in their work, have good levels of wellbeing, and are satisfied from their work. These include remuneration, anxiety relating to emergency services delivery, the level of challenge they get from their work, health and safety, concerns around liability, and of course other life pressures.

5.7.1. Vet stimulation and work

Becoming a vet requires years of focused study and achievement. Therefore, being a vet comes with a track record of being intellectually challenged and stimulated for years through training and working in practice. Yet it was observed by many workshop participants and some of the interviews with additional people, that the level of challenge or stimulation can plateau after working in vet practice for some time. This could be for many reasons and may include things like seasonal fluctuation in animal needs or the potentially repetitive nature of work in some vet practices. It was noted that this can result in vets being less stimulated and therefore less satisfied with their work, or as some people put it – “rusting out”. This phenomenon is represented in the diagram with the factor ‘perceived ‘plateau’ in work’.

Figure 26. Vet stimulation at work



The greater the experience of this plateau, the lower vets get 'stimulation from current work' (an opposite relationship). As a response, it was noted that some vets sought to achieve greater intellectual stimulation by being more focused in their work area, which has been represented in the diagram as 'area of special interest' – the lower the 'stimulation from current work' being increasing the likelihood that they develop an 'area of special interest' in a practice. This could range from seeking to build more experience with a certain species of animal or with a certain type of complaint or ailment[12]. As vets focus more on an 'area of special interest', they increase their intellectual stimulation and reduce their 'perceived 'plateau' in work' (an opposite relationship). This creates a balancing loop between plateauing, stimulation and special interest, which is called the *special interest* loop (B7).

These factors have several important flow-on impacts. Firstly, the lower a vets' 'stimulation from current work' increases (opposite relationship) the likelihood of 'vets starting their own practice', in order to achieve the intellectual stimulation they desire. This can also be influenced by the opportunities (or lack of them) provided within a practice, which can also lead to a sense of feeling a 'plateau'. If vets start their own practice they are leaving their existing practice, so this has a further flow-on same relationship with 'stress on vets to maintain ER-Ahs roster'.

Secondly, over time (delay) an increase in the number of vets that have a 'area of special interest' can also lead to a narrowing of the current experience of vets across the board in a practice. This means that there is a need to increase the 'number of vets required to cover general Er-Ahs roster' to help accommodate these more focused skill sets (same relationship). This adds further 'stress on vets to maintain the ER-Ahs roster' (same relationship) which, ironically, can also be a motivator (same relationship) for vet's to pursue an 'area of special interest' to avoid the stress of a general roster. This describes the reinforcing loop *special interest and ER-Ahs roster stress* (R14).

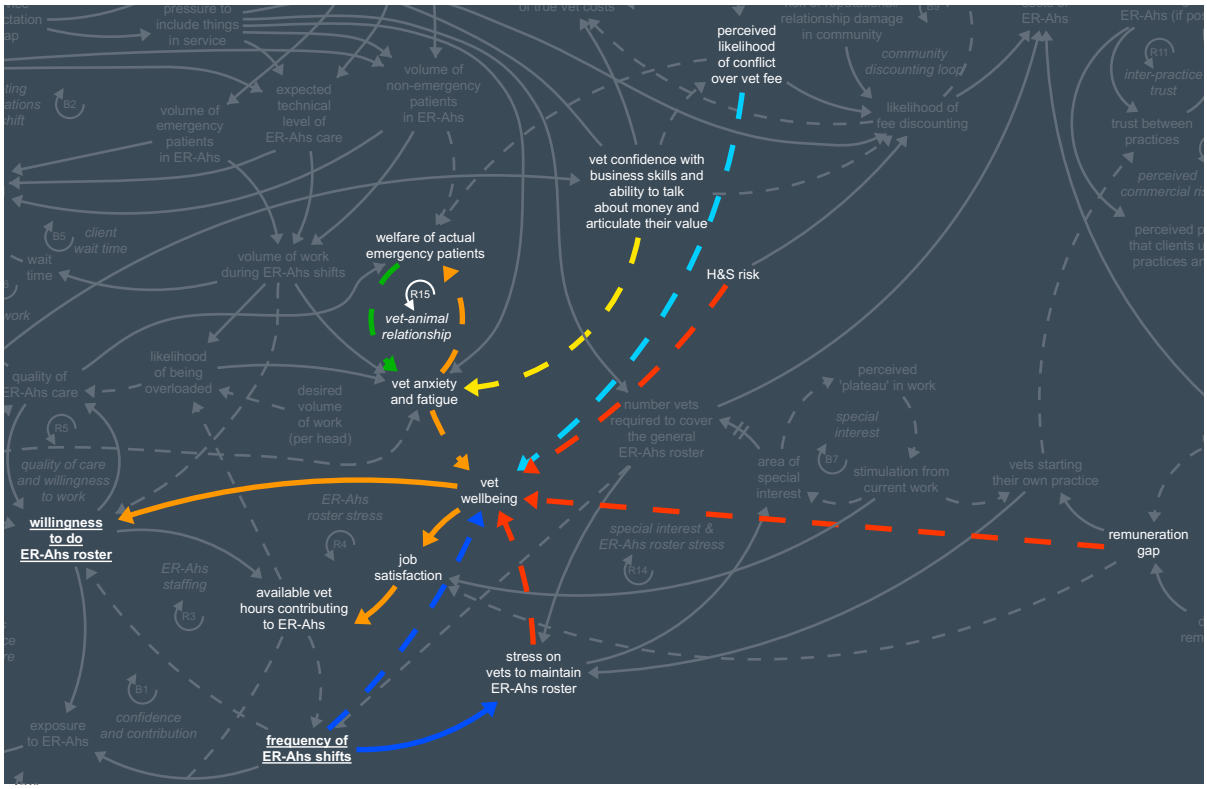
All of this is important because the lower a vets 'stimulation from current work', the lower their 'job satisfaction' (same relationship).

5.7.2. The many influences on vet wellbeing

The 'vet wellbeing' factor captures the many elements that make up vet wellbeing. This includes the physical, intellectual and emotional wellbeing of vets. Consequently, there are many influences on this factor.

[12] It is important to note that this does NOT represent certified specialisation, which is achieved through further accredited study. This is not represented specifically in the diagram.

Figure 27. The many influences on vet wellbeing



Primarily, vet wellbeing has been represented in the diagram as having a same influence on both ‘willingness to do ER-Ahs roster’ and ‘job satisfaction’ (which then has a same influence on the ‘available vet hours contributing to ER-Ahs’). It is therefore an important factor in relation to the delivery of ER-Ahs being in a healthy state. The influences on it are described below.

Firstly, ‘vet wellbeing’ is influenced by the ER-Ahs roster itself. If the ‘frequency of ER-Ahs shifts’ is high this decreases ‘vet wellbeing’ (an opposite relationship). A high frequency also increases the level of ‘stress on vets to maintain ER-Ahs roster’ – that is, the individual stress on vets involved with a high frequency ER-Ahs roster to maintain that roster – which then has an opposite relationship with ‘vet wellbeing’, decreasing it.

Secondly, ‘vet anxiety and fatigue’ has an opposite relationship with ‘vet wellbeing’ – if it decreases so does ‘vet wellbeing’. ‘Vet anxiety and fatigue’ is a comprehensive factor that captures mental and physical fatigue of vets and the anxiety that they experience. It is important to note that while there are many influences on this (including vet confidence, overwork and pressure to meet client expectations), it is also linked in a reinforcing loop with the ‘welfare of actual emergency patients’ (called the *vet-animal relationship* loop (R15)). This captures the dynamic that many noted where vets are usually very focused on the welfare of the actual patients in their care, which has a direct impact on their anxiety.

Thirdly, ‘vet wellbeing’ is also influenced by the ‘perceived likelihood of conflict over vet fee’ and health and safety risk (‘H&S risk’). While none of the relationships described in this diagram are weighted, it is noted that the perceived conflict and the need to deal with clients about money matters, was noted as a significant stress on many vets. Many workshop participants and interviewees noted that vets tended to get into the veterinary profession to

focus on animal care, and the prominent need for financial and people skills were not inherent in some vets, or developed during training. This also influences the 'H&S risk', as some participants noted that perceived conflict over fees could also be a form of H&S risk. 'H&S risk' also includes other dynamics such as the late-night nature of visiting clients in ER-Ahs and often needing to do this alone.

Finally, remuneration was also noted as an influence on 'vet wellbeing'. If pay was lower than desired (i.e. the 'remuneration gap' was high – see next section), this reduced 'vet wellbeing'.

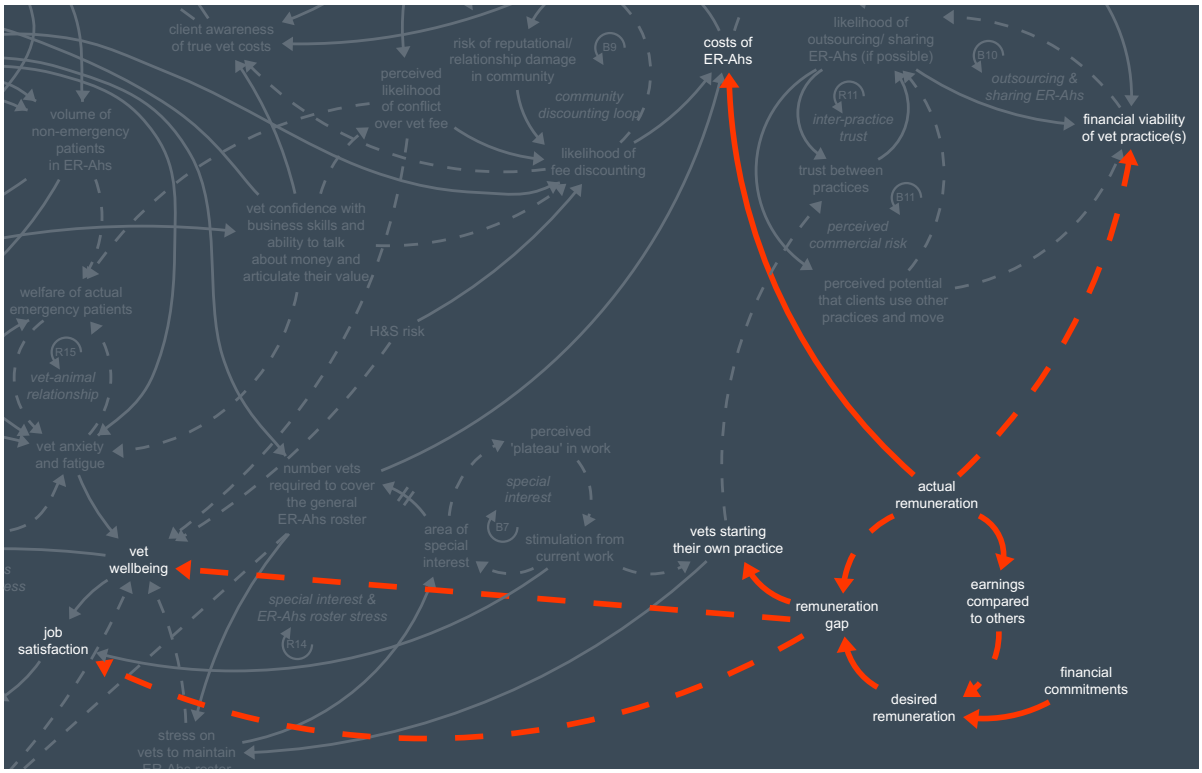
5.7.3. Remuneration

This section describes some of the dynamics relating to vet remuneration. This is often an obvious and emotive element in the complex set of factors relating to the delivery of ER-Ahs service. It is hoped that this diagram helps put this factor in the context of the many other factors that also contribute to the healthy delivery of ER-Ahs.

Remuneration is represented in the diagram as another example of a goal/gap relationship (see section 3.4). Here, there is the 'desired remuneration' and the 'actual remuneration' of a vet or of vets on average, as this could be used as an individual lens or a collective, industry lens on remuneration. These two factors both influence the 'remuneration gap'. If there is a large difference between desired and actual remuneration, then the gap is large; If actual is in line with desired remuneration, then this gap is small (or non-existent). The size of this gap indicates the amount of influence this then has on other areas.

There are several areas that this 'remuneration gap' influences. The likelihood of 'vets starting their own practice' (a same relationship –the larger the 'remuneration gap; the more likely vets are to start their own practice)'; 'vet wellbeing' (an opposite relationship –the larger the 'remuneration gap', the lower wellbeing); and 'job satisfaction' (an opposite relationship – the larger the 'remuneration gap' the lower vets 'job satisfaction').

Figure 28. Remuneration



The level of 'actual remuneration' also has some flow-on influences. If it increases it also increases the 'costs of ER-Ahs' (same relationship) and it also reduces the 'financial viability of vet practice(s)' (opposite relationship).[13]

Further, if remuneration increases, it increases the vets 'earnings compared to others' (both within the industry as well as comparable professions). This has an opposite influence on the 'desired remuneration' – that is, the more you are paid comparative to others, reduces some of the drivers for further desired remuneration. However, the final factor 'financial commitments' captures other financial influences (outside of how a vet salary compares to others) that would influence a vets desired remuneration.

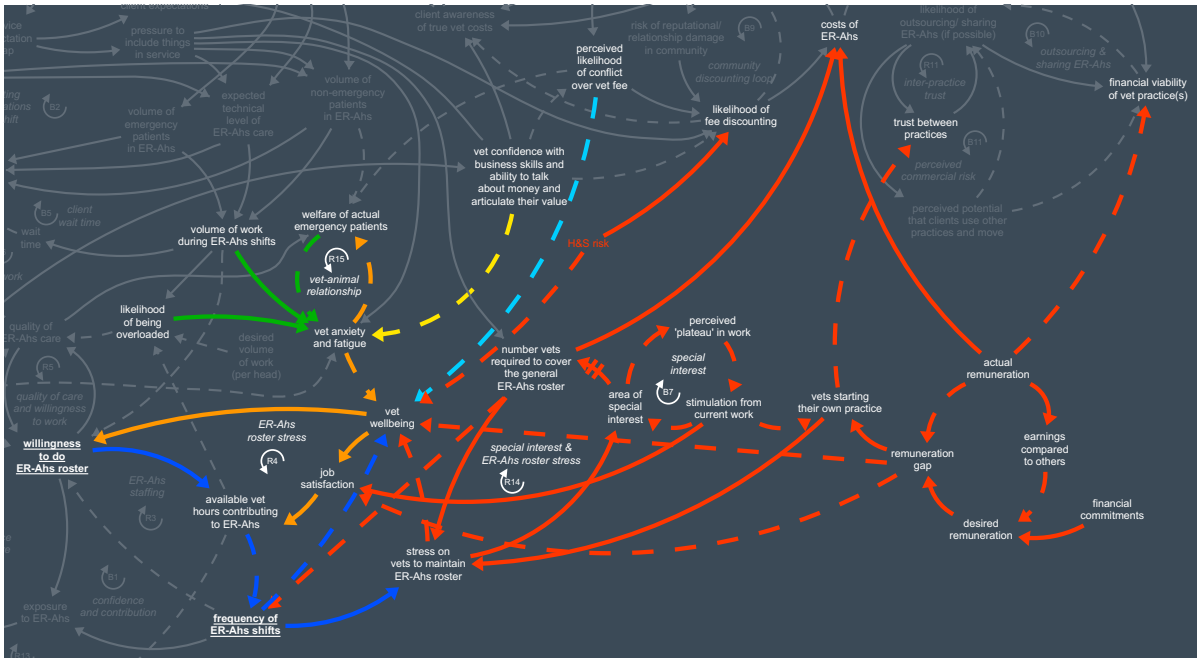
5.7.4. How vet stimulation in work, wellbeing and job satisfaction influence other areas

In addition to the influences the factors described above have on each other, they also influence other parts of the diagram. These are described below and may be read in conjunction with the other relevant related sections of this report:

[13] It has been noted in discussions while finalising this report that there is also a *same* influence from the 'financial viability of vet practice(s)' on 'actual remuneration'. For example, lower financial viability has a direct impact on remuneration, as well as the affordability of more veterinary resources in general (staff and facilities), professional development etc. This is a valid connection yet has not been included here. Primarily because the workshops and the process for validating the diagram with participants had completed. But the connection remains valid and can be considered by individuals when using the diagram.

- The number of ‘vets starting their own practice’ has an opposite influence on ‘trust between practices’. This recognises that sometimes when vets leave a practice, there can be some reduced desire to collaborate, or personal history between individuals involved.[14]
- ‘H&S risk’ also has a same influence on the ‘likelihood of fee discounting’. This captures the dynamic that in some situations, vets may feel unsafe with a client who is unhappy with a fee and it is easier to discount the fee so that the situation is resolved. This applies particularly with practices that may only have one or two staff on ER-Ahs, and to vets that have to do night visits to properties on their own.
- The ‘number of vets required to cover the general ER-Ahs roster’ has a same influence on the ‘costs of ER-Ahs’. The more vets required, the more expensive it is to run.

Figure 29. How vet stimulation in work, wellbeing and job satisfaction influence other areas



[14] It should be noted that this work recognises that vets starting new practices will always be a feature of the vet profession and this is not intended to suggest that vets should not start up new/their own practices. Rather it is highlighting that there can sometimes be inter-personal dynamics associated with vets leaving one practice to start their own, that affects trust between practices.

6. Dynamics discussed in the workshops but not captured in the causal diagram

Causal diagrams are useful tools that can help capture the inter-related dynamics and influences relating to a particular issue. However, each issue will generate its own causal diagram. Often many elements of one causal diagram may lend themselves to being represented in another more specific causal diagram.

The causal diagram described in this report relates to the challenges of delivering ER-Ahs. In the workshops, among the issues raised were a range of factors that were loosely related to the delivery of ER-Ahs but more tangentially. Given the complexity of the causal diagram that was developed, factors that were included in the diagram were those that were considered to be directly relatable to ER-Ahs. This section captures a range of factors, issues or challenges that are relevant to the vet profession and can have an impact on ER-Ahs, but are not represented in the causal diagram, or are relevant to many parts of the causal diagram and are therefore difficult to represent in one place. These factors have been included when developing the insights generated in section 7.

Table 3. Summary of key insights or tensions identified

Factor or Issue	Description
The impact of legislation/ regulation requirements	The impact that legislative and regulatory requirements can have on vet practices was noted. For example, stand down periods being on call and actively attending a call out during the night, and attending regular work on Monday morning.
Framing of ER-Ahs by industry	It was noted by most participants that the industry often had (or projected) a negative framing of the responsibility and experience of doing ER-Ahs shifts. This was seen as contributing to recent grads entering the profession with a negative view of ER-Ahs and contributing to a trend to avoid roles where ER-Ahs was required.
Competition and collaboration within the industry	There was much discussion in the workshops relating to the dynamics of competition, collaboration, inter-practice trust and cycles of consolidation and fragmentation of businesses within the industry. Some important components of this (particularly relating to inter-practice trust and sharing of ER-Ahs) were captured in the causal diagram. However, factors relating to the dynamics of competition and cycles of consolidation and fragmentation within the industry were not. This was partly because: they were not specifically related to ER-Ahs; and they touched on elements of the behaviours of a competitive market. This does not mean that they are not factors that should be considered. But they are factors that the Vet Council would have trouble being involved in, due to laws allowing competition in markets.
Vets enter and leave the profession via a range of different pathways	It was noted that not all vets entered practices from Massey and spent time in ER-Ahs. Some migrated from overseas while some graduated and went directly overseas. Others graduated and sought roles (or were hired into roles) that did not require ER-Ahs. A range of pathways for vets into and out of the profession were drawn in a separate focused diagram. However it was felt that while this was useful as an artefact from the discussions, it was not necessary to represent this detail in the causal diagram. This has therefore been included in Appendix 2.

Factor or Issue	Description
Generational change	The dynamics of generational change were discussed in the workshop. Many vets noted that ER-Ahs was very much part of the job, it had always been challenging, yet 'they had to do it'. There was some discussion that it was simply a matter of reaffirming an expectation on newer generations of vets that it was simply part of the job that had to be done. It is virtually inevitable that the circumstances experienced by, and therefore attitudes projected by, each generation will differ. The discussion did note that it was important to recognise the realities of newer generations and that for many, there were opportunities to do vet work that did not require ER-Ahs rosters. It was also difficult to capture this as a single factor in the diagram, as it was likely to impact a range of areas captured. A generational element is considered relevant for many factors in the causal diagram, including (but not limited to): student debt; life pressures; vet family commitments outside work; and cost of living.

7. Summary of insights or tensions identified

The dynamics identified during this project have been discussed in the previous sections. This section provides a summary of the key insights and tensions identified in the industry by this work. This section does section does not seek to 'answer' or 'solve' any of these tensions. Rather, it provides an aligned overview of them, to inform a wider conversation within the vet profession of what to do about them.

The tensions and issues are often long running and/or have been operating for many years. Therefore, some will likely take many years to influence, while some may be able to be influenced in the short term. This is the nature of complex systems. It is important that this is appreciated by the wider industry and any actions identified seek to deal with deeper-seated challenges. Otherwise, there may be a bias towards action that may seem easy to do in the short term, but may have sub-optimal impact in the long-term.

This section is structured in tabular form (see Table 4). This is so that any **insights or tensions** are aligned with **potential action** and **important things to be aware of** (e.g. other areas that may influence or be influenced by this tension). Colour-coded columns indicate which part of the diagram these comments relate to. See Figure 30 for an example.

Figure 30. Example of table format used in this section

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Key insight or tension described here.	1	Example action to consider here.	• Things to also be aware of list here. For example, areas that may influence this, or influence from this.	1 2

This column indicates the area of the diagram that this *'insight or tension'* relates to

This column indicates the area of the diagram that the *'important things to be aware of'* relate to.

