Evidence-based practice has been defined by Sackett et al (1997: 7) as ‘the conscientious, explicit and judicious use of current best evidence about the care of an individual patient’. The idea behind this is that a veterinary nurse would make decisions about a patient’s care based on best practice through researched evidence.

With regulation imminent it is vital for there to be evidence and research to support veterinary nursing practice, procedures and care in order to progress the profession and strive for excellence.

**Origins of evidence-based practice**

Evidence-based medicine came to the forefront of human medicine more than a decade ago and it is now considered an essential part of human health care, with various journals (e.g. Evidence-based Nursing, BMJ Group) and books published on the subject (Sackett et al, 1997; Holland and Rees, 2010).

The roots of evidence-based medicine lie in a group of epidemiologists working at McMaster University in Canada in the 1970s. The group used the term ‘clinical appraisal’ to describe basic rules when reading articles in clinical journals (Holmes and Cockcroft, 2004a). Following on from this, formal teaching of evidence-based medicine was introduced into postgraduate medical training (Holmes and Cockcroft, 2004a). The basis of this teaching was to emphasize the philosophy of medical practice based on knowledge and understanding of medical literature supporting each clinical decision (Holmes and Cockcroft, 2004a).

Evidence-based veterinary medicine is at a much earlier stage in development with references to it within veterinary literature only dating back to 2004, according to the author’s research. Within veterinary nursing evidence-based practice is in its infancy, although academic programmes are starting to teach the elements behind it.

**What is evidence-based practice?**

Within the veterinary field, evidence-based practice is defined by Cockcroft and Holmes (2003) as ‘the use of current best evidence in making clinical decisions’. Tod et al (2004) suggest that nurses should move away from delivering patient care according to a tradition or the notion that ‘that’s what sister told me’ and make use of research and evidence. Nurses are challenged to justify their care decisions and base them on best available evidence (Tod et al, 2004). Veterinary nurses need to become open to the idea of using evidence-based practice when implementing patient care.

**Importance of evidence-based practice in veterinary nursing**

It is important for veterinary nurses to be partners with veterinary surgeons in making decisions about patient care. The veterinary nurse should be able to nurse their patients autonomously and be confident in their nursing ability.

The evolution of the internet has made accessing online journals quick and easy (Holmes and Cockcroft, 2004a) and although there may not be currently much specific veterinary nursing research available, often thoughts and ideas can be adapted from human nursing counterparts.

With the increase in veterinary nurses qualifying through the university route, graduates should be adept at researching information and conducting their own research project. Many will already have conducted literature reviews and research projects by the time of their graduation.

Many of the tools that are available to veterinary nurses in order to locate the evidence they need are also available to clients, and in situations where cli-
cal decisions could be questioned it is important for the veterinary profession to be able to support their clinical judgement with evidence (Holmes and Cockcroft, 2004a). This will be particularly important as veterinary nurses become professionally accountable.

Griffiths (1999) states that nurses are 'unlikely to identify the best evidence for effective care from uncritical use or review articles, textbooks or information from drug company representatives'. He suggests that often textbooks and review articles may not have the most up to date information and identifying best evidence involves reading around a given condition in order to be the most informed and provide the best possible care for patients. This highlights the need for veterinary nurses to begin to carry out their own research and form their own evidence base of nursing.

Without the support of current and valid evidence, clinical expertise can deteriorate and practice can become outdated (Sackett et al, 1997). Griffiths (1999) states that if a practitioner is knowingly or unknowingly not using the best available evidence, they may risk harming their patient.

**Barriers to evidence-based practice**

The author suggests that the biggest difficulty to implementing evidence-based practice to veterinary nursing is likely to be access to resources owing to limited veterinary nursing research. This may limit veterinary nurses when deciding to implement research ideas and findings. Nurses will need to increase their knowledge of appraising evidence, interpreting results and statistics and writing their own articles. Having the time to be able to do this will be vital and the veterinary nurse profession will require the support of their colleagues. It must not be forgotten that although practice should be based on evidence, sound clinical judgement and experience will also play a part where little research has been conducted (Ward, 2000).

**Applying evidence to practice**

In order to apply an evidence-based approach a number of steps are suggested by Cullum (2000):

- Evaluate nursing care and identify areas of concern — for example a nurse could have concerns over their surgical skin preparation technique
- Translate areas of uncertainty into focused, searchable questions — for example, 'which skin preparation technique gives the most reduced bacterial load?'
- Use literature searches to find appropriate studies that answer the question
- Appraise the research critically

- Change practice, if the research findings suggest it necessary
- Evaluate any changes made.

After identifying areas of concern or uncertainty within practice, a nurse needs to form an appropriate question and this process will help to define what is required.

Carrier and Brassey (2006) describe the ‘PICO’ method, which can be used to formulate a question and search strategy:

- **Problem — Who or what?**
- **Intervention — How?**
- **Comparison — What is the main alternative?**
- **Outcome — What are you trying to accomplish, measure, improve, affect?**

Applying this to a veterinary nursing question may help to explain this further. The question might be:

**How often should an intravenous catheter be flushed with heparinized saline?**

- **Problem — In all patients with intravenous catheters**
- **Intervention — What are the benefits of flushing intravenous catheters?**
- **Comparison — Compare to ad hoc catheter flushing when catheter becomes blocked.**
- **Outcome — Establishing a protocol for the management of intravenous catheters (See Figure 1).**

**Sourcing evidence**

Once the research question is decided on, the sourcing of evidence begins. Unfortunately for veterinary nurses, despite there being lots of veterinary evidence, specific veterinary nursing research is currently sparse so the search for evidence may need to be widened and lowered initially to smaller case studies.

