TRENDS IN VETERINARY NURSING

The Team Approach to Veterinary Clinical Studies

Julie A. Nettifee, *RVT, MS, VTS (Neurology)*
North Carolina State University College of Veterinary Medicine, Raleigh, North Carolina

In all aspects of veterinary clinical studies, any successful outcomes are based on the study having a strong foundation at its core. This not only includes all of the components required to move forward with a research project, but it is also based on the ability of the team to function as efficiently and as effectively as possible throughout the study period. This article will explore the key components necessary in clinical study design and how to leverage the team throughout the project lifespan.

ROLES IN CLINICAL STUDIES

Both clinical and preclinical studies offer veterinary nurses opportunities to benefit patients in numerous ways, while at the same time learning new skills such as clinical study management, leadership, pharmacokinetics, and much more. Simultaneously, these opportunities allow veterinary nurses to contribute to treatments, medical devices, and understanding to support bringing new treatments and potential cures to veterinary patients.

Most study teams will consist of:

- A principal investigator (PI), typically a DVM, PhD, or both
- Clinical study coordinators, such as credentialed veterinary technical staff
- Clinical study assistants/trainees, depending on the site
- Study monitors

It will take all the above individuals or groups working together to develop and execute a clinical study, with the veterinary nurse playing a pivotal role often central to all the participants.

TYPES OF CLINICAL STUDIES

Veterinary clinical studies are performed to gain more information about pathogenesis, prevention, and treatment of medical and surgical conditions in animals. Clinical studies can be classified as observational or interventional.

- **Observational studies** include case reports, case series, and cohort studies, in which health outcomes are assessed and reported based on the medical care provided and are not centered on a specific intervention assigned by the study. Observational studies can either be prospective or retrospective in design.
- **Interventional studies** are clinical trials in which a specific intervention is prospectively evaluated in a group of animals according to an established study protocol.

Although all types of clinical studies can provide novel information to improve patient care, the reliability or quality of the evidence varies according to study type. The practice of evidence-based medicine relies on a hierarchy of clinical evidence that is often depicted as a pyramid, with case reports and case series at the bottom of the pyramid and randomized controlled blinded studies and systematic reviews at the top. Study types that are listed higher on the pyramid are associated with less confounding effects and potential for bias, and consequently are believed to support the highest possible standards of clinical decision making.

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CLINICAL TRIAL DESIGN

Clinical trials are prospective studies that are designed to evaluate the effect of a specific therapeutic intervention. Detailed planning is required in the design of a clinical trial; numerous variables must be considered to obtain results that accurately address the clinical question of interest in the intended population. Specific criteria to consider include the use of a control group, randomization, and blinding, all of which are performed to minimize the risk of bias. A power analysis should also be performed to ensure that there are adequate case numbers to allow for statistically sound conclusions.

A control group in a clinical trial is a comparison group that includes subjects that are administered a placebo (i.e., placebo control) or an accepted treatment for the condition being studied (i.e., active control). The control group serves as a baseline for determining the safety and effectiveness of the treatment being investigated, thereby allowing discrimination of the intervention's outcome from an outcome resulting from other factors, such as the natural course of disease or an effect resulting solely from study participation. To be valid, the control group must be identical to the treatment group in all aspects except the intervention being evaluated. A placebo effect, a perceived mental or physical improvement, may arise in the control group due to time on the natural course of disease, participant bias, or improved adherence to established treatment regimens during the study.

Randomization is a method by which participants are randomly allocated to one of the treatment groups and is performed to prevent bias in subject selection that can impact the validity of study findings. Randomization helps ensure similarity between the control group and treatment group with respect to all baseline characteristics, thereby removing potential confounding factors. There are several online resources that can be utilized to perform randomization.

Blinding or masking is the method of study design wherein the investigator and/or the owners do not know which treatment the animals receive until the end of the study. In a single-blind study, the owner is unaware of the treatment group allocation. In a double-blind study, neither the owner nor the investigator knows the treatment status. Blinding is essential to minimize bias when evaluating treatment response in subjects.

Clinical trials can be designed as either a parallel or cross-over study. In a parallel study, subjects are assigned to either the active treatment group or the control group and remain on that same treatment for the duration of the study. With this study design, some of the subjects will not be exposed to the investigational treatment, and this can be a potential deterrent to enrollment. In cross-over trials, each subject is exposed to both the active treatment and the control arm of the study. Subjects are assigned to one treatment arm of the study, and then cross over to the second treatment arm during the course of the trial. Cross-over studies necessitate a longer duration of participation for each subject but in turn require fewer enrolled subjects and minimize variability between the treatment and control group, with each subject serving as its own control.

