Audit Clinical Evidence

ACE Handbook

All you need to know.

2026-09-13

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About

Audit Clinical Evidence™ (ACE™) is an independent initiative that publishes detailed, reproducible audits of clinical and medical research. Each ACE report documents the errors, inconsistencies, and integrity concerns that can be verified from the public record of one or more published studies, and shows exactly how each finding was reached.

1 | Mission

The purpose of ACE is to provide transparent, reproducible, and evidence-based audits of clinical and medical research. ACE reports focus on observable statistical errors, internal inconsistencies, image anomalies, potential data fabrication, publication ethics issues, and other research integrity concerns.

Clinical research influences meta-analyses, clinical guidelines, patient care, health policy, and public trust in medicine. When a published study contains impossible statistics, undisclosed protocol deviations, duplicated data, fabricated images, or other serious integrity problems, those problems propagate far beyond the original article. ACE exists to make such problems easier to identify, document, and act upon, by producing reports that journals, publishers, institutions, guideline developers, meta-analysts, clinicians, and readers can use to assess whether a study should be trusted as evidence.

The identification of errors or anomalies in ACE reports is strictly evidence-based. Findings are limited to issues that can be documented from the published record, trial registrations, supplementary materials, public databases, article metadata, and reproducible statistical checks. ACE avoids unsupported speculation, but may identify plausible integrity concerns when the public record contains strong convergent evidence.

2 | Scope of ACE Reports

Each ACE report provides a structured audit of one or more related clinical research articles. Reports may examine randomized controlled trials, observational studies, meta-analyses, systematic reviews, clinical guidelines, or clusters of related publications.

Depending on the article(s) under review, an ACE audit may include checks for:

- impossible or internally inconsistent summary statistics;
- mismatches between reported test statistics, sample sizes, confidence intervals, and *p* values;
- GRIM, GRIMMER, SPRITE, or related numerical consistency failures;
- discrepancies between trial registrations and published outcomes;
- duplicated, overlapping, or implausibly related datasets;
- image or figure anomalies;
- authorship, publication, or peer-review irregularities;
- unexplained changes in sample size, analysis sets, or outcome reporting;
- methodological errors that affect interpretation or downstream evidence synthesis.

When possible, ACE includes figures, tables, screenshots, code, and step-by-step explanations showing exactly where an error appears and how it was evaluated.

3 Evidence Standard

The goal of every ACE report is to separate what can be demonstrated from what can only be suspected. Every finding must satisfy three conditions:

1. the issue must be observable in the public record (reported data, text, images, metadata, or registrations);
2. the check must be reproducible by an independent reader;
3. the conclusion drawn must not exceed what the available evidence reasonably supports.

These conditions ensure that each finding is tied to a transparent evidentiary basis. ACE reports do not accuse any author, institution, or publisher of deliberate misconduct; they document what the record shows and let readers draw their own conclusions.

4 Report Identifiers

Each ACE report receives a unique identifier made up of the project name, the publication year, and a three-digit report number.

For example, `ACE2026001` is the first ACE report issued in 2026. The identifier appears on the report page, on the cover of the PDF, and in the report's Zenodo record, so a report can always be located from its ID alone.

5 Versioning and Reproducibility

ACE reports are archived on Zenodo. Each published version of a report receives its own permanent DOI and is preserved as published, while the report's concept DOI always resolves to the most recent version. Cite the concept DOI when referring to a report in general and the version DOI when a specific wording matters. Each report ends with a Version history section listing what changed in every revision, so readers can track how the report has evolved since it was first published.

Whenever possible, the code used to generate calculations, figures, tables, and consistency checks is included in the corresponding Quarto report files. The online report viewer includes collapsible code blocks so readers can inspect the code workflow without interrupting the main narrative. The PDF versions do not include code, in order to preserve readability and make the reports easier to share, cite, and review.

6 Corrections and Responses

Finalized ACE reports are routinely forwarded to the editorial boards and/or publishers of the corresponding journals for their independent review. Authors of an audited study who wish to provide data, clarifications, or a response are encouraged to contact ACE. By corresponding with ACE about a report, you agree that your correspondence may be published or quoted in part, with personal or sensitive information redacted, unless confidentiality is agreed in advance.

Readers may submit corrections to any report. Corrections are screened and, when credible evidence shows that a finding should be revised, incorporated into a new version of the report and recorded in its version history. See the disclaimers page for the full editorial and correspondence policy.

7 | Tips

ACE welcomes tips about potential errors or integrity concerns in clinical research. Tips and whistleblower communications are treated as confidential: ACE will not publicly identify a source without their explicit permission and will make all reasonable efforts to protect anonymity, although confidentiality cannot be guaranteed against legal process.

