FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

Publishing Best Practices Webinar Series:

BEING TRANSPARENT: PRINCIPLES OF TRANSPARENCY IN SCHOLARLY PUBLISHING

Presented by the Local Capacity Development Crosscutting Theme

3 November 2023

Feed the Future Innovation Lab for Livestock Systems

USAID FROM THE AMERICAN PEOPLE

BILL & MELINDA GATES foundation

ILRI INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE

CGIAR

UF IFAS UNIVERSITY of FLORIDA

FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

Presented in collaboration with the University of Florida Libraries

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University of Florida

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Outline

Transparency in scholarly publishing

- Publication ethics
  - Authorship contributions
  - Competing interests
  - Statement on data sharing
- Reporting standards for study type
  - Complete reporting of research findings

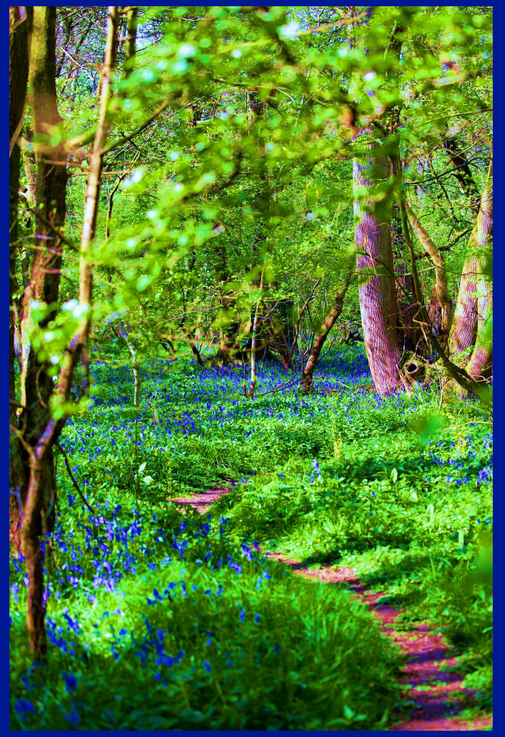


Image by Kev from Pixabay

COPE – Transparency in Scholarly Publishing

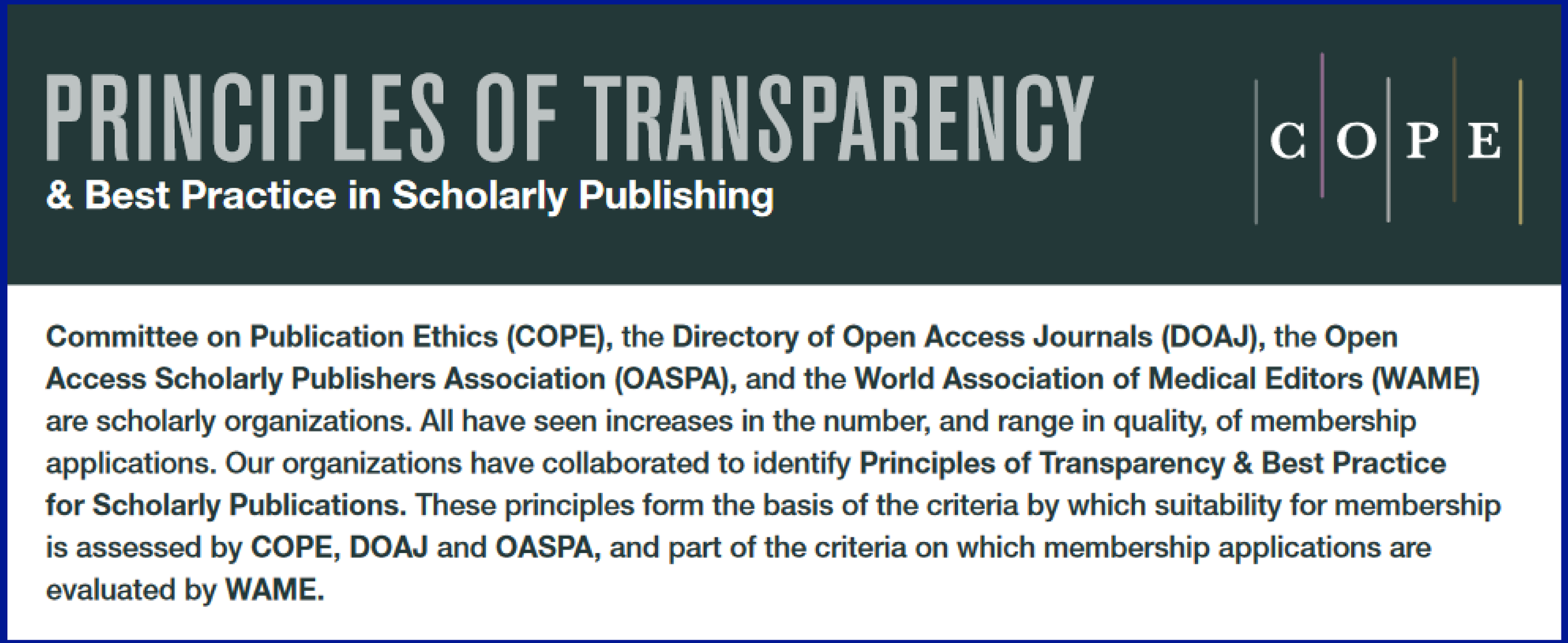


Image from https://publicationethics.org/files/COPE_Principles_of_Transparency_Poster_0.pdf retrieved 2023-08-22

WCRIF

World Conferences on Research Integrity Foundation (WCRIF)

- Promotes research integrity through world conferences
- Integrity refers to principles and standards meant to ensure trustworthiness and validity of research
- Researcher behaviors that impact research integrity
  - Research misconduct
    - Fabrication (making up data)
    - Falsification (changing or omitting data; manipulating equipment, materials)
    - Plagiarism (using others' words, ideas, processes, results without attribution)
  - Detrimental research practices
    - E.g., Inappropriate assignment of authorship, incomplete reporting
  - Responsible research practices
    - E.g., honest reporting, transparency about competing interests

https://www.wcri2021.org/foundation/mission

Singapore Statement 2010

Unified guidelines and codes of conduct designed to foster greater integrity in research worldwide

- **Product of the 2nd World Conference on Research Integrity**
  - **340 individuals from 91 countries**
- **Responsibilities related to transparency**
  - **Research findings**
  - **Authorship**
  - **Publication acknowledgment**
  - **Conflict of interest**

https://www.singaporestatement.org/guidance/singapore-statement

Singapore Statement 2010 – Authorship

Take responsibility for contributions to publications and acknowledge those who made significant contributions

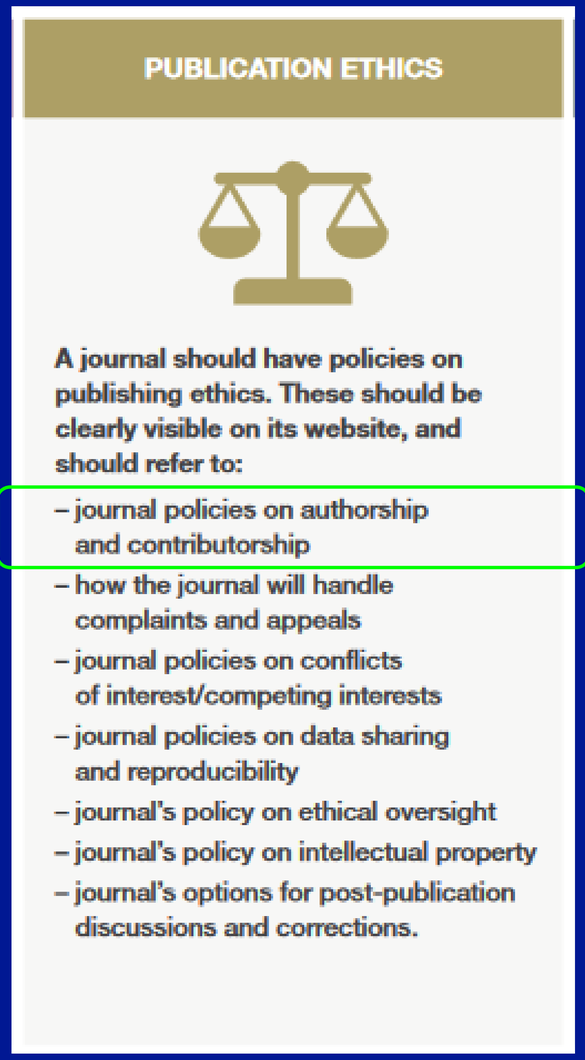
- **All those (and only those) meeting authorship criteria should be listed as co-authors**
- **Those making significant contributions, but not meeting authorship criteria, should be acknowledged**

6. Authorship: Researchers should take responsibility for their contributions to all publications, funding applications, reports and other representations of their research. Lists of authors should include all those and only those who meet applicable authorship criteria.

7. Publication Acknowledgement: Researchers should acknowledge in publications the names and roles of those who made significant contributions to the research, including writers, funders, sponsors, and others, but do not meet authorship criteria.

