Clinical audit in veterinary practice: theory v reality

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Katie Waine and Marnie Brennan discuss some of the contentious issues relating to the application of clinical audit in veterinary practice and examine the benefits of using audit to improve patient care.

CLINICAL AUDIT is an effective tool for assessing and improving the clinical care provided to patients. Good guidance has previously been provided in the veterinary literature as to how to conduct clinical audit in veterinary practice (Mosedale 1998, Viner 2009, 2010, 2012, Dunn 2012, RCVS Knowledge 2015). These resources go into depth about how to conduct audit and the types of topics to choose. However, the combination of the limited veterinary evidence-base and the reality of practice makes traditional clinical audit as per the framework derived from the medical field challenging to implement in the veterinary setting. Despite this, it can still be a rewarding and valuable tool to use in practice.

What is clinical audit?

Clinical audit is widely used in the medical profession to monitor and improve the standard of clinical care that is provided to patients (Healthcare Quality Improvement Partnership [HQIP] 2010). The Oxford online dictionary defines the term ‘audit’ as a ‘systematic review or assessment of something’ (OUP 2015a). In the National Health Service [NHS], the National Institute of Health and Clinical Excellence [NICE] defines audit as a quality improvement process that seeks to improve patient care and outcomes through systematic review of care and the implementation of change’ (HQIP 2010). In the medical profession this often involves measuring the services provided against evidence-based standards or guidelines. ‘Standards’ and ‘guidelines’ are terms commonly used in association with clinical audit in both the medical and veterinary fields and are discussed in further detail in this article.

Clinical audit in the veterinary context

There are a number of issues facing the veterinary profession that makes the direct translation and interpretation of the clinical audit framework used by the medical field challenging.

Steps involved in a clinical audit

The clinical audit process can roughly be broken down into a five-step cycle (Fig 1). A topic should be chosen to audit and preparations made in relation to the logistics of how the audit will be carried out. Data are then collected and analysed, and a discussion held to decide if and how changes need to be made. Any changes are then implemented and a re-audit carried out to see what effect the changes might have had.

However, stages of the audit process as demonstrated by schematics of the audit cycle vary in the veterinary literature (Table 1) and this can lead to confusion and difficulties in determining how to carry out an audit. Some clinical audit cycles explicitly involve comparing clinical practice to pre-existing ‘gold standards’ (Dunn 2012), while others suggest that, due to the lack of pre-existing standards in the veterinary profession, the process should be about creating guidelines that can be used to audit against (Viner 2009).

Some cycles suggest that a clinical audit should be based on standards derived from evidence-based veterinary medicine, but not all of them recommend assessing against these standards (Table 1). There is a well-documented lack of evidence-based standards available that relate to first-opinion veterinary practice (Mair and White 2008, Mair 2009, Wylie 2015), which may explain some of the variation. The re-audit stage is also a crucial part of the process in which progress made after setting new goals and implementing changes can be assessed; however, this is advocated in very few audit cycles (Table 1).

It could be argued that the differences between audit schematics in the veterinary literature are due to the fact that they are explained as different types of audit; this will be discussed in detail later. However, there are some key aspects of the audit process that appear to be agreed on by the majority of veterinary authors. These are that an audit should:

- Be a continuous cycle;
- Use the best available evidence (where applicable);
- Lead to improvements in patient care.

Greater benefits are gained if the process is performed as a cycle in which continuous monitoring, changes

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Fig 1: Clinical audit five-step cycle

