

## **The importance of preventative healthcare: What 10 years of CEVM research reveals**

### **Abstract:**

Preventative healthcare, including vaccination, is a fundamental part of everyday life for both humans and animals. However, in a veterinary context, little attention has been afforded to the features of preventative healthcare discussions relating to small animals and the factors that might influence uptake of these measures. There has also been little exploration of the opinions and perceived responsibilities of all stakeholders (vets, nurses, receptionists, and owners) in an animal's preventative healthcare journey. The Centre for Evidence-based Veterinary Medicine (CEVM) has been researching this important area for the past 10 years; this article summarises their findings, culminating in the provision of practitioner-focused evidence-based guidance for use in clinical decision-making to help optimize animal care.

### **Keywords:**

Preventative healthcare, preventative healthcare consultations, preventive medicine, vaccination, small animals, veterinary surgeon, veterinary nurse

### **Key points:**

- Small animal preventative healthcare consultations are common, complex, and time pressured. It is worth investigating owner expectations around preventative healthcare consultations as they can vary, dependent on several factors, including past experiences.
- Veterinary nurses and receptionists appear to play a significant role in preventative healthcare. Clarity is needed as to the responsibilities of these groups, as well as vets, for both practice staff and clients
- Practical, evidence-based guidance about preventative healthcare consultations has been developed by the Centre for Evidence-based Veterinary Medicine as a

result of stakeholder-informed research. This is a series of points that practices could consider when looking to optimize preventative healthcare consultations.

**Background:**

Vaccines and preventive medicine are concepts as important today as they have ever been. Whilst we try to come to terms with the impact of the COVID-19 pandemic in the UK, we are living the reality of human vaccination being one of the most important approaches we can take to reduce disease transmission and infection nationally and globally. Along with other preventative practices, the same principle applies to diseases of veterinary significance, such as rabies (Sa´nchez-Soriano et al. 2020). The incidence of what is being termed 'vaccine hesitancy', or the delay in acceptance or refusal of vaccines despite availability of vaccine services (WHO SAGE 2014) has begun to appear in veterinary reports (McGowan 2019; Mattson 2020). It is a fundamental part of evidence-based veterinary practice that an understanding of how stakeholders perceive their role within, and beliefs about, animal health is key for successful knowledge exchange interactions. For evidence-based veterinary research to be successful, all key stakeholders should be involved in the research creation process to ensure an outcome applicable to and useable by as many professionals as possible. These practice-based and research perspectives are key in areas such as preventive medicine, where communication about the risks and benefits is vital for successful implementation. As the UK veterinary industry re-evaluates how it approaches the day to day running of veterinary practice in the aftermath of the first 18 months of COVID-19, having a good grasp of the perspectives of stakeholders is more important than it has ever been, particularly in terms of preventative healthcare.

The Centre for Evidence-based Veterinary Medicine (CEVM) in the School of Veterinary Medicine and Science at the University of Nottingham was established officially in 2010. The aim of the CEVM is to assist veterinary professionals to use an evidence-based approach to clinical decision-making. Whether this be by working closely with veterinary

stakeholders to identify research questions of importance and where possible answering them with robust methods or ensuring that the results of 'science' or research is disseminated back in a format conducive to being integrated into clinical decision-making. For further information about the CEVM visit our website ([www.nottingham.ac.uk/cevm](http://www.nottingham.ac.uk/cevm)). Preventative healthcare has been one of our main areas of focus across many species.

**Aim:**

In this article, we will highlight what the Centre for Evidence-based Veterinary Medicine has learned from 10 years of research focused on preventative healthcare in small animal practice.

**Methods and Findings:**

Researchers within the CEVM initially used broad based approaches to identify where the research priority areas were for the veterinary profession. This involved direct observation of small animal consultations to document interactions, in combination with investigation of data extracted from practice management software systems. This data was analysed descriptively and statistically to highlight novel and pertinent findings about these interactions and to determine areas for further investigation. Preventative medicine consultations (PHC) were recognized as a research priority. Once questions of importance were identified, further detailed investigations were undertaken with a range of stakeholders (e.g., vets, owners) involving systematic reviews, surveys, and interviews, to identify what a 'successful' preventative medicine consultation looked like. This was followed by a consensus-based study involving pet owners and vets prioritizing the findings gathered from the previous years of research and developing a guideline for what should be considered in a preventative medicine consultation.