Image from https://www.wcrif.org/downloads/main-website/singapore-statements/224-singpore-statement-lettersize/file retrieved 2023-08-09

COPE Transparency and Best Practice – Authorship



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Ex: *Journal of Dairy Science* policy on authorship / contributorship

Authorship

The *Journal of Dairy Science* follows guidelines on authorship and contribution from the International Committee of Medical Journal Editors (http://www.icmje.org/). As such, the journal recommends that authorship be based on the following 4 criteria:

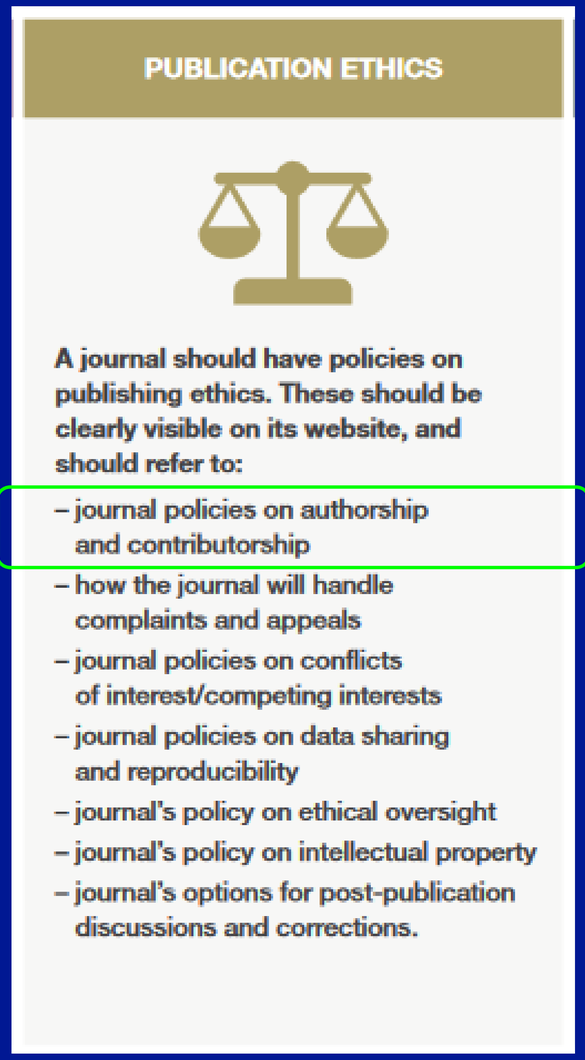
1. Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
2. Drafting the work or revising it critically for important intellectual content; AND
3. Final approval of the version to be published; AND
4. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

To satisfy the requirement for authorship, each contributor must meet all 4 criteria above. Contributors meeting fewer than the 4 criteria listed here should be listed in the Acknowledgments section of an article.

Authors are encouraged to have an ORCID identifier (https://orcid.org/) for disambiguation of the publication record and to link their ORCID to their ScholarOne Manuscripts account.

Image from https://www.journalofdairyscience.org/pb-assets/Health%20Advance/journals/jods/JODS-Instruct-for-Contributors-2023-Policies-1675367345593.pdf retrieved 2023-10-28

COPE Transparency and Best Practice – Authorship



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Example: *Livestock Science* policy on authorship / contributorship

Author contributions

For transparency, we require corresponding authors to provide co-author contributions to the manuscript using the relevant CRediT roles. The CRediT taxonomy ↗ includes 14 different roles describing each contributor's specific contribution to the scholarly output. The roles are: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing - original draft; and Writing - review & editing. Note that not all roles may apply to every manuscript, and authors may have contributed through multiple roles. More details and an example.

Image from https://www.elsevier.com/journals/livestock-science/1871-1413/guide-for-authors retrieved 2023-09-23

Singapore Statement 2010 – Competing interests

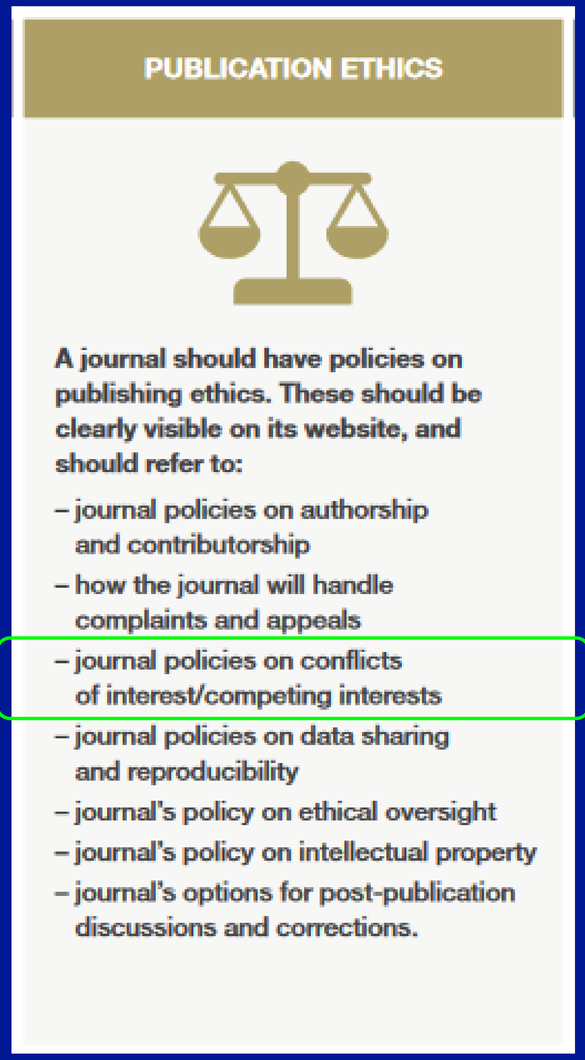
Provide disclosure of all potential conflicts of interest

- **Financial and other forms of support that could compromise trustworthiness**

> ***9. Conflict of Interest:*** Researchers should disclose financial and other conflicts of interest that could compromise the trustworthiness of their work in research proposals, publications and public communications as well as in all review activities.

Image from https://www.wcrif.org/downloads/main-website/singapore-statements/224-singpore-statement-lettersize/file retrieved 2023-08-09

COPE Transparency – Competing interests



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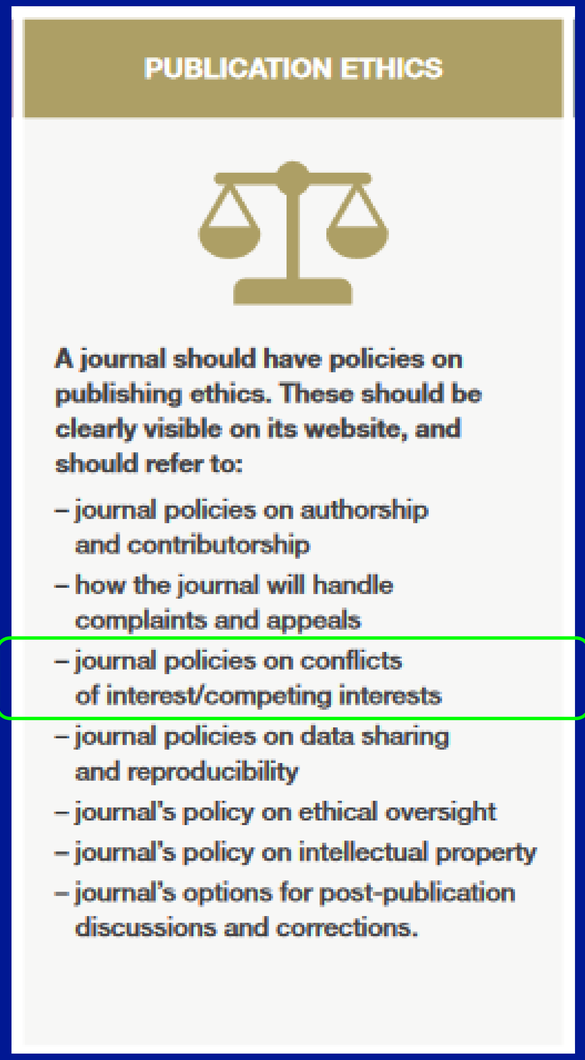
Example: *Journal of Dairy Science* policy on conflicts of interest

Acknowledgment of Funding and Conflicts of Interest

Authors must acknowledge all sources of funding for the research in the Acknowledgments section of the paper. Names and locations of funders should be provided; grant names or numbers may be included. Authors will be asked to declare potential conflicts of interest during the submission process and should describe any such conflicts in the Acknowledgments section of the manuscript. If no conflicts are declared, the following statement will be added to the article: "The authors have not stated any conflicts of interest."

Image from https://www.journalofdairyscience.org/pb-assets/Health%20Advance/journals/jods/JODS-Instruct-for-Contributors-2023-Policies-1675367345593.pdf retrieved 2023-10-28

COPE Transparency – Competing interests



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Example: *Livestock Science* policy on competing interests

Declaration of interest

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential competing interests include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Authors must disclose any interests in two places: 1. A summary declaration of interest statement in the title page file (if double anonymized) or the manuscript file (if single anonymized). If there are no interests to declare then please state this: 'Declarations of interest: none'. 2. Detailed disclosures as part of a separate Declaration of Interest form, which forms part of the journal's official records. It is important for potential interests to be declared in both places and that the information matches. More information ↗ .

Image from https://www.elsevier.com/journals/livestock-science/1871-1413/guide-for-authors retrieved 2023-09-23

Disclosure of competing interests

Things that need to be disclosed

- Financial or non-financial support for the reported work
- Financial interest or professional relationship not directly related to this manuscript but to the subject matter
  - E.g., consulting fees, ownership of stock, speaking fees, travel reimbursement, advisory positions, employment, grants/funding
    - Within the last 3 years
- Relevant intellectual property
  - E.g., copyrights or patents pending, issued, or licensed to the author and relevant to the work
- Anything else you or your co-authors think might warrant disclosure
  - E.g., editorial position with journal to which you are submitting

https://declarations.elsevier.com/

Competing interests – Resources

Elsevier guidance

Guide to Declaration of Competing Interests*

Action	What is it?	Is it unethical?	What should you do?
An undisclosed relationship that may pose a competing interest.	Neglecting to disclose a relationship with a person or organization that could affect one's objectivity, or inappropriately influence one's actions.	**Yes.** Some relationships do not necessarily present a conflict. Participants in the peer-review and publication process must disclose relationships that could be viewed as potential competing interests.[2]	• When submitting a paper, state explicitly whether potential competing interests do or do not exist. • Indicate this in the manuscript for single-blind journals or in the title page for double-blind journals. • Investigators must disclose potential competing interests to study participants and should state in the manuscript whether they have done so. • Reviewers must also disclose any competing interests that could bias their opinions of the manuscript.[2]
An undisclosed funding source that may pose a competing interest.	Neglecting to disclose the role of the study sponsor(s), if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication.	**Yes.** Undeclared financial conflicts may seriously undermine the credibility of the journal, the authors, and the science itself.[2]	• When submitting a paper, a declaration (with the heading 'Role of the funding source') should be made in a separate section of the text and placed before the References. • Describe the role of the study sponsor(s), if any, in study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication. • Editors may request that authors of a study funded by an agency with a proprietary or financial interest in the outcome sign a statement, such as 'I had full access to all of the data in this study and I take complete responsibility for the integrity of the data and the accuracy of the data analysis.'[3]

*When in doubt, always consult with your professor, advisor, or someone in a position of authority who can guide you to the right course of action.