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Table 1: Stages of the audit process as depicted in schematics appearing in the veterinary literature

| Publication stages | Prepare for audit | Define a standard | Set criteria | Create protocols or guidelines | Pilot the audit | Collect data | Measure performance | Assess current practice against the standard | Analyse the data/assess the outcome | Make changes | Re-audit |
|--------------------|------------------|-------------------|-------------|-------------------------------|----------------|-------------|--------------------|---------------------------------------------|-------------------------------------|-------------|---------|
| Mosedale (1998)    |                  |                   |             |                               |                |             |                    |                                             |                                     |             |         |
| Rayment (2002)     |                  |                  |             |                               |                |             |                    |                                             |                                     |             |         |
| Mair (2006)        |                  |                  |             |                               |                |             |                    |                                             |                                     |             |         |
| Godsall (2008)     |                  |                  |             |                               |                |             |                    |                                             |                                     |             |         |
| Mair (2009)        |                  |                  |             |                               |                |             |                    |                                             |                                     |             |         |
| Viner (2005, 2009, 2010, 2012) | |              |             |                               |                |             |                    |                                             |                                     |             |         |
| Dunn (2012)        |                  |                  |             |                               |                |             |                    |                                             |                                     |             |         |

and improvements are made (Mosedale 1998, Rayment 2002, Viner 2005, Mair 2009, HQIP 2010, Dunn 2012). Ultimately, this should lead to an upwards spiral of overall improvement in the quality of clinical care provided (Mair 2009, Viner 2009, HQIP 2010).

Defining what standard is used in the clinical audit cycle

The Oxford online dictionary definition of the term ‘standard’ (OUP 2015b) is:

- A level of quality or attainment; for example, ‘The practice provides a high standard of clinical care to its patients’.
- A required or agreed level of quality or attainment; for example, ‘The practice met the strict health and safety standards outlined in the document’.

When considering standards as a level of quality, it can be safely assumed that the vast majority of veterinary surgeons aim to offer high standards of care to their patients. In reality, standards of care provided by a practice may range from suboptimal to excellent; clinical audit can therefore be used to assess clinical standards and ultimately improve them.

Some authors define 'standard' along the lines of the second definition above; that is, a required level of quality. This particular use of the word relates to a more complicated concept than the first definition. The NHS often uses the NICE guidelines to audit against, and these guidelines act as standards in this context. The equivalent evidence-based guidelines do not tend to exist in veterinary medicine, and there are few results on studies collected from first-opinion practice that can act as standards, which makes this type of scenario difficult to execute. Some authors suggest setting your own standards to audit against (Rayment 2002, Burford and others 2014); this may be appropriate in some instances, but the standards chosen may be somewhat arbitrary if little is known about the baseline level. Another way of identifying a standard for your practice is to run an initial round of audit (known as a service evaluation [NHS 2014]) and use this as your future standard to audit against (Burford and others 2014). The various possible ways of defining standards for use in clinical audit are discussed in Table 2, using an example clinical scenario.

There appears to be confusion in some publications about the difference between criteria and standards. Criteria identify what is being reviewed as part of the audit and should be describable and quantifiable (NICE 2015).

The NICE guidelines used as standards by the NHS in many cases are recommendations based on the best available evidence, such as systematic reviews and randomised controlled trials; they provide advice on how people with specific conditions should be cared for by healthcare providers (NICE 2015). Viner (2009) suggests that the veterinary audit process should involve the establishment of guidelines to audit against. The development of evidence-based veterinary clinical guidelines is a challenging and detailed process, and often involves the creation of the evidence initially, which may be difficult for busy vets in practice to achieve. There may, however, be situations where, at the practice level, staff wish to create localised guidance for certain procedures to ensure consistency of care. Localised guidance should be re-evaluated on a regular basis by consulting the literature for any new evidence that arises.

Reasons for undertaking a clinical audit

The divergence of presetting standards in comparison to creating your own, and other differentiations between the various published audit processes, may be a result of the different reasons that an audit is undertaken and the different types of audit that can be carried out.