Please do not send patient-identifiable data, or documents and datasets you are not permitted to share. Tips should rely on the published record and on material you are entitled to provide; ACE cannot accept or act on confidential internal documents.

To be useful, a tip should be specific and evidence-based. General claims that a researcher, institution, journal, or public figure is "a fraud" are not sufficient on their own. A useful tip identifies the specific study, report, trial registration, dataset, figure, table, author group, journal, or publication record at issue and explains what appears to be wrong. Helpful tips include:

1. the article title, DOI, journal, or trial registration number;
2. the specific table, figure, outcome, image, statistic, or passage that appears problematic;
3. the suspected issue, such as impossible statistics, duplicated data, image manipulation, authorship irregularities, undisclosed protocol deviations, plagiarism, or paper-mill indicators;
4. any supporting documentation, screenshots, archived pages, PubPeer threads, registry records, code, calculations, or related publications;
5. a brief explanation of why the issue matters.

ACE reviews submitted tips, but submission does not guarantee that a report will be produced. Because capacity is limited, priority is given to cases where the concern is specific, tractable, reproducible, and relevant to the reliability of clinical evidence.

8 | Contact

Questions, corrections, tips, and responses from authors of audited studies can be sent to contact@auditclinicalevidence.org. Tips and whistleblower communications are treated as confidential, as described above.

Team

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Founder and Lead Auditor | ORCID

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0.B Kutenda F. Mvududu BS, NREMT

Project Developer and Auditor | ORCID

Kutenda holds a Bachelor of Science in Biology with a pre-medical concentration and is a certified EMT through the National Registry of Emergency Medical Technicians. Within ACE, she supports study identification, report preparation, documentation review, project organization, and social media content production.

The views expressed on this site and in ACE reports are solely those of the authors and do not represent the University of Connecticut, the University of Massachusetts Boston, or any other affiliated organization.

Disclaimers

These notices apply to this website and to every ACE audit report, in both its online and PDF forms. Where a report contains a statement that differs from this page, the report governs for that report.

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Audit Clinical Evidence (ACE) is an independent initiative. It is not affiliated with, funded by, or acting on behalf of any journal, publisher, university, regulator, or professional body. The views expressed on this website and in ACE reports are solely those of the named authors and do not represent the University of Connecticut, the University of Massachusetts Boston, or any other organization with which the authors are or have been affiliated.

2 Nature of ACE Reports

ACE reports are transparent, reproducible audits of published clinical research. They identify observable statistical errors, internal inconsistencies, image anomalies, discrepancies with trial registrations, and potential violations of publication ethics, as those issues appear in the public record. Findings are limited to what can be documented from published articles, supplementary materials, registrations, public databases, article metadata, and reproducible statistical checks, and every report shows how each finding was reached.

ACE reports do not accuse any author, researcher, institution, or publisher of deliberate fraud or intentional misconduct. Research Integrity Violation (RIV) labels are categories of documented concern; a finding under a category means that the record contains evidence matching that category, not that ACE has determined why the evidence exists. ACE is not an investigative or adjudicative body, and its reports are not findings of research misconduct. Formal determinations of misconduct rest with the institutions, journals, and regulatory bodies that have the authority and the access to underlying data required to make them.

Where a report goes beyond documenting the record, for example in assessing whether a study is credible as evidence or in recommending a correction, an expression of concern, or a retraction, that assessment is the authors' professional opinion, offered in good faith and based on the evidence set out in the report.

3 Use of AI Tools

ACE uses AI assistants, currently Anthropic's Claude, to help draft and edit text, to write and review the code behind this website and the report templates, and to check its own prose and formatting. ACE holds itself to the standard it applies to the literature it audits, so it states this plainly rather than leaving it to be inferred.

What that assistance does not extend to is the substance of a report. Every finding originates with the authors, and every figure, statistic, and claim about an audited article is verified by the authors against the primary sources, reproduced by the code published with the report, and checked before publication. AI tools are not used to decide what counts as a finding, to determine severity, to write the recommendation a report makes to a journal, or to generate any statistical result. The authors are responsible for everything ACE publishes, including any error an assistant helped introduce.

4 Not Medical Advice

ACE reports assess the reliability of published research. They are not medical advice and are not a basis for clinical decisions. Nothing on this website should be used to start, stop, or change any treatment. Patients should consult a qualified clinician, and clinicians should rely on their professional judgment and the applicable guidelines.

