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Sixteen tips for getting started in practice-based research

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Abstract

The aim of this article was to provide veterinary nurses with 16 tips to help get them started in practice – based research. It covers key areas that the veterinary nurse should consider before undertaking a research project, in order to improve the chances of the study being a meaningful and publishable contribution to the evidence base underpinning veterinary nursing practice.

Tip 1: Never stop asking questions about clinical practice

The natural scientist has an intensely enquiring mind. Ask lots of questions. For example, you notice that when Becky runs weight control clinics in practice, more cats seem to reach their target weight. You could just decide to book all overweight cats in to see Becky because Becky seems good at running cat weight loss clinics. However, an enquiring mind would wonder why Becky's clinics are more successful? Is it because she sees the clients more regularly, gives different advice, or says the same advice differently, selects clients that are known to be generally more compliant, etc. Or is it perhaps that Becky's clinics only appear more successful because she talks about her successful cases? The enquiring nurse is only a step away now from thinking about how they could find out which of these factors are influencing Becky's success (or otherwise) in running feline weight control clinics.

Tip 2: Develop your understanding of the research process.

Anyone can undertake research, but the old saying "rubbish in, rubbish out" is very true. Research without knowledge of scientific methodology increases the risk that the veterinary nurse will spend hours of time collecting data only to find that the findings are worthless and do not contribute anything to the evidence base.

Taking time to understand research methodology, how to handle and analyse data, and the perils and pitfalls that researchers can fall into when conducting research will greatly reduce the risk of your study failing.

Tip 3: Develop a critical approach.

The veterinary nurse who reads original research and does so with a critical eye will quickly develop an understanding of how researchers undertake research and what is good (and bad) about a study. Take advantage of the free resources available (e.g. RCVS Knowledge toolkits) to help you structure your evaluation of studies. Remember: when you undertake (and publish) your own study, people will ask the same kinds of critical questions about your work, so be ahead of the game here! A critical approach does not just have to be about scientific papers but should also include everyday experiences, such as reading the insert of a medication before administering to an animal to check you have not missed a contra-indication. This way you become really familiar with product information and can relate this back to how and why they have been used in scientific studies.

Tip 4. Remember: behind every good study is a blinding good idea.

The veterinary nurse is in an ideal position to initiate practice led research and create knowledge that can directly inform veterinary nursing practice. The ideal research topic is one that is relevant to our profession and the practice where you will carry out the research. It also needs to be practical and possible to undertake with the resources (money, facilities, time, subjects) that you have available. Finally, it must be of relevance to you and able to sustain your interest and keep you motivated throughout the project.

Tip 5. Conduct a literature review.

Every good scientist conducts a literature review before finalising any research design and data collection. This may require you to develop your literature searching skills in order to find the appropriate papers (check out the PICO technique for helping you to refine your search criteria). A thorough literature review can help you to identify what other research has been undertaken in your area of interest, where the research gaps are (that you can help fill with your study), and how researchers are studying the field. Seeing how other researchers have tackled an issue can also help you to refine your research methodology. You may even choose to incorporate aspects of their methodology or measurement tools (e.g. a feline stress score, or canine anxiety score) into your study and provided the source is appropriately referenced, this is acceptable and even to be encouraged. Don't reinvent the wheel if the wheel is good enough already!

Tip 6. Clearly define your research question(s) and hypotheses.

A good research question is one that is answerable and allows you to easily answer the aim of your research. It should be precise, testable and practical to investigate. You may find that using PICO (Population/Intervention/Comparison/Outcome) helps you to concisely define your question.

Example of a bad research question:

Does honey heal wounds?

Example of a better research question:

In dogs with chronic lick granulomas undergoing daily dressing changes, does the daily application of Manuka honey to the wound, compared to dressing change only, improve rate of wound healing?

Next time you are asking questions about research, try converting your question into a clinical question that you investigate in practice.

Tip 7: Keep it simple.

One of the pitfalls that people new to research often fall into is trying to do too much too quickly. A simple study that addresses one question well will contribute much more to the veterinary nursing evidence base than one complex study undertaken badly. By keeping your research simple and efficient you are less likely to run into difficulties later down the line, which may prevent you from answering your question because the research becomes too complex to succeed.

Tip 8: Find research buddies to work with you

Otherwise called collaboration! We cannot emphasize enough how much benefit this can bring to the richness of your research. Additional people can bring new ideas, different skills and additional resources to your study that can improve the quality and the validity of your findings. However, plan for problems. Ensure every person knows exactly what part they will play and what order the names will go in on any research papers that will be published.

Tip 9: Make sure you have the necessary resources available to address your research your question BEFORE you start

Make sure you have the necessary resources to address your question before you start to collect data. Two generic resources that you will definitely need access to include: access to research papers, and access to software to handle data. The first is relatively easily resolved for a practice veterinary nurse: join RCVS Library. The second is potentially more problematic, and may limit the research options. Most people have easy access to Microsoft Excel and this is very useful for descriptive statistics and some of the widely used inferential statistical tests (e.g. ANOVA, student's t-Test, linear regression and X^2). Should you need more advanced methods for data analysis then there are other options open to you but beyond the scope of this article (e.g. SPSS and R). However, the profession is always in need of some good quality descriptive studies as a springboard to further enquiry, and these can easily be accomplished using Microsoft Excel software.