Benefits

Previous articles have highlighted the benefits of carrying out an audit (Mosedale 1998, Rayment 2002, Mair and White 2008, Viner 2005, 2009, Dunn 2012), with many emphasising why an audit is useful in relation to clinical governance and how it meets requirements set out by the RCVS (RCVS 2014, 2015). Undertaking an audit indicates continual monitoring and improvement of clinical standards in relation to the RCVS Practice Standards Scheme (RCVS 2014). However, clinical audit can bring benefits to veterinary surgeons and practices other than those cited in relation to clinical governance. It is likely that the numerous reasons for undertaking an audit may be the cause of why various definitions of the audit process exist in the veterinary literature and could lead to confusion as to how to best undertake an audit. From an evidence-based perspective, the primary goal is ultimately to improve decision-making at the level of the patient, and clinical audit sits within this framework, whatever aspect is focused on. Clinical audit can be incorporated into different aspects of veterinary...
Clinical audit scenario: Five dogs have been admitted with and tested positive for parvovirus in the past month. The practice would like to audit the vaccination of dogs registered with the practice because the vets feel that, as parvovirus can be prevented, it is a disease that should not be occurring in large numbers; they feel there is room for improvement. Five dogs have been admitted with and tested positive for parvovirus in the past month. The practice would like to audit the vaccination of dogs registered with the practice because the vets feel that, as parvovirus can be prevented, it is a disease that should not be occurring in large numbers; they feel there is room for improvement.

### Table 2: Defining a standard

| Strategy                          | The standard                                                                 | Comments                                                                 |
|-----------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Using evidence-based standards    | You look for an evidence-based standard to audit against                     | This figure is a good place to start. However, a definite figure for parvovirus in dogs specifically was not easily found. In human medicine, 95 per cent of people need to be vaccinated against measles for herd immunity to be effective (Oxford Vaccine Group 2015), so potentially the figure used as the standard could be a lot higher. The percentage of the population needing to be vaccinated to give good herd immunity will depend on many factors. Any figures found in the evidence, however, can certainly be taken into consideration. |
| Setting your own ‘standard’       | The practice team feels that 95 per cent of the dogs registered with the practice should be vaccinated as this represents the best clinical care for the patients. | There may be some situations where setting your own standard is appropriate. However, care should be taken with the level the standard is set at – setting a high ideal standard may lead to disappointment after the first round of audit – for example, if only 20 per cent of the practice’s dog population is being vaccinated annually, 95 per cent may seem completely unattainable and discourage the practice from continuing with the audit. |
| Running an initial round of audit to create your own ‘standard’ | You feel that the evidence base may not be appropriate to the circumstances of your practice and want to investigate your baseline of cases first before you decide on a suitable level of improvement. | Running an initial round of audit has given you a real figure on which to base your improvement. This will enable you to set a more realistic target in your next round of audit, which should help with staff motivation. |

### Differences between audit and research

There is often some confusion about what is audit and what is research. While some types of audit may seem similar to research, there are some clear differences. Put simply, clinical research is concerned with finding the best way to do something, while clinical audit is about finding out if the best thing is being done (Smith 1992). Viner (2009) and Wylie (2015) clearly highlight the main differences between audit and research.

### Practice interests

A clinical audit allows the practice to gather information on clinical activities. It may be used as a defence in litigation cases and as part of defensive medicine (Mosedale 1998, Dunn 2012). Clinical performance can be compared with other vets and practices through benchmarking, and the results of an audit can be used to demonstrate how efficient certain clinical services are (Mair and White 2008). Viner (2009) also suggests that clinical audit can increase the confidence of the public in the veterinary profession, as well as being used as a tool to increase the income of the practice.

### Evidence-based veterinary medicine

Audit is an effective way of undertaking evidence-based medicine (Warman 2014) and can be used to demonstrate the benefits of certain procedures or treatments, as well as highlighting research gaps or areas requiring further research (Viner 2009). It allows clinical standards to be improved in an evidence-based way (Dunn 2012).
Clinical Audit

Types of audit

Clinical audit has been described in a number of different ways by different authors, possibly due to the many different types of audit that can be undertaken (Table 3). Which one should be run in your practice depends on your previous experience of audits and the resources available to you.

What does this mean for me in my practice?

Burford and others (2014) suggest that an audit should be used to ensure that ‘what is being done should be done’. Choose the type of audit that will be most suited to your practice (Table 3) and spend some time planning how it will run. The publications discussed in this article provide good guidance on how to conduct an audit in practice. For a very effective introductory audit in practice, start by simply looking at what you do, using the audit cycle in Fig 1. Collect some data and hold a discussion; once you’ve identified any changes that need to be made, re-audit with your new targets and discuss the results again to see if you have made a difference.