5 Accuracy, Corrections, and Withdrawal

Every effort is made to ensure that findings are accurate and reproducible, but ACE reports may contain errors. ACE welcomes corrections from any reader, including the authors of audited studies. Where credible evidence shows that a finding is wrong or overstated, ACE will correct it in a new version of the report and record the change in the report's version history; where the evidence undermines a report as a whole, ACE will withdraw it and say so. Each published version remains archived on Zenodo with its own permanent DOI, so the state of any report at any time can be checked. A report's DOIs appear on its page and in its version history once its deposit completes; where a report shows no DOI, its archive record is still pending. A report's DOIs appear on its page and in its version history once its archive record has been created; a report that shows no DOI has its deposit pending.

6 Limitation of Liability

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7 Editorial Review and Correspondence

ACE encourages open, post-publication discussion. Copies of finalized ACE reports are routinely forwarded to the editorial boards and/or publishers of the corresponding journals for their independent review.

Authors of an audited study who wish to provide data, clarifications, or a response are encouraged to write to contact@auditclinicalevidence.org. Substantive responses are considered for incorporation in a revised version of the report, and ACE will link to or summarize an author response on request where doing so serves readers. By corresponding with ACE about a report, you agree that your correspondence may be published or quoted in part, with personal or sensitive information redacted, unless confidentiality is explicitly agreed in advance.

8 Confidential Tips

ACE accepts confidential tips about potential statistical inconsistencies, publication irregularities, image anomalies, and other integrity concerns. ACE will not publicly identify a confidential source or whistle-blower without their explicit permission and will make all reasonable efforts to protect anonymity and confidentiality; however, confidentiality cannot be guaranteed against legal process, and ACE cannot offer legal protection to sources.

Please do not send patient-identifiable data, or documents and datasets you are not permitted to share. Tips should rely on the published record and on material you are entitled to provide. Guidance on what makes a tip useful is on the About page.

9 Comments

Report pages carry a comment section provided by Giscus, which stores comments as GitHub Discussions in the ACE repository and requires a GitHub account to post. Comments are the views of their authors, not of ACE, and are not reviewed before they appear. ACE may remove comments that are abusive, defamatory, off-topic, or that disclose personal information, and may close discussion on a report at its discretion.

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14 External Links

ACE reports and this website link to external resources, including audited articles, registries, and databases. ACE is not responsible for the content or availability of external sites, and a link does not imply endorsement.

Last updated: September 2026.

Research Integrity Violations

1 | The ACE Research Integrity Violations (ACE-RIV)

The ACE-RIV taxonomy is the classification system ACE uses to describe the errors and integrity problems it documents in audited research. It draws on the standards published by the Committee on Publication Ethics (COPE), the Council of Science Editors (CSE), the International Committee of Medical Journal Editors (ICMJE), and the European Code of Conduct for Research Integrity (ALLEA). The RIVs are then organized into four domains: (1) Authorship and Publication, (2) Statistical and Data Integrity, (3) Ethical Oversight and Transparency, and (4) Indicators and Minor Issues.

1.A Quick reference

Table 1 lists every category with its severity tier and the unit in which instances are counted. Each number links to the full entry below.

Table 1: The ACE-RIV taxonomy, version 1.0

RIV	Name	Severity	Counted per
Section 1	*Authorship and Publication*		
1.1	Guest, Honorary, or Gift Authorship	Major	credited author, per article
1.2	Ghost Authorship	Major	omitted contributor (article if unidentifiable)
1.3	Authorship for Sale and Paper Mill Activity	Critical	article
1.4	Plagiarism	Major	passage, figure, or table
1.5	Duplicate Publication and Salami Slicing	Critical	redundant article
1.6	Citation Manipulation	Major	article
1.7	Peer Review Subversion	Critical	article
1.8	Irrelevant Citations and Reference Padding	Major	article
1.9	Trial Registration Failures and Outcome Switching	Major	unregistered trial, or switched outcome
1.10	Incompatible Authorship or Contribution Statements	Major	article
1.11	Misrepresentation of Cited Sources	Major	citation
1.12	Undisclosed Generated Text	Major	article
Section 2	*Statistical and Data Integrity*		
2.1	Anomalies and Extreme Values	Major	anomalous value
2.2	Statistical Inconsistencies and Impossible Data Sets	Critical	impossible statistic
2.3	Selective Reporting, Suppressed Data, and Omitted Methodology	Major	omitted outcome, analysis, or method element
2.4	Data Miscalculation or Erroneous Reporting	Major	incorrect value
2.5	Image and Figure Manipulation	Critical	image or panel
2.6	Data Set Anomalies	Critical	distinct anomaly
2.7	Image and Figure Errors	Major	figure or panel

