

Modifications to the original STrengthening the Reporting of OBServational studies in Epidemiology (STROBE) statement checklist for the STROBE-Vet statement.

| <i>Item</i> | <i>STROBE recommendation</i> | <i>STROBE-Vet recommendation</i> |
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| TITLE and ABSTRACT | 1 | (a) Indicate the study's design with a commonly used term in the title or the abstract |
| | | (a) <u>Indicate that the study was an observational study and, if applicable, use a common study design term[¶]</u> |
| | | (b) Provide in the abstract an informative and balanced summary of what was done and what was found |
| | | (b) <u>Indicate why the study was conducted, the design, the results, the limitations, and the relevance of the findings</u> |
| INTRODUCTION | | |
| Background/ rationale | 2 | Explain the scientific background and rationale for the investigation being reported |
| Objectives | 3 | State specific objectives, including any prespecified hypotheses |
| | | (a) State specific objectives, including any <u>primary or secondary prespecified hypotheses or their absence</u> |
| | | (b) <u>Ensure that the level of organization^a is clear for each objective and hypothesis</u> |
| METHODS | | |
| Study design | 4 | Present key elements of study design early in the paper |
| Setting | 5 | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection |
| | | (a) Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection |
| | | (b) If applicable, <u>include information at each level of organization</u> |
| Participants^b | 6 | (a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up <i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants |
| | | (a) <u>Describe the eligibility criteria for the owners/managers and for the animals, at each relevant level of organization</u> |
| | | (b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed <i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case |
| | | (b) <u>Describe the sources and methods of selection for the owners/managers and for the animals, at each relevant level of organization</u> |
| | | (c) <u>Describe the method of follow-up</u> |
| | | (d) For matched studies, describe matching criteria and the number of matched individuals per subject (e.g., number of controls per case) |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give |
| | | (a) Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. If applicable, give diagnostic criteria |

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| | | diagnostic criteria, if applicable | |
| | | | (b) Describe the level of organization at which each variable was measured |
| | | | (c) For hypothesis-driven studies, the putative causal-structure among variables should be described (a diagram is strongly encouraged) |
| Data sources/measurement | 8* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group | (a) For each variable of interest, give sources of data and details of methods of assessment (measurement). If applicable, describe comparability of assessment methods <u>among groups and over time</u> |
| | | | (b) <u>If a questionnaire was used to collect data, describe its development, validation, and administration</u> |
| | | | (c) <u>Describe whether or not individuals involved in data collection were blinded, when applicable</u> |
| | | | (d) <u>Describe any efforts to assess the accuracy of the data (including methods used for “data cleaning” in primary research, or methods used for validating secondary data)</u> |
| Bias | 9 | Describe any efforts to address potential sources of bias | Describe any efforts to address potential sources of bias <u>due to confounding, selection, or information bias</u> |
| Study size | 10 | Describe how the study size was arrived at | (a) Describe how the study size was arrived at for each <u>relevant level of organization</u> |
| | | | (b) <u>Describe how non-independence of measurements was incorporated into sample-size considerations, if applicable</u> |
| | | | (c) <u>If a formal sample-size calculation was used, describe the parameters, assumptions, and methods that were used, including a justification for the effect size selected</u> |
| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why |
| Statistical methods | 12 | (a) Describe all statistical methods, including those used to control for confounding | (a) Describe all statistical methods <u>for each objective, at a level of detail sufficient for a knowledgeable reader to replicate the methods. Include a description of the approaches to variable selection, control of confounding, and methods used to control for non-independence of observations</u> |
| | | (b) Describe any methods used to examine subgroups and interactions | (b) <u>Describe the rationale for examining subgroups and interactions and the methods used</u> |
| | | (c) Explain how missing data were addressed | (c) Explain how missing data were addressed |
| | | (d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed <i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy | (d) If applicable, <u>describe the analytical approach to loss to follow-up, matching, complex sampling, and multiplicity of analyses</u> |
| | | (e) Describe any sensitivity analyses | (e) <u>Describe any methods used to assess the robustness of the analyses (e.g., sensitivity analyses or quantitative bias assessment)</u> |

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| RESULTS | | | |
| Participants | 13* | (a) Report the numbers of individuals at each stage of study—e.g., numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed | (a) Report the numbers of <u>owners/managers and animals</u> at each stage of study <u>and at each relevant level of organization</u> - e.g., numbers eligible, included in the study, completing follow-up, and analyzed |
| | | (b) Give reasons for non-participation at each stage | (b) Give reasons for non-participation at each stage <u>and at each relevant level of organization</u> |
| | | (c) Consider use of a flow diagram | (c) Consider use of a flow diagram <u>and/or a diagram of the organizational structure</u> |
| Descriptive data on exposures and potential confounders | 14* | (a) Give characteristics of study participants (e.g., demographic, clinical, social) and information on exposures and potential confounders | (a) Give characteristics of study participants (e.g., demographic, clinical, social) and information on exposures and potential confounders <u>by group and level of organization, if applicable</u> |
| | | (b) Indicate number of participants with missing data for each variable of interest | (b) Indicate number of participants with missing data for each variable of interest <u>and at all relevant levels of organization</u> |
| | | (c) <i>Cohort study</i> —Summarize follow-up time (e.g., average and total amount) | (c) Summarize follow-up time (e.g., average and total amount), <u>if appropriate to the study design</u> |
| Outcome data | 15* | <i>Cohort study</i> —Report numbers of outcome events or summary measures over time | (a) <u>Report outcomes as appropriate for the study design and summarize at all relevant levels of organization</u> |
| | | <i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure | (b) <u>For proportions and rates, report the numerator and denominator</u> |
| | | <i>Cross-sectional study</i> —Report numbers of outcome events or summary measures | (c) <u>For continuous outcomes, report the number of observations and a measure of variability</u> |
| Main results | 16 | (a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included | (a) Give unadjusted estimates and, if applicable, adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders <u>and interactions</u> were adjusted. <u>Report all relevant parameters that were part of the model</u> |
| | | (b) Report category boundaries when continuous variables were categorized | (b) Report category boundaries when continuous variables were categorized |
| | | (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period | (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period |
| Other analyses | 17 | Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses | Report other analyses done, <u>such as sensitivity/robustness analysis and analysis of subgroups</u> |
| DISCUSSION | | | |
| Key results | 18 | Summarize key results with reference to study objectives | Summarize key results with reference to study objectives |
| Strengths and Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias | Discuss <u>strengths and</u> limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias |

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| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence |
| Generalizability | 21 | Discuss the generalizability (external validity) of the study results | Discuss the generalizability (external validity) of the study results |
| OTHER INFORMATION | | | |
| Funding Transparency | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based | <p>(a) <u>Funding</u>- Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based</p> <p>(b) <u>Conflicts of interest</u>-Describe any conflicts of interest, or lack thereof, for each author</p> <p>(c) <u>Describe the authors' roles</u>- Provision of an authors' declaration of transparency is recommended</p> <p>(d) <u>Ethical approval</u>- Include information on ethical approval for use of animal and human subjects</p> <p>(e) <u>Quality standards</u>-Describe any quality standards used in the conduct of the research</p> |

¶ Underlined text represents modifications or additions to the original STROBE wording.

^a Level of organization recognizes that observational studies in veterinary research often deal with repeated measures (within an animal or herd) or animals that are maintained in groups (such as pens and herds); thus, the observations are not statistically independent. This non-independence has profound implications for the design, analysis, and results of these studies.

^b The word “participant” is used in the STROBE statement. However, for the veterinary version, it is understood that “participant” should be addressed for both the animal owner/manager and for the animals themselves.

*Give such information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.