Guidance for Reporting of Retrospective and Prospective Case Series in JAVMA

TITLE and ABSTRACT
- Provide a concise, specific, and informative title that clearly identifies the study as a case series.
  - Use the standard JAVMA format for titles of these types of articles: main title (including species assessed), colon, number of cases, time span (in parentheses).
    - For example: Use of surgery and electron beam irradiation for treatment of vaccine-associated sarcomas in cats: 78 cases (1996–2000)
- Include a brief (≤ 250 words) structured abstract that provides an informative and balanced description of what was done, what was found, and why the findings are clinically relevant.
  - Use the following headings:
    - Objective
    - Design
    - Animals (or Sample)
    - Procedures
    - Results
    - Conclusions and Clinical Relevance
  - Write the abstract so that it is understandable without reference to the text, figures, or tables.
  - Focus on the most important purpose, findings, and outcomes; not every finding has to be included.
  - In the Conclusions and Clinical Relevance section, emphasize the clinical relevance and importance of the findings, without repeating information provided in the results section of the abstract; this section should logically follow from the reported results and should generally be able to stand on its own.

INTRODUCTION
- Provide the background and rationale for the study.
  - Include only those references pertinent to the background of and rationale for the study; the introduction is not meant to be an extensive review of the literature.
  - Focus on the specific problem the present study was meant to address (ie, why the subject is of interest) and how the study addresses the problem (eg, how the study improves our understanding and how it differs from previous studies).
  - Provide a clear statement of purpose (ie, the aim of the study), along with any a priori hypotheses.

MATERIALS AND METHODS
Case selection criteria
- Report the nature of the facility or facilities from which cases were obtained (eg, tertiary care center, teaching hospital, emergency hospital, or primary practice).
- Indicate the period over which subjects were enrolled or were eligible, including specific start and end dates (month, day, and year).
- Describe all inclusion and exclusion criteria:
  - Species.
  - Signalment (eg, age, body weight, reproductive status, sex, and breed).
  - Health status.
  - Any other specific criteria for case inclusion or exclusion, such as criteria related to medical history and previous treatments, and the rationale for these criteria.
  - Whether it was all cases of a particular disease encountered at the study facility, just a proportion of such cases, only cases managed by specific clinicians, all cases of such disease for which owner consent for study inclusion was received, or another strategy for case inclusion (be specific).
  - Method by which the diagnosis was made (including disease definition, when applicable).
- For case series involving an intervention applied on a prospective basis as cases were recruited or encountered (ie, prospective case series):
  - Provide a statement regarding whether approval by an IACUC or other oversight entity was obtained; if no such approval was obtained, explain why this was unnecessary.
  - Indicate whether owner consent was obtained; if owner consent was not obtained, explain why this was unnecessary.
Data collection (prospective case series) or Medical records review (retrospective case series)

- For retrospective case series, describe (in sufficient detail that another investigator could duplicate the study with confidence or understand the potential for biases) the method by which records databases were searched to identify potential cases, including search terms and the process subsequently used to rule cases in or out.
- List the data collected; for variables such as age, body weight, or other factors that can change over time, indicate the timing to which they pertain (eg, age at hospital admission). For medical record data provided by external sources such as radiologists and pathologists, report those sources and their credentials if available. Make clear whether the source of data was reports from the medical records or involved examination or re-examination of original material (such as diagnostic images or histologic specimens) by the investigators specifically for the study. For example, indicate whether radiologist reports of CT images or the actual CT images themselves were reviewed.
- Provide a precise and thorough definition of the study outcome or outcomes.
- Describe any variables measured by the investigators for the purposes of the study (eg, measurements made on archived data, samples, or diagnostic images) and the methods used for those measurements.
- Describe any interventions performed, whether in the past (retrospective case series) or prospectively, in sufficient detail that a knowledgeable reader could repeat them.
- State the duration and method of follow-up (making it clear whether this follow up was performed specifically for the study or had already been performed and recorded in the medical records).
- For survival data and other time and rate data, define the period (eg, from hospital admission to discharge or from first diagnosis to resolution of clinical signs).
- Provide as supplementary material for review copies of any forms used for data collection and surveys used for follow-up.

Statistical analysis

- Describe any analyses performed to determine, for continuous variables, whether data were normally distributed.
- Compute descriptive statistics appropriate for the data type and underlying distributions:
  - Mean and SD for normally distributed continuous data.
  - Median and interquartile (25th and 75th percentiles) range or median and range for nonnormally distributed continuous data or ordinal data (eg, scores with an inherent rank).
  - Frequency counts and percentages for categorical data.
- If continuous variables were categorized for purposes of analysis (eg, age groups), report specific categories used as well as the rationale or methods used to determine specific cutoffs (eg, for categories based on age, weight, or other numeric values).
- Describe the specific methods used for any estimation of the effects of an intervention of interest.
- Describe all hypotheses tested, along with the specific method used to test each hypothesis (including, when applicable, dependent [outcome] and independent [predictor] variables) and approaches used to reduce bias (confounding).
  - Note that case series typically do not involve hypothesis testing. Comparisons of the case population with a contemporary general population to evaluate whether certain characteristics (eg, sex or breed) were over- or underrepresented in the case population are acceptable for case series. However, authors of reports involving more involved hypothesis testing should consult with an epidemiologist to determine whether the study might be better classified as a type of observational (eg, case-control or cohort) study, rather than a case series.
- Fully describe any statistical tests performed, the methods used to assess whether test
assumptions were met, and adjustments made for multiple comparisons within tests, if applicable.

- Report the criteria used to denote significant differences for any comparisons made.

RESULTS
- Report the number of animals initially identified and the number excluded, including reasons for exclusion. For prospective case series, report the number of owners approached for consent and the number that provided consent.
- Report the number of animals that met the inclusion criteria and provide a summary of their characteristics (eg, counts and percentages for categorical and ordinal variables).
- Give actual numbers in addition to percentages; include denominators if they vary or are not clear. Avoid reporting percentages when the denominator is < 20.
- Provide flow diagrams to clarify complicated (multiple-layered) patient groupings and aid tracking of groupings through to outcome.
- Report variables for which data were unavailable for some animals and provide counts of animals for which data were available.
- Report any deviations from protocol and provide counts of animals involved in or affected by those deviations.
- Report the number of animals for which follow-up data were available; provide the number of animals lost to follow-up and reasons for any missing animals.
- Report parameter estimates and their precision (eg, 95% confidence intervals for means, medians, or proportions), when appropriate.
- Report results of any comparisons, along with their precision (eg, 95% confidence intervals).
- Ensure that results are reported for any and all statistical tests described in the materials and methods section.
- Avoid the use of tables providing data on individual animals in favor of tables providing summary data (when the summary data better lend themselves to tabular rather than narrative format).
- Avoid duplicate reporting of results (eg, in both narrative and tabular or graphic format).

DISCUSSION
- Summarize the major conclusions in the first paragraph of the discussion section; relate back to any hypotheses stated in the introduction and indicate whether those hypotheses were accepted or rejected.
- Interpret the results in the context of the study findings and the existing literature.
- Provide the rationale for any conclusions drawn.
- Discuss the strengths and limitations of the case series design as they pertain to the study.
- Discuss other strengths and limitations relevant to the study, such as measurement bias or owner recall bias.
- Provide plausible explanations for unexpected results.
- Conclude with the clinical relevance of the study results and general takeaway messages, avoiding repetition of statements or summaries already made in this section. Include suggestions for future research (next steps) inspired by the study results.