Image from https://www.elsevier.com/__data/assets/pdf_file/0007/653884/Competing-Interests-factsheet-March-2019.pdf retrieved 2023-10-29

Competing interests – Resources

ICMJE guidance regarding information to include

- Disclosure of relationships and activities that could potentially bias the work
  - For each author
  - Source(s) of support
    - Grants, drugs, equipment, and other support that facilitated conduct of the work or the writing of the manuscript
    - Include sponsor names and roles in study design; data collection, analysis, and interpretation; any restrictions placed on submission of report for publication
  - Authors' access to study data
- Template
  - ICMJE Disclosure Form

https://www.icmje.org/recommendations/browse/roles-and-responsibilities/author-responsibilities--conflicts-of-interest.html#two

Singapore Statement 2010 – Data sharing

Make research findings available

- **Share data and findings openly**

> ***5. Research Findings:*** Researchers should share data and findings openly and promptly, as soon as they have had an opportunity to establish priority and ownership claims.

Images from https://www.wcrif.org/downloads/main-website/singapore-statements/224-singpore-statement-lettersize/file retrieved 2023-08-09

COPE Transparency – Data sharing

PUBLICATION ETHICS

A journal should have policies on publishing ethics. These should be clearly visible on its website, and should refer to:

- journal policies on authorship and contributorship
- how the journal will handle complaints and appeals
- journal policies on conflicts of interest/competing interests
- journal policies on data sharing and reproducibility
- journal's policy on ethical oversight
- journal's policy on intellectual property
- journal's options for post-publication discussions and corrections.

Image from https://publicationethics.org/files/COPE_Principles_of_Transparency_Poster_0.pdf retrieved 2023-08-22

Example: *Journal of Dairy Science* policy on data sharing

Journal of Dairy Science • https://www.journalofdairyscience.org/

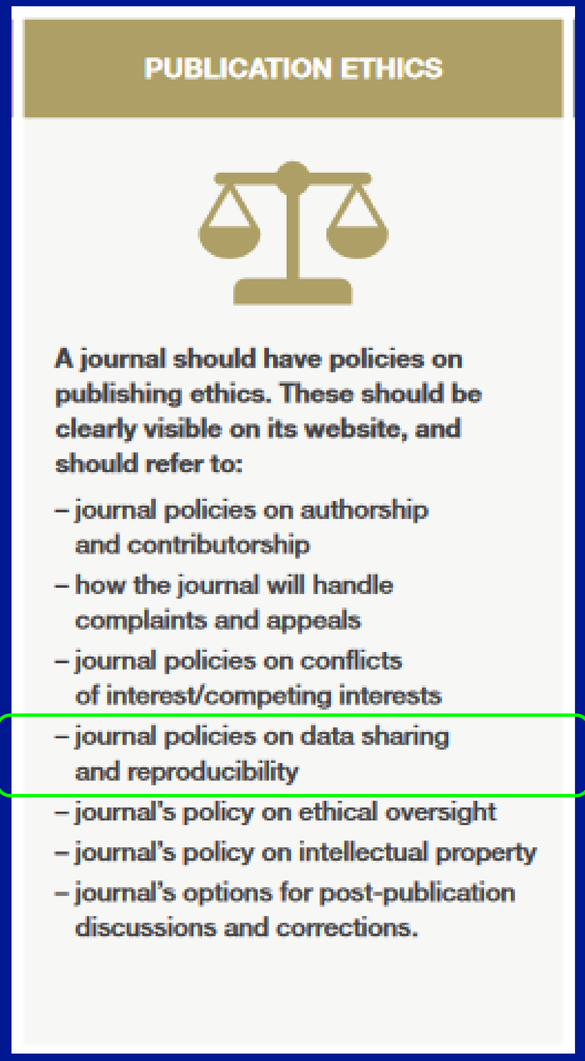
Brief Instructions for Authors

Journal scope	*Journal of Dairy Science*® (JDS) is the leading general dairy research journal in the world. JDS readers represent education, industry, and government agencies in more than 70 countries with interests in biochemistry, breeding, economics, engineering, environment, food science, genetics, microbiology, nutrition, pathology, physiology, processing, public health, and more. **In January 2022, JDS became a gold open access journal.**
Manuscript preparation	Refer to *Journal of Dairy Science* **Instructions for Authors: Style and Format** for detailed instructions on style and form, statistics, nomenclature, abbreviation usage, and table and figure preparation.
Format (research articles)	Abstract; Introduction; Materials and Methods; Results; Discussion (or combined Results and Discussion; Conclusions (optional); References; Acknowledgments/Notes (funding, acknowledgments, conflict of interest).
File uploads	Manuscript and reporting checklist (required); graphical abstract and highlights (optional). **Submit here: https://mc.manuscriptcentral.com/jds**
Data supplements	Supplemental data files should be submitted to a third-party host and linked by URL in the manuscript.
Policies	Refer to the **Instructions for Authors: Policies** for additional information on authorship, animal care, human subjects research, plagiarism, acknowledgment of funding, conflicts of interest, and other policy matters.

Data files can be linked

Image from https://www.journalofdairyscience.org/pb-assets/Health%20Advance/journals/jods/JODS-ShortInst-2023-1675367345023.pdf retrieved 2023-10-29

COPE Transparency – Data sharing



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Example: *Livestock Science* policy on data sharing

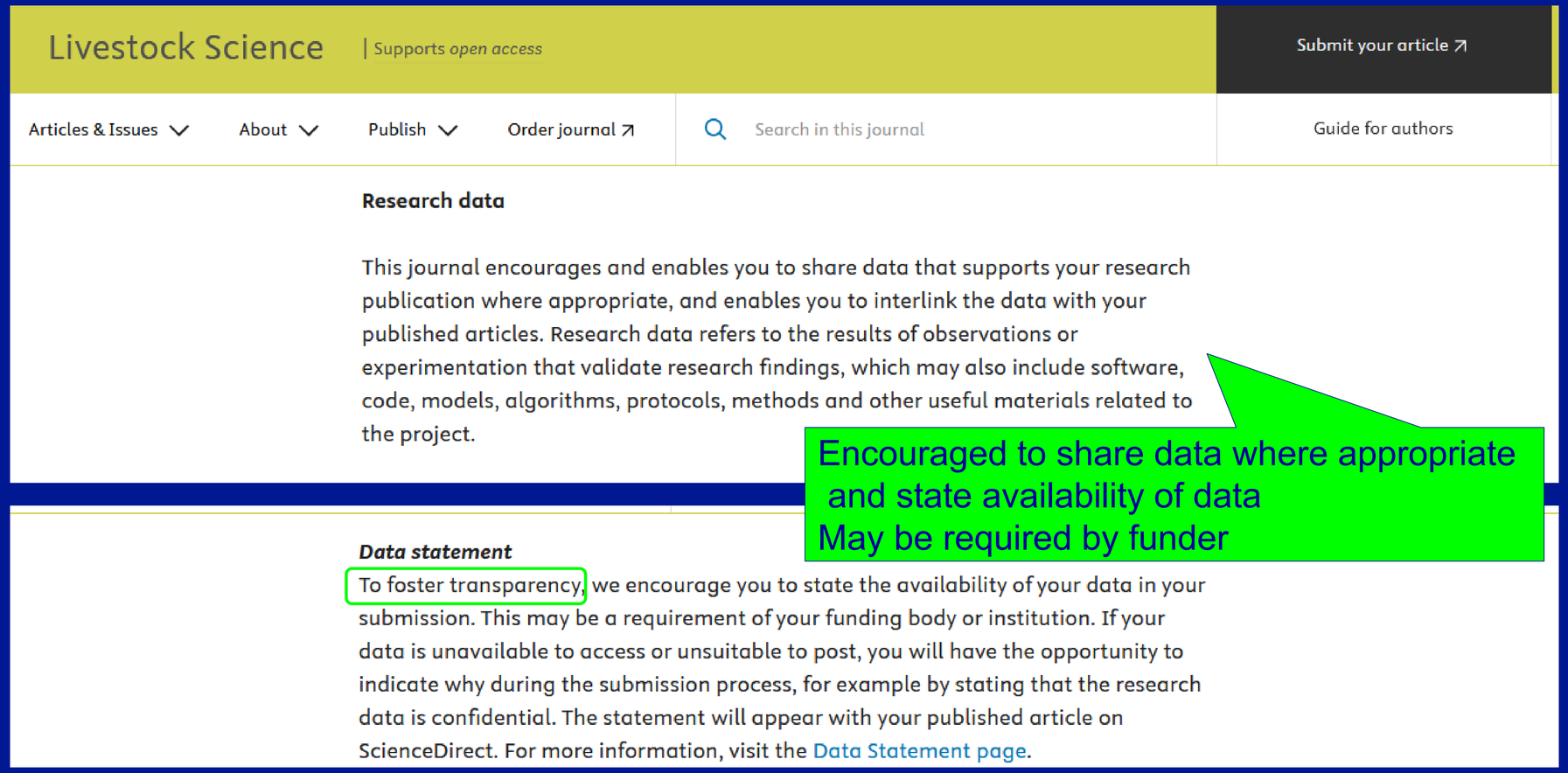


Image from https://www.elsevier.com/journals/livestock-science/1871-1413/guide-for-authors retrieved 2023-09-23