This table may form the core of a wider action plan developed within the vet profession. Columns could be added to highlight any resources already be available; and what actions are to be taken and by whom. For a conceptual example see Figure 31

Figure 31. Example of table format that could be used in wider industry action plan

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)	Existing resources that may support	Developing future actions (and owner)
Key insight or tension described here.	1	Example action to consider here.	• Things to also be aware of list here. For example, areas that may influence this, or influence from this.	1 2	• XXXXX	• XXXXX

These columns could be added to form the core of an industry-wide action plan. Outlining what resources may already exist, and future actions (and owners)

Table 4. Summary of key insights or tensions identified

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Expectations of animal welfare and the perceived value of animals (primarily in an emotional sense - the human-animal bond), are linked. These have been reinforcing each other over time.	2	Unlikely to be able to influence	• Increased value of animal increases client expectations of service and what is included. • Increased value of animal may eventually lead to a greater willingness to pay for vet fees, but this takes time and may be a weak influence (i.e. is not guaranteed). • There is an increasing pressure to include more in vet ER-Ahs service. This increases the volume of work for vets per shift which flows on to increased vet anxiety, reducing wellbeing and job satisfaction.	2 3 6
Trends of declining family sizes and increasing disposable income (for some) increase pet numbers and expectations of ER-Ahs service.	2	Unable to influence	• Continued growth in pet numbers and client expectations will continue to increase the actual number of emergency patients presenting in ER-Ahs. It will also continue to increase the presentation of non-emergency patients in ER-Ahs and higher technical expectations of clients during visits. • The Increased perceived value of animals may eventually lead to a greater willingness to pay for vet fees, but this takes time and may be a weak influence (i.e. is not guaranteed).	2 3

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Medical and technical advances continue to improve the level of service possible for ER-Ahs. However: ● There is a tension between what level of service some vets believe is medically adequate for ER-Ahs patients, and what a client expects. ● There are differing expectations amongst vets as to what level of technical care is adequate for ER-Ahs.	**4** **2** **3**	Encourage greater discussion and awareness amongst vets relating to differing interpretations of 'adequate ER-Ahs care'. Encourage vets to provide 'adequate ER-Ahs care', not necessarily 'gold-plated'.	● Likely tension within vet community relating to what 'adequate' ER-Ahs service is. ● Clients' awareness of improved medical advances can lead to an increased level of expectations – e.g. pain relief is not more available so it should be sought. This can lead to increased presentations of non-emergency patients and an increased level of the technical service expected. Both of which increase the volume of work on ER-Ahs shifts. ● Only focusing on adjusting vets' views on what 'adequate' care is, without seeking to influence client expectations, will likely: ○ Retain a gap between these expectations potentially causing damage to the reputation of the vet industry in the medium-term. ○ This does nothing to adjust the potential mis-match between client expectations and vet realities of costs and paying full fees.	**4** **2** **3**

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Efforts to meet client ER-Ahs technical expectations reinforce potentially unrealistically high client expectations of service, while increasing the likelihood of overwork for vets on ER-Ahs shifts, increasing fatigue and reducing wellbeing.	**2**	Continue to try to meet high clients expectations.	• If actual service meets client expectations, this will likely further reinforce higher client expectations, further reinforcing the workload on ER-Ahs shifts. • Likely continued overloading of vets on ER-Ahs shifts, decreasing vet wellbeing and reducing the number of willing ER-Ahs workers. • Likely impact on wait time for clients, ironically reducing their actual service level experience. • Likely long-term damage to vet industry reputation through not meeting expectations.	**2** **6**

	2	Try to reduce unrealistically high client expectations to an appropriate level.	• This will take time. In the meantime there would likely be tension between lowering client expectations to a realistic or appropriate level, and the gap between client expectations of service and vet expectations of adequate service. Therefore, some impact on the reputation of the vet industry in the medium term should be anticipated and mitigated.
			• Reducing unrealistic client expectations is likely to be an important impact on the volume of work on ER-Ahs shifts. In particular:
			  ○ Reducing non-emergency patients and potentially high levels of technical work.
			  ○ The benefits for actual emergency patients if non-emergency patients reduce.
			  ○ The impact on vet anxiety and wellbeing if workload and pressure reduces.
			  ○ Improved quality of care for patients that do present, with positive flow on impacts for the reputation of the vet profession.
			  ○ There may be a reduction in non-emergency patients which would reduce the potential fees charged.
			• The ability to achieve this is influenced by the vets (and teams) confidence in dealing with the non-medical side of vet practice. Being confident dealing with clients, talking about money and setting expectations.
				2
				3
				6
				5

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Vet decision-making abilities in ER-Ahs shifts are grown and developed during ER-Ahs shifts. This builds confidence and competence in delivering ER-Ahs work. This reinforces on itself, so can grow if practised or decline if not practised.	1	Mandate, encourage, incentivise or adapt ER-Ahs shifts.	• These loops have likely been reinforcing on themselves in an undesirable direction for some time: vets don't get exposure so don't build confidence, so are unwilling to do ER-Ahs, which reduces exposure. • Low confidence delivering ER-Ahs is an importance influence on vet anxiety and, in turn, wellbeing and job satisfaction. • The role of appropriate mentoring and development of vets during ER-Ahs, not just exposure to ER-Ahs, is important to help this loop reinforce in a good way. • Given the constraints on experienced vets and their role in mentoring, reversing this spiralling loop is likely to take some time, requiring action to support experienced vets too. • If vets are more clearly rewarded (financially or otherwise) for ER-Ahs shifts, their wellbeing and job satisfaction will improve, increasing their likelihood of doing ER-Ahs shifts. However this will take time to flow through all factors and should be recognised as only a partial influence on vet wellbeing and job satisfaction. • Vet anxiety relating to service delivery is an important influence on vet wellbeing and willingness to do ER-Ahs shifts. In particular, these are enabled by the soft/power skills required to deal with perceived potential client conflicts over vet fees, and 'adequate' level of service. • The availability of more experienced vets to mentor less experienced vets is important in building vet confidence in the longer term. (See comments on mentoring below) • Confidence and willingness to do ER-Ahs shifts is an important influence attitudinal on the resulting quality of ER-Ahs care. This is in conjunction with the actual volume of work on shifts. • Vets have a level of anxiety relating to service delivery that comes from other parts of the job/practice. These other influences can reduce wellbeing and willingness to do ER-Ahs shifts. • Both formal training at Massey and informal training on placement in practices, play an important role in setting expectations around ER-Ahs shifts in vets work.	1
Confidence & competence delivering ER-Ahs and willingness to do ER-Ahs are strongly linked, reinforcing on each other. They reinforce each other, so increase together or decline together.	1			2
Confidence & competence delivering ER-Ahs, willingness to do ER-Ahs, the frequency of ER-Ahs shifts and vet wellbeing are strongly linked. All reinforce on each other, so they spiral up together or spiral down together.	1			6 5 4

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)

Vet concerns about liability are linked to the likelihood that they will accept non-emergency patients in ER-Ahs, which impacts the volume of work realised on ER-Ahs shifts.	**6**	Improve understanding of liability and increase comfort with perceived implications of liability.
		
		Improving understanding of what constitutes an emergency and/or an 'appropriate' level of ER-Ahs service.
			• Vets' understanding of, and experience with, regulatory requirements are linked to perceptions about liability:
			  ○ Is an improved awareness of regulatory requirements required? What role might VCNZ and Massey play in this?
			  ○ There may be an unnecessary level of concern relating to the VCNZ complaints process. Is this increasing anxiety amongst less experienced vets? Might professional development help this process improve? E.g. an improved understanding of what an 'adequate' level of ER-Ahs service might be, across different circumstances?
			• The perception (by vets) that all modern science should be used to provide an 'adequate' level of ER-Ahs is linked to vets' concern about liability. Can greater awareness about reducing the former help reduce the latter?
			• Vet concerns about liability is an important influence on vet wellbeing, which has important flow on impacts to willingness to do ER-Ahs shifts.
			• Reducing vet concerns about liability can reduce the amount of non-emergency patients seen in ER-Ahs, which can help reduce the volume of work on ER-Ahs shifts, and the potential for vet overwork.
				6
				2
				1
				5
				4

The role of non-technical (soft/power) skills in veterinary practice is often under-estimated. These play a very important role in dealing with clients and the financial aspects of the veterinary business.	**5**	Seek to support, nurture and further develop non-technical soft/power skills in the vet skill set.	• Developing non-technical soft/power skills will take time and may need to be considered more in selection criteria. It is noted that recent changes at Massey in relation to this have not yet flowed through to the workforce. • Soft/power skills link with day one competencies; support confidence and proficiency in delivering ER-Ahs; dealing with perceived conflict over fees (see specific point relating to this below); vets' ability to mentor others; and vet anxiety relating to service delivery.	**1** **2** **3** **4** **5** **6**

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Mentoring of less experienced vets (and vet students on placement) plays an important role in the development of appropriate skills for practice - especially non-technical (power/soft) skills.	**5**	Improve mentoring	• Mentoring ability is constrained by availability of experienced vets on the ER-Ahs roster. • There are significant delays for mentoring to have an effect. • Improving mentoring will likely increase stress on the ER-Ahs roster in the medium term. • Successful mentoring with vet students can influence the competencies of graduates from Massey - although these delays are likely to be significant. (i.e. take years to flow through) • Might mentoring skills need to be recognised in remuneration too? As this helps with vet satisfaction and willingness to do ER-Ahs shifts.	**5** **1** **6** **4**

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
The awareness and prevalence of pet insurance reinforce each other. While prevalence of pet insurance reduces likelihood of fee discounting and increases actual vet fees.	3	Encourage pet healthcare planning	• Health care planning (e.g. pet insurance or payment plans) can increase a clients' ability to pay, but not necessarily their willingness. Willingness is influenced by their personal circumstances, the value they place on the animal, and their expectations of service. • Higher actual vet fees have a delayed impact on the prevalence of pet insurance and potentially payment plans. However, this prevalence in turn increases the ability of clients to pay, thus reinforcing and sustaining the higher actual vet fees. • At the same time, sustained high vet fees will, over time, increase the cost of pet health planning (e.g. pet insurance) and reduce its affordability, which will impact its prevalence. Therefore, the level of actual fees that pet insurance can enable, and the prevalence of pet insurance, will likely come into some kind of balance in the longer-term. • Improved pet healthcare planning may help reduce (but not eliminate) conflict over fees which has a flow on impact to vet wellbeing and eventually willingness to be part of the ER-Ahs roster. • In-house payment plans can be a constraint on clients using other ER-Ahs services. Therefore this can be a constraint on the likelihood that ER-Ahs services might be shared across practices.	3 6 1

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
The perceived difference between the clients' perceived acceptable vet fee and the actual fee, is a very important tension. Influencing multiple other areas. The impact of this non-technical element of vet practice was continually highlighted by vets.	5	Increase clients awareness of true vet costs. Support vets to build non-technical skills that build confidence dealing with the financial aspects of the business.	• The perceived difference between an acceptable fee and the actual fee impacts the perceived likelihood of conflict over the vet fee. • The vets' perceived likelihood of conflict over the vet fee is influenced by their own perception of what a client is willing to pay. This may often only be assumed and may never actually be verbalised. • This perceived conflict is an important influence on vet anxiety and their perception of the welfare of actual emergency patients. • The perceived conflict over fees underpins the likelihood of discounting the fee. This action further reinforces a low client awareness of true fees, thus sustaining a situation with higher perceived likelihood of conflict over fees, and sustained vet anxiety. • This area is strongly influenced by the quality of non-technical skills of vets, and the level and quality of in-practice mentoring that is provided to both lesser and experienced vets. • A low level of awareness of true vet costs even among vets, maintains a high likelihood of fee discounting, further reinforcing a lower level of client awareness of true vet costs and a sustained perceived likelihood of conflict over vet fees. • Sustained fee discounting maintains sustained pressure on the financial viability of the ER-Ahs components of practices.	3 6 5 2

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Inter-practice trust and commercial risk are key factors influencing the likelihood that practices share ER-Ahs services.	**5**	Explore sharing of ER-Ahs services. (not always possible in remote areas) Build pathways to improving trust between practices.	• Outsourcing or sharing of ER-Ahs will not be possible for all practices. It is unlikely to be possible in more remote parts of the country due to the geographically spread nature of rural vet practices. • The outsourcing or sharing of ER-Ahs is dependent on BOTH a high level of trust between practices and a low level of commercial risk. • Inter-practice trust and the likelihood of outsourcing reinforce each other - good trust increases likelihood of sharing, which increases trust. And vice versa. • Building trust between practices takes a significant amount of time and is heavily influenced by previous inter-practice relationships. • Trust between practices is influenced by the quality of relationships between practices and whether some practices run ER-Ahs at a loss as a business strategy (e.g. as a loss leader). • Even in situations where there is a high level of trust between practices, there can be a commercial risk to sharing ER-Ahs services. This is likely to be a higher risk where the clients are of a higher commercial value. • In house payment plans can constrain the ability to share ER-Ahs service, as they will be held with one practice but ER-Ahs may be delivered by another.	**5** **6**

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Remuneration	6	Consider autonomy and flexibility around how vets are rewarded. e.g. in money or in time off? Consider making how remuneration is made up more transparent so there is a greater understanding of the remuneration associated with ER-Ahs shifts.	• There is a wide variety of ways that remuneration is described and packaged across the industry. Some inconsistencies are historic due to vets moving off the ER-Ahs roster but not having their remuneration adjusted. • A continued remuneration gap (difference between desired and actual) may encourage some vets to start their own practice, which can have impact the trust between practices, which is important for sharing/outsourcing afterhours. • Remuneration is an influence on job satisfaction and which flows on to the desire of vets to remain in clinical practice, and thus their availability for the ER-Ahs roster.	6 1

Key insights or tensions:	Diagram area(s)	Potential action	Important things to be aware of: (e.g. Influencing (upstream) or flow on (downstream) factors)	Diagram area(s)
Vets plateauing in their work and areas of special interests.	**6**	Consider autonomy and flexibility around how vets are allowed to operate so they are stimulated by their current work. Sometimes plateauing is about the vet practice not changing, not just the vet.	• The likelihood of vets experiencing a plateau in their stimulation from their work seems to be a common phenomenon. Developing an area of special interest (e.g. types of cases that present) is often described as a way of gaining more stimulation and progressing ones career. • While seen as a pathway for people to get more intellectual stimulation from work, ironically this can narrow vets' breadth or currency of experience. This is likely to be more of an issue in mixed practices where vets may focus on one particular species. • Counter-intuitively, this trend can increase the need for multiple vets on the ER-Ahs roster due to the narrower breadth/currency of experience. This increases the stress on a wider range of vets (to cover all the skills required) to cover the roster. This increases the costs of ER-Ahs, and impacts vet wellbeing and job satisfaction. • Greater focus in a special interest and therefore a narrower breadth/currency of experience can also increase the perceived likelihood of a client complaining to Vet Council (if a vet is exposed to something outside their area of knowledge). • Perceived plateauing in work can also be a motivator for vets to start their own practice. This is also a pathway that can impact the relationship and trust between practices, which can impact the conditions needed to share/outsource ER-Ahs. • Autonomy and flexibility are important elements that contribute to stimulation and satisfaction.	**6** **3** **1**

8. How to use the insights from this report

This report has described a wide variety of insights that have come from an analysis of issues relating to the provision of emergency care after hours, through a systems thinking lens.

So what now? How can these insights be used? This section provides some reflection on possible ways in which the insights may be used, by a variety of audiences; and provides some reflections on working within systems, drawing on the insights of published and influential systems thinking authors and practitioners.

8.1. Potential audiences

This causal diagram was deliberately and necessarily developed with a range of audiences in mind. When reading the causal diagram, user will note that factors are worded not from the perspective of any one part of the veterinarian profession (e.g. a particular species, geographic or business profile). It is intended that any vet, vet practice, collection of vets practices (e.g. a region), or professionals/companies/providers associated with the vet profession can use the causal diagram and apply it to their experience and reality. This is its intention and it is commended to any audience with that in mind.

8.2. A note on potential ways of using the insights

The *process* of developing a causal diagram has both tangible and intangible benefits.

The causal diagram is the *tangible* output. This is an articulation of the inter-related causes and influences involved in the issues relating to ER-Ahs, as understood by the group. This is only part of the output.

Intangible benefits can include an increase in shared understanding of the issues by the participants involved, which can help improve this understanding across the wider profession. At a minimum, this shared understanding around the issues relating to ER-Ahs that has been built up by those involved in the workshop and interviews should not be forgotten or under-estimated.

Additional insights can be achieved when the diagram is used as a basis to explore the potential impacts on key area(s) of interest, over time, in response to potential or proposed changes. Users are urged to remember that a causal diagram is an attempt to articulate the structure of influences that produce some kind of *trend or behaviour over time*. So an important reason for developing a causal diagram is to use it to explore anticipated changes in important trends or behaviours over time.

Qualitative insights about the structure and likely behaviour (dynamics) of the system can be achieved in a variety of ways. The feedback loop approach recognises that nothing is static and that things are dynamic and constantly changing – moving towards or into, further away from or out of balance. Using the diagram to support discussions around the feedback loops associated with ER-Ahs can help those involved in those discussion explain how the behaviour of factors of interest may change over time. Or in other words, what the future may look like in response to changes.

How is this done? There are different ways of gaining insight from a causal diagram.

1. At a minimum, a causal diagram highlights the interconnected nature of the factors relating to ER-Ahs. This alone can help identify areas that are related to the issue that need to be considered in any action.
2. It highlights where influence on the issue is internal (endogenous, via circular causality and feedback loops) versus external (exogenous) influences. This highlights factors that are having an influence on the issues from *within* the system. This can help reframe participants perceptions of how much influence is from 'external' sources and how much is from 'within'.
3. Potential futures and changes in the system can be explored. The causal diagram can be used as a tool to guide discussion relating to the anticipated dynamic behaviour of some elements in the diagram. This can be discussed and explored as a practice, or as a region, or as a sector. This is the primary way that this diagram is expected to be of use for the vet industry. It is anticipated to act as a guide to help: Identify where action(s) may be taken; and explore what impact that/those action(s) may have on the factors within the diagram over time.
4. If any further research or mathematical modelling was proposed by the industry in relation to this issue, it is also anticipated that this diagram may help inform the scope of that work. Given the comprehension of this diagram.

8.3. A note on working with systems

Developing a causal diagram is a first step of refining skills of working within systems. While the diagram helps articulate all the complexity that was explored in the workshop process, there is a follow-on reality where vets and other associated professional need to put insights into action.

This is the hard part and a very human part. What things should practitioners be aware of when seeking to influence systems while working within them? What frustrations might we reasonably expect to experience? Are there any useful rules of thumb? Thankfully years of scholarship and experience can help here. The following is curated guidance from a range of prominent systems thinkers, that can be useful guides or 'rules of thumb' when trying to influence systems to achieve different results. This is not an extensive list, simply a list that may prove useful for people seeking to use the insights from the causal diagram to keep in mind.

Table 5. Some rules of thumb when working within systems

'Rule of thumb'	Explanation
There is no silver bullet, but there are silver shotgun pellets	We usually hope there is a single 'solution' that we can take to make the problem, or problems go away. This very rarely proves to be true and is the reason taking a systemic view of the issue(s) is important. The causal diagram can highlight lots of areas where interventions can be taken.
Act with urgency but don't rush in – slower now will be faster later.	Yes, proceed with urgency as the issues are very real and present now. Yet also remember that taking time to fully understand something now, can be hugely beneficial to your understanding of the impact things will have, and can have much longer impact.
Intervene with both the short-term AND long-term in mind.	Seek to take multiple action in multiple places, that you anticipate having both short- and long-term impacts. Some may have an immediate but short-term impact, while others may have enduring impact but take time to come to fruition. Try to undertake a range of both.
A system can't be dealt with as separate parts – think holistically as much as possible.	There is a saying in systems thinking: *Cutting an elephant in half doesn't give you two elephants*. This reminds us to keep as large a holistic picture of what we are dealing with in mind as much as possible. This can be hard, because much of our technical disciplines as a society are based around isolating factors and breaking things down into parts to better understand them. While this is useful, we need both skills. Remember to practice the skill of trying to see the 'whole' when you are thinking about where to intervene.
Look for greatest leverage where you least expect it or most resist it.	We often look to action in obvious places that appear self-evident. Often these can be the most expensive actions that may have a short-term impact, but ultimately little impact in the long-term. True impact may come from taking action in places that appear less obvious or 'further away' from your issue. For example, building another lane on a motorway to reduce congestion. This may ease congestion at the point where the land was added but will likely just move congestion to another place on the motorway. Also, the increased capacity is likely to further encourage the use of cars, which will cancel out the added capacity on the motorway in the long-term. Long-term reduction of congestion may come from seeking to change attitudes towards driving, and attitudes towards dominant housing styles (i.e. from suburban to medium density) enabling more shared driving and public transport options.
Focus on what matters long term. Measurable data is important but so is intuition. Not everything that matters can be counted.	Don't be constrained by focusing only on things that can be measured. Again, we have a societal tendency to do this, which speaks to the dominance of believing that everything can be measured. Of course, measurable data will always be important too, but try to be aware of whether there is an over-reliance on it when you are working with trying to change the system. Intuition plays an important role in monitoring progress.
There is no blame. Pointing fingers won't help, lending a hand can.	This final point cannot be understated. We often see blame in an event or a person or a previous change. Certainly, while we often say that 'today's problems come from yesterday's solutions', there is no point blaming the people that implemented them. They likely had the best intentions and even if they didn't it's no use blaming them as that is all in the past! Instead, focus on how you can foster a collective attitude of 'we' and 'us; to deal with the complex problems of today. Investing energy in this will pay much greater dividends.

These 'rules of thumb' are inspired by and draw upon Forrester (1971), Senge (2006) and Meadows (2008).

9. Summary

This report has described the process and outputs from a workshop process that developed a causal diagram of issues experienced in the delivery of emergency care, after hours, in the veterinary profession.

It has outlined: the systems thinking approach taken and theory behind it; and the participatory approach taken to develop it. This used a curated group of vets from around the country for in-person workshop and running online discussions with additional colleagues of those participants in between.

It then described the summarised version of the causal diagram developed. The detailed version is explained in an additional appendix. Both are based around insight across 6 main themes:

1. Vet confidence, proficiency & willingness to do emergency care shifts
2. Client circumstances and expectations
3. Financial considerations
4. Medical knowledge and training
5. Vet professional development in practices
6. Vet stimulation in work, wellbeing and job satisfaction

This report is provided to the veterinary profession and hoped that it may be a useful tool for helping to understand and navigate some of the complexities of delivering emergency care, after hours. It is intended for a variety of audiences within the industry, and as one tool within the toolbox that vets can draw on to improve the challenges associated with emergency care, after hours.

10. References

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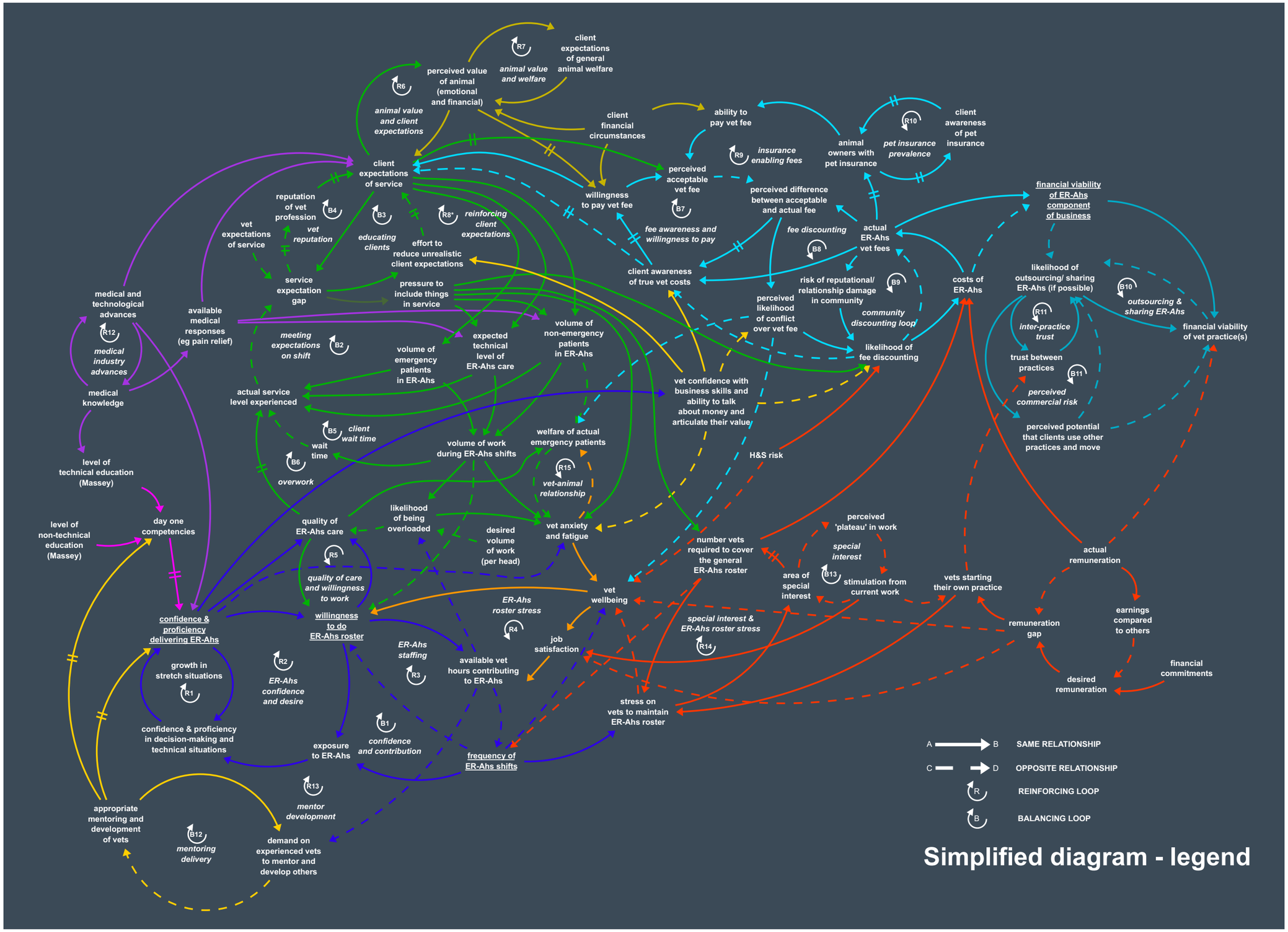
Appendix 1. Full sized version of the simplified diagram

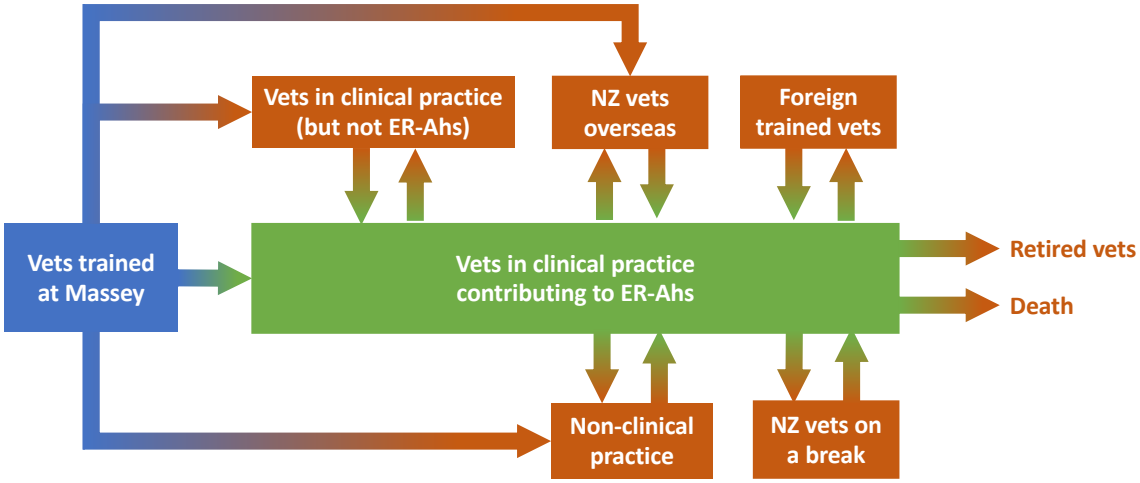
Figure A1. Simplified causal diagram (full size)



Appendix 2. Vet pathways in/out of practices with ER-Ahs

The below is a diagram that represents that various ways that vets can enter or leave the pool of vets in practices that require a contribution to ER-Ahs. This was developed from discussions during the workshops. The group considered it a useful diagram to help highlight some of the pathways, yet did not feel it was useful to include in the causal diagram and would have made things too complicated.