An overview of this process can be seen in Figure 1.

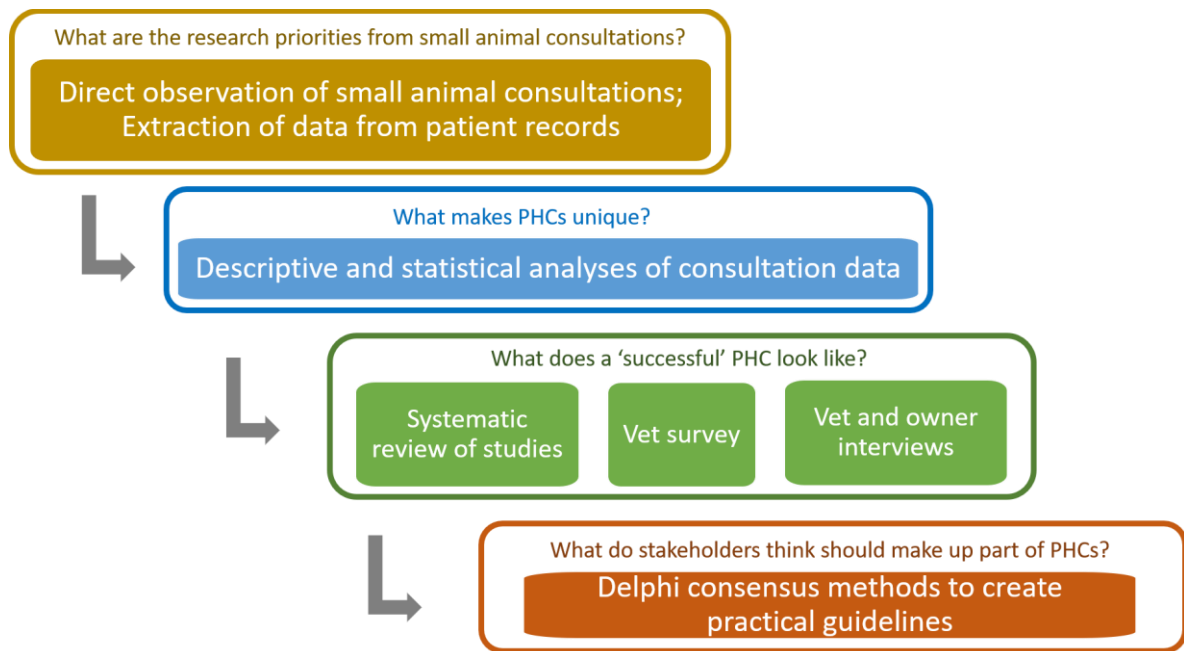


Figure 1: Schematic of the research process focused on preventative medicine in small animal practice carried out by researchers in the CEVM over a 10-year period. PHC = Preventative Healthcare Consultation.

### **What are the research priorities and what makes preventative healthcare consultations unique?**

Gathering data on interactions during small animal consultations revealed that for over one third (35%) of small animal consultations, preventative healthcare was the primary reason for presentation. These consultations were decidedly complex, a fact not previously described. Up to eight different problems were discussed in some consultations, and interestingly, more problems were discussed during consultations where the patient had been presented for a preventative healthcare problem, than during consultations for a specific health problem (Robinson et al. 2015).

Comparative work with health problem consultations identified that PHCs involved a younger population of patients, and were more likely to involve (Robinson et al. 2016):

- More than one animal
  - Significantly more problems being discussed and acted upon
  - A full clinical examination
  - An animal being weighed
  - Discussions focused on obesity, dental disease and behavioral problems
  - Forty percent of the total problems discussed were raised by a veterinary surgeon
- (Table 1)

The findings suggest PHCs are far from being 'just a vaccine' or the 'quick and easy' consultations they are often perceived to be. However, data from this research demonstrates that these consultations are not significantly shorter than health problem-based consultations (Robinson et al. 2014), in agreement with previous studies (Shaw et al. 2008; Everitt et al. 2013). In some cases, no action other than watchful waiting was taken for these additional health problems, however for most (58%), at least one action (e.g., diagnostics, therapeutics, or management advice) was taken, highlighting the complex decision-making for multiple problems which takes place during PHCs.