Data sharing – Funder policy

Example of NIH mandate

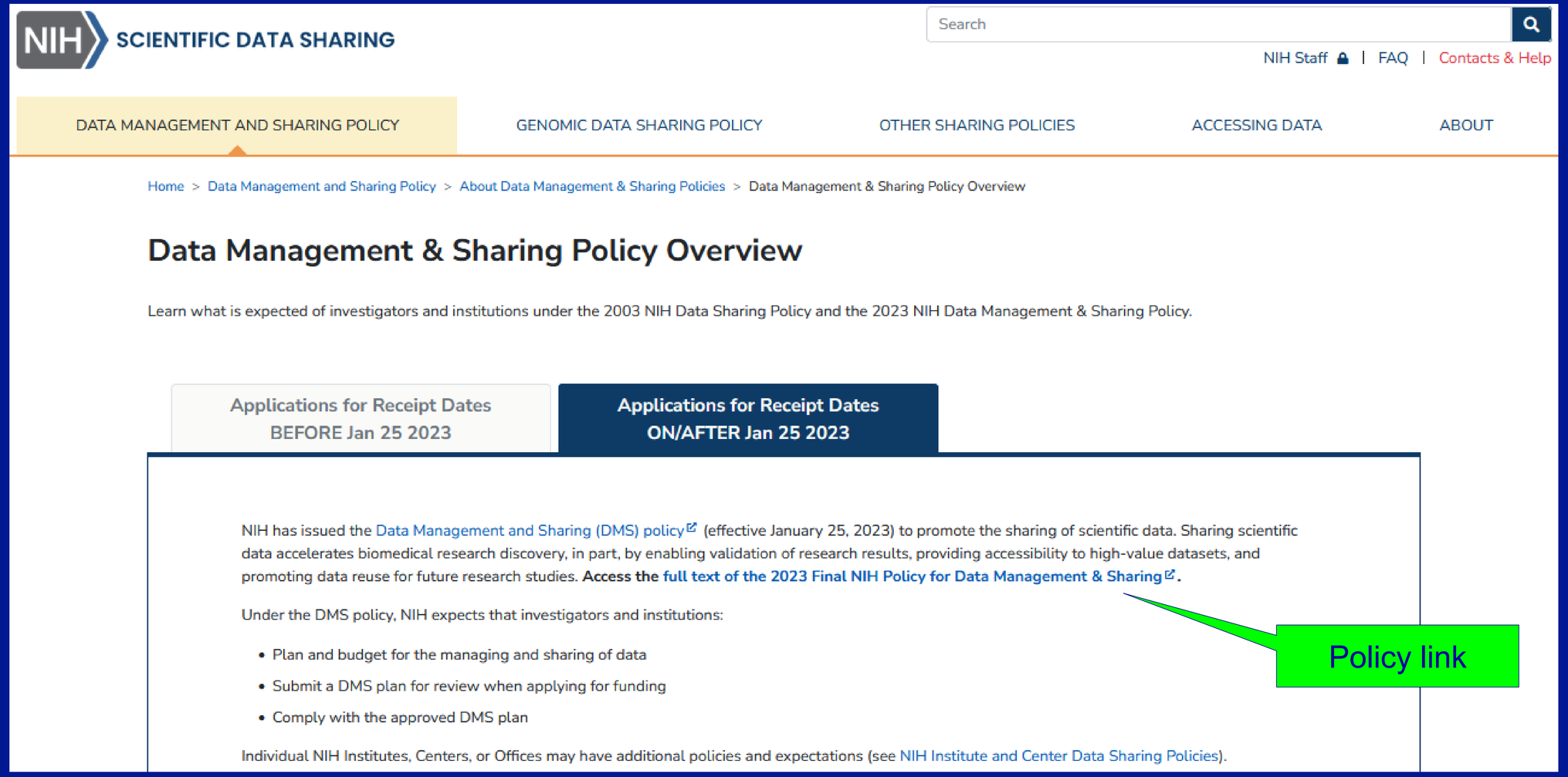


Image from https://sharing.nih.gov/data-management-and-sharing-policy/about-data-management-and-sharing-policies/data-management-and-sharing-policy-overview#after retrieved 2023-10-29

Data sharing – Funder policy

Example of funder mandate

- **NIH policy effective Jan 25, 2023**

NIH Policy for Data Management and Sharing

Section I. Purpose

The National Institutes of Health (NIH) Policy for Data Management and Sharing (herein referred to as the DMS Policy) reinforces NIH's longstanding commitment to making the results and outputs of NIH-funded research available to the public through effective and efficient data management and data sharing practices. Data sharing enables researchers to rigorously test the validity of research findings,[5] strengthen analyses through combined datasets, reuse hard-to-generate data, and explore new frontiers of discovery. In addition, NIH emphasizes the importance of good data management practices, which provide the foundation for effective data sharing and improve the reproducibility and reliability of research findings. NIH encourages data management and data sharing practices consistent with the FAIR data principles.[6]

Under the DMS Policy, NIH requires researchers to prospectively plan for how scientific data will be preserved and shared through submission of a Data Management and Sharing Plan (Plan). Upon NIH approval of a Plan, NIH expects researchers and institutions to implement data management and sharing practices as described. The DMS Policy is intended to establish expectations for Data Management and Sharing Plans, which applicable NIH Institutes, Centers and Offices (ICO) may supplement as appropriate.

Data Management and Sharing Plan is required
Encourages FAIR data principles

Image from https://grants.nih.gov/grants/guide/notice-files/NOT-OD-21-013.html retrieved 2023-10-29

Data Sharing – Resource

Findable
Accessible
Interoperable
Reuseable

Image from https://www.go-fair.org/fair-principles/ retrieved 2023-10-25

Data Sharing – Resource

Data repository advice from NIH

Desirable Characteristics for All Data Repositories

When choosing a repository to manage and share data resulting from Federally funded research, here are some desirable characteristics to look for:

- **Unique Persistent Identifiers:** Assigns datasets a citable, unique persistent identifier, such as a digital object identifier (DOI) or accession number, to support data discovery, reporting, and research assessment. The identifier points to a persistent landing page that remains accessible even if the dataset is de-accessioned or no longer available.
- **Long-Term Sustainability:** Has a plan for long-term management of data, including maintaining integrity, authenticity, and availability of datasets; building on a stable technical infrastructure and funding plans; and having contingency plans to ensure data are available and maintained during and after unforeseen events.
- **Metadata:** Ensures datasets are accompanied by metadata to enable discovery, reuse, and citation of datasets, using schema that are appropriate to, and ideally widely used across, the community(ies) the repository serves. Domain-specific repositories would generally have more detailed metadata than generalist repositories.
- **Curation and Quality Assurance:** Provides, or has a mechanism for others to provide, expert curation and quality assurance to improve the accuracy and integrity of datasets and metadata.
- **Free and Easy Access:** Provides broad, equitable, and maximally open access to datasets and their metadata free of charge in a timely manner after submission, consistent with legal and ethical limits required to maintain privacy and confidentiality, Tribal sovereignty, and protection of other sensitive data.
- **Broad and Measured Reuse:** Makes datasets and their metadata available with broadest possible terms of reuse; and provides the ability to measure attribution, citation, and reuse of data (i.e., through assignment of adequate metadata and unique PIDs).
- **Clear Use Guidance:** Provides accompanying documentation describing terms of dataset access and use (e.g., particular licenses, need for approval by a data use committee).
- **Security and Integrity:** Has documented measures in place to meet generally accepted criteria for preventing unauthorized access to, modification of, or release of data, with levels of security that are appropriate to the sensitivity of data.
- **Confidentiality:** Has documented capabilities for ensuring that administrative, technical, and physical safeguards are employed to comply with applicable confidentiality, risk management, and continuous monitoring requirements for sensitive data.
- **Common Format:** Allows datasets and metadata downloaded, accessed, or exported from the repository to be in widely used, preferably non-proprietary, formats consistent with those used in the community(ies) the repository serves.
- **Provenance:** Has mechanisms in place to record the origin, chain of custody, and any modifications to submitted datasets and metadata.
- **Retention Policy:** Provides documentation on policies for data retention within the repository.

Image from https://sharing.nih.gov/data-management-and-sharing-policy/sharing-scientific-data/selecting-a-data-repository retrieved 2023-10-29

Singapore Statement 2010 – Report findings

Make research findings available

- **Report findings fully and objectively**

> ***3. Research Methods:*** Researchers should employ appropriate research methods, base conclusions on critical analysis of the evidence and report findings and interpretations fully and objectively.