Figure A2. Vet pathways into and out of clinical practice contributing to ER-Ahs



Appendix 3. Dynamics captured in the causal diagram (detailed)

This appendix provides a description of the detailed causal diagram developed in the workshops. This was the original causal diagram developed in the workshops and it is incredibly complicated. In the latter stages of the workshops, the simplified version of the diagram explained in the main body of the report was developed to help make all the complexity more accessible to a wider audience. It is important that the original detail is not lost and is available for those who may want to read it. This appendix provides that opportunity.

It is structured in the same way as the main body of the report. It follows the same main themes of the diagram (the coloured areas) and many similar sub-headings within these – only with much more detail. Many parts of this appendix will read the same as the main body of the report but have been expanded on where necessary. This version of the diagram contains all original factors and influences identified by workshop participants. Many of these were left out of, or summarised with others into another factor within, the summarised diagram.

A3.1. Overview of the diagram

The overview of the causal diagram remains the same as that described in section 5.1. The shaded sections remain the same as does the description of each. The reader is referred to that section for more detail of the summary. The detailed version of the causal diagram can be seen in Figure A3 and Figure A4.

Figure A3. Detailed causal diagram

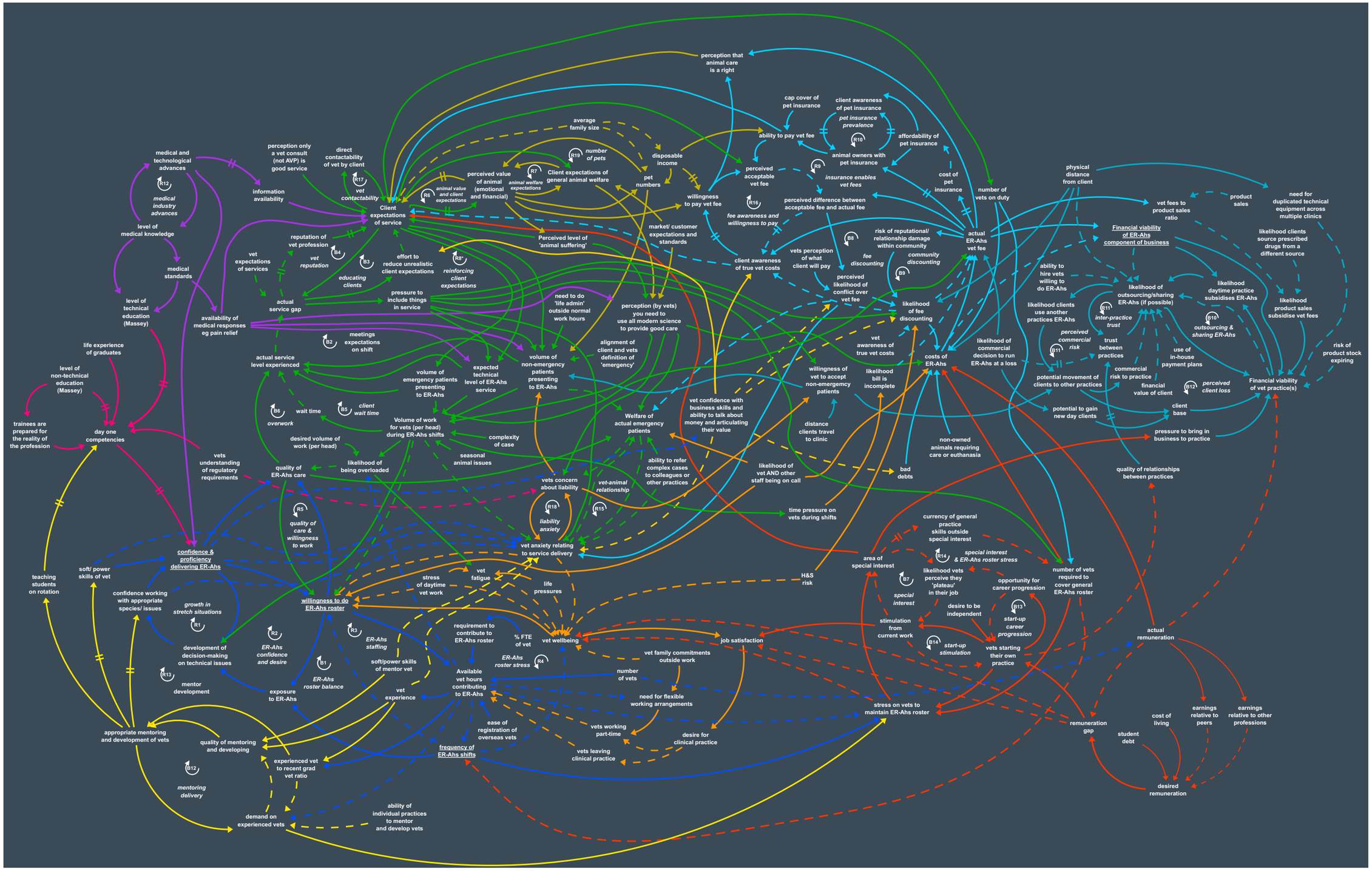
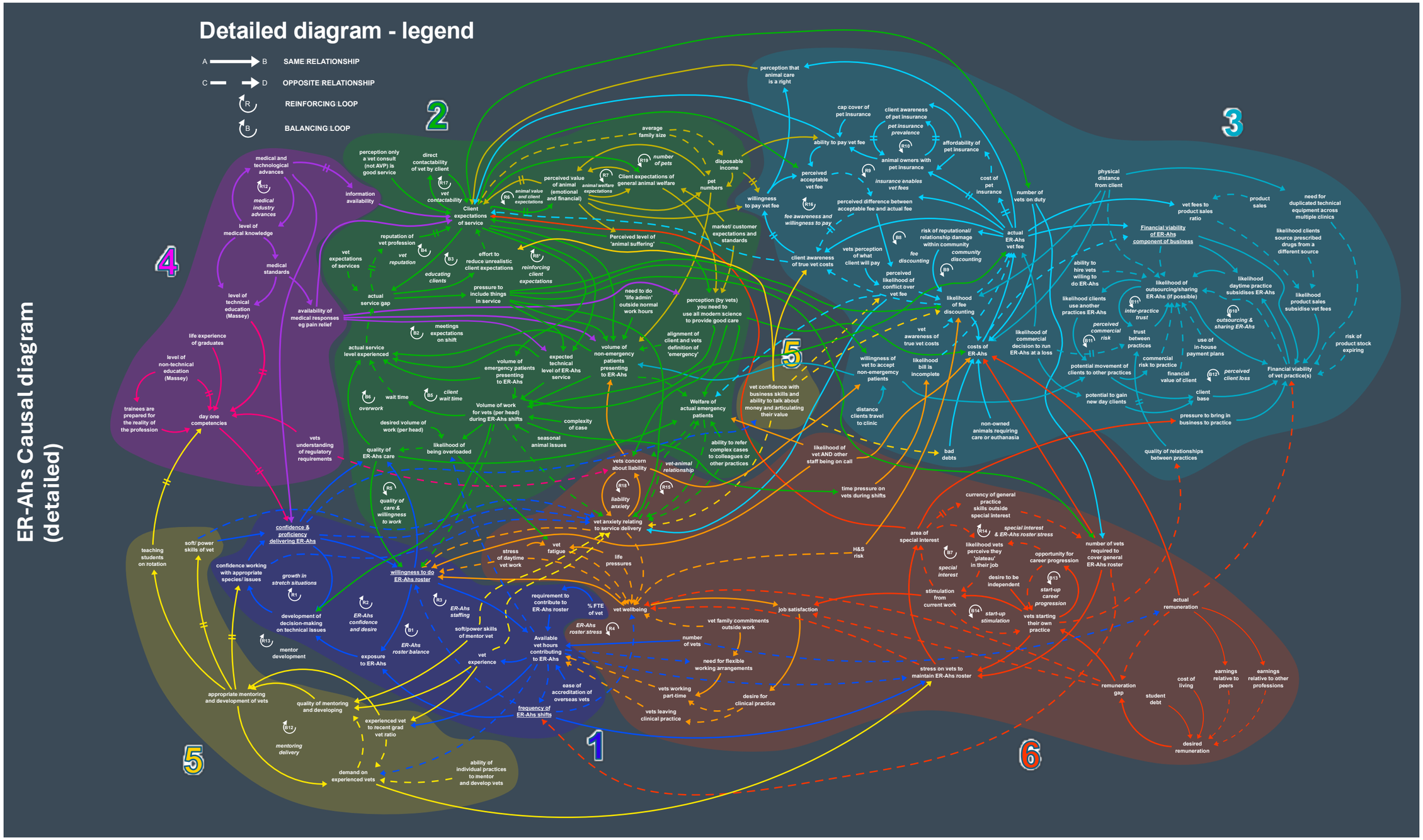


Figure A4. Detailed causal diagram – shaded



A3.2. Vet confidence, proficiency & willingness to do emergency care shifts

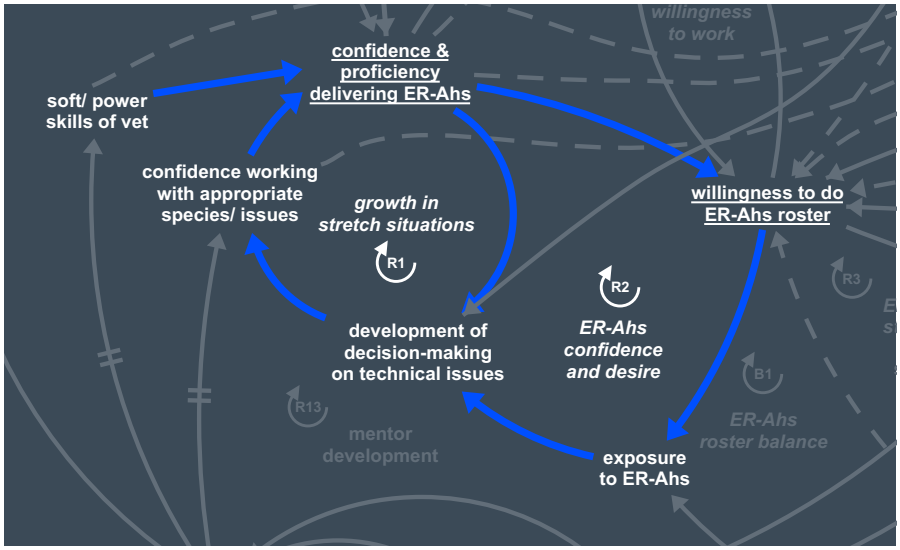
This section describes three of the four relative indicators of healthy emergency care service: vets' confidence and proficiency delivering ER-Ahs; their willingness to do ER-Ahs shifts; and the frequency of those shifts.

A3.2.1. Vet confidence, proficiency and willingness

Vet's 'confidence & proficiency delivering ER-Ahs' describes not just vets' confidence and proficiency in the *technical* skills required to deliver emergency care, but also the *non-technical* skills. Workshop participants talked about the need for confidence in decision-making skills and a level of soft (or power) skills. For example, decision-making skills included things like handling situations outside of the relative stability of the daytime practice (and availability of other staff to ask questions). This is represented by the factor 'confidence & proficiency in decision-making and technical situations'. Another example is the soft/power skills (represented by 'soft/power skills of vet'), which include the ability to deal with all sorts of clients by oneself, or without the support of other staff like during the day.

It was noted that doing ER-Ahs shifts both required and built these skills. Therefore 'confidence & proficiency delivering ER-Ahs' has been linked in a reinforcing loop (*growth in stretch situations* R1) with 'confidence & proficiency in decision-making and technical situations'. This reinforcing loop will spiral – if vets are doing ER-Ahs they are both building and using these skills, both of which spiral off each other. If on the other hand they are not doing ER-Ahs, this limits their ability to build the skills, which further erodes their confidence.

Figure A5. Vet confidence, proficiency and willingness (detailed)



To build these skills they must first be exposed to ER-Ahs. This is represented by the factor 'exposure to ER-Ahs. This is in turn dependent on vets willingness to contribute to the ER-Ahs roster, which is shown as the factor 'willingness to do ER-Ahs'. The more willing vets are to be on the roster, then the greater their 'exposure to ER-Ahs' which further builds their confidence and proficiency. Yet their willingness is itself partly dependent on their 'confidence

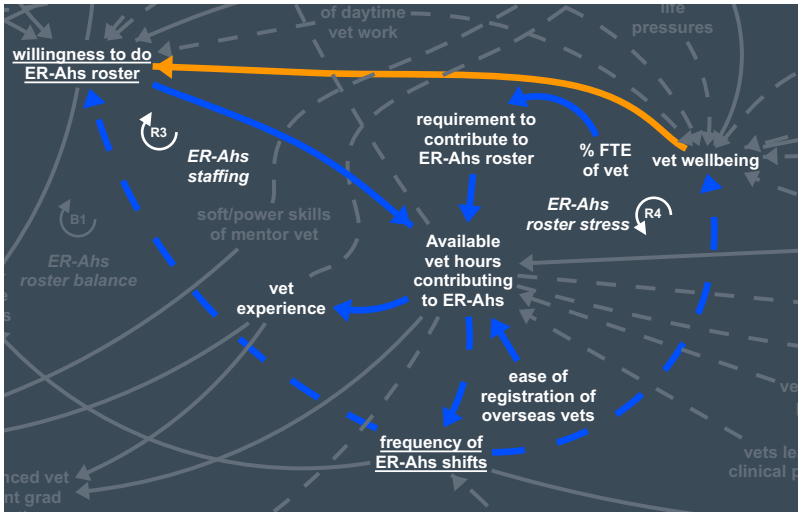
& proficiency delivering ER-Ahs'. This forms another spiralling loop called *ER-Ahs confidence and desire* (R2).

There was some discussion in the workshop about whether there were generational factors that changed in society over time, that may also be influencing this. While this is acknowledged is likely, this has not been shown in the diagram. But should be kept in mind.

A3.2.2. Willingness, frequency of shifts and vet wellbeing

Vets 'willingness to do ER-Ahs roster' interacts with the 'frequency of ER-Ahs shifts' in another spiralling loop called *ER-Ahs staffing* (R3). Here, more willingness increases the 'available vet hours contributing to ER-Ahs'[15], which reduces (opposite relationship) the average 'frequency of ER-Ahs shifts' that vet would need to do. The lower the frequency of shifts required of vets in a practice, the greater (opposite relationship) the likely willingness of vets in the practice to contribute to the roster.

Figure A6. Willingness, frequency of shifts and vet wellbeing (detailed)



The 'available vet hours contributing to ER-Ahs' is also influenced by the availability of vets. This is represented through 'ease of registration of overseas vets' having a same influence on available vet hours – the easier it is for overseas vets to become registered, the greater the number of vets contributing to the roster, and therefore the available vet hours. The relative full-time amount that a vet is working also influences the roster. This is represented by the factor '% FTE of vet', meaning the relative amount of a fulltime equivalent vet role that a person works. This has a same relationship with a vets 'requirement to contribute to ER-Ahs roster', in other words, if a practice employs lots of part time vets, there is less of a requirement for them to contribute to the ER-Ahs roster, and vice versa. The greater the percentage FTE time

[15] There was much discussion in the workshops around how to best represent a conceptual factor relating to the number of vets available to contribute to the roster. As it is not the number of vets per se, and many vets may not be full time and therefore may only be smaller contributors to the roster, the term 'available vet hours contributing to ER-Ahs' was agreed. This represents the number of vets hours that can be contributed to the roster, and is a function of the number of vets and their relative FTE contribution to the business.

a vet works in a practice, the greater their requirement to contribute to the roster and the greater the availability of vet hours contributing to the roster.

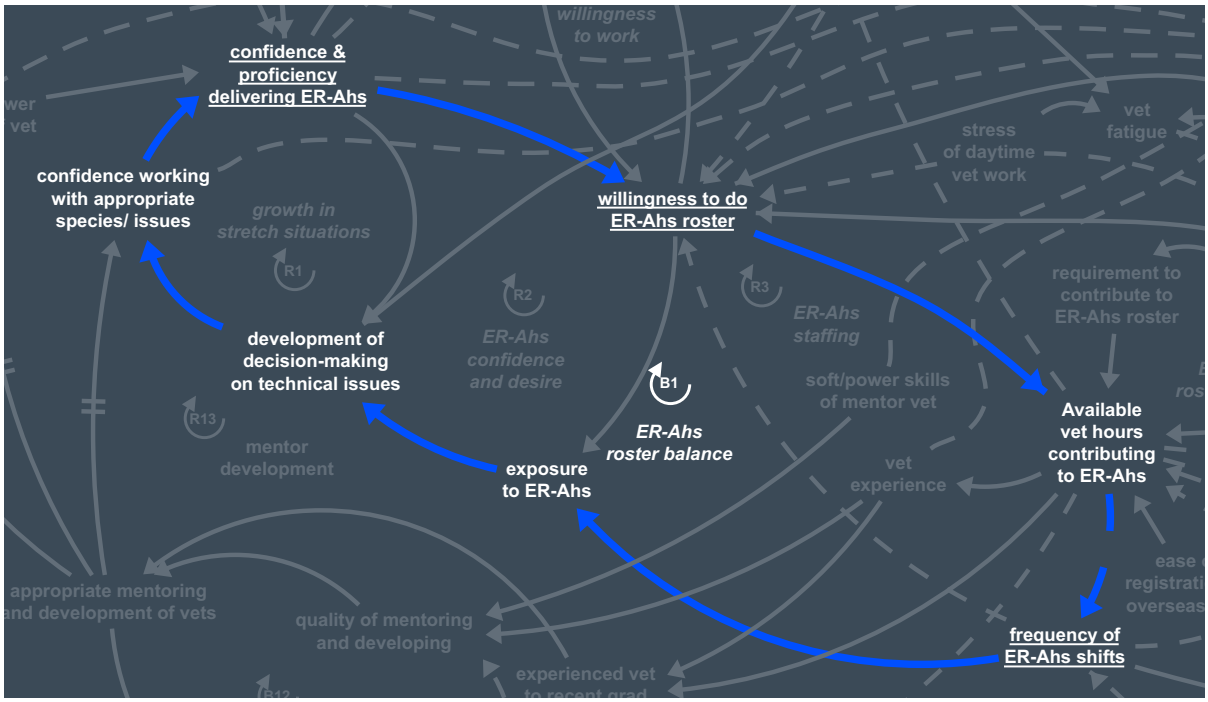
'Available vet hours contributing to ER-Ahs' also has a same relationship with 'vet experience' – the more vets are contributing to the roster, the more they are building experience.

At the same time, the 'frequency of ER-Ahs shifts' has an opposite relationship with 'vet wellbeing'. In other words, the higher the frequency of shifts, the lower the vet wellbeing because they get overloaded. The lower their wellbeing, the lower their willingness to contribute (same relationship). This completes another reinforcing loop called *ER-Ahs roster stress* (R4)

A3.2.3. Confidence and contribution in balance

The previous subsections have described reinforcing loops yet there is also an important balancing loop connecting these factors. This is the *confidence and contribution* loop (B1), which describes how all these factors come into balance. If vets get enough 'exposure to ER-Ahs' then they build decision-making skills and build confidence and proficiency, their willingness increases as do the available vet hours to contribute to the roster. Therefore shift frequency reduces to an appropriate level and any additional requirement for exposure to ER-Ahs to build confidence/proficiency reduces.