The primary source of evidence should ideally be peer-reviewed journal articles (Cockcroft and Holmes, 2004b). This means that the paper has been reviewed by two or more suitably qualified impartial people working in the field prior to publication. Availability of veterinary nursing peer-reviewed articles is extremely limited currently but journals such as *The Veterinary Nurse* will help to change this. At present human nursing and veterinary medicine journals will help to bridge the gap.

Search databases such as Pubmed are currently considered to be the most definitive source of medical evidence (Cockcroft and Holmes, 2004b). Among its thousands of journals there are abstracts from over 100 veterinary titles. Other places to find online access to scientific papers include The RCVS Library and Information Service, and the BVA Publication website (provide access to *The Veterinary Record* and
Internurse provides a large array of human nursing journal articles. Databases are searched by the input of keywords into a search box. This can result in a vast array of article abstracts being presented. The use of logical operators (OR, AND, NOT) can help to refine the search and make it more user friendly along with the input of several keywords. This can help the researcher in defining their search further, lead to a better use of time and resources and avoid the researcher being swamped by irrelevant information.

Continuing with the previous example, researching the flushing of intravenous catheters; suitable search words to use might be:

- catheter OR cannula
- intravenous catheter NOT urinary catheter
- intravenous catheter AND heparinized saline
- Intravenous cannula AND heparinized saline

Evidence can be quantitative or qualitative. Quantitative research is based around the collection of numerical data, modelling and its analysis. In comparison, qualitative research looks at the examination and analysis of observations.

**Appraising the evidence**

Once the evidence is gathered, it must be critically reviewed. This is vital as nurses need to decide whether the conclusions drawn from the research are valid and if they can use the information when making decisions on the care of their patient.

Research exists in two forms; primary research such as randomized controlled trial and qualitative studies, and secondary or evaluated research such as systematic reviews and meta-analyses. In a meta-analysis the results of many studies are combined and the conclusions are made from the combined results. With systematic reviews the research is very ordered with a statement of objectives and methods, including techniques for searching literature, the criteria for selecting studies for inclusion and an explicit method for synthesizing the findings of these studies.

In comparison to the human medical profession the money will never be available to finance research on the same scale. Veterinary nurses need to ensure though that the research they conduct is of maximum relevance to their patients.

When appraising a paper the following questions can help:

- Why and what type of study was done?
- Was the question asked appropriate?
- What do the results mean?

The sorting of primary evidence can be time consuming and sometimes contradictory, which can make secondary evidence more appealing to the researcher as this research has already been evaluated. It should be noted, however, that secondary evidence has not been collected specifically for that particular piece of research so it is important to assess evidence to make sure it meets the requirements before using it.

Following review and appraisal, the initial question should be answered and if necessary changes can be made to clinical practice based on the findings of the research.

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**Figure 1. The steps required for applying the evidence to practice.**

In Practice. Looking at human nursing the database, Internurse provides a large array of human nursing journal articles.

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Continuing with the previous example, researching the flushing of intravenous catheters; suitable search words to use might be:
Implementing evidence-based practice

The implementing of a scheme to introduce evidence-based practice will be key to its introduction into veterinary institutions and practices. Veterinary nurses can look to the human nursing professions for ideas on how to do this.

McGee et al (2000) introduced a pilot scheme within a human health trust for developing evidence-based practice into a trust that had no history of nursing research and development. A small working party was established to provide overall direction for the scheme and facilitate the development of evidence-based practice. Three nurses were elected to act as ‘champions’ in their respective fields for evidence-based practice and to motivate and develop their colleagues. The conclusion of the article was that evidence-based practice is a complex task requiring investment, and nurses need to develop their skills in gathering and interpreting information from a range of sources.

It was also found that nurses require encouragement and support in the development of skills to progress with evidence-based practice and that must form part of broader initiative to make changes (McGee et al, 2000). Degree qualified veterinary nurses will have learned about research during the course of the degree and may well have undertaken small research projects of their own. For NVQ nurses the development of these skills may be necessary as they are guided through the research process.

In a separate study, Adams and Cooke (1998) examined a project whereby evidence-based practice was implemented for urinary catheterization in human nursing. The aims of the project were to design guidelines for staff on the management of short-term indwelling urinary catheters and to promote and set the standard of care based on evidence. The project involved a thorough literature search and collection of manufacturers’ information before a working party was assembled to disseminate the findings, via written and agreed guidelines, posters and teaching sessions. Difficulties associated with the project included lack of time given by management to facilitate the project resulting in slow progress, and a lack of priority given by medical staff. Positive outcomes of the project were that there was a standardized protocol for care allowing quality of care to be monitored and a framework was developed to monitor evidence-based practice projects (Adams and Cooke, 1998).

Conclusion

Evidence-based practice has a place in the veterinary nursing profession. Care should be based on the best available evidence in order to maximize benefit to patient and prevent harm.

The introduction of evidence-based practice is unlikely to be easy, with many veterinary nurses having never previously encountered peer-reviewed articles and who will be unsure about how to approach sourcing and appraising evidence. Research in veterinary nursing needs to be encouraged and degree students approached suggesting they publish their research studies. Peer-reviewed veterinary nursing articles will aid this process.

Veterinary nurses should be empowered with the desire to progress their profession, care for their patients and work autonomously, and this should in turn drive evidence-based practice.

Key Points

- Evidence-based practice will uniformly give better standards of care and allow nurses to justify their actions.
- Evidence-based practice has its place in the modern veterinary nursing profession.
- Veterinary nurses need to develop skills in sourcing, appraising and evaluating evidence and research; as well as conducting their own research projects.
- Evidence-based practice must be part of broader initiatives to bring about change and supported by the entire veterinary team.

References

Holmes M, Cockcroft P (2004c) Evidence-based veterinary medicine. 3. Appraising the evidence. In Practice 154–64