Images from https://www.wcrif.org/downloads/main-website/singapore-statements/224-singpore-statement-lettersize/file retrieved 2023-08-09

Reporting Research Findings

Reporting standards

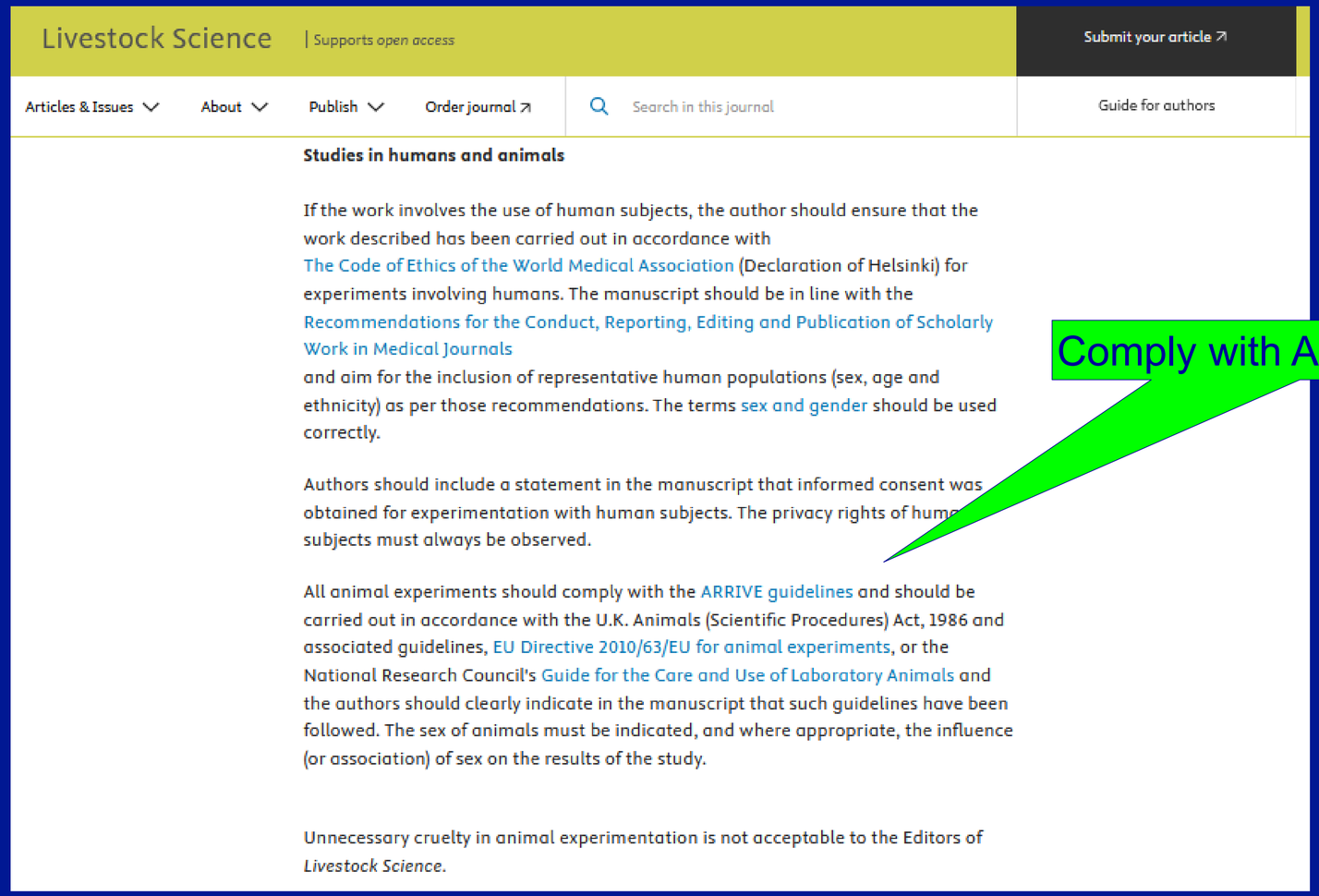
- Guidelines re: items to be included in research articles
  - Based on study design
    - Address potential sources of bias
- Improve the completeness of reporting
  - Enhance transparency
- Good sources for locating relevant standards
  - Journal recommendations/requirements
  - MERIDIAN: Menagerie of Reporting guidelines Involving Animals
    - Animal focused
  - EQUATOR Network
    - As of Sept 26, 2023, 579 reporting guidelines
    - E.g., REFLECT for reporting randomized trials for livestock and food safety, ARRIVE for reporting any area of bioscience research using laboratory animals

Reporting Research Findings

Fully and objectively

- **Transparent**

Example: *Livestock Science* policy on use of reporting guidelines



Comply with ARRIVE guidelines

Image from https://www.sciencedirect.com/journal/livestock-science/publish/guide-for-authors#12000
retrieved 2023-10-29

Reporting Research Findings

Fully and objectively

- **Transparent**

Example: *Journal of Dairy Science* policy on use of reporting guidelines

Reporting Guidelines

The *Journal of Dairy Science* requires the submission of an appropriate reporting guideline checklist with each paper. This is a widespread practice and common requirement in leading scientific and medical journals. Reporting guidelines help to ensure complete and accurate reporting of a study, which contributes to reproducibility and allows for critical appraisal of the work, as well as eventual inclusion of the study in systematic reviews and meta-analyses. Reporting guidelines do not prescribe study design or analysis but have been shown to improve the clarity and completeness of reporting. More information on the policy and its implementation can be found here: https://www.adsa.org/Publications/Journal-of-Dairy-Science/jds-authors.

Requires completed checklist

Links to checklists

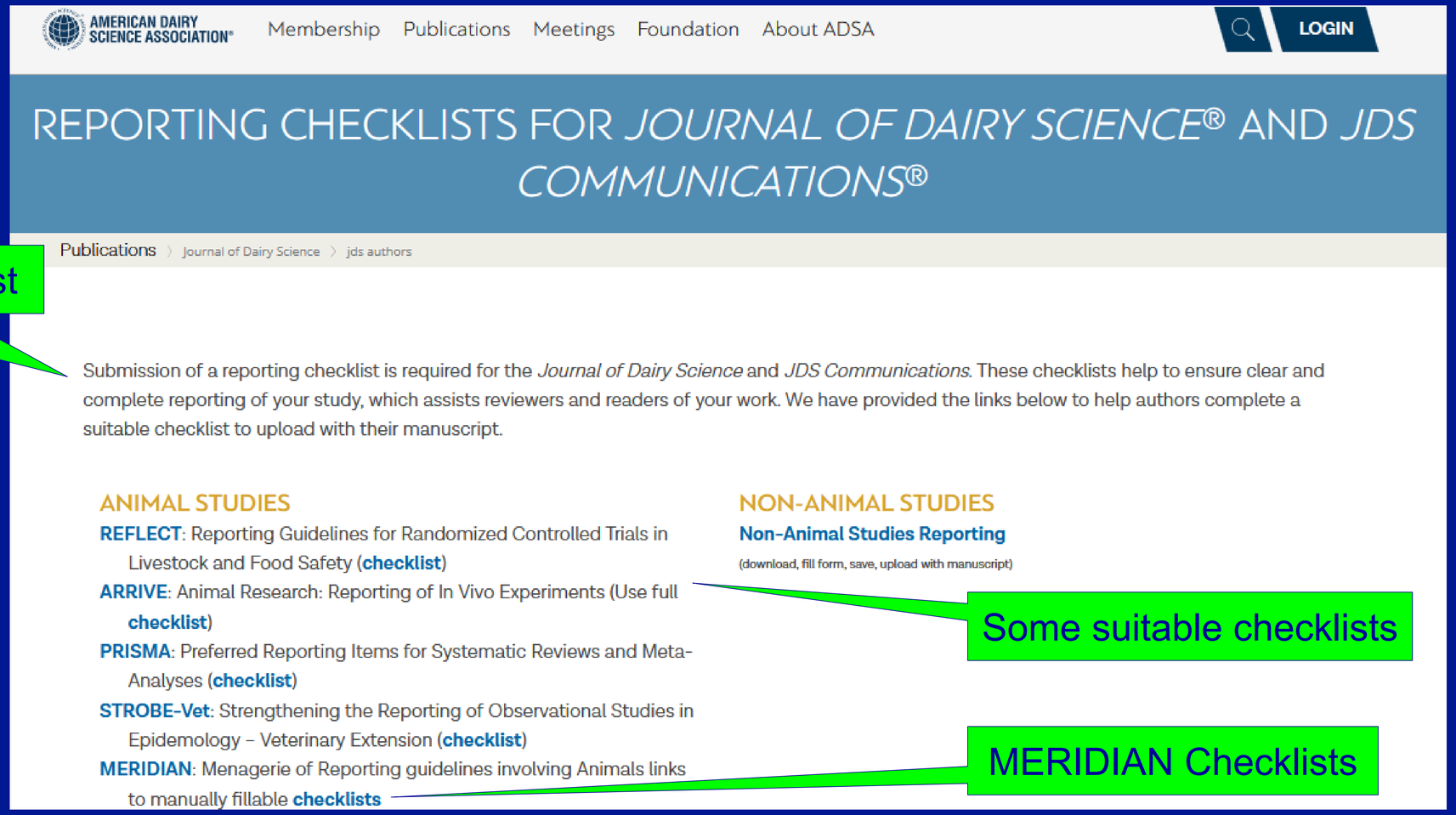
Image from https://www.journalofdairyscience.org/pb-assets/Health%20Advance/journals/jods/JODS-Instruct-for-Contributors-2023-Policies-1675367345593.pdf retrieved 2023-10-29

Reporting Research Findings

Fully and objectively

- **Transparent**

Example: *Journal of Dairy Science* policy on use of reporting guidelines



Requires completed checklist

Some suitable checklists

MERIDIAN Checklists

Image from https://www.adsa.org/Publications/Journal-of-Dairy-Science/jds-authors retrieved 2023-10-29

Reporting Research – Resource for finding guidelines

Checklists

Image from https://meridian.cvm.iastate.edu retrieved 2023-10-27

Reporting Research – Resource for finding guidelines

Fill out an ARRIVE checklist in RIGOR.

The ARRIVE (Animal Research: Reporting of In Vivo Experiments) guidelines improve the reporting of research that uses animals. Their goal is to reduce the number of unnecessary studies and to increase the amount of information published. The guidelines are produced by the National Centre for the Replacement Refinement & Reduction of Animals in Research (NC3Rs). Please see more information about ARRIVE here.

Fill out a CONSORT checklist in RIGOR.