Figure A7. Confidence and contribution in balance (detailed)

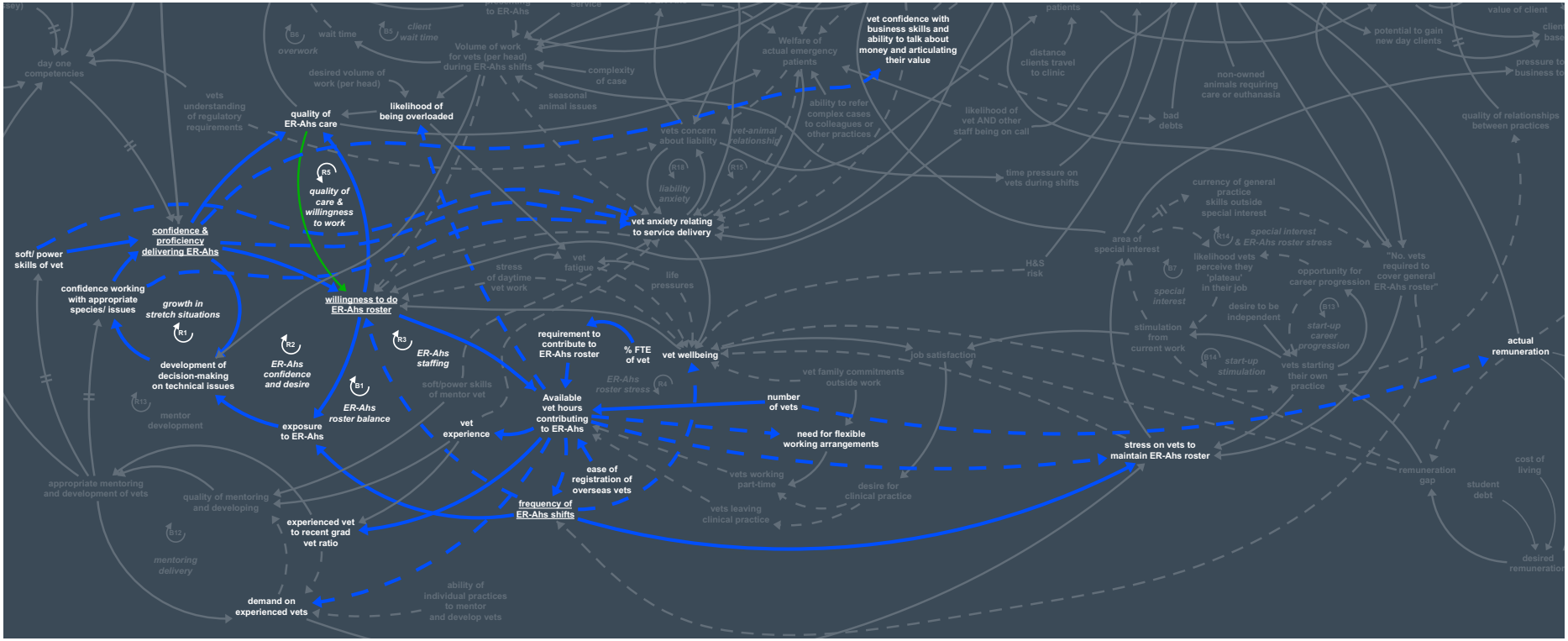


A3.2.4. How confidence, proficiency and willingness influence other areas

The factors described in this subsection have many influences on each other. They also influence other parts of the diagram. These are described below and may be read in conjunction with the other relevant related sections of this report:

- Both ‘confidence & proficiency delivering ER-Ahs’ and ‘willingness to do ER-Ahs’ have a same influence on the ‘quality of ER-Ahs care’.
- ‘Willingness to do ER-Ahs’ is also in a reinforcing loop (*quality of care and willingness to work* (R5)) with ‘quality of ER-Ahs care’ – the better one is the better the other is.
- ‘confidence & proficiency delivering ER-Ahs has a same influence on vet confidence with the necessary business skills.
- ‘Available vet hours contributing to ER-Ahs’ has an opposite influence on the ‘demand on experienced vets’ in relation to mentoring; as well as a same influence on ‘experienced vet to recent grad ratio’. When there are few vets able to do the roster, this is exactly the time when there is also pressure on them to mentor others to take the pressure of the vets in the roster; and the more vets contributing hours to the roster, the better the experienced vet to recent grad ratio will be.
- ‘Available vet hours contributing to ER-Ahs’ also has an opposite influence on: the ‘need for flexible working arrangements’, ‘stress on vets to maintain ER-Ahs roster’, and the ‘likelihood of being overloaded’.
- The ‘number of vets’ also has an opposite relationship on ‘actual remuneration’. i.e. the less vets there are the more likely they are to be paid more to retain them.
- ‘Confidence & proficiency delivering ER-Ahs’, ‘confidence working with appropriate/ special issues’, and the ‘sort/power skills of vet’ all have an opposite influence on ‘vet anxiety relating to service delivery’. The greater their confidence the proficiency and soft skills, the lower the elements of anxiety that come from those.
- The ‘frequency of ER-Ahs shifts’ has a same influence on the ‘stress on vets to maintain the ER-Ahs roster’.

Figure A8. How confidence, proficiency and willingness influence other areas (detailed)



A3.3. Client circumstances and expectations

Client expectations were a common area of discussion during the workshops. There are also many factors influencing these and client expectations are involved in many overlapping feedback loops. These are described in this subsection.

A3.3.1. General client circumstances and their perception of animals needs

General client circumstances are those circumstances which vets have no (or very little) control over. These can be summarised as their personal financial and family circumstances and their general expectations of animal's needs.

The important factor here is that represented as 'perceived value of animal (emotional and financial)'. This describes the value that is placed on animals and pets, which has been increasing in recent decades. In effect this reflects changes in the average animal-human bond for most pet owners, but also for many farmers. This factor has an important reinforcing relationship with 'client expectations of service' from the vet (*animal value and client expectations* (R6)) – as one increases or declines, so does the other.

Other important factors are clients personal circumstances. For example, over recent decades the position of pets as 'members of the family' has increased, perhaps because the 'average family size' has reduced, and the number of families that do not have children is increasing. A decreasing trend in the size of families is perceived to have an opposite influence on the number of pets. Peoples/families disposable income also influences pet numbers, and is itself influenced by the average family size (opposite relationship). This also aligns with the perception that pets were being increasingly more valued as family members. This forms another reinforcing loop (*number of pets* (R19)), as pet numbers increase so does their perceived value, which further reinforces the number of pets.

There has also been an increasing appreciation that animals are considered sentient and have rights to a good life themselves, both in the pet world and the animal production world. This is represented by the factor 'client expectations of general animal welfare', and this has been trending up in recent decades. In other words, there is a greater appreciation that animals are entitled to a good quality of life for themselves. This also forms a reinforcing loop with the 'perceived value of animal (emotional and financial)', called *animal value and welfare* (R7). While this applies to pets, it is also an example of changing attitudes across international markets for New Zealand's primary products, as represented by the factor 'market/customer expectations and standards', which has a same influence on 'client expectations of general animal welfare'.

'disposable income' also has several other influences – this has a same influence a client 'ability to pay vet fee' and a *delayed* same influence on 'willingness to pay vet fee'. These influences, coupled with increasing 'pet numbers', capture the perception that people have more disposable income than in decades past and were choosing to spend more of that on their pets.

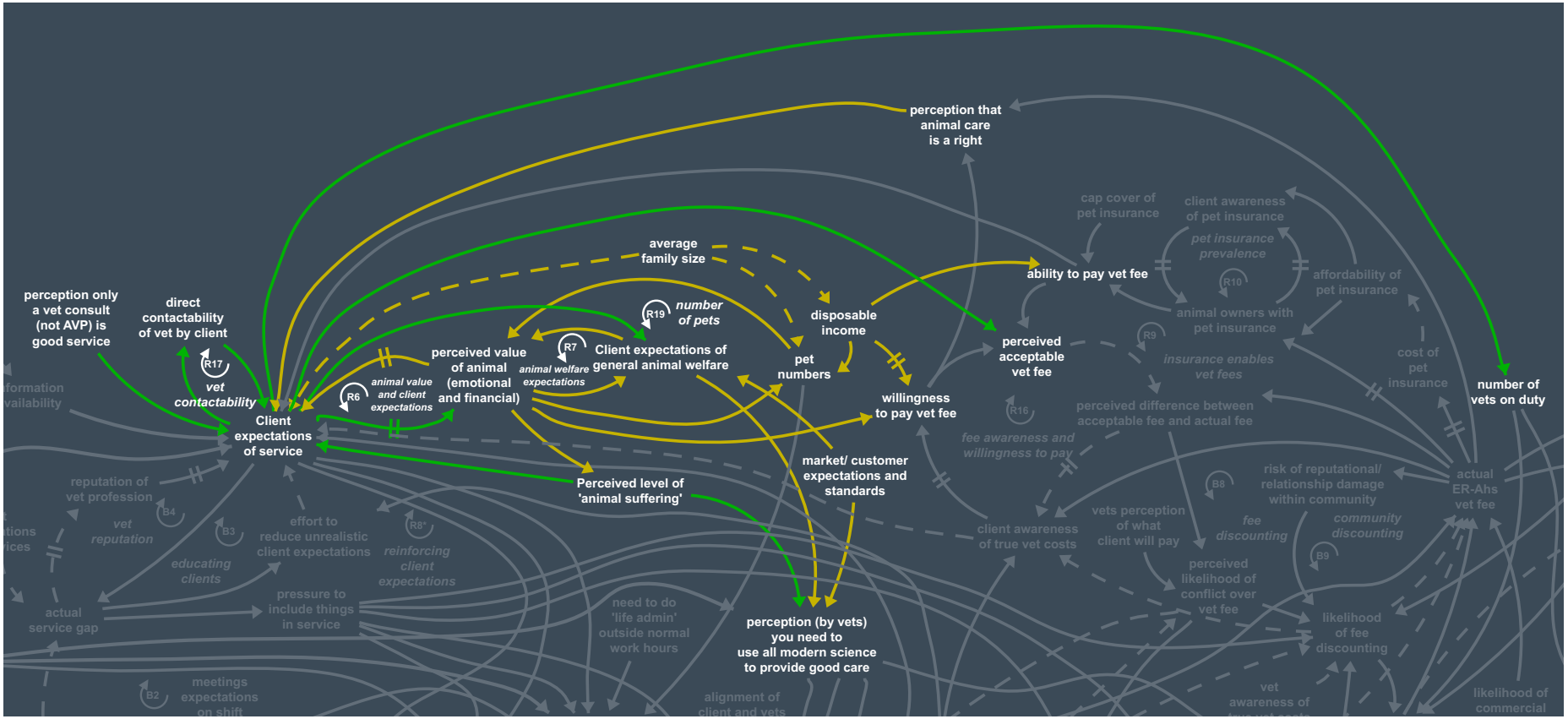
Two perception factors have important influences. The 'perception that animal care is a right' factor captures the belief that any animal owner has a right to animal care. This has a same

influence on client expectations. The ‘perceived level of ‘animal suffering’’ factor describes the level of suffering that an owner perceives in an animal. Given changes in clients awareness of sentience and animal health, it is perceived that this has been trending upwards – in part from a same influence from perceived animal value. The greater the perceived animal suffering, the greater the ‘client expectations’, and the ‘perception (by vets) you need to use all modern science to provide good care’. This last factor is also influenced by general animal welfare expectations (same influence); and market/customer expectations and standards – a factor intended primarily to capture the expectations of markets of primary products. For example, animal welfare concerns being reflected through consumer preferences and interest.

Two other factors influence client expectations. Firstly, there is a perception that clients need to see a vet for the service to be good – i.e. not a nurse, vet technician, or other allied vet professional (AVP). This is captured by the factor ‘perception only a vet consult (not AVP) is good service’. Secondly, a clients ability to contact a vet directly increases their client expectations. This is represented by ‘direct contactability of vet by client’. There were comments in the workshop that vets have tended to provide clients their contact numbers which reinforces an expectation that vets are contactable at any time. This forms a reinforcing loop labelled *vet contactability* (R17).

Finally, ‘client expectations of service’ has a same influence on the ‘number of vets on duty’. The greater the expectations, the greater the likelihood that more vets will need to be on duty to meet expectations.

Figure A9. General client circumstances and their perception of animals needs (detailed)



A3.3.2. Volume of work on shifts – meeting and reinforcing client expectations

The loops described in this subsection are a very important part of the diagram. They describe the relationship between 'client expectations of service', the volume of patients presenting to ER-Ahs and the volume of work done on ER-Ahs to meet clients' expectations. Importantly, several loops operating here conflict or compete.

Firstly, consider the reinforcing loop *reinforcing client expectations* (R8*)[16]. As 'client expectations of service' rise, these have a same relationship with the volume of emergency and non-emergency patients presenting, and the level of technical care expected. These are represented as the factors 'volume of emergency patients in ER-Ahs', 'volume of non-emergency patients in ER-Ahs', and the 'expected technical level of ER-Ahs care' and R8* is effectively the same loop via these three different pathways. In other words, the greater the client expectations, the greater number of cases and level of service expected and delivered on ER-Ahs shifts.

Two additional factors influence the 'volume of non-emergency patients presenting to ER-Ahs'. Clients 'need to do 'life admin' outside normal working hours' represents the modern dynamics of 9-5 work being less normal, and that it is more likely that two people in a household are working. This has a same influence on non-emergency patients. The 'alignment of client and vets definition of 'emergency'' represents the extent that vets and clients perception of an emergency align. The mor these align, the loess non-emergency patients present in ER-Ahs (an opposite relationship).

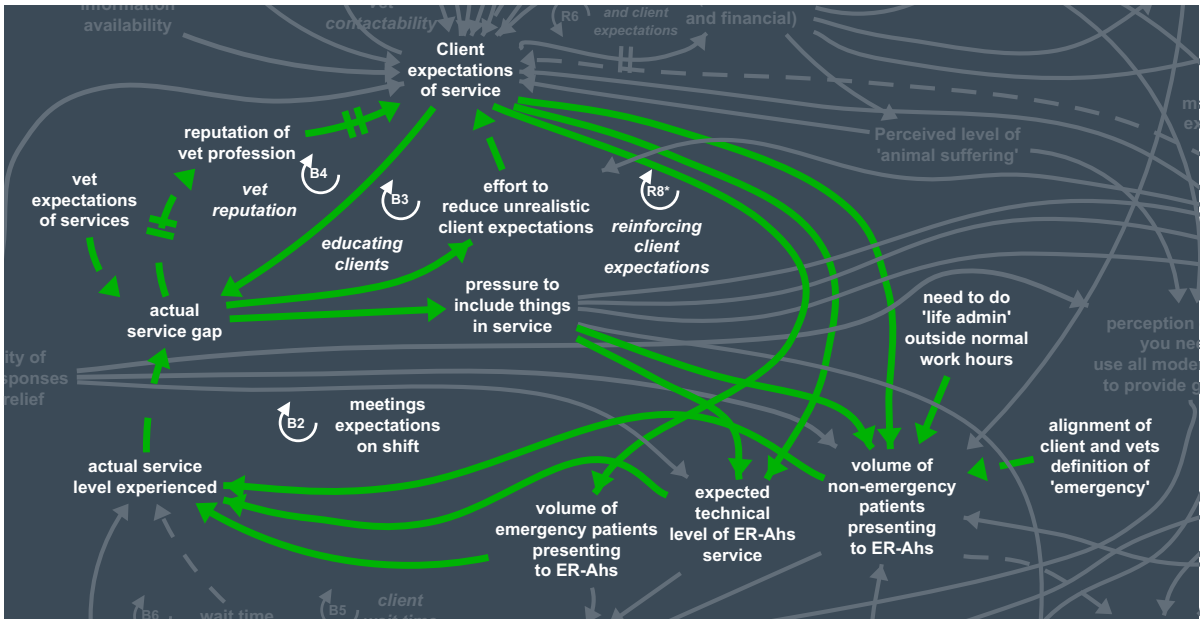
The differentiation of non-emergency patients from emergency patients is an important one. One of the recuring comments from workshop participants was that clients often expect the same level of service from ER-Ahs as they do from the day practice and it was discussed that this was not its intent. This will be expanded on later.

The greater the levels of this work (actual emergency patients, non-emergency patients, and the level of technical care each receive) delivered in ER-Ahs, the greater the 'actual service level experienced'. The 'client expectations of service' and the 'actual service level experienced' form a goal/gap relationship (see section 3.4). The greater the actual service delivered, the lower the gap between that and the client expectations (in other words – it meets client expectations!). If this gap is low (i.e. expectations are met) then the reputation of the vet profession is increased (an opposite relationship) and this further reinforces or raises client expectations. In short – continually delivering on client expectations in part encourages them to rise. This is a loop that has probably been operating in the vet profession for many decades[17].

[16] The asterisk beside this loop label indicates that it is a label for multiple loops on a similar pathway. As described above.

[17] It is noted that this is not unusual and is a feedback loop experienced in most professions or industries. It is also noted that some of this may be because of complicated 'over-delivery' dynamics driven by competition within the industry. While this is likely to be partially true, it has not been included as a key influence in the diagram – there was general agreement within the workshop that the bulk of

Figure A10. Meeting and reinforcing client expectations (detailed)



A strong theme in the workshop discussion was that client expectations for ER-Ahs care were often higher than what vets would consider necessary for emergency care. That is, it was not seen by veterinarians as the same as the service delivered during the daytime clinic, and was instead provided as an emergency provision – to get people through to when the day clinic would be open. This tension between client expectations and vets' expectations of service is shown as another goal/gap relationship (see section 3.4) where the generalisation is that client expectations are assumed to be higher than vet expectations of what is acceptable to get a patient through to daytime clinic hours. Therefore, 'vet expectations of service' has an opposite relationship with the 'service expectation gap', while 'client expectations' has a same relationship. In other words, the greater client expectations of service, the greater the gap between their expectations and vets' expectations of what is acceptable for emergency care.

This difference in expectations (gap) influences two types of activity. It can increase 'pressure to include things in service' or increase 'effort to reduce unrealistic client expectations'. In other words, vets can seek to meet client expectations or adjust them to be more realistic. It is noted that 'unrealistic expectations' is used here to describe client expectations that are not aligned with what vets deem appropriate for emergency after hours care. It was noted in the workshop discussions that the veterinary industry is a service industry and therefore will always involve an element of meeting client expectations. However, there was general agreement that the level of service that should be expected by clients in an emergency after hours situation is not the same as what they should expect in daytime clinic hours.

Vets efforts to meet expectations is represented by the *meeting expectations on shift* loop (B2). This is driven the 'service expectation gap' which puts pressure on vets to include more things in the ER-Ahs service (the factor 'pressure to include things in service'). This is predominantly through the addition of services that would normally be done during daytime

such mal-aligned expectations were consistently experienced across vets, and not usually due to competition.

clinic hours – i.e. accepting an increased 'volume of non-emergency patients in ER-Ahs' or undertaking more tests and procedures that would normally wait until daytime (therefore increasing the 'expected technical level of ER-Ahs care'). An increase in either or both increases the 'actual service level experienced', decreases the 'service expectation gap', and thus eases the 'pressure to include things in service', bring actual service more in line with expectations. This loop operates in the immediacy of an ER-Ahs shift.

This loop describes important dynamics that seem to have been operating in the vet profession for years. It is likely that this loop has dominated the industry for some time and ironically it only achieves increased client expectations in the longer term (due to its link with *reinforcing client expectations* (R8*)), which means that there remains a gap between vet and client expectations for ER-Ahs.

This is not the only loop operating here though. It is important to note the balancing loop *educating clients* (B3). This is primarily driven by the difference between 'vet expectations of service' and 'client expectations of service' and describes the dynamic of vets attempting to reduce unrealistic client expectations. Here a gap between client and vet expectations can lead to 'effort to reduce unrealistic client expectations' (same relationship), which in turn can lead to a reduction in 'client expectations' (opposite relationship), thus bringing both client and vet expectations closer together. It is noted that this may be a more difficult pathway, as vets[18] need confidence to push back on unrealistic client expectations (more on this later), but it is an important balancing loop. One that anecdotal comments in the workshops would suggest may not have been operating very strongly in the profession to date. Although there were examples provided from practices that this loop is operating well in some individual clinics.

The final loop to describe in this area is the *vet reputation* loop (B4). This describes the dynamic that the reputation of the vet industry (at a practice level or at a profession level) is linked to meeting the expectations of clients. This will balance over time – if expectations are met they will continue to be increased over time until there is a sustained difference between what is actually experienced and what is expected. This will reduce the reputation of the vet(s) and eventually reduce expectations of clients – but through loss of faith in delivery. This loop highlights the importance of seeking to actively reduce the gap between 'client expectations', and 'vet expectations' and the 'actual service level experienced' – either through increased delivery or reducing clients' unrealistic expectations. Or both.

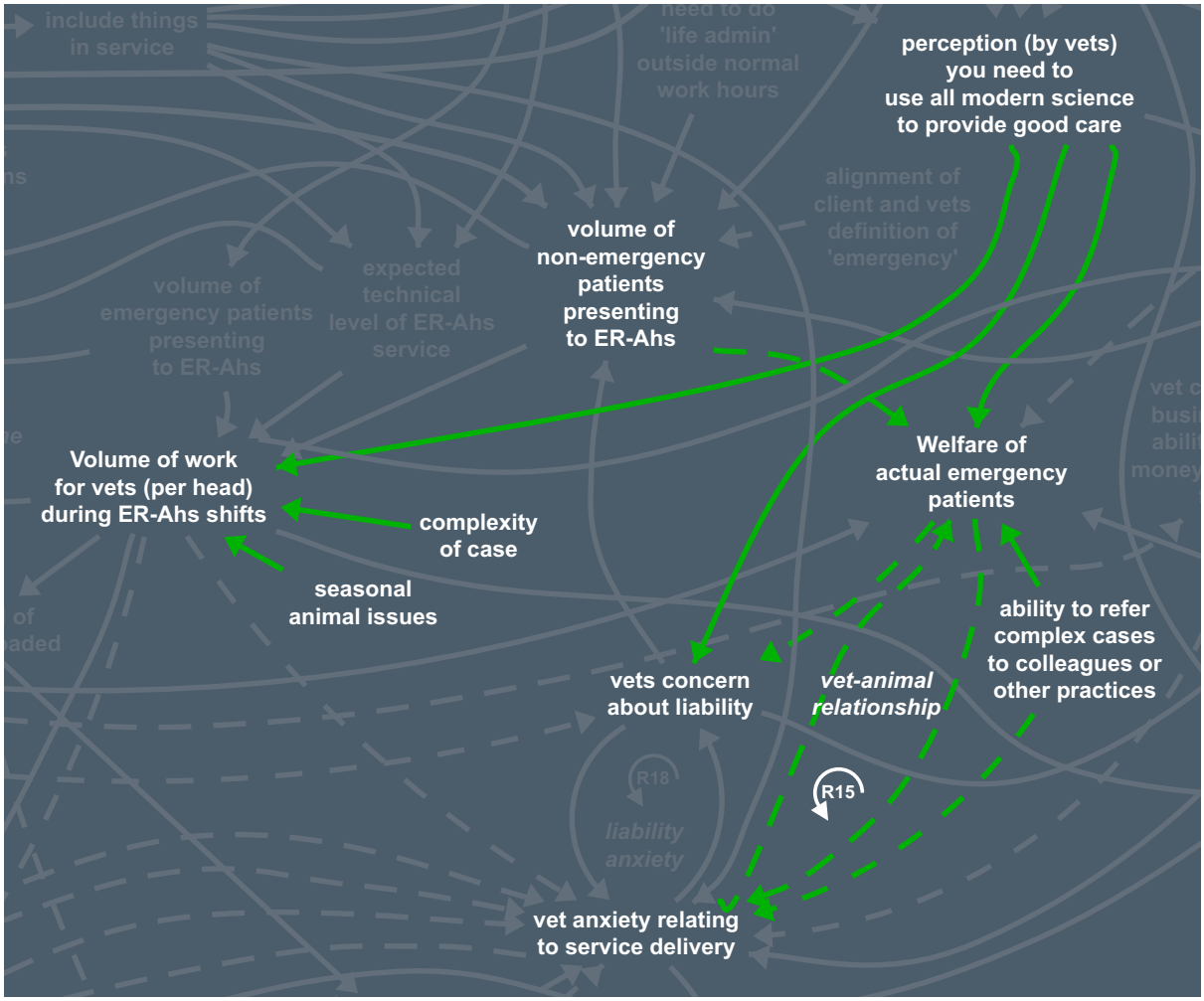
Another important factor to note here is the 'welfare of actual emergency patients'. Any increase in non-emergency patients can reduce (opposite relationship) the 'welfare of actual emergency patients', due to the added stress on the vets' time. Similarly, if the 'quality of ER-Ahs care' is reduced through overwork, this can also reduce the 'welfare of actual emergency patients' as vets will be pressured during shifts and won't be able to provide the same level of care to actual emergency patients.

[18] The vet perspective described here was usually that of an emplyee vet. It is noted that a employer vet may have commercial incentive to push back less, in order to charge more. However the primary point made by workshop participants was that all vets (beginning with employees) need to have confidence to puch back on unrealistic expectations. Such skills will only be useful if they ever become business owners.

A3.3.3. Emergency patients welfare, complex case support and vet-animal relationships

The ‘welfare of actual emergency patients’ was an important factor raised in the workshops. There was much discussion around the human elements of the ER-Ahs roster, as well as a recognition that the welfare of the animals in actual need of emergency care was the point of emergency care! (Figure A11

Figure A11. Welfare of actual emergency patients and support available to vets (detailed)



This was seen to be influenced by many factors. Firstly, the ‘volume of non-emergency patients presenting to ER-Ahs was noted as detracting from the ‘welfare of actual emergency patients’. If the former goes up, the latter goes down (opposite influence). Secondly, the ‘ability to refer complex cases to colleagues or other practices’ has a same influence on the ‘welfare of actual emergency patients’. This factor captures a range of ways that vets can refer cases to others. For example, this may be having support within the practice to refer complex cases to; the ability to access specialists or mentors; or the ability to refer cases to other practice in the area. This factor also has an opposite influence on ‘vet anxiety relating to service delivery’ – which describes the anxiety vets feel about the service delivery they are part of due to a range of influencing factors.