Table 1. Characteristics of preventive healthcare consultations versus consultations focused on a specific health problem.

		<b>Type of consultation</b>			
		<b>Preventative healthcare</b>		<b>Health problem</b>	
<b>Characteristic</b>	<b>Categories</b>	<i>n</i>	%	<i>n</i>	%
Multiple animals	Yes	116	16.8	32	2.9

		<b>Type of consultation</b>			
	No	574	83.2	1085	97.1
	<b>Total</b>	<b>690</b>	<b>100.0</b>	<b>1117</b>	<b>100.0</b>
Type of clinical examination	None	38	5.5	108	9.8
	Focused	49	7.1	504	45.6
	Full	603	87.4	494	44.7
	<b>Total</b>	<b>690</b>	<b>100.0</b>	<b>1106</b>	<b>100.0</b>
Weighing	No	282	40.9	655	59.2
	Yes	408	59.1	451	40.8
	<b>Total</b>	<b>690</b>	<b>100.0</b>	<b>1106</b>	<b>100.0</b>

### **What does a 'successful' preventative healthcare consultation look like?**

#### *Systematic review*

A systematic review was undertaken with the aim of identifying any previously validated (or rigorously tested) 'measures of success' used for PHCs (Robinson et al. 2018). Seven published research papers describing various aspects of PHCs, including content and communication, amongst others, were identified with only one paper measuring the 'success' of PHCs by examining unvalidated veterinary surgeon satisfaction with the consultation (Shaw et al. 2012).

### *Veterinary survey*

During the survey, veterinary surgeons were asked to think specifically what they would do and discuss during a typical adult booster vaccination consultation (Robinson et al. 2019). The findings suggest that there are certain aspects of the clinical examination that most veterinary surgeons would perform for almost every patient (e.g., chest auscultation, abdominal palpation, visual examination of the extremities). However, there were other aspects of the clinical examination and discussion topics that were conducted in a more variable way (e.g., checking pulses, otoscopic examinations, discussions around neutering).

Over half (54%) of veterinary surgeons responding to the survey had tried strategies to optimize PHCs (e.g., providing owner leaflets, time allowance for PHCs, checklists; Figure 2). Some were considered more easily implemented than others, and the same was identified for the effectiveness of measures. Many veterinary surgeons reported their practice ran a Pet Health Plan or similar, though there was variability in how these were perceived by participants, with some participants unclear as to what the plan included.