The CONSORT Statement provides recommendations for describing randomized trials. It seeks to help authors report conclusions drawn from the trials, make their reporting more complete and transparent, and make it easier to review and interpret the evidence. CONSORT stands for Consolidated Standards of Reporting Trials.

Fill out a PRISMA checklist in RIGOR.

PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) statement includes a reporting checklist for meta-analyses and systematic reviews. The main focus of PRISMA is on evaluating randomized trials. However, it can also be for reviewing other types of research, e.g., evaluations of interventions. More information about PRISMA can also be found here and at http://www.prisma-statement.org/.

Fill out a REFLECT checklist in RIGOR.

The overall goal of the REFLECT (Reporting Guidelines for Randomized Controlled Trials for Livestock and Food Safety) statement is to help authors improve the reporting livestock trials. More information about REFLECT can be found here.

REFLECT

Fill out a STROBE-Vet checklist in RIGOR.

The STROBE-Vet (Strengthening the Reporting of Observational Studies in Epidemiology – Veterinary Extension) modifies the STROBE statement for reporting observational studies of animal populations. More information about STROBE-Vet can be found here.

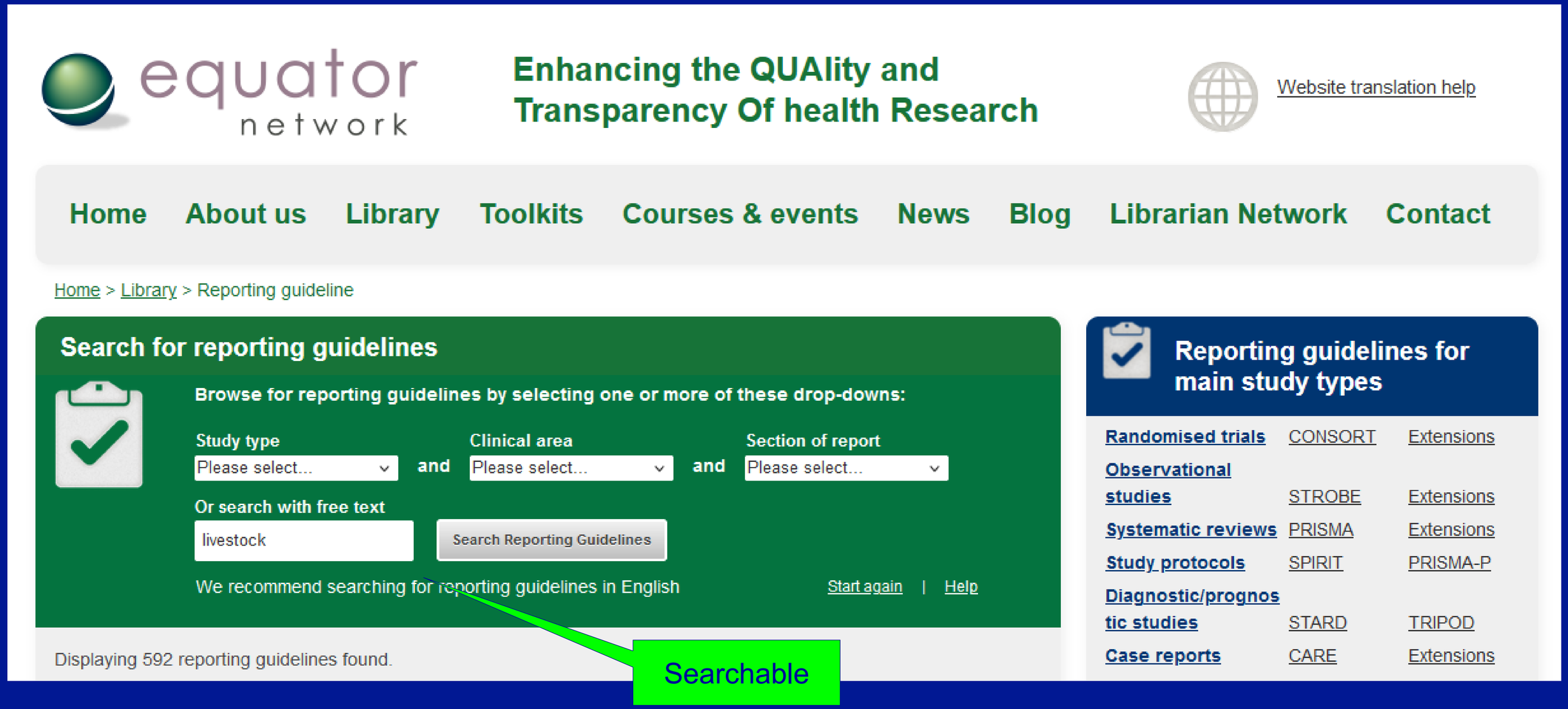
Image from https://meridian.cvm.iastate.edu/tools-for-checklists/ retrieved 2023-10-27

Reporting Research – Resource for finding guidelines

Searchable

Image from https://www.equator-network.org/ retrieved 2023-10-25

Reporting Research – Resource for finding guidelines



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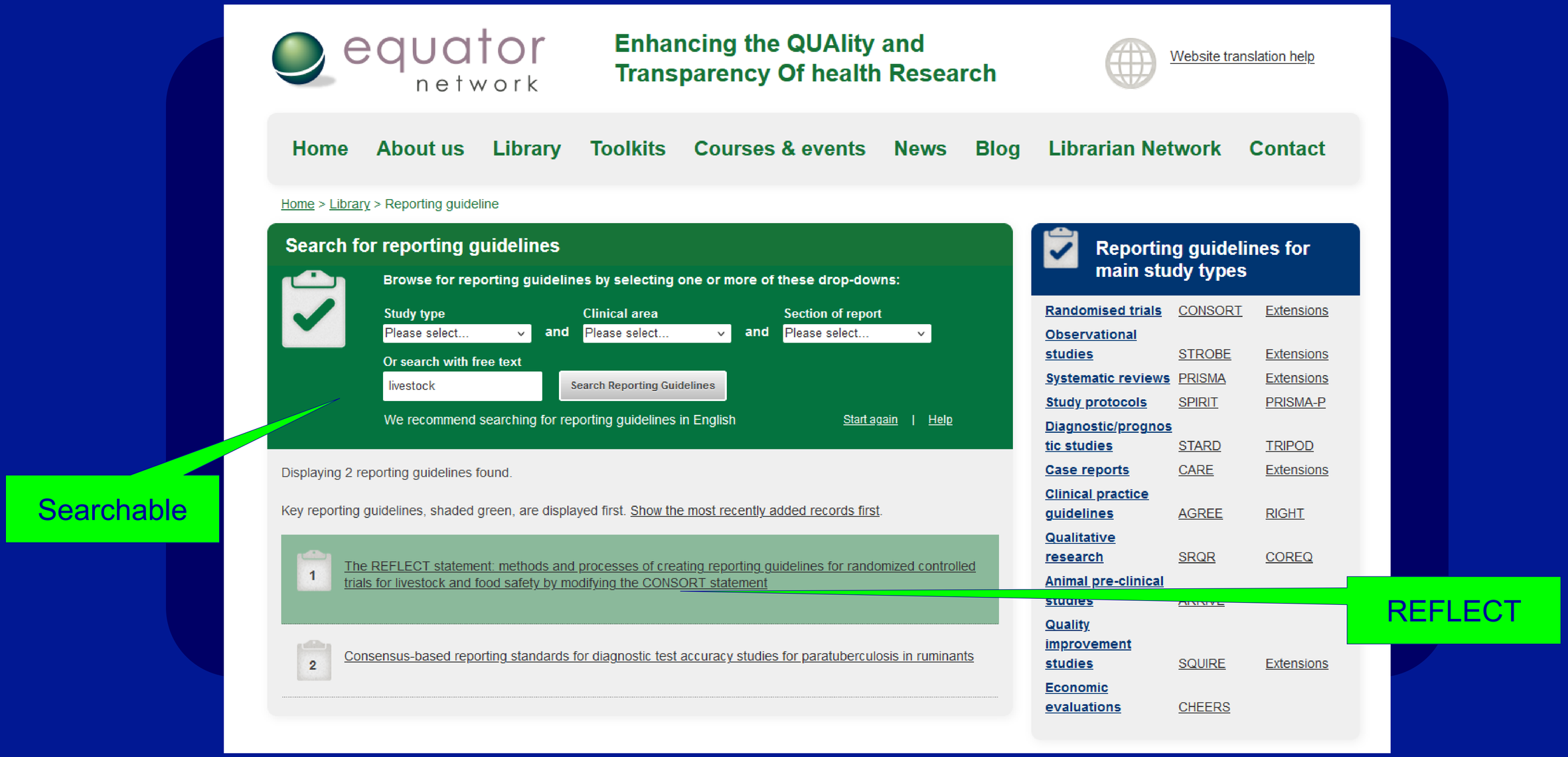
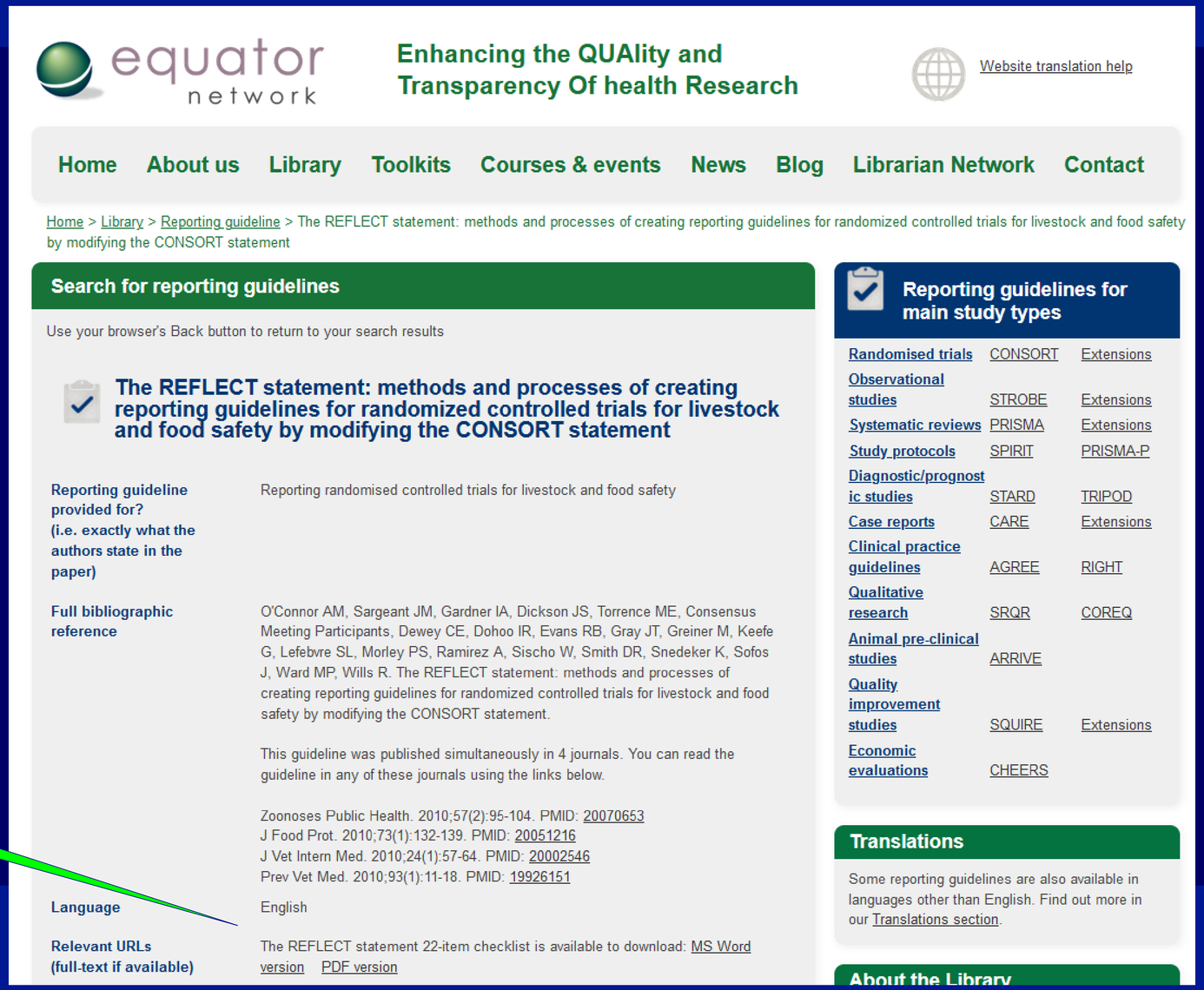