Vet anxiety is influenced by the 'welfare of actual emergency patients' in two ways. Firstly, emergency patients' welfare has an opposite influence on 'vets concern about liability' – if an emergency patient's welfare is low, this can increase concerns about liability (for example a complaint to the Vet Council). Secondly, emergency patients' welfare has an opposite influence on 'vet anxiety relating to service delivery', which also has an opposite influence back on the welfare of emergency patients. This forms the reinforcing loop *vet-animal relationship* (R15). 'Vet anxiety relating to service delivery' describes how vets can be anxious about the service delivery due to other factors described in this report – for example, they are stressed due to overwork, their confidence and proficiency is low, etc. This loop describes how their anxiety about their work and the impact of the welfare of actual emergency patients are linked. Given the empathy experienced by vets with their patients, their welfare can also impact the anxiety vets feel about their service delivery. This can spiral in either a positive way if things are going well, or a negative way if they are not.

The 'volume of work for vets (per head) during ER-Ahs shifts' is a factor that captures the aggregate amount of work experienced by vets on a shift. Some volume of work influences on this are the 'complexity of the case' (complex cases take more time and effort on a shift); and 'seasonal animal issues' (recognising that some issues are seasonal and can increase the volume of work at certain times of the year (e.g. calving). Other influences on the volume of work are explained in the next section (0).

Finally, the factor 'perception (by vets) you need to use all modern science to provide good care' describes the extent to which vets believe that available interventions should be used to deliver good care. This speaks to the increasing availability of improved technical knowledge and care options during the day, which then increase the likelihood that vets they should also be used during emergency care, after hours. There was discussion around whether this would always be the case and will always be a subjective thing, dependent on the vet or the situation. Regardless, this factor has a same influence on the 'welfare of actual emergency patients', 'vets concern about liability' and the 'volume of work for vets (per head) during ER-Ahs shifts'. While an increase in the first of these three factors would be a good thing, an increase in the second and third would not.

A3.3.4. Unintended impacts of meeting expectations –client wait time and vet overwork

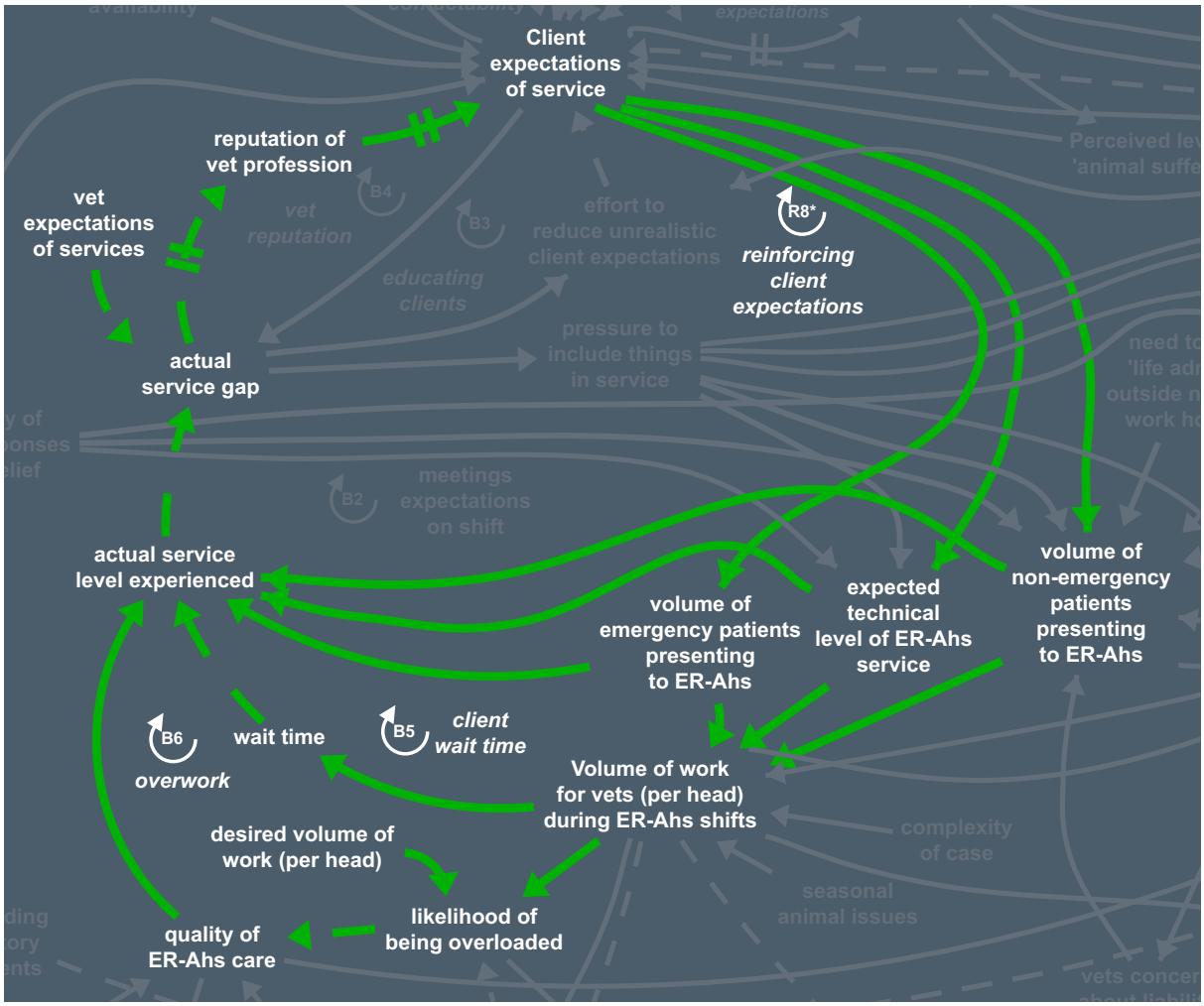
In addition to the important dynamics described in the last section, this section describes two important unintended impacts of seeking to meet clients' expectations (i.e. when they are not being met) – client wait time and vet overwork.

Assuming the reinforcing loop *reinforcing client expectations* (R8*) is operating, this increases the 'volume of work for vets (per head) during ER-Ahs shift' over time. Any increase in the volume of work done on shifts has two unintended consequences. Firstly, client 'wait time' will increase and vets 'likelihood of being overworked' will increase, reducing the 'quality of ER-Ahs care' provided on shift.

Ironically, both reduce the 'actual service level experienced' and form balancing loops with the 'reputation of the vet profession' and 'client expectations'. These are represented as *client wait time* loop (B5)) and *overwork* loop (B6).

The overwork loop is also influenced by the factor ‘desired volume of work (per head)’ (see Figure A12). ‘Desired’ in this instance may also be considered ‘optimal’ for whatever situation each vet or practice is in – as this is inherently a situation-dependent thing. The higher this, the lower the ‘likelihood of being overloaded’. This factor has been included to represent that there is no single appropriate amount of work for a vet on a shift. This will always be situation dependent.

Figure A12. Unintended impacts of meeting expectations –client wait time and vet overwork (detailed)



A3.3.5. How the impacts of client circumstances and expectations influence other areas

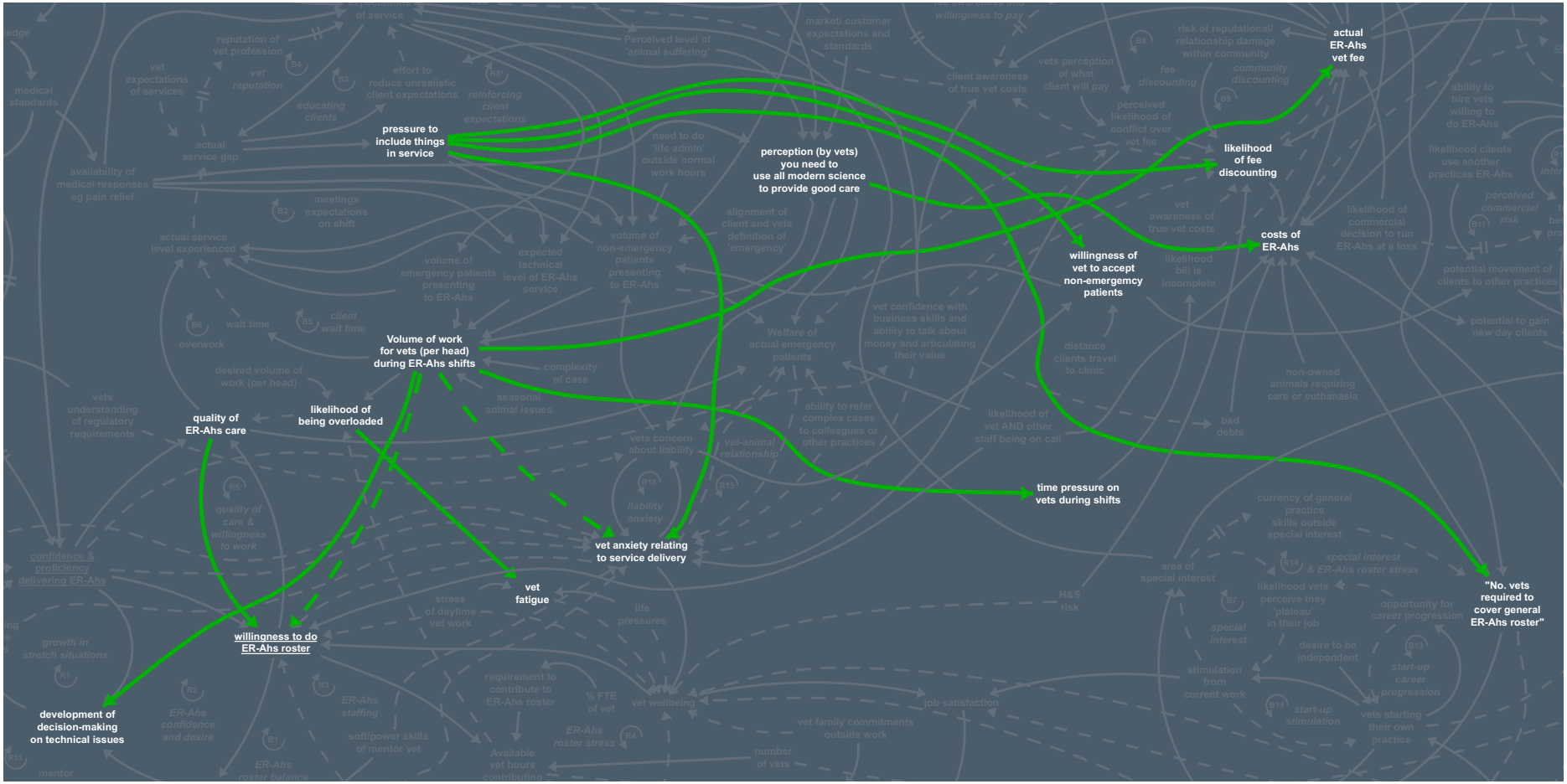
In addition to the influences the factors described above have on each other and other parts of the diagram, they also influence additional parts of the diagram. These are described below and may be read in conjunction with the other relevant related sections of this report:

- The ‘quality of ER-Ahs care’ has a same relationship with ‘willingness to do ER-Ahs roster’. If the quality is reduced (e.g. through overwork) this can reduce the willingness to do ER-Ahs.
- The greater the ‘pressure to include things in service’ the greater: the ‘number of vets required to cover general ER-Ahs roster’; the ‘likelihood of fee discounting’; the

‘willingness of vets to accept non-emergency patients’; and the ‘vet anxiety relating to service delivery’ (all same relationships).

- The ‘volume of work for vets (per head) during ER-Ahs shifts’ has a same influence on: ‘actual ER-Ahs vet fee’; ‘time pressure on vets during shifts’; ‘vet anxiety relating to service delivery’; vets ‘willingness to do ER-Ahs roster’; and ‘development of decision-making on technical issues’.
- The ‘perception (by vets) you need to use all modern science to provide good care’ has a same influence on the ‘costs of ER-Ahs’.
- The ‘likelihood of being overloaded’ has a same influence on ‘vet fatigue’.
- The ‘quality of ER-Ahs care’ has a same influence on ‘willingness to ER-Ahs roster’.

Figure A13. How client circumstances and expectations influence other areas (detailed)



A3.4. Financial considerations

There are a range of influences on clients' ability to pay and their willingness to pay, not all of which vets can influence. There are also a range of influences on the likelihood that vet fees are not fully charged, or are discounted, which vets are able to influence. Both sets of influences are linked to the financial viability of emergency care and clinics in general, which in turn impact on the likelihood of businesses sharing emergency and afterhours services.

A3.4.1. Acceptable fees and clients' willingness and ability to pay

The fee that a client finds acceptable is shown as 'perceived acceptable vet fee'. This is influenced by a combination of 'client expectations of service', their 'willingness to pay vet fee' and their 'ability to pay vet fee' (all same relationships)[19].

The 'perceived acceptable vet fee' forms a goal/gap (or difference) with the 'actual ER-Ahs fees'. The greater the 'actual ER-Ahs vet fees', the *greater* the 'perceived difference between acceptable and actual fee' (same relationship). The greater the 'perceived available vet fee', the *lower* the perceived difference (opposite relationship).

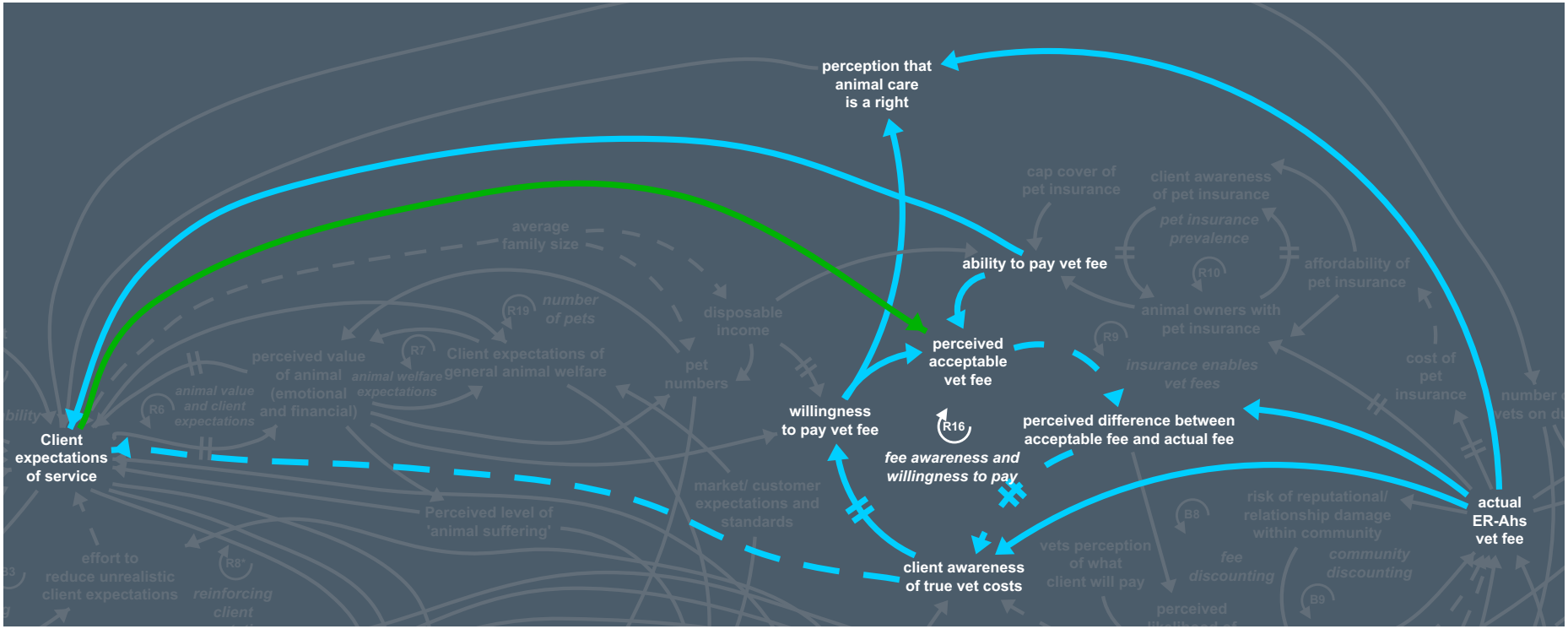
This difference (or gap) has a delayed influence on 'client awareness of true vet costs'. In other words – the more aligned someone's idea of an acceptable fee is with the actual fee, the more likely they are to be aware of the true costs of veterinary service. In turn, this has a delayed influence on a clients' 'willingness to pay vet fee'. This forms the reinforcing loop *fee awareness and willingness to pay* (R16) which describes the dynamics that the greater awareness that clients have of true vet costs, the more willing they will be to pay the actual vet fee required.

In addition, 'client expectations of service' are influenced by both 'client awareness of true vet costs' (opposite influence) and 'ability to pay vet fee' (same influence).

The 'actual ER-Ahs vet fee' has a same influence on 'client awareness of true vet costs'. While 'actual ER-Ahs vet fee' and 'willingness to pay vet fee' both have a same influence on the 'perception that animal care is a right'. In other words the higher the fees are and the more people are willing to pay them, the more likely that this will reinforce the perception that clients think it is their right to receive whatever level of service they expect.

[19] Like all factors in the diagram, these three influences are not necessarily complete list of influences on 'perceived acceptable vet fee'. Only some relevant to the ER-Ahs issue have been included. However, for this factor in particular, the influence of clients perceived comparable service in the human health care system was noted by some workshop participants.

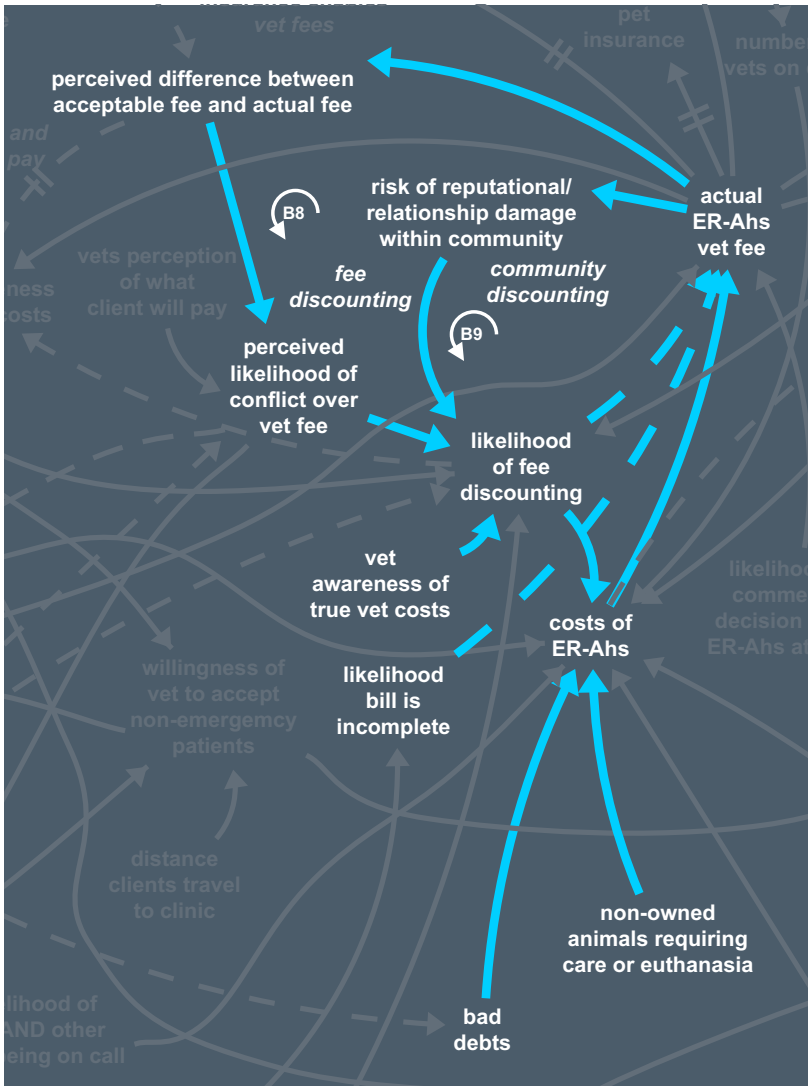
Figure A14. **Acceptable fees and clients' willingness and ability to pay (detailed)**



A3.4.2. Perceived conflict over fees and fee discounting

The greater the ‘costs of ER-Ahs’, the greater the fees required to cover it (‘actual ER-Ahs vet fees).

Figure A15. Perceived conflict over fees and fee discounting (detailed)



That said, when there is a reasonable sized ‘perceived difference between acceptable fee and actual fee’ (the difference between the actual fee and the perceived acceptable fee), this can increase the likelihood of fee discounting. A difference (or gap) can increase the ‘perceived likelihood of conflict over vet fee’ (same relationship) which can increase the ‘likelihood of fee discounting’ (same relationship), which can reduce the ‘actual ER-Ahs vet fees’ (opposite relationship). This reduces the perceived difference (gap) – in other words, discounting the fees (*discounting fees* loop (B8)) is a way of bringing the actual fees into line with the perceived

acceptable fees. There was consensus in the workshops that this was a loop that was regularly operating in the vet industry[20].

Ironically, discounting only increases the 'costs of ER-Ahs', putting further upwards pressure on the 'actual ER-Ahs vet fees' that need to be charged.

Another loop that discounts fees is the *community discounting loop* (B9). This loop describes the dynamics of vets that are based in smaller locations and are very much a part of the community. For example, it can be difficult for vets to charge full price for their services because they may have children going to school with their clients' children, or play sport with clients, etc. This is represented by the factor 'risk or reputational/relationship damage within community' and the higher the fees, the higher this risk, therefore the higher the 'likelihood of fee discounting' (all same relationships), which then reduces the actual fees (opposite relationship).

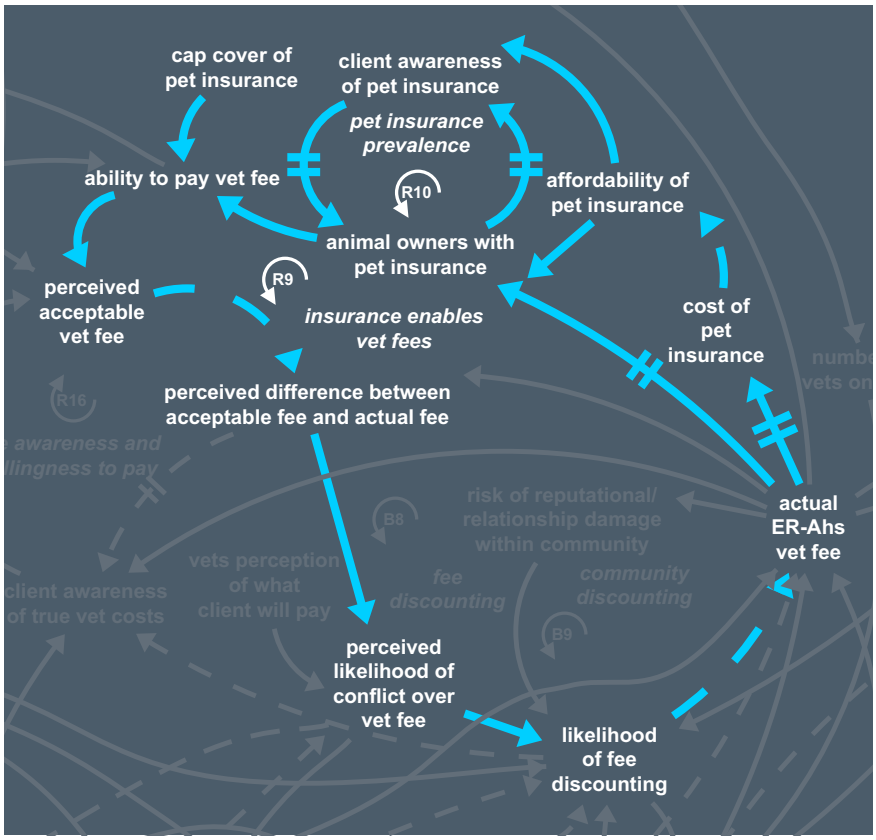
Several other factors influence into these loops via various factors. Firstly, the 'vet awareness of true cost vets' has an opposite relationship on the 'likelihood of fee discounting' – i.e. the less awareness vets have around what the actual costs of care are to the business, the higher the chance that they will discount fees. Secondly, the 'likelihood bill is incomplete' (due to items being left off or not appropriately priced) has an opposite influence on 'actual ER-Ahs vet fees'. In other words, not including all costs in the fee keeps the fees artificially low. Finally, the factors 'bad debt' (bills not paid) and 'non-owned animals requiring care or euthanasia' (animals requiring care that don't have (obvious) owners that are brought into practices by concerned people) both have a same influence on 'costs of ER-Ahs'.