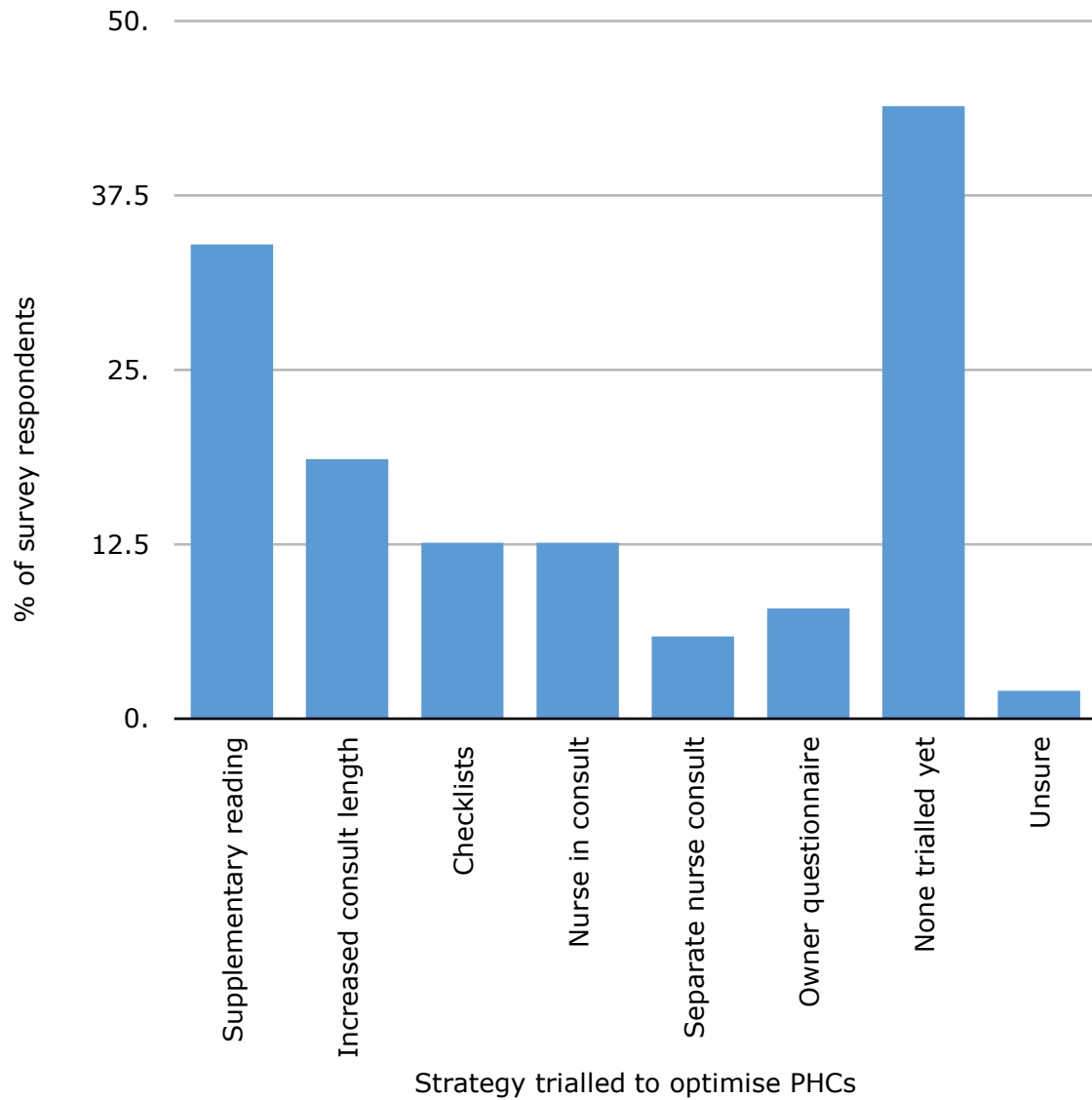


Figure 2. Strategies trialed to optimise preventative healthcare consultations (PHCs) by veterinary surgeons responding to a global survey on booster vaccination consultations (n=597). Respondents were able to select multiple strategies if they had trialed more than one of the options.



### *In-depth Interviews*

During in-depth telephone interviews with veterinary surgeons and owners, expectations and experiences of the consultation appeared to vary widely between different individuals (Belshaw et al. 2018a). Some veterinary surgeons reported that they found PHCs to be highly rewarding, and an important part of their caseload, while others reported that they did not find them as interesting or as challenging as other consultations. This was also reflected by pet owners, most of whom welcomed and expected more than just a vaccination being given and felt dissatisfied when these expectations were not met.

Several motivators and barriers to using preventative medicines were also identified during these interviews (Belshaw et al. 2018b). The importance of a trusting relationship between the veterinary surgeon and pet owner was often highlighted, but not exclusively as some owners sought information from breeders and online resources. Some owners highlighted concerns about adverse events and whether preventive medicines were necessary; the latter point was mirrored by the veterinary surgeons, who acknowledged the limited understanding some owners appeared to have about the importance of using preventive medicines. Veterinary surgeons expressed concern about how some owners would perceive the conflict between vets advising on, and profiting from, the use of products such as vaccines.

Time was another important factor highlighted, with the perception of PHCs as 'quick and easy' and an opportunity to 'catch-up' when running behind persisting for some veterinary surgeons (Belshaw et al. 2018c). Both veterinary surgeons and pet owners reported feeling rushed or having to rush, which often led to vets reporting not being able to raise all discussion points they wanted to and pet owners missing an opportunity to discuss an aspect of their animal's health.