BOX 1

Elements Included in Informed Consent for Clinical Studies[1]

1. Description of the clinical investigation, including a statement that the study involves research, an explanation of the purposes of the research and the expected duration of participation, a description of the procedures to be followed and identification of any procedures that are experimental, and the owner's responsibility to comply with the protocol
2. A description of any reasonably foreseeable risks or discomforts
3. A description of any benefits to the study animal or to others that may be expected from the research
4. Discussion of any appropriate alternative procedures or courses of treatment that might be of benefit to the animal
5. A statement describing the extent to which confidentiality of records identifying the owner and animal will be maintained
6. A statement of whether any compensation will be provided to the owner and an explanation as to whether any medical treatments are available if injury associated with the study occurs
7. Contact information for study personnel
8. A statement that participation is voluntary and that refusal to participate will involve no loss of benefits for the animal and that an owner may discontinue participation at any time

INFORMED CONSENT

Prior to enrollment in a trial, informed consent must be obtained from the owner of the participating animal. The U.S. Food and Drug Administration (FDA) has outlined 8 basic elements that should be addressed in the informed consent for clinical studies (**BOX 1**).[1] In addition, any study involving animals is required to obtain approval by an Institutional Animal Care and Use Committee or a similar veterinary clinical studies committee.[2] Similarly, if the study will be collecting owner information related to their experience caring for their pet, such as financial impacts or quality-of-life assessments, then approval by an institutional review board should be obtained.

IMPLEMENTATION OF CLINICAL STUDIES

Incorporation of the entire study team from the initial planning and design to implementation, recruitment, patient–client communications, and data management and analysis is key to a successful study, even if the anticipated outcomes may not be as hypothesized. Leveraging the entire team, including the PI, veterinary nurses, and other study support, allows for input from all levels of expertise and can often mitigate some concerns that could arise without these communications.

Recommended Reading

The following include extensive information and training opportunities for professionals in the clinical study area and may offer more guidance for a variety of trial types:

- **AVMA** Veterinary clinical trials registry
  go.navc.com/3SGe5nw
- **Clinical and Translational Science Award One Health Alliance** Clinical trials
  go.navc.com/3Ao9dwN
- **National Institutes of Health Office of Clinical Research Education and Collaboration Outreach** Clinical research education
  go.navc.com/4cgam6Y
- **FDA Center for Veterinary Medicine** Conduct of clinical investigations: responsibilities of clinical investigators and monitors for investigational new animal drug studies
  go.navc.com/3LVhBqd

IN SUMMARY

Effective communication strategies with all involved and recognizing the importance that each team member brings to the clinical study design and implementation, as well as publicity and education, will not only create positive study outcomes but also minimize turnover for the project and provide growth opportunities for all involved. As with the clinical studies training, there are also increased opportunities for veterinary professionals to hone and enhance their communication skills, which will also benefit the entire team throughout the clinical study process. TVN

References

1. Informed consent. U.S. Food & Drug Administration. August 15, 2023. Accessed August 6, 2024. https://www.fda.gov/regulatory-information/search-fda-guidance-documents/informed-consent
2. Baneux PJR, Bertout JA, Middleton JR, et al. Perspectives on implementing veterinary clinical studies committees. *JAVMA*. 2023;261(9):1-6. doi:10.2460/javma.22.11.0515
3. Vijayananthan A, Nawawi O. The importance of good clinical practice guidelines and their role in clinical trials. *Biomed Imaging Interv J*. 2008;4(1):e5. doi:10.2349/biij.4.1.e5

If the clinical study is an FDA-sponsored project, most company sponsors will have full training for the entire study team, including good clinical practice (GCP) training. GCP is a set of guidelines for biomedical studies which encompasses the design, conduct, termination, audit, analysis, reporting, and documentation of the studies involving human subjects, and is also used in veterinary medicine.[3] However, for other investigator-led clinical studies, team planning is critical. Determining who is responsible for each activity in the study also allows for team efficiency once the trial is in full effect.

A cyclical process completed with each patient allows for each data point to be obtained as specifically as possible. With this type of study being clinical in nature, various deviations may take place. It is critical for the study screener to explore during initial inquiries if the client and patient can commit to the study requirements. This same discussion in more detail is presented during an initial study evaluation, which often includes both the study PI and veterinary nurse coordinator. Each layer of communication reiterates what has already been shared with the client and adds the next layer of communication and responsibility for the client and study team. Also at this time, discussion of unanticipated events should be included in the conversation to mitigate concerns if they do occur.

Julie A. Nettifee

Julie is currently employed at the North Carolina State University College of Veterinary Medicine (NCSU CVM) supporting clinical research in neurology and nutrition, as well as teaching and outreach support. She has been employed with NCSU CVM for more than 20 years. Julie trained at the University of Minnesota–Waseca, University of Wisconsin–Madison, and NCSU. She has extensive experience as a licensed veterinary technician and is also a veterinary technician specialist in neurology. Julie has special depth in all aspects of companion animal health, especially veterinary neurology, as well as patient rehabilitation, canine epilepsy, veterinary communications, nutrition, career development, public speaking, and technical writing. Her special interests also include study of the human–animal bond, humane education, and pet-facilitated therapies. Julie has presented locally, nationally, and internationally and has authored numerous articles related to several aspects of veterinary nursing. She has been honored as the American Humane Veterinary Nurse Hero 2020. Julie is originally from Fairmont, Minnesota, and currently resides in Apex, North Carolina, along with her dog Phoenix, cat Paradox, and other foster pets.