A3.4.3. The influence of pet insurance

It was noted by workshop participants that pet insurance is playing an increasing role in the financial considerations of pet owners. It was noted that as actual fees have increased, then over time so has the number of 'animal owners with pet insurance' (same relationship). This does increase a clients' 'ability to pay vet fee' which increases the 'perceived acceptable vet fee', reduces the perceived difference, perceived likelihood of conflict, and discounting, enabling greater 'actual ER-Ahs vet fees' to be charged in the longer term. See reinforcing loop R9 – *insurance enabling fees*.

[20] It is noted that the dynamics of discounting are not not an exclusive experience of the vet industry. It is reasonable to expect that they are experienced in most industries. However the dynamics noted here were a strong aversion to inter-personal conflict and a desire to ensure animals received good care. It may be the case that in other industries discounting dynamics are more likely linked to competition.

Figure A16. The influence of pet insurance (detailed)



At the same time, more pet owners with insurance will have a word-of-mouth effect meaning more people become aware of pet insurance, which over time will increase its prevalence. This is shown by the reinforcing loop R10 – *pet insurance prevalence*.

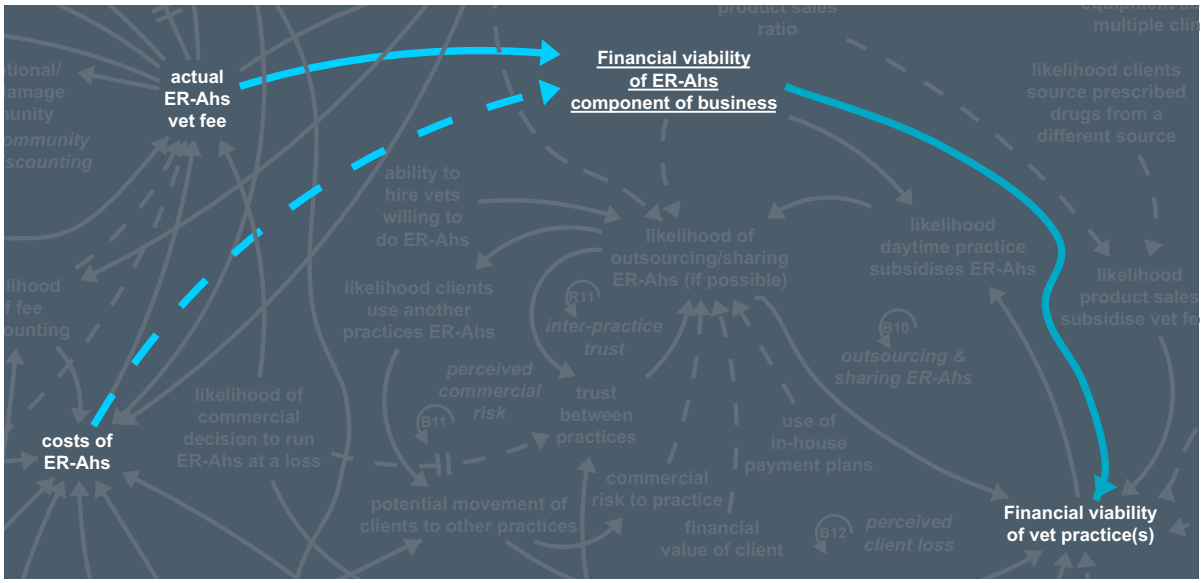
Over time (delay), there is also an important same influence from the 'actual ER-Ahs vet fee' onto the 'cost of pet insurance' – if vet fees rise so too will the cost of pet insurance to compensate. If insurance costs rise the 'affordability of pet insurance' will reduce (opposite influence), which will similarly impact both clients' awareness of insurance and its prevalence (same influences).

A3.4.4. The financial viability of the ER-Ahs

The financial viability of the ER-Ahs component of the business has already been highlighted as an important indicator of relative healthy ER-Ahs delivery (see section 5.1.1). This is represented in the simplest way possible in this diagram – the 'financial viability of ER-Ahs component of business' is a function of the 'costs of ER-Ahs' (opposite relationship – the greater the costs the lower the financial viability), and the 'actual ER-Ahs vet fees' (same relationship – the greater the fees the greater the financial viability).

This has a similar flow on effect to the financial viability of the overall practice. The greater the 'financial viability of ER-Ahs component of business', the greater the 'financial viability of vet practice(s)' (a same relationship).

Figure A17. The financial viability of the ER-Ahs (detailed)



A3.4.5. Other influences on the financial viability of vet practices

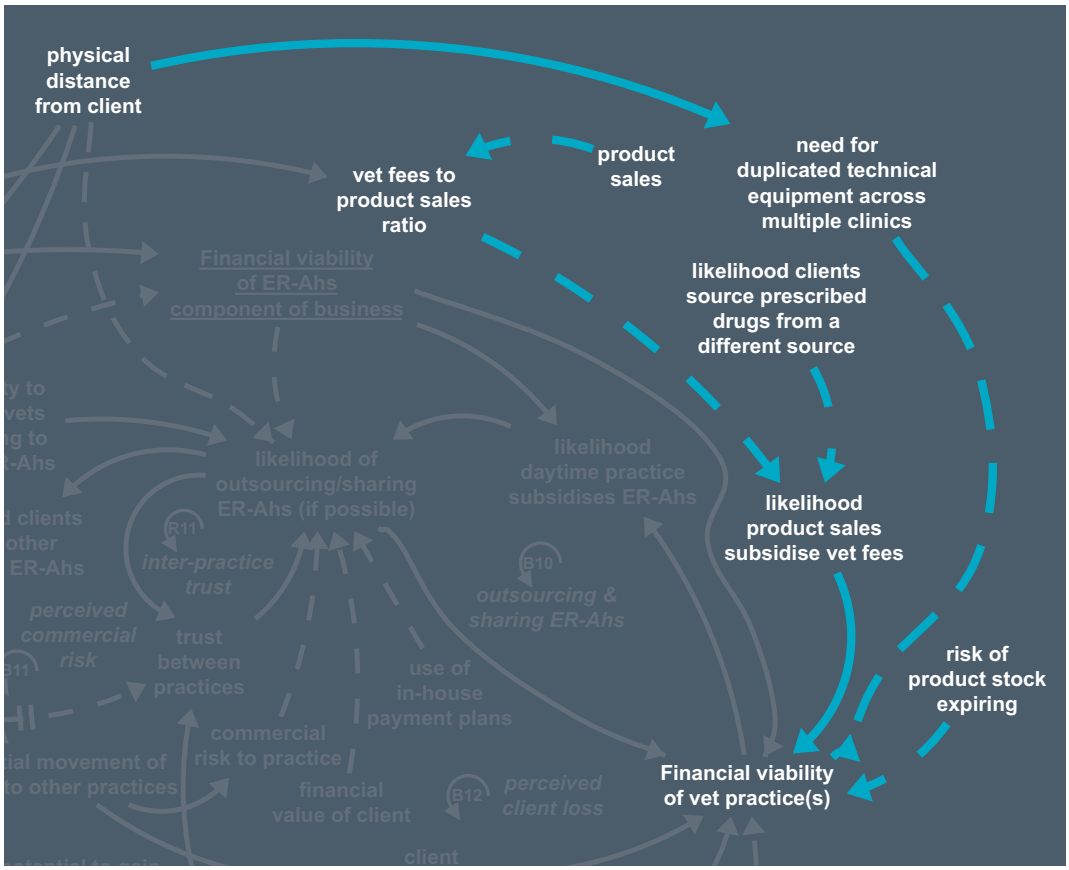
A range of other influences on the general viability of vet practices were also noted during the workshops and in-between discussions. These cover the impact of needing to have multiple clinics over a wider geographic area; and the role that product sales supplement vet fees.

Vets from cover more remote areas and a wider geographic area, noted that a feature of their business was the ‘need for duplicated technical equipment across multiple clinics’ (in turn this was influenced by a same relationship from ‘physical distance from client’). This has a cost impact on the business which is not able to be met with a commensurate utilisation factor for such equipment. This is represented as an opposite influence form that factor to the ‘financial viability of vet practice(s)’.

It was also noted that product sales were also an important part of the income for practices. This is represented by the factor ‘likelihood product sales subsidise vet fees’ which has a same influence on the ‘financial viability of vet practice(s)’. The lower the ‘vet fees to product sales ratio’ the greater the ‘likelihood product sales subsidise vet fees’ (opposite influence), The volume of product sales has an opposite influence on the ‘vet fees to product sales ratio’. Vets also spoke at length around the dynamic where there is a ‘likelihood clients source prescribed drugs from a different source’ – this factor has an opposite influence on the ‘likelihood product sales subsidise vet fees’.

It was also noted that many products (such as prescription drugs and feed/supplements) have a shelf life and stocking them is a risk to practices as they may exceed their shelf life and need to be written off by business. This is represented by the factor ‘risk of product stock expiring’ which has an opposite influence on the ‘financial viability of vet practice(s)’.

Figure A18. Other influences on the financial viability of vet practices (detailed)



A3.4.6. Inter-practice trust and the (potential) sharing of ER-Ahs

The financial viability of the ER-Ahs component of the business (and the practice in general) are important influences on the 'likelihood of outsourcing/ sharing ER-Ahs (if possible)'. The lower the financial viability, the greater the likelihood of outsourcing/sharing (opposite relationship).

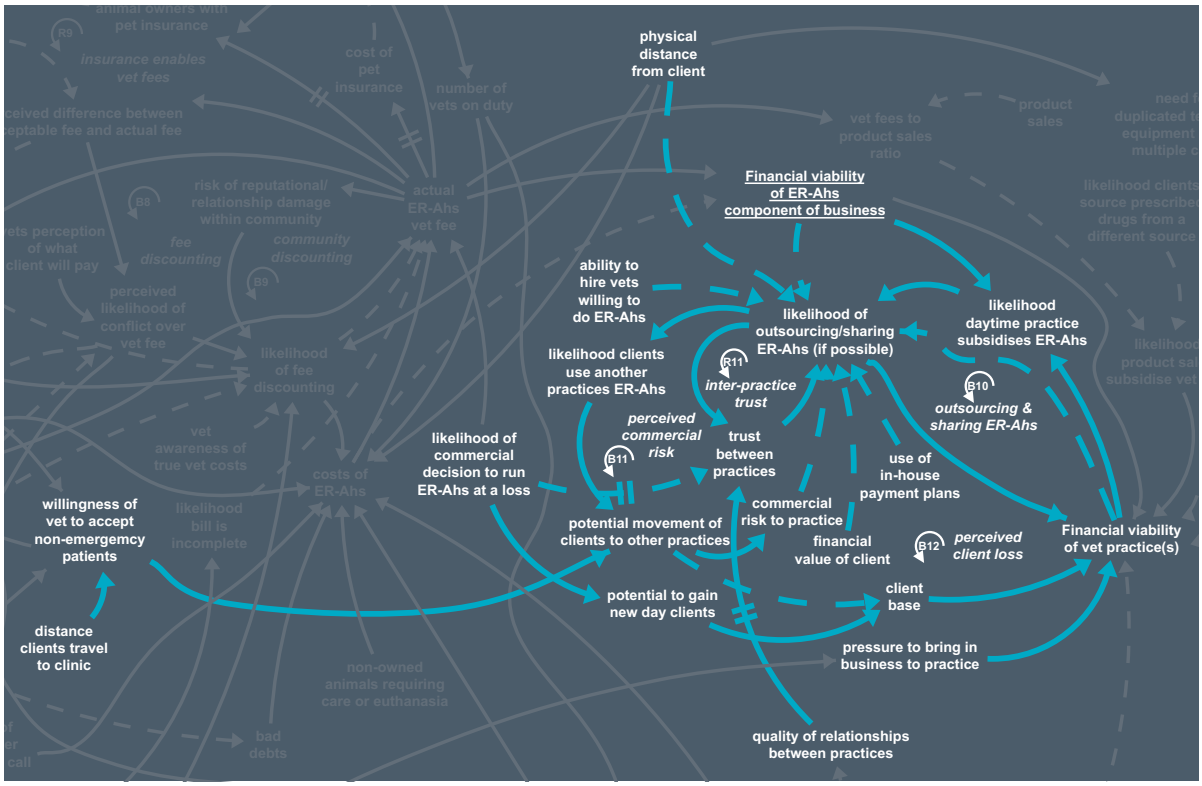
It is noted that the outsourcing factor has the caveat '(if possible)' in it. This is to indicate that not all practices may be able to share or outsource their ER-Ahs. Primarily because of geographic location or practice type. For example, practices that are situated remotely have fewer (or no) other practices with which they can realistically share their ER-Ahs work; and practices that specialise in companion animals are not practically able to share ER-Ahs with a large animal vet. It is therefore recognised that these loops become more relevant when the similarity and proximity of practices to each other is increased. The proximity element of this is also represented by the factor 'physical distance from client' which has an opposite influence on the likelihood of outsourcing or sharing.

Outsourcing or sharing ER-Ahs operates in a balancing loop with the financial viability of vet practices (*outsourcing & sharing ER-Ahs* (B10)). The lower the financial viability of the practice, the greater the likelihood of sharing/outsourcing (opposite relationship). Similarly, the greater the likelihood of sharing/outsourcing, the greater the 'financial viability of the vet practice(s)' (same relationship). At the same time, there are also a series of same influences

via the same pathway from the financial viability of the general practice to the likelihood of outsourcing/sharing, via the mediating factor of 'likelihood daytime practice subsidises ER-Ahs' – the greater the likelihood that the daytime work subsidies the emergency care after hours, the *greater* the likelihood of outsourcing or sharing. These opposing influences on the likelihood of outsourcing/sharing describe a variety of pressure on this decision and remind us that it is dependent on the practices' individual circumstances.

Separate to the financial influence on emergency care after hours, there is also a logistical influence – a practices' 'ability to hire vets willing to do ER-Ahs'. The lower this ability the higher the 'likelihood of outsourcing/sharing ER-Ahs)if possible)', an opposite influence.

Figure A19. Inter-practice trust and the (potential) sharing of ER-Ahs (detailed)



In addition, sharing/outsourcing ER-Ahs both enables, and is dependent on, the level of 'trust between practices'. This factor represents the level of trust that exists between practices and would be required to share/outsource ER-Ahs. This forms a reinforcing loop (*inter-practice trust* (R11)) which can either spiral up if trust and relationships between practices are healthy, or spiral down, if trust and relationships between practices are not healthy. Trust between practices is likely to be heavily influenced by current and historical dynamics within regions and between practices/individuals - this is represented by the factor 'quality of relationship between practices' which has a same influence on 'trust between practices'.

Trust is also influenced in the longer term (delay) by an opposite influence from the 'likelihood of commercial decision to run ER-Ahs at a loss' – i.e. if practices' choose to run it at a loss for commercial purposes (i.e. as a loss leader) this may erode trust between practices over time. This is from the perspective that this factor is talking about a *different* practice to your own.

Even if there is strong trust between practices, there may still be some commercial risk. These dynamics are represented by the *perceived commercial risk* loop (B11). This is a balancing loop where an increase in the sharing/outsourcing of ER-Ahs will increase the 'likelihood clients use another practices ER-Ahs', which increases the 'potential movement of clients to other practices', which increases the 'commercial risk to practice', which *decreases* a practices' 'likelihood of outsourcing/ sharing ER-Ahs' (opposite relationship). This risk is closely associated with the 'financial value of client' which has an opposite influence on the possibility of outsourcing/sharing – the higher the value of the client, the lower the change of outsourcing/sharing. This was noted as more of an issue for large animal vets.

The 'willingness of vet to accept non-emergency patients' also has a same influence on the 'potential movement of clients to other practices'. That is, some vets fear that if they do not accept non-emergency patients, their clients will move to a vet who will. At the same time, sometimes the 'willingness of vet to accept non-emergency patients' is influenced by practical geographic reasons. For example, the greater the 'distance clients travel to clinic' the greater chance that a vet will accept non-emergency patients (a same influence). This is because vets feel bad turning away clients that may have travelled some distance with an animal (usually companion animal).

If there is the 'potential movement of clients to other practices', this will reduce a practices' 'client base' (opposite influence), and then reduce the financial viability of vet practice(s)' (same influence).

On the other hand, if it was your own practice that was to choose to run ER-Ahs at a loss (this views the 'likelihood of commercial decision to run ER-Ahs at a loss' from the perspective of your own practice, unlike the earlier example), then this provides the opportunity to *increase* your 'client base' (same influence). This then also *increases* the same 'financial viability of vet practice(s)'.

Two other factors are also worth noting in this area. Firstly, depending on the skills and profile of the vet, they may be under 'pressure to bring business to [the vet] practice'. This has a same influence on the 'financial viability of vet practice(s)'. Secondly, the 'use of in-house payment plans' can inhibit the extent that a practice may be willing to outsource/share ER-Ahs (an opposite relationship). This is due to the complicated financial arrangements that may need to be made to accommodate this.

All of these influence indicate that there are many factors influencing whether ER-Ahs is outsourced or shared and provide insight into the many elements of trust and relationships that need to be in place for this to be achieved successfully, if it is even possible.

A3.4.7. How financial considerations influence other areas

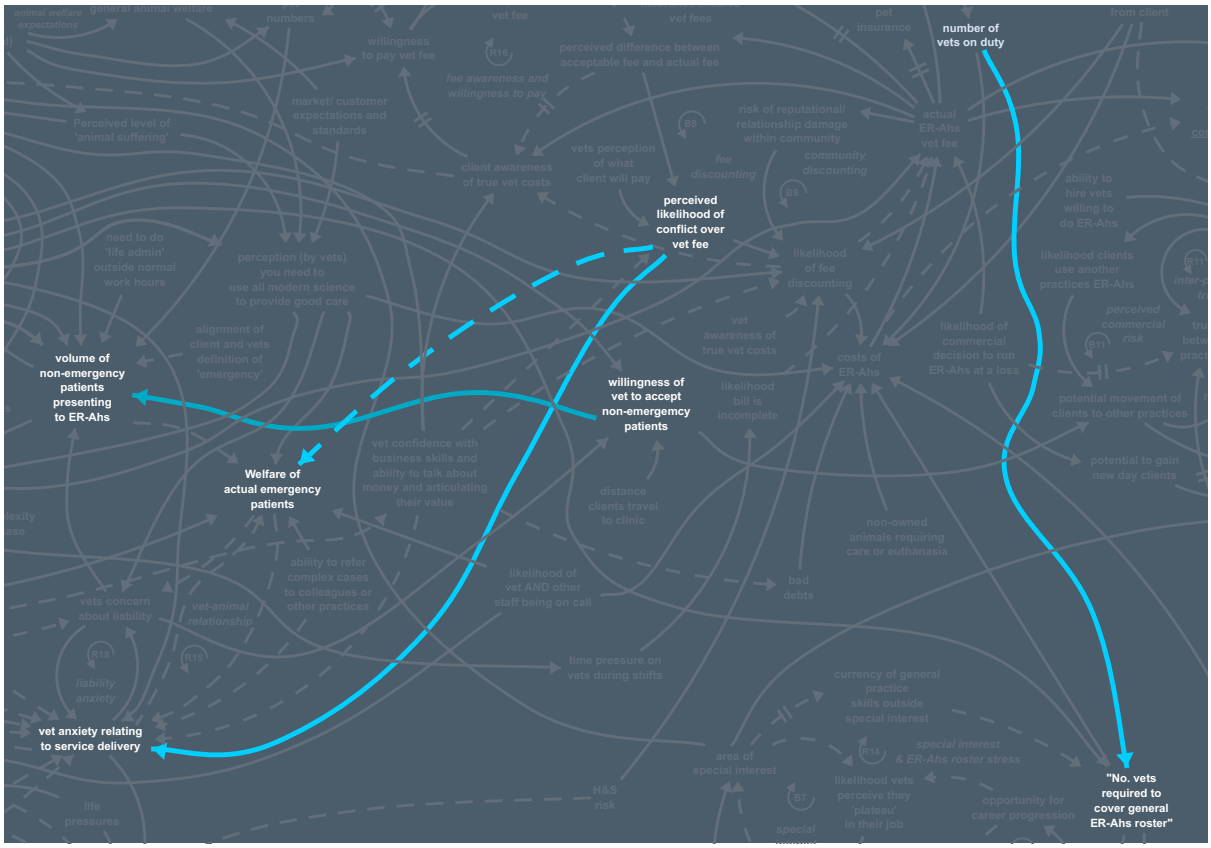
In addition to the influences the factors described above have on each other, they also influence other parts of the diagram. These are described below and may be read in conjunction with the other relevant related sections of this report:

- The 'perceived likelihood of conflict of vet fee' has an opposite influence on the 'welfare of actual emergency patients', as not all clients may be willing to pay for the appropriate service for the animal. Perceived conflict over fees also has a same influence on 'vet

anxiety relating to service delivery' – the greater the conflict, the greater the vet anxiety (which flows on to lower vet wellbeing).

- The greater the 'willingness of vet to accept non-emergency patients', the greater the 'volume of non-emergency patients presenting to ER-Ahs' (same influence).
- The greater the 'number of vets on duty', the greater the 'number of vets required to cover general ER-Ahs roster'.

Figure A20. How financial considerations influence other areas (detailed)



A3.5. Medical knowledge and training

The impact of advances in medical knowledge is important and fairly constant (it is always rising). The role that the Massey School of Veterinary Science - Tāwharau Ora (Massey)[21] plays in veterinarian training and graduate preparedness is also critical and is an important area of influence, yet there are significant delays before cohorts flowing through Massey have an impact in the industry.

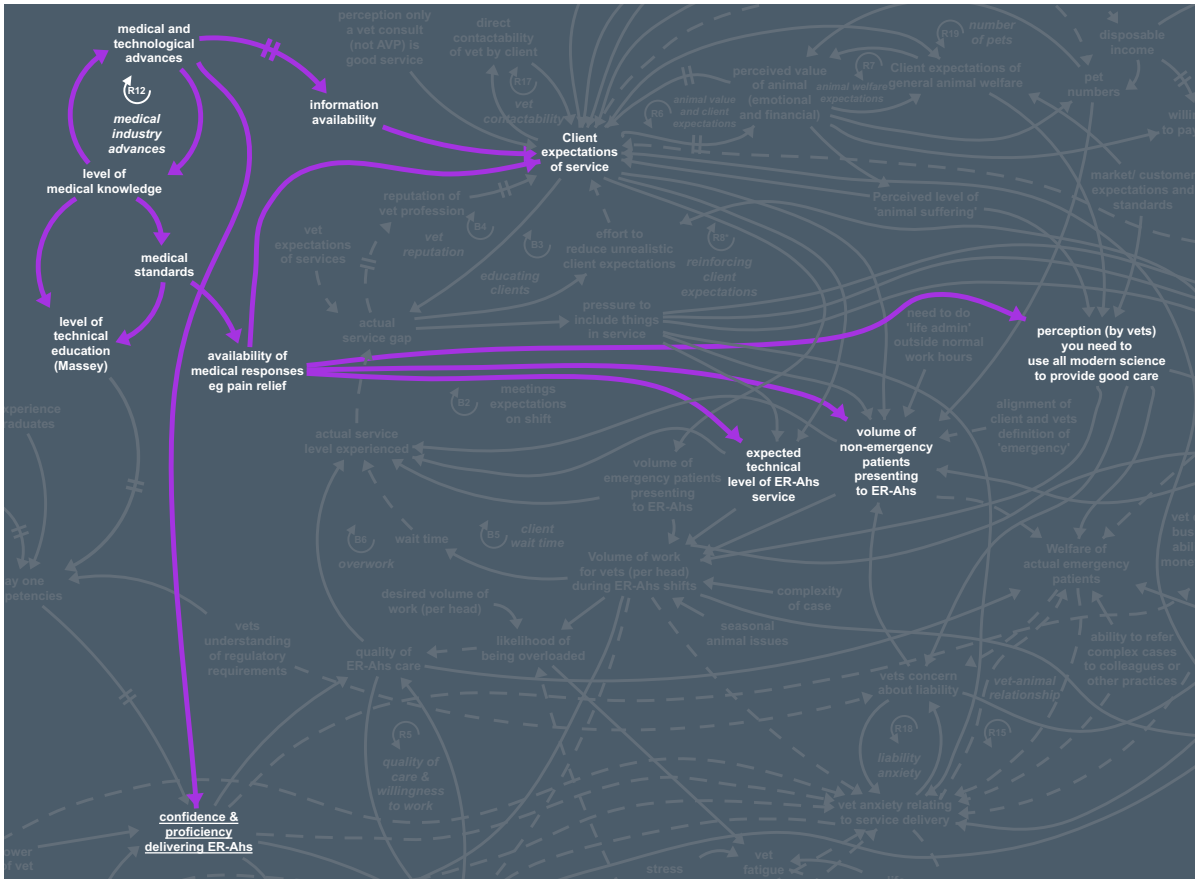
[21] Or other veterinary schools abroad. See earlier footnote to Table 2.