The role of veterinary nurses and receptionists in preventative healthcare was also highlighted (Belshaw et al. 2018d), even though these practice team-members were not interviewed. These members of staff were often involved in discussions outside of the consultation, particularly in practices utilising Pet Health Plans. Pet owners were often uncertain as to the exact role of the member of staff they were speaking to, as well as the kind of help and advice available from this member of staff. These members of staff appear to have an important role in client education and rapport building and developing client trust with additional research needed to expand upon this.

### **What should happen in preventative healthcare consultations? Development of evidence-based guidelines**

Building on the findings above, researchers at the CEVM used a consensus methodology to engage all key stakeholders in the development of guidelines in a transparent and repeatable manner. These methods result in the production of guidance which is more useful in a practice setting. To the authors' knowledge, these are the first veterinary guidelines to involve owners in their development.

Eighteen key statements were identified from the survey and interview data by the CEVM team. A panel of veterinary surgeons and pet owners with extensive experience of PHCs were then recruited and asked to complete 3 rounds of anonymous online questionnaires. This involved asking whether they believed the statements should be considered an essential part of the guidelines, with consensus deemed to be reached for a recommendation when at least 80% of respondents agreed (or disagreed) with the statement. At the end of 3 rounds of survey, 13 recommendations had been agreed upon, with no consensus reached for the remaining 5 statements (Belshaw et al. 2019); an abridged version of the recommendations can be seen below. The vet and owner panel agreed with more than 80% consensus that:

**The practice team should agree beforehand on:**

- The purpose and content of their preventative healthcare consultations to improve consistency
- The role of each member of the team (e.g., vets, nurses, receptionists) in preventative healthcare consultations
- How the cost details of preventative healthcare will be communicated to owners
- How potential risks associated with preventative medicines will be communicated to owners
- How to make clear to owners the benefits of preventative healthcare and medicines to individual animals, pet populations and public health

**Before each preventative healthcare consultation:**

- It should be explained to owners what might happen and what topics may be discussed
- Owners should be encouraged to consider questions they have about their pet's health or preventative healthcare
- Each preventative healthcare consultation should be tailored timewise to the individual patient and adjusted for patient age, species and known pre-existing conditions

**During each preventative healthcare consultation:**

- Owners should be encouraged to ask any questions they have about their pet's health or preventative healthcare

- A full clinical examination should be undertaken by a veterinary surgeon or veterinary nurse
- Patients should be weighed and have their body condition score assessed using a scale agreed by the practice team
- Owners should be made aware of both normal and abnormal findings from a clinical examination
- It must be ensured that owners understand the rationale behind any recommendations made and alternatives discussed where appropriate

### **How should these guidelines be used?**

The way these guidelines could be integrated into veterinary practice is important to consider. Guidelines are not rules to be strictly followed and some recommendations may not be feasible or effective for every practice setting. They should be seen as a starting point for open and non-judgmental group discussions with all practice members as to what is currently being done by everyone, and what could and should be done as part of these consultations. As part of these deliberations, how successful implementation of the guidelines will be determined/monitored will be an important consideration.

### **Conclusions:**

In conclusion, 10 years of research work in this area has shown that PHCs are highly complex and represent an important opportunity to address a variety of pet health issues with animal owners, which may not be raised during other types of interactions. It

is during these conversations that complex issues such as vaccine hesitancy can be identified and explored fully to ensure that informed decisions are being collectively made by the veterinary and owner team for the animal.

It is the hope of the CEVM team that the guidance developed provide a useful and practical framework for veterinary practices considering how they can maximise the benefits of these consultations. The five key findings from this body of work are:

1. PHCs are common, complex and time-pressured
2. Owner expectations and experiences of PHCs varies widely so finding out what your clients expect from a PHC consultation may be useful
3. Veterinary nurses and receptionists play an important role in preventative healthcare, but these roles may need clarifying both amongst the practice staff and to your clients
4. There are practical, evidence-based guidelines that have been developed to help facilitate PHCs
5. The guidelines are a series of suggestions rather than rules, which should be examined to see which may work best in your practice, and the effects of making any changes should be monitored.

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