Tip 10: Plan, plan and plan!

“Fail to prepare, prepare to fail” is an often heard mantra and this applies to research. Your study should be planned out in micro-detail and everything documented in writing, in enough information that anyone could pick up your study and replicate it. Make sure you have a plan for how you will handle any data collected. This includes the statistical analyses. Many otherwise good research projects fall down because the researcher only thinks about how they will handle their data after they have obtained it. This is too late! Take advice from someone confident in data handling if you are not sure (see tip 8 - collaboration!) how to do so. Research rarely goes according to plan so also think about all the possible ways that your study could go wrong, how likely each issue is to occur, and ensure that there are contingency plans in place to allow for this.

Tip 11: Obtain ethical approval BEFORE you collect any data

Never be tempted to try to undertake research without ensuring that ethical approval has been obtained from a relevant ethics committee. The role of the ethics committee is to ensure that any ethical issues have been appropriately considered and managed (e.g. informed consent, animal welfare). This can protect you from prosecution (e.g. for violation of the Animal Welfare Act) or disciplinary action for not adhering to the Code of Professional Conduct for Veterinary Nurses. It is also worth noting that no reputable research journal or conference will accept your research for publication unless it has been through a formal ethics committee. Unless you (or one of your co-authors) is linked to a University or other research institute, you will probably need to use the RCVS's ethics committee.

Tip 12: Pilot your study

A pilot study is a miniaturised version of all, or any part, of your planned study. These take time and there can be a temptation to skip these and move straight to the main study – DON'T. Pilot studies allow you to identify problems that may not otherwise be obvious until data collection starts. Many study designs get altered after the pilot study(s) has been completed.

Tip 13: Have RESPECT, be legal!

If you decide that your research needs to go beyond a desk based project such as a meta-analysis or a systematic review, then there are a few rules you need to be familiar with. Working to international guidelines appropriate to your type of study methodology (e.g. ARRIVE, CONSORT, TREND, STROBE, RESPECT, etc. see: <http://www.equator-network.org/>) can help to ensure your research is robust, legal and is carried out with integrity. Some things you may need to consider here include:

- How you will store the data securely (and in compliance with the law)?
- How will you demonstrate awareness of the limitations of your research?
- And, how will you protect people and animals from harm?

If you are considering using animals directly in your research then you will also need to consider the 3Rs (Replacement, Reduction and Refinement). You may also need think about if your research will cross any legal thresholds that require licences. Studies involving new veterinary medicines may need an Animal Test Certificate from the VMD, whereas any study on protected animals that may cause pain, suffering, distress or lasting harm may need a Home Office license. This means that this kind of research is probably not viable for most practice-based veterinary nurses.

Tip 14: Keep a research diary.

It is good practice to document your research as you go in a notebook that you can refer back to when the study is complete to help you write up your findings. This book should include all raw data (such as measurements and photos you have taken), any observations you have made (did any animals start to show unexpected symptoms) and a timeline documenting how the study progressed. The notes that you make will be very helpful in explaining

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unexpected results and outliers (maybe the blood analyser was giving strange results that day). It is also good practice to keep this in a safe place after the study in case you ever need to refer back to it or someone asks you questions about your published research later down the line.

Tip 15: Publish your findings – even if you find nothing!

There is no point to undertaking research if the findings are not going to be shared. This is important even if you find that a particular intervention (e.g. weight control clinics) do not have an effect (e.g. improved monthly weight loss). Think about where you are going to publish your work and who will be an interested audience. You might wish to publish your findings as a conference abstract at BVNA or BSAVA. Alternatively, you may want to publish as a full research paper in a suitable peer reviewed journal. You could even do both, and write a popular press article as well to share your findings even further!

Tip 16: Enjoy yourself!

Research can be exasperating, daunting, challenging and hard work. Things can go wrong, even more wrong, and sometimes disastrously so. However, persevere. When it goes right you could be in a position to influence the future of veterinary nursing. Being the first person to find out something completely new is exciting and getting to share this with likeminded people even more so. Finally, we wish you the best of luck with your research and leave you with a few main points to summarise with:

1. Develop a research philosophy and methodology.
2. Think about sources of bias, sampling technique, etc.
3. Plan, plan and more planning.
4. Pilot the study.
5. Identify what might go wrong and develop a contingency plan.
6. Keep lots of notes and write up your methodology promptly.
7. Disseminate your results at meetings with colleagues, conferences, papers and via the popular press.

Links to useful additional information:

Information on reporting guidelines: <http://www.equator-network.org/>

RCVS Ethical Review for Practice – based Research: <https://www.rcvs.org.uk/news-and-views/publications/ethical-review-for-practice-based-research/>

RCVS Ethics Review Panel (and info on submitting a research proposal for ethical review): <https://www.rcvs.org.uk/who-we-are/committees/ethics-review-panel/>