A3.5.1. Medical knowledge and advances

The ‘level of medical knowledge’ and ‘medical and technological advances’ are represented in a reinforcing loop called *medical industry advances* (R12). This represents the dynamic of these two things reinforcing each other over time.

‘Level of medical knowledge’ has a same influence with ‘medical standards’, which in turn has a same influence on ‘availability of medical responses (e.g. pain relief)’, which itself has a same relationship with ‘client expectations of service’, the ‘expected technical level of ER-Ahs service’; the ‘volume of non-emergency patients presenting to ER-Ahs’; and the ‘perception (by vets) you need to use all modern science to provide good care’. These represent the dynamics that workshop participants described, where the availability of a medicine (like pain relief) leads to a greater expectation that this would be available or prescribed, whether this was in response to an actual emergency or not.

Figure A21. Medical knowledge and advances (detailed)



Over time, (delay) ‘medical and technological advances’ also increase the ‘information availability’ (same influence). This factor also represents the hyper-connectivity of the public to information in modern society – for example via the internet. This then has a same influence on client expectations. The amount of ‘medical and technological advances’ also has a same influence on ‘confidence & proficiency delivering ER-Ahs’. This influences both client expectations and the confidence & proficiency of vets.

The ‘level of medical knowledge’ and ‘medical standards’ both have a same influence on the ‘level of technical education (Massey)’ – i.e. the level of skills and knowledge taught to vets at university.

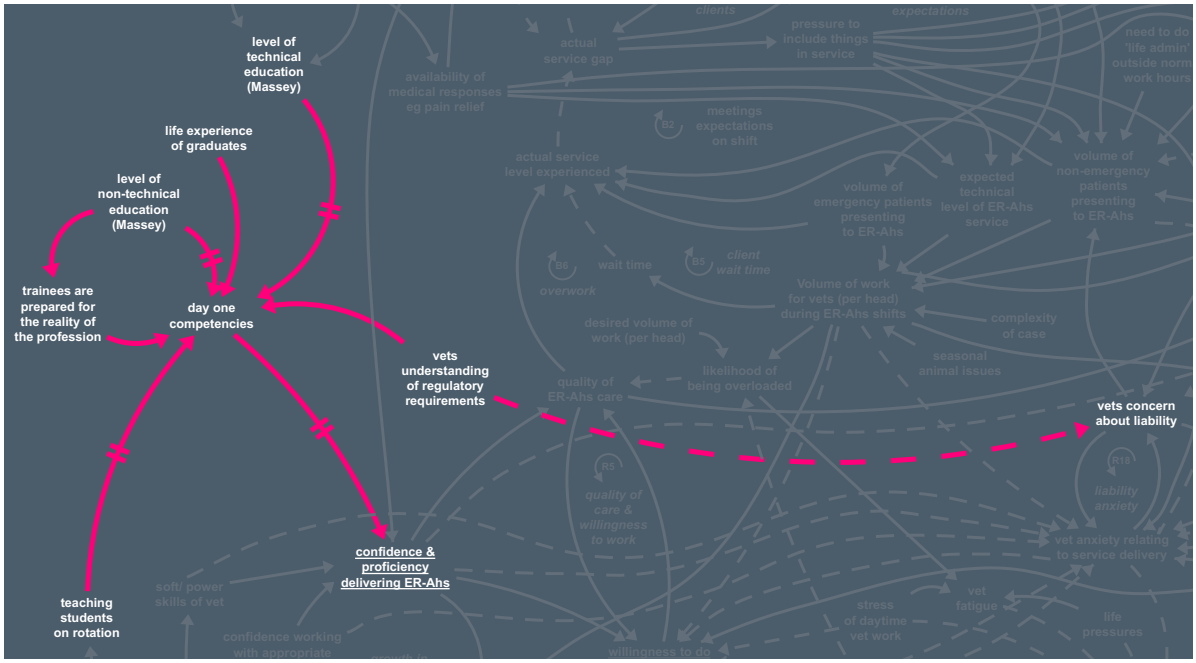
A3.5.2. Veterinarian training

The Massey School of Veterinary Science - Tāwharau Ora (Massey) is the only veterinary school in New Zealand, so obviously plays an important role in training vets. The type of education that Massey provides is divided into two types – technical and non-technical.

The ‘level of technical education (Massey)’ describes the *medical* education that students receive. This covers things like science knowledge, clinical and surgery skills required to be a vet. As described in the previous subsection, this is influenced by medical knowledge and standards.

The ‘level of non-technical education (Massey)’ describes the *non-medical* education that students receive. This covers things like business and interpersonal skills, and an understanding of legal and legislative issues. The non-technical element of the education has an important same influence on whether ‘trainees are prepared for the reality of the profession’ which contribute to the ‘day one competencies’ of vets.

Figure A22. Massey School of Veterinary Science (detailed)



Both technical and non-technical skills also have a longer-term (delayed) same influence on the ‘day one competencies’ of vets – the skills and competencies they go into the vet profession with. ‘Day one competencies’ have a delayed same influence on vets ‘confidence & proficiency delivering ER-Ahs’. The delays described here are because Massey has a minimum 5-year lead time to produce graduate vets.

Other important influences in this area include teaching students on rotation (a delayed same influence). While this happens in vet practices while students are on rotation, it is included here because Massey play an important role in coordinating this and influencing the expectations of both students and practices involved. Pervious 'life experience of graduates' also has a same influence on 'day one competencies'. For example, things like whether a student has had a job before (part time or full time) can impact the level of tacit knowledge they bring to their first full time veterinarian position when they graduate.

Finally, another educational factor that plays a role is 'vets understanding of regulatory requirements'. This has a same influence on 'day one competencies' as well as 'vets concerns about liabilities' – the better a vets awareness and knowledge in this area, the greater the likelihood their anxiety will be reduced as a result, as they have knowledge and awareness to know what they are liable for. This is shown in this training section but not exclusively as part of Massey education, because this will in part occur during university, as well as being an ongoing skills development need throughout their career.

A3.6. Veterinarian professional development in practices

Once vets have graduated, professional development within practices through on the job training and mentoring has an important continued influence on their confidence and proficiency. This naturally relates to technical skills but perhaps more importantly, the non-technical skills required to deliver good veterinary services. While there are likely to be variances in the technical skills of all vets, this diagram assumes that all vets are technically competent and hold an Annual Practicing Certificate. The focus on mentoring explained here has a focus on the mentoring and development of relevant non-technical skills (beyond the technical skills development of recent graduates) – for example business practices, soft/power skills for dealing with people, and dealing with perceived conflict.

A3.6.1. Mentoring and development

In-practice mentoring is an important way that vets continue to develop skills throughout their career. While there is a strong focus on mentoring relevant technical skills with recent graduates, mentoring of important non-technical skills may continue to apply to vets throughout their career.

The act of mentoring and the ongoing development of vets through support and training is represented by the factor 'appropriate mentoring and development of vets'. The word 'appropriate' is used as there will be many different needs of many different vets, in the different practice situations that exist across the country.

The 'appropriate mentoring and development of vets' over time (delay) will have a same influence on the 'confidence working with appropriate species/ issues'; the 'soft/power skills of vet' (e.g. their people skills and ability to handle non-technical issues such as financial discussions, dealing with anger and frustration, etc); and 'day one competencies' of graduate vets (through 'teaching students on rotation'). All of these factors have a same influence on a vets 'confidence & proficiency delivering ER-Ahs'. These pathways recognise that mentoring

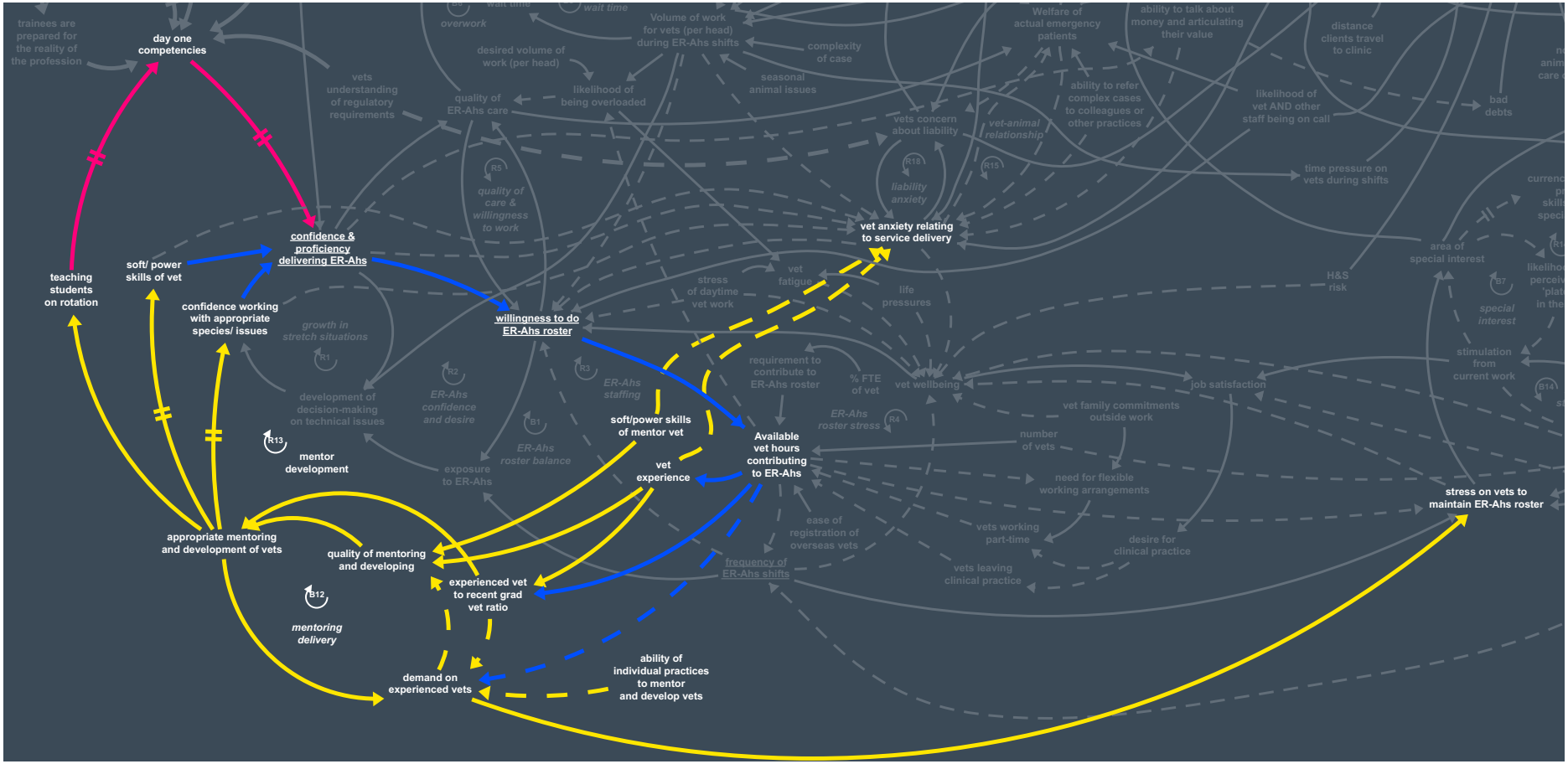
can happen when a trainee vet is on placement (‘day one competencies’) and in an ongoing way when they are working in a practice (‘confidence & proficiency delivering ER-Ahs’).

It should be noted that the delays involved with mentoring are significant. Also, the mentors come from the current vet population, so their abilities are dependent on the ‘soft/power skills of mentor vet’, the ‘vet experience’ and the ‘available vet hours contributing to ER-Ahs’ within a practice. These factors have a same influence on the ‘experienced vet to recent grad vet ratio’ and the ‘quality of mentoring and development’. If those skills are not already well developed in existing vets, they will be challenging to nurture in mentees. The existing soft/power skills of mentor vets and their experience also have an opposite influence on ‘vet anxiety relating to service delivery’.

Ensuring the ‘appropriate mentoring and development of vets’ places a ‘demand on experienced vets’ (same relationship). In turn, this puts ‘stress on vets to maintain ER-Ahs roster’ (same relationship – because they are taking more time to mentor). If there is strain on the ER-Ahs roster and the ‘available vet hours contributing to ER-Ahs’ are low, this can also increase the ‘demand on experienced vets’. The flow on impact of this demand on vets to mentor is that this has an opposite influence on the ‘quality of mentoring and development’, creating a balancing loop called *mentoring delivery* (B12). In other words, the ability of a practice to mentor and develop people is constrained by the availability of experienced staff in its practice. It is also influenced by the ‘ability of individual practices to mentor and develop vets’ – i.e. does the practice support mentoring? Are there appropriate processes and policies in place to support this?

Over time, the act of mentoring can develop more vets, build confidence and proficiency, increasing vets willingness and the number of vets doing ER-Ahs, which will decrease the demand (on average) on experienced vets, which further enables more mentoring. This is captured as reinforcing loop *mentor development* (R13), but it is noted that this loop will take some time to operate (many years).

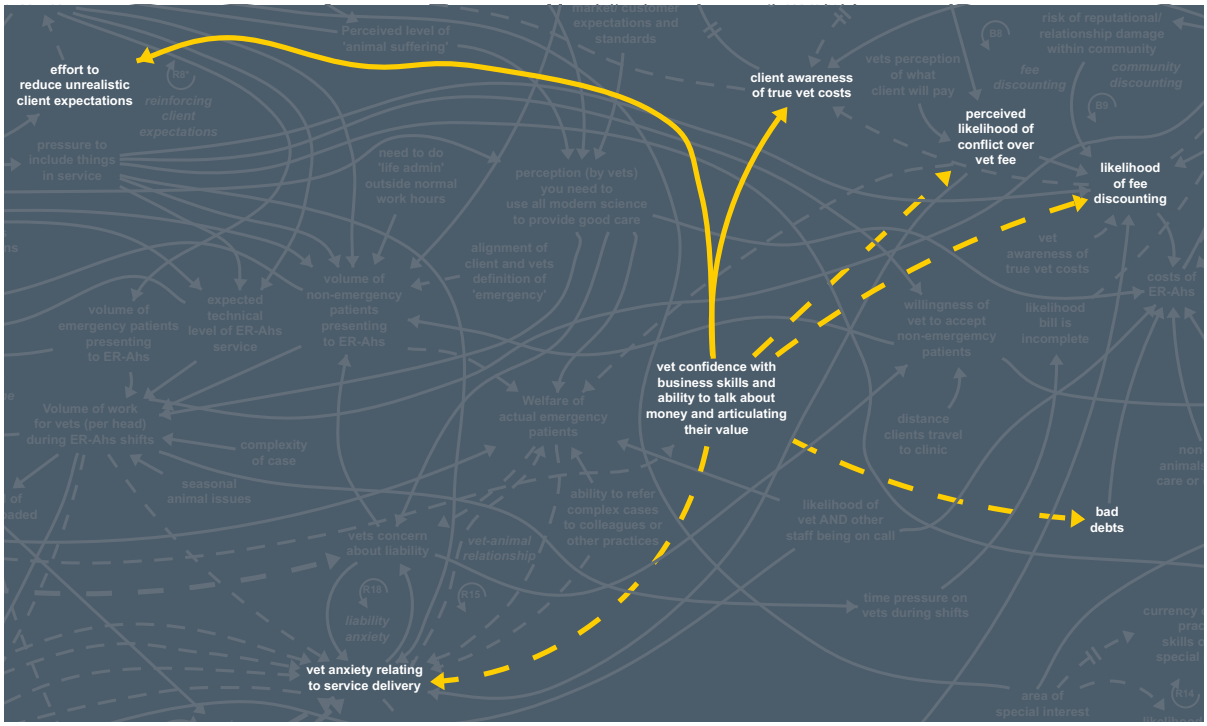
Figure A23. Mentoring and development (detailed)



A3.6.2. Vet confidence with the necessary business skills

The other major component of professional development was noted as being the confidence that vets have with the necessary business skills to operate as a vet. This recognises that being a vet requires many more skills than just the technical medical skills. This includes a range of skills such as: being proficient in the processes of the business/practice; having good people skills (often called soft or power skills noted in the previous subsection) to be able to deal with clients in difficult situations; the ability to articulate the value that they are adding with any necessary procedures and their associated costs; as well as confidence and skills dealing with financial issues from a business point of view – that is, being fully aware of the costs incurred by the business and the need to recover them in fees. These skills have been represented in the diagram with the comprehensive factor: 'vet confidence with business skills an ability to talk about money and articulate their value'. In the diagram this has been framed as 'vet confidence' but this applies both individuals and the vet/practice team – i.e. allied vet professionals, administrative staff, etc.

Figure A24. Vet confidence with the necessary business skills (detailed)



This factor influences several other factors. It has a same relationship with both 'client awareness of true vet costs' and 'effort to reduce unrealistic client expectations' – the *higher* this factor the *higher* these other factors. It has an opposite relationship with 'vet anxiety relating to service delivery', the 'perceived likelihood of conflict over vet fee', 'likelihood of fee discounting', and 'bad debts' – the *higher* this factor the *lower* these other factors. These connections highlight the impact that such soft/power skills have on multiple parts of the business, client expectations, and vet anxiety (which further influences vet wellbeing).

3.7. Vet stimulation in work, wellbeing and job satisfaction

Vet wellbeing and job satisfaction is an important element of ensuring that ER-Ahs services, as well as the wider vet profession, are in a healthy state. There are many influences on whether vets are stimulated in their work, have good levels of wellbeing, and are satisfied from their work. These include remuneration, anxiety relating to emergency services delivery, the level of challenge they get from their work, health and safety, concerns around liability, and of course other life pressures.

A3.7.1. Vet stimulation and work

Becoming a vet requires years of focused study and achievement. Therefore, being a vet comes with a track record of being intellectually challenged and stimulated for years through training and working in practice. Yet it was observed by many workshop participants and some of the interviews with additional people, that the level of challenge or stimulation can plateau after working in vet practice for some time. This could be for many reasons and may include things like seasonal fluctuation in animal needs or the potentially repetitive nature of work in some vet practices. It was noted that this can result in vets being less stimulated and therefore less satisfied with their work, or as some people put it – "rusting out". This phenomenon is represented in the diagram with the factor 'likelihood vets perceive they 'plateau' in their job'.

The greater the experience of this plateau, the lower vets get 'stimulation from current work' (an opposite influence). As a response, it was noted that some vets sought to achieve greater intellectual stimulation by being more focused in their work area, which has been represented in the diagram as 'area of special interest' – the lower the 'stimulation from current work' being increasing the likelihood that they develop an 'area of special interest' in a practice. This could range from seeking to build more experience with a certain species of animal or with a certain type of complaint or ailment[22]. As vets focus more on an 'area of special interest', they increase their intellectual stimulation and reduce the 'likelihood vets perceive they 'plateau' in their job' (an opposite relationship). This creates a balancing loop between plateauing, stimulation and special interest, which is called the *special interest* loop (B7).

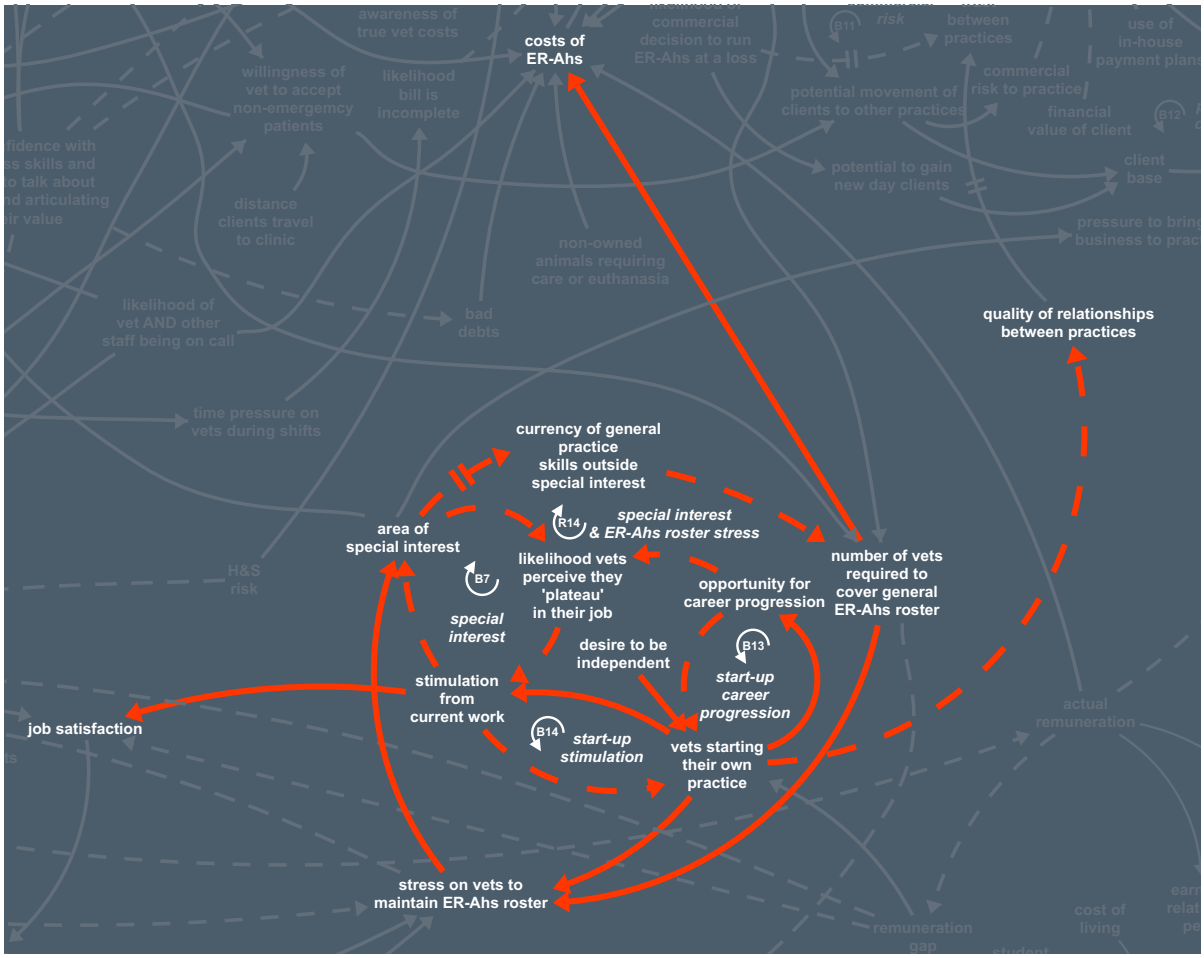
These factors have several important flow-on impacts. Firstly, the lower a vets' 'stimulation from current work' increases (opposite relationship) the likelihood of 'vets starting their own practice', in order to achieve the intellectual stimulation they desire. This can also be influenced by the opportunities (or lack of them) provided within a practice, which can also lead to a sense of feeling a 'plateau'. If vets start their own practice they are leaving their existing practice, so this has a further flow-on same relationship with 'stress on vets to maintain ER-Ahs roster'.