Searchable

REFLECT

Image from https://www.equator-network.org/?post_type=eq_guidelines&eq_guidelines_study_design=0&eq_guidelines_clinical_specialty=0&eq_guidelines_report_section=0&s=livestock&btn_submit=Search+Reporting+Guidelines retrieved 2023-10-25

Reporting Research – Resource for finding guidelines



Checklist

Image from https://www.equator-network.org/reporting-guidelines/the-reflect-statement-methods-and-processes-of-creating-reporting-guidelines-for-randomized-controlled-trials-for-livestock-and-food-safety-by-modifying-the-consort-statement/ retrieved 2023-10-25

Reporting Research – Resource for finding guidelines

Explanation and Elaboration

Checklist available in French

Guideline link

Relevant URLs (full-text if available)	The REFLECT statement 22-item checklist is available to download: MS Word version PDF version
Explanation and elaboration papers	Sargeant JM, O'Connor AM, Gardner IA, Dickson JS, Torrence ME; Consensus Meeting Participants. The REFLECT statement: reporting guidelines for randomized controlled trials in livestock and food safety: explanation and elaboration. Zoonoses Public Health. 2010;57(2):105-136. PMID: 20070652 Sargeant JM, O'Connor AM, Gardner IA, Dickson JS, Torrence ME, Dohoo IR, Lefebvre SL, Morley PS, Ramirez A, Snedeker K. The REFLECT statement: reporting guidelines for randomized controlled trials in livestock and food safety: explanation and elaboration. J Food Prot. 2010;73(3):579-603. PMID: 20202349
Availability in additional languages	The REFLECT statement checklist is available to download in the following languages: Spanish: REFLECT checklist (PDF) French: REFLECT checklist (PDF) Visit our translations page to find out what other reporting guidelines are available in languages other than English: reporting guideline translations
Reporting guideline website URL	http://www.reflect-statement.org/statement/
Reporting guideline acronym	REFLECT
Applies to the whole report or to individual sections of the report?	Whole report
Record last updated on	November 25, 2021

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- Reporting guidelines for animal research
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Reporting Research – REFLECT guideline

Checklist

REFLECT

Checklist for REFLECT statement: Reporting guidelines For randomized control trials in livestock and food safety. Bold text are modifications from the CONSORT statement description (Altman DG et al . Ann Intern Med 2001; 134(8):663-694).

Paper section and topic	Item	Descriptor of REFLECT statement item	Reported on Page #
Title & Abstract	1	How **study units** were allocated to interventions (eg, "random allocation," "randomized," or "randomly assigned"). **Clearly state whether the outcome was the result of natural exposure or was the result of a deliberate agent challenge.**	
Introduction Background	2	Scientific background and explanation of rationale.	
Methods Participants	3	Eligibility criteria **for owner/managers and study units at each level of the organizational structure,** and the settings and locations where the data were collected.	
Interventions	4	Precise details of the interventions intended for each group, **the level at which the intervention was allocated,** and how and when interventions were actually administered.	
	4b	**Precise details of the agent and the challenge model, if a challenge study design was used.**	
Objectives	5	Specific objectives and hypotheses. **Clearly state primary and secondary objectives (if applicable).**	
Outcomes	6	Clearly defined primary and secondary outcome measures and the levels at which they were measured, and, when applicable, any methods used to enhance the quality of measurements (eg, multiple observations, training of assessors).	
Sample size	7	How sample size was determined and, when applicable, explanation of any interim analyses and stopping rules. **Sample-size considerations should include sample-size determinations at each level of the organizational structure and the assumptions used to account for any non-independence among groups or individuals within a group.**	
Randomization -- Sequence generation	8	Method used to generate the random allocation sequence **at the relevant level of the organizational structure**, including details of any restrictions (eg, blocking, stratification)	
Randomization -- Allocation concealment	9	Method used to implement the random allocation sequence **at the relevant level of the organizational structure**, (eg, numbered containers **~~or central telephone~~),** clarifying whether the sequence was concealed until interventions were assigned.	

O'Connor, A.M., Sargeant, J.M., Gardner, I.A., Dickson, J.S., Torrence, M.E. and consensus meeting participants: C.E. Dewey, I.R. Dohoo, R.B. Evans, J.T. Gray, M. Greiner, G. Keefe, S.L. Lefebvre, P.S. Morley, A. Ramirez, W. Sischo, D.R. Smith, K. Snedeker, J. Sofos, M.P. Ward, R. Wills (2010), The REFLECT Statement: Methods and Processes of Creating Reporting Guidelines for Randomized Controlled Trials for Livestock and Food Safety. Journal of Veterinary Internal Medicine, 24: 57–64. doi:10.1111/j.1939-1676.2009.0441.

Image from https://meridian.cvm.iastate.edu/wp-content/uploads/2017/06/reflectstatementchecklist.pdf retrieved 2023-10-25

Reporting Research – REFLECT guideline

Checklist

Randomization -- Implementation	10	Who generated the allocation sequence, who enrolled **study units,** and who assigned **study units** to their groups **at the relevant level of the organizational structure**.
Blinding (masking)	11	Whether or not **participants** those administering the interventions, **caregivers** and those assessing the outcomes were blinded to group assignment. If done, how the success of blinding was evaluated**. Provide justification for not using blinding if it was not used.**
Statistical methods	12	Statistical methods used to compare groups for all outcome(s); Clearly state the level of statistical analysis **and methods used to account for the organizational structure, where applicable;** methods for additional analyses, such as subgroup analyses and adjusted analyses.
Results **Study** flow	13	Flow **of study units** through each stage **for each level of the organization structure of the study** (a diagram is strongly recommended). Specifically, for each group, report the numbers of **study units** randomly assigned, receiving intended treatment, completing the study protocol, and analyzed for the primary outcome. Describe protocol deviations from study as planned, together with reasons.
Recruitment	14	Dates defining the periods of recruitment and follow-up.
Baseline data	15	Baseline demographic and clinical characteristics of each group, **explicitly providing information for each relevant level of the organizational structure. Data should be reported in such a way that secondary analysis, such as risk assessment, is possible.**
Numbers analyzed	16	Number **of study units** (denominator) in each group included in each analysis and whether the analysis was by "intention-to-treat." State the results in absolute numbers when feasible (eg, 10/20, not 50%).
Outcomes and estimation	17	For each primary and secondary outcome, a summary of results for each group, **accounting for each relevant level of the organizational structure**, and the estimated effect size and its precision (e.g., 95% confidence interval)
Ancillary analyses	18	Address multiplicity by reporting any other analyses performed, including subgroup analyses and adjusted analyses, indicating those pre-specified and those exploratory.
Adverse events	19	All important adverse events or side effects in each intervention group.
Discussion Interpretation	20	Interpretation of the results, taking into account study hypotheses, sources of potential bias or imprecision, and the dangers associated with multiplicity of analyses and outcomes. **Where relevant, a discussion of herd immunity should be included. If applicable, a discussion of the relevance of the disease challenge should be included.**
Generalizability	21	Generalizability (external validity) of the trial findings.
Overall evidence	22	General interpretation of the results in the context of current evidence.