Conclusion

Clinical audit can bring many different benefits to veterinary practice. However, there are disparities in the veterinary literature regarding how an audit is defined and the processes involved in carrying one out. The reasons for carrying out audit, whether for governance purposes or not, and the different types of audit that can be undertaken are likely to have an effect on how the literature on clinical audit is perceived. This can make understanding the clinical audit process challenging. However, despite the controversies, a clinical audit

### Table 3: Different types of clinical audit that have been discussed in veterinary literature

| Type of audit | Description | Example | Positives | Negatives | Comments | References |
|---------------|-------------|---------|-----------|-----------|----------|------------|
| Criterion     | Compares clinical practice against a specified protocol, guideline or standard | Against a guideline: are all vets following the guideline on how to prepare a patient for surgery? Against a standard: how many dogs die under general anaesthesia? (One study shows a death rate of 0.14 per cent. [Mosedale 1998]) | Determines whether the right thing is being done, based on what should be done | Requires preset protocols, guidelines or standards that ideally should be evidence based | A lack of evidence to create protocols, guidelines or standards does not need to be a barrier to running criterion audits. Local guidelines could be created for your practice based on a general consensus of the staff, together with the best available evidence. If you are auditing against a standard with no evidence on what that standard should be, run the audit once to give yourself a benchmark, and then use that as your standard going forward | Mosedale (1998) Rayment (2002) Viner (2009) Dunn (2012) |
| Process       | Examines the process of the medical care provided | What treatment do down cows receive at first examination? | Gives an overview of how clinical care is being carried out | Needs to take into account the fact that processes may differ depending on the clinical presentation of the patient and other variables | A process audit can be a good starting point for determining what is happening in the practice. Many people assume that the same process of care is being provided to each clinical case, so the results can be an interesting point of discussion | Moore and Klingborg (2003) |
| Outcome       | Examines the outcomes and results of clinical practice | How many wounds become infected after a caesarean section? | Demonstrates the results of the clinical care being provided. Allows individuals to monitor the results of individual cases or groups of cases | Outcomes are not always the most important part of clinical care to review. Many different factors can affect an outcome, especially when a third party, such as the client, is involved in the after care | Outcome audits are often a good place to start if the practice has no prior experience of audit. If the results from outcome audits are less than satisfactory, a process audit could be run to see what needs to be improved in the system | Mosedale (1998) Rayment (2002) Moore and Klingborg (2003) |
| User view     | Gathers the views of clients on the service provided by the practice | How helpful do clients consider reception staff to be on a visit to the practice? | Gathers information directly from customers | Requires clients to complete a questionnaire. Information gathered is the view of only one party | Consider if and how you might want to inform the clients of the results | Rayment (2002) |
| Chart review/ case review | External reviewer evaluates certain cases | An external, advanced equine practitioner evaluates the clinical records of all horses treated for colic by the practice over the past 12 months | Can be an effective way to change or reward the behaviour of some clinicians | Time consuming and costly to run | Requires very detailed notes for the process to be worthwhile | Rayment (2002) Moore and Klingborg (2003) |
| Significant event | Run in response to a significant event which may be good or bad | What events led to an inpatient escaping and running away from the practice? How was a cow successfully rescued from a swimming pool with the help of the fire brigade? | Allows all staff members involved with a significant event to discuss what happened, with the aim of ensuring it is prevented (if an adverse incident), or repeated (if something went well) in the future | Needs everyone involved in the event to be brought together for the discussion. Staff can be made to feel like it is a blaming exercise if not handled correctly | Can also be run on a ‘near miss’ event. A no-blame culture must be created when discussing adverse events to ensure all details are gathered and incidents can be prevented in the future | RCVS Knowledge (2015) |
can be a valuable tool. Ultimately, attempting any form of clinical audit can be rewarding at an individual or a practice level.

Further work is required to determine how clinical audits can best be run in a variety of practice environments.

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