It is noted that some people may tend towards wanting to be self-employed due to their personality. This is captured by the factor 'desire to be independent', which has a same influence on 'vets starting their own practice'. It is also noted that an increase in 'vets starting

[22] It is important to note that this does NOT represent certified specialisation, which is achieved through further accredited study. This is not represented specifically in the diagram.

their own practice' also has an opposite influence on the 'quality of relationships between practices' (which goes on to influence trust between practices, described earlier).

Figure A25. Vet stimulation at work (detailed)



Secondly, over time (delay) an increase in the number of vets that have an 'area of special interest' can also lead to a decrease in the 'currency of general practice skills outside special interest' for an individual vet, and within a practice. If this factor decreases, this increases (opposite relationship) the 'number of vets required to cover general ER-Ahs roster' to help accommodate these more focused skill sets. This increases the 'costs of ER-Ahs' and adds further 'stress on vets to maintain the ER-Ahs roster' (same relationship) which, ironically, can also be a motivator (same relationship) for vet's to pursue an 'area of special interest' to avoid the stress of a general roster. This describes the reinforcing loop *special interest and ER-Ahs roster stress* (R14).

All of this is important because the lower a vets 'stimulation from current work', the lower their 'job satisfaction' (same relationship).

A3.7.2. The many influences on vet wellbeing

The ‘vet wellbeing’ factor captures the many elements that make up vet wellbeing. This includes the physical, intellectual and emotional wellbeing of vets. Consequently, there are many influences on this factor.

Primarily, vet wellbeing has been represented in the diagram as having a same influence on both ‘willingness to do ER-Ahs roster’ and ‘job satisfaction’. ‘Job satisfaction’ then has a same influence on a vets ‘desire for clinical practice’, which has opposite influences on both ‘vets leaving clinical practice’ and ‘vets working part-time’. In turn, both also have opposite influences on the ‘available vet hours contributing to ER-Ahs’. In short – decreased job satisfaction has an important decreasing influence on the available vet hours in ER-Ahs. Vet wellbeing is therefore an important factor in relation to the delivery of ER-Ahs being in a healthy state. The influences on it are described below.

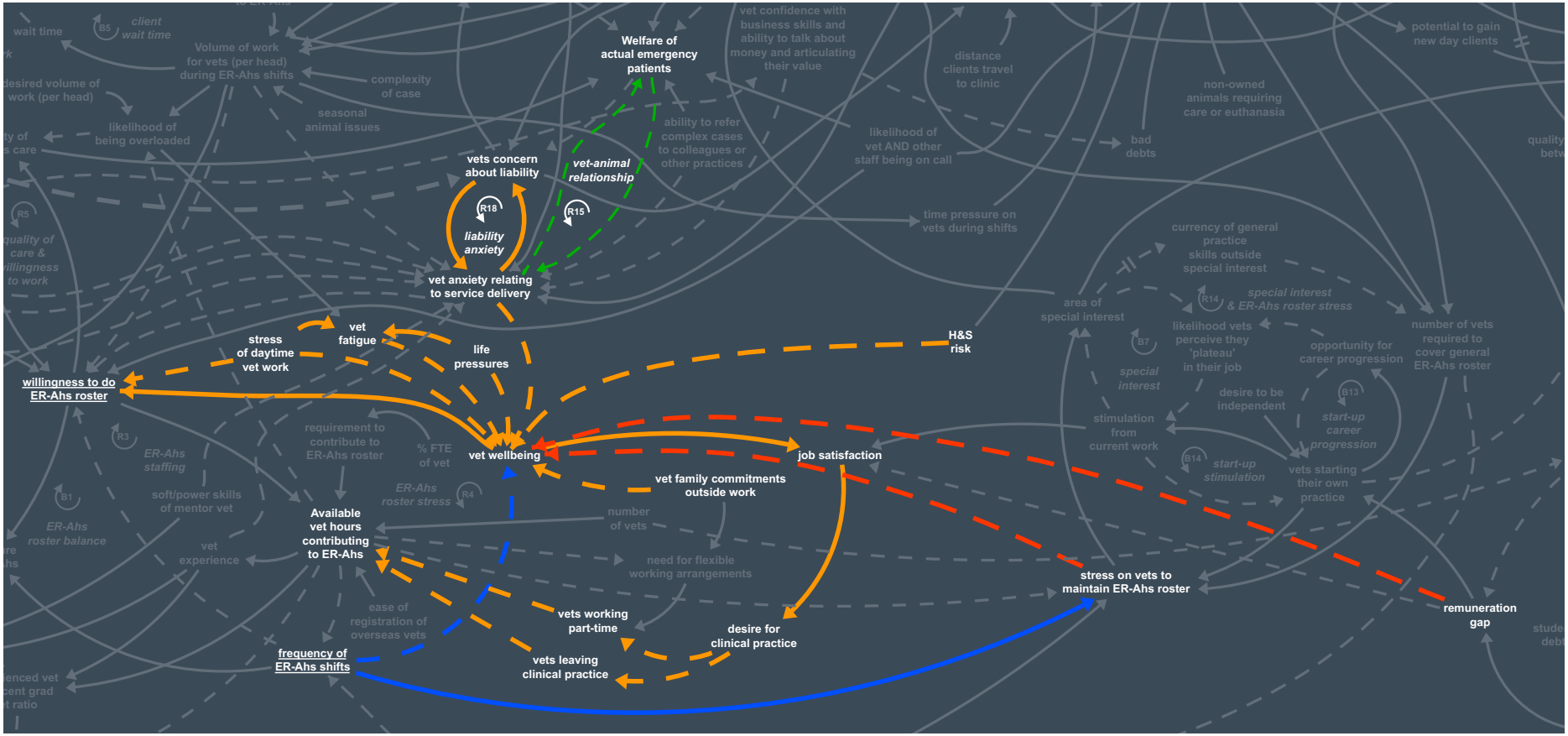
Firstly, ‘vet wellbeing’ is influenced by the ER-Ahs roster itself. If the ‘frequency of ER-Ahs shifts’ is high, this decreases ‘vet wellbeing’ (an opposite influence). A high frequency also increases the level of ‘stress on vets to maintain ER-Ahs roster’ (a same influence) – that is, the individual stress on vets involved with a high frequency ER-Ahs roster to maintain that roster – which then has an opposite relationship with ‘vet wellbeing’, decreasing it.

Secondly, ‘vet anxiety relating to service delivery’ has an opposite relationship with ‘vet wellbeing’ – if anxiety increases ‘vet wellbeing’ decreases. Other influences that have an *opposite* influence on ‘vet wellbeing’ (i.e. if they go up, then wellbeing goes down) include: ‘vet family commitments outside work’; ‘life pressures’, meaning other things going on in a vet’s life; ‘vet fatigue’, representing both the mental and physical aspects of fatigue; the ‘stress of daytime vet work’ – i.e. the daytime role of a vet is already a stressful job, and can add further stress to ER-Ahs commitments; health & safety risk (‘H&S risk’) (e.g. conflict over fees can be a form of H&S risk, as can lone late-night visits to unknown clients locations); and vets’ ‘remuneration gap’ (how much vets are paid – the is explained in the following subsection).

Importantly, ‘vet anxiety relating to service delivery’ is linked into two reinforcing loops: with the ‘welfare of actual emergency patients’ (called the *vet-animal relationship* loop (R15)); and with ‘vets concern about liability’ (called *liability anxiety* (R18)). These capture the dynamics that many noted where vets can be very focused on the welfare of the actual patients in their care, which has a direct impact on their anxiety; as well as the concern relating to potential liability, sometimes influenced by a lack of clarity or awareness of what their liability may be in some cases (noted in an earlier subsection).

Additionally, vet anxiety (and therefore ‘vet wellbeing’) is also influenced by the ‘perceived likelihood of conflict over vet fee’. None of the relationships in this diagram are weighted, yet it is noted that the perceived conflict over fees and the need to deal with clients about money matters, was anecdotally a significant stress on many vets. Participants noted that vets tended to become vets to focus on animal care, and the prominent need for financial and people skills were not inherent in some vets, or developed during training.

Figure A26. The many influences on vet wellbeing (detailed)



A3.7.3. Remuneration

This section describes some of the dynamics relating to vet remuneration. This is often an obvious and emotive element in the complex set of factors relating to the delivery of ER-Ahs service. It is hoped that this diagram helps put this factor in the context of the many other factors that also contribute to the healthy delivery of ER-Ahs.

Remuneration is represented in the diagram as another example of a goal/gap relationship (see section 3.4). Here, there is the 'desired remuneration' and the 'actual remuneration' of a vet, or of vets on average, as this could be used as either an individual lens or a collective industry lens on remuneration. These two factors both influence the 'remuneration gap'. If there is a large difference between desired and actual remuneration, then the gap is large; If actual is in line with desired remuneration, then this gap is small (or non-existent). The size of this gap indicates the amount of influence this then has on other areas.

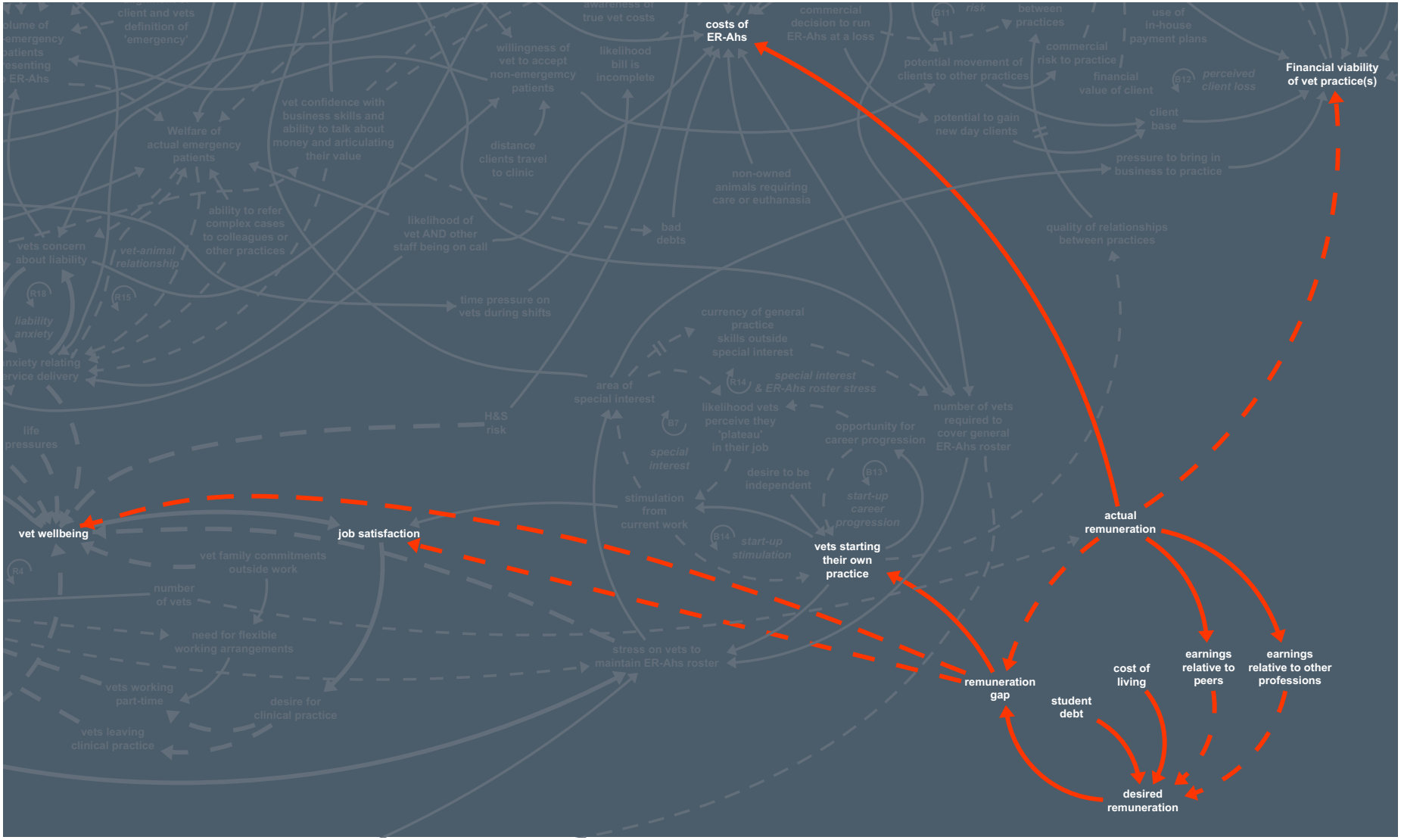
There are several areas that this 'remuneration gap' influences. The likelihood of 'vets starting their own practice' (a same relationship –the larger the 'remuneration gap; the more likely vets are to start their own practice)'; 'vet wellbeing' (an opposite relationship –the larger the 'remuneration gap', the lower wellbeing); and 'job satisfaction' (an opposite relationship – the larger the 'remuneration gap' the lower vets 'job satisfaction').

The level of 'actual remuneration' also has some flow-on influences. If it increases, it also increases the 'costs of ER-Ahs' (same relationship) and it also reduces the 'financial viability of vet practice(s)' (opposite relationship).[23]

Further, if remuneration increases, it increases the vets 'earnings relative to peers' and 'earnings relative to other professions'. These both have an opposite influence on the 'desired remuneration' – that is, the more you are paid comparative to others, reduces some of the drivers for further desired remuneration. Two final factors – 'cost of living' and 'student debt' – capture other financial influences (outside of how a vet salary compares to others) that would influence a vets desired remuneration.

[23] It has been noted in discussions while finalising this report that there is also a *same* influence from the 'financial viability of vet practice(s)' on 'actual remuneration'. For example, lower financial viability has a direct impact on remuneration, as well as the affordability of more veterinary resources in general (staff and facilities), professional development etc. This is a valid connection yet has not been included here. Primarily because the workshops and the process for validating the diagram with participants had completed. But the connection remains valid and can be considered by individuals when using the diagram.

Figure A27. Remuneration (detailed)

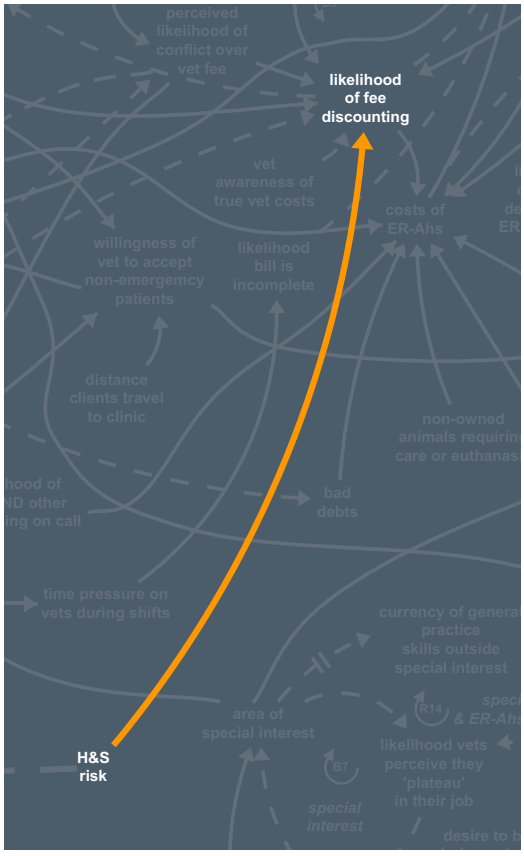


A3.7.4. How vet stimulation in work, wellbeing and job satisfaction influence other areas

In addition to the influences the factors described above have on each other, they also influence other parts of the diagram. These are described below and may be read in conjunction with the other relevant related sections of this report:

- ‘H&S risk’ also has a same influence on the ‘likelihood of fee discounting’. This captures the dynamic that in some situations, vets may feel unsafe with a client who is unhappy with a fee and it is easier to discount the fee so that the situation is resolved. This applies particularly with practices that may only have one or two staff on ER-Ahs, and to vets that have to do night visits to properties on their own.

Figure A28. How vet stimulation in work, wellbeing and job satisfaction influence other areas (detailed)



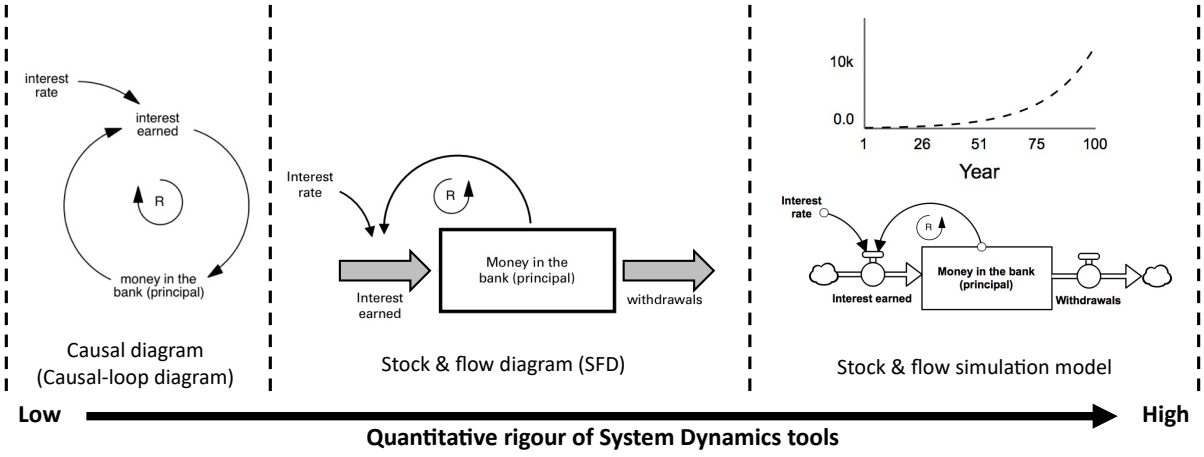
Appendix 4. Causal diagrams within system dynamics and with other methodologies

This section briefly outlines how causal diagrams themselves fit within a spectrum of complexity in the discipline of System Dynamics, and how they may be used in conjunction with other methodological approaches.

A4.1. Causal diagrams on the spectrum of complexity within System Dynamics

The tools of System Dynamics themselves exist on a spectrum of complexity. These are shown in Figure A29 which highlights how these varying tools can demonstrate the same system, and to make the point that causal diagrams are not the only possible output from the use of SD tools.

Figure A29. System Dynamics tools exist on a spectrum - Causal diagrams (or Causal loop diagrams), Stock and flow diagrams, and Simulation modelling.



Causal diagrams as developed here, exist at the conceptual (low complexity) end of this spectrum. These can range from using the simple dynamics of a single feedback loop to demonstrate a type of behaviour, to multiple loop systems (as in this report) – which themselves can be reasonably complex.

The next step up in complexity are Stock and Flow Diagrams (SFD). No stock and flow notation has been used in the diagrams in this report. SFD usually contain multiple stocks of interest. Although not all factors need to be stocks, their architecture tends to represent a greater level of mathematical functionality. This is because SFD tend to be qualitative representations of the actual functions and equations that would be represented in a stock and flow model. This level of detail has not been achieved in this report.

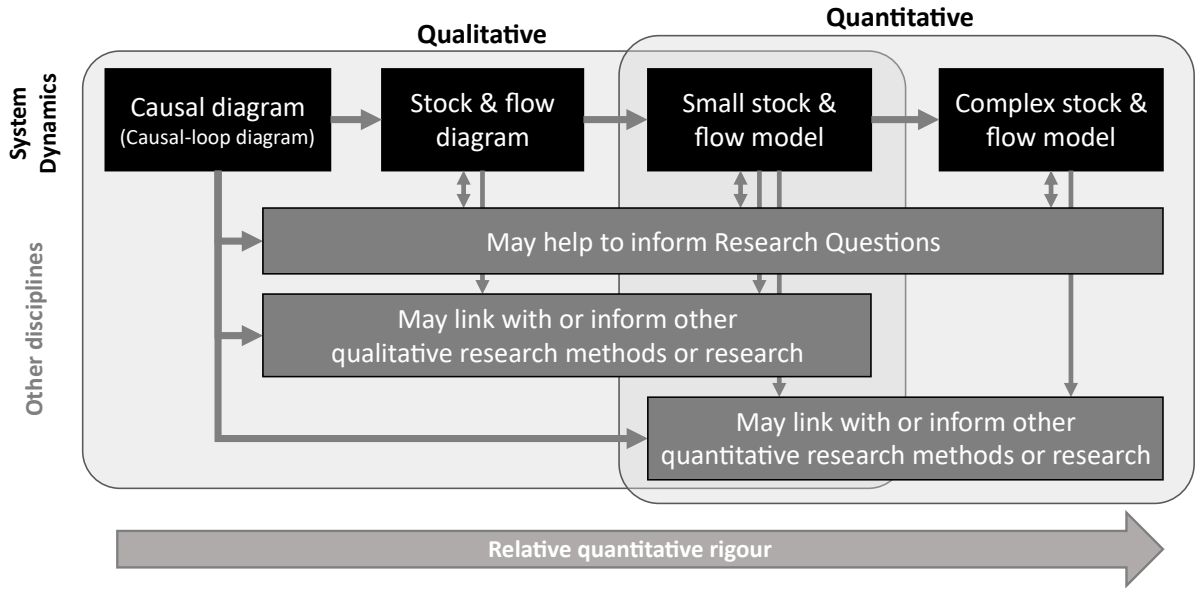
Computer simulation modelling (based on the stock and flow formulation) is the next step in complexity – that is, turning stock and flow diagrams into simulation models. There is huge

variability in the types of simulation models that can be developed, with some people advocating that large system insights can be gained from using small scale models (Meadows, 2008), to others demonstrating the utility of large scale and highly complex simulation models (Sterman, 2000).

A4.2. How causal diagrams may link with other methodological approaches

While causal diagrams may lead to more complex stock and flow diagrams and simulation modelling within System Dynamics, it may also link with or inform other methodological approaches within a wider research project or programme. A diagram outlining how this can work is shown below in Figure A30.

Figure A30. How causal diagrams can link with other research methodologies



Note: There is an overlap of the qualitative and quantitative areas of application because they are not mutually exclusive. For example, some quantitative relationships in models and their calculations may be informed by research or data, while others may be informed or assumed via some form of participatory process.

The series of black boxes across the top of the diagram represent the increasing complexity of the System Dynamics tools. The grey boxes in the lower part of the diagram represent the research questions that may be generated during research, as well as the different qualitative and quantitative methods that may be employed within the research. All of these may be informed by the causal diagram process, or a more complex evolution of a causal diagram (for example a small stock & flow model).

For example, a causal diagram may provide insight to the nature of relationships within the system that may inform how a research question is framed. It may also inform the types of people who might be involved (as researchers or as research subjects). Further, the nature of the relationships elicited throughout the causal diagram process could also inform other research methods – either qualitative or quantitative – that may be used.

Please note that while the diagram above may suggest that as research becomes more quantitative it becomes more complex, that is not our intention. Rather, our position is that

more precise numerical measures tend to give systems theorists the opportunity to specify more precise relationships and thus add layers of complexity to their models. In fact, in complex worlds, qualitative methods are more likely to capture complexity and make it available for analysis. In complex worlds, systems thinking and causal mapping may be used as a decision-support tool that enables a more holistic view of inter-relationships that may otherwise be missed or excluded from reductionist analyses (Senge, 2006; Pearl & Mackenzie, 2018).