O'Connor, A.M., Sargeant, J.M., Gardner, I.A., Dickson, J.S., Torrence, M.E. and consensus meeting participants: C.E. Dewey, I.R. Dohoo, R.B. Evans, J.T. Gray, M. Greiner, G. Keefe, S.L. Lefebvre, P.S. Morley, A. Ramirez, W. Sischo, D.R. Smith, K. Snedeker, J. Sofos, M.P. Ward, R. Wills (2010), The REFLECT Statement: Methods and Processes of Creating Reporting Guidelines for Randomized Controlled Trials for Livestock and Food Safety. Journal of Veterinary Internal Medicine, 24: 57–64. doi:10.1111/j.1939-1676.2009.0441.

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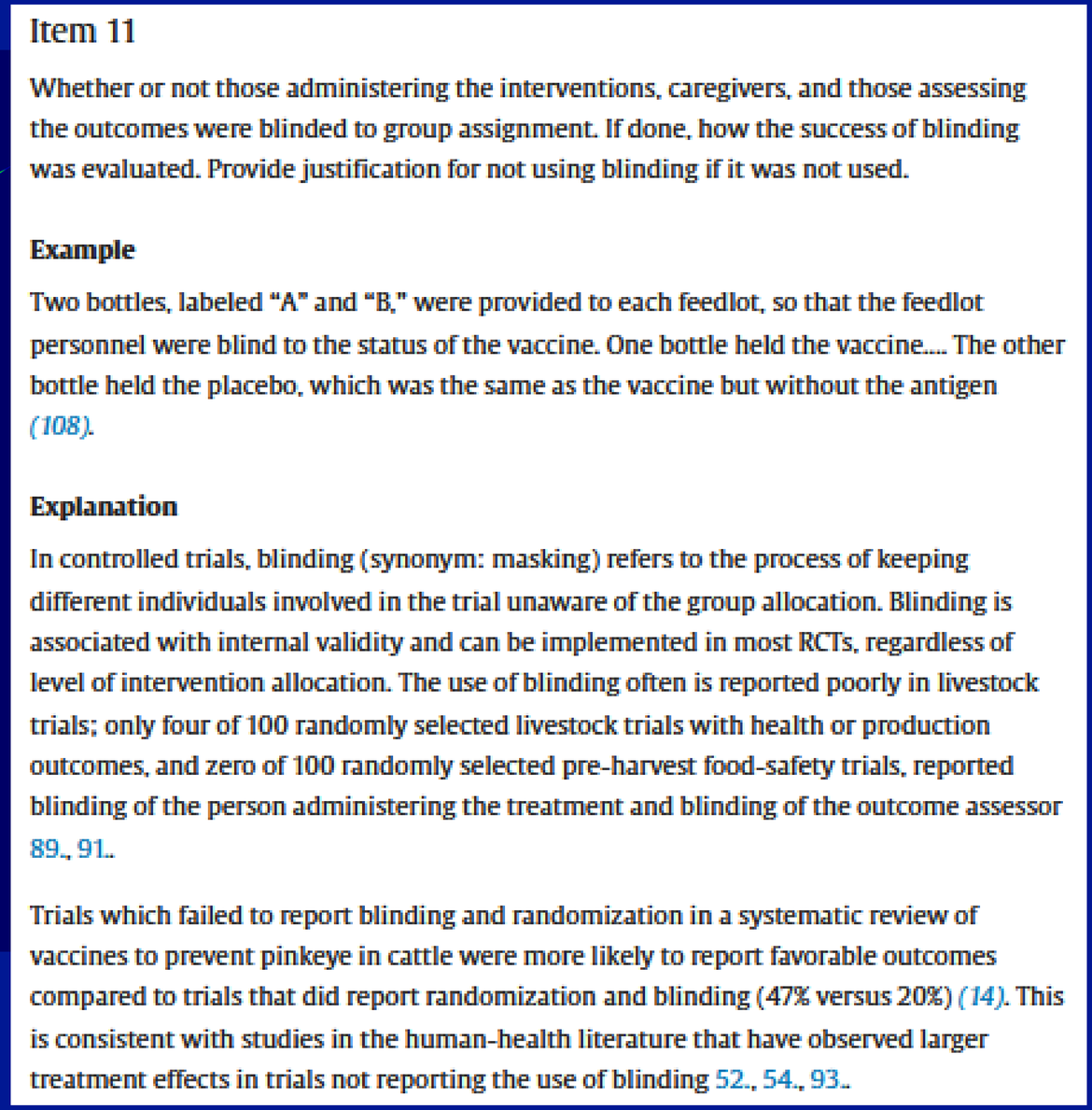
Reporting Research – REFLECT guideline

Example of Explanation and Elaboration

Item 11: Example and Explanation (in part)

J.M. Sargeant, A.M. O'connor, I.A. Gardner, J.S. Dickson, M.E. Torrence, Consensus Meeting Participants I.R. Dohoo, S.L. Lefebvre, P.S. Morley, A. Ramirez, K. Snedeker, The REFLECT Statement: Reporting Guidelines for Randomized Controlled Trials in Livestock and Food Safety: Explanation and Elaboration, Journal of Food Protection, Volume 73, Issue 3, 2010, Pages 579-603, ISSN 0362-028X, https://doi.org/10.4315/0362-028X-73.3.579. (https://www.sciencedirect.com/science/article/pii/S0362028X22109701)



Item 11

Whether or not those administering the interventions, caregivers, and those assessing the outcomes were blinded to group assignment. If done, how the success of blinding was evaluated. Provide justification for not using blinding if it was not used.

Example

Two bottles, labeled "A" and "B," were provided to each feedlot, so that the feedlot personnel were blind to the status of the vaccine. One bottle held the vaccine.... The other bottle held the placebo, which was the same as the vaccine but without the antigen *(108)*.

Explanation

In controlled trials, blinding (synonym: masking) refers to the process of keeping different individuals involved in the trial unaware of the group allocation. Blinding is associated with internal validity and can be implemented in most RCTs, regardless of level of intervention allocation. The use of blinding often is reported poorly in livestock trials; only four of 100 randomly selected livestock trials with health or production outcomes, and zero of 100 randomly selected pre-harvest food-safety trials, reported blinding of the person administering the treatment and blinding of the outcome assessor 89., 91..

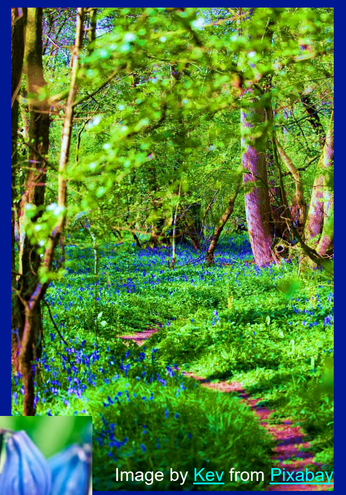
Trials which failed to report blinding and randomization in a systematic review of vaccines to prevent pinkeye in cattle were more likely to report favorable outcomes compared to trials that did report randomization and blinding (47% versus 20%) *(14)*. This is consistent with studies in the human-health literature that have observed larger treatment effects in trials not reporting the use of blinding 52., 54., 93..

Image from https://www.sciencedirect.com/science/article/pii/S0362028X22109701?via%3Dihub retrieved 2023-10-30

Recap

Transparency in scholarly publishing

- Publication ethics
  - Report authorship contributions
  - Declare potential competing interests
  - Share data when appropriate
- Follow reporting standards for study type
  - Complete reporting of research findings
- Useful resources for finding guidelines
  - MERIDIAN
  - EQUATOR Network



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Resources

Principles of Transparency and Best Practice in Scholarly Publishing: https://publicationethics.org/resources

World Conferences on Research Integrity Foundation (WCRIF): Singapore Statement on Research Integrity (2010)

ICMJE Author Criteria: https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html

CRediT Roles: https://credit.niso.org/contributor-roles-defined/

***Livestock Science*:** https://www.elsevier.com/journals/livestock-science/1871-1413/guide-for-authors

***Journal of Dairy Science*:** https://www.journalofdairyscience.org/pb-assets/Health%20Advance/journals/jods/JODS-Instruct-for-Contributors-2023-Policies-1675367345593.pdf

Elsevier. Guide to Declaration of Competing Interests:
https://www.elsevier.com/__data/assets/pdf_file/0007/653884/Competing-Interests-factsheet-March-2019.pdf

MERIDIAN (Menagerie of Reporting Guidelines Involving Animals): https://meridian.cvm.iastate.edu

O'Connor, A.M., Sargeant, J.M., Gardner, I.A., Dickson, J.S., Torrence, M.E. and consensus meeting participants: C.E. Dewey, I.R. Dohoo, R.B. Evans, J.T. Gray, M. Greiner, G. Keefe, S.L. Lefebvre, P.S. Morley, A. Ramirez, W. Sischo, D.R. Smith, K. Snedeker, J. Sofos, M.P. Ward, R. Wills (2010), The REFLECT Statement: Methods and Processes of Creating Reporting Guidelines for Randomized Controlled Trials for Livestock and Food Safety. Journal of Veterinary Internal Medicine, 24: 57–64. doi:10.1111/j.1939-1676.2009.0441.

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Q&A

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- University of Florida George A. Smathers Libraries

This presentation is archived on the website of the Feed the Future Innovation Lab for Livestock Systems https://livestocklab.ifas.ufl.edu

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The U.S. Government's Global Hunger & Food Security Initiative

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Topic: BEING ACCESSIBLE: IS OPEN ACCESS PUBLISHING RIGHT FOR ME?

Time: 8:00 a.m. U.S. Eastern Standard Time (EST)

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