MOOSE Guidelines for Meta-Analyses and Systematic Reviews of Observational Studies*

Title Identify the study as a meta-analysis (or systematic review)

Abstract Use the journal's structured format

Introduction **Present**
- The clinical problem
- The hypothesis
- A statement of objectives that includes the study population, the condition of interest, the exposure or intervention, and the outcome(s) considered

Sources **Describe**
- Qualifications of searchers (eg, librarians and investigators)
- Search strategy, including time period included in the synthesis and keywords
- Effort to include all available studies, including contact with authors
- Databases and registries searched
- Search software used, name and version, including special features used (eg, explosion)
- Use of hand searching (eg, reference lists of obtained articles)
- List of citations located and those excluded, including justification
- Method of addressing articles published in languages other than English
- Method of handling abstracts and unpublished studies
- Description of any contact with authors

Study Selection **Describe**
- Types of study designs considered
- Relevance or appropriateness of studies gathered for assessing the hypothesis to be tested
- Rationale for the selection and coding of data (eg, sound clinical principles or convenience)
- Documentation of how data were classified and coded (eg, multiple raters, blinding, and interrater reliability)
- Assessment of confounding (eg, comparability of cases and controls in studies where appropriate)
- Assessment of study quality, including blinding of quality assessors; stratification or regression on possible predictors of study results
- Assessment of heterogeneity
- Statistical methods (eg, complete description of fixed or random effects models, justification of whether the chosen models account for predictors of study results, dose-response models, or cumulative meta-analysis) in sufficient detail to be replicated

Results **Present**
- A graph summarizing individual study estimates and the overall estimate
- A table giving descriptive information for each included study
- Results of sensitivity testing (eg, subgroup analysis)
- Indication of statistical uncertainty of findings

Discussion **Discuss**
- Strengths and weaknesses
- Potential biases in the review process (eg, publication bias)
- Justification for exclusion (eg, exclusion of non–English-language citations)
- Assessment of quality of included studies
- Consideration of alternative explanations for observed results
- Generalization of the conclusions (ie, appropriate for the data presented and within the domain of the literature review)
- Guidelines for future research
- Disclosure of funding source