RIV	Name	Severity	Counted per
Section 3	*Ethical Oversight and Transparency*		
3.1	Failure to Disclose Conflicts of Interest	Major	undisclosed interest, per article
3.2	Bypass of Ethical Oversight	Critical	article
3.3	Ethics Approval Anomalies	Critical	article
3.4	Implausible Study Timelines	Major	article
3.5	False or Unfulfilled Data Availability Statements	Major	article
Section 4	*Indicators and Minor Issues*		
4.1	Minor Typographical Error	Minor	error
4.2	Indicators of Paper Mill Involvement	Indicator	article
4.3	Tortured Phrases and Text Spinners	Indicator	article

1.B How to read a RIV

RIV labels are meant to act as categories of integrity issues. When a report records an instance of a violation, it means that the public record contains evidence matching that RIV as defined below; it does not assert that any author, institution, or publisher acted deliberately, which ACE is not in a position to determine. Several RIVs (for example, RIV 1.3 and RIV 1.7) describe practices that are usually intentional when they occur, and readers should understand a finding under those RIVs as evidence consistent with the practice rather than a determination that it took place.

The *Criteria* of a RIV are the conditions that must be met for a single instance of that RIV to be recorded. Typical evidence is the kind of material ACE relies on to show them.

Each RIV has an associated severity tier. The tiers are:

- CRITICAL – On its own, undermines the reliability of the article's findings.
- MAJOR – Materially affects the accuracy, completeness, or trustworthiness of the article.
- MINOR – Does not change the data, results, or conclusions. Noted for the record and for the benefit of secondary analyses.
- INDICATOR – Not a violation in itself but a pattern that raises the probability of one. Recorded only alongside other findings.

1.C What is not a RIV

The taxonomy describes the integrity of the published record: whether what an article reports is internally consistent, consistent with the public record around it, and produced by the process it describes. It does not grade the quality of the science. A small sample, an underpowered design, a debatable choice of statistical model, a weak control condition, a conclusion that reads more into the results than they support, or a disagreement about interpretation is not a violation and is not recorded as one, unless the article omits something it committed to report (RIV 2.3) or misstates what a source says (RIV 1.11). ACE reports may comment on such matters where they bear on how the findings should be used, and say so when they do, but those comments carry no RIV number and no count. Conduct outside the audited article, such as an author's record on other papers, is likewise not a RIV in the audited article, although it may be cited as context under RIV 1.3 or RIV 4.2.

1.D Threshold of evidence and status of an instance

An instance is recorded only when every criterion of the RIV is met, as shown by material a reader can examine: the article and its supplements, the registration or protocol, a public database, the raw data where released, the journal's own metadata, or a reproducible computation on the article's numbers. Suspicion, pattern alone, or the reputation of the authors is not enough; an audit that cannot show that every criterion is met records nothing under that RIV, however strong the impression.

Each instance carries one of two statuses, stated where the instance is recorded. An instance is recorded when every criterion is met and no reasonable reading of the record avoids it. An instance is provisional when the criteria are met on the most plausible reading of an ambiguous record, but information held by the authors or the journal, such as raw data or a committee record, could resolve it; the report says which reading it adopts, why, and what information would settle the question. Unless a report says otherwise, an instance is recorded.

When a response or new evidence resolves a provisional instance, or shows a recorded one to be wrong, a new version of the report marks it withdrawn, or reclassified under another RIV, and gives the reason. The summary table changes accordingly and the report's version history says so. Nothing is removed silently.

1.E Counting instances

ACE reports count violations in instances, so the size of a problem is visible and comparable across reports. An instance is the smallest piece of evidence that meets every criterion of a RIV by itself and can be checked on its own. Each RIV states what counts as one instance. RIVs about an article as a whole (for example RIV 1.3 or RIV 3.3) count once per article; RIVs about the data (for example RIV 2.2 or RIV 2.4) count once per affected value, statistic, image, or outcome.

Three rules keep the counts honest. Each instance belongs to one article and one RIV; evidence that fits two RIVs is recorded under the more specific one. Different evidence in the same article can support different RIVs, and counts are never added across RIVs. Severity belongs to the RIV, not to the count, although many instances of one RIV do weigh on the recommendation.

A report states each finding as a count, for example "three instances of Peer Review Subversion (RIV 1.7)". The summary table at the end of the report is generated from those statements, so it always matches the text: instances per RIV, a link to the section that documents them, and the total. Where space is short, the compact form "RIV 1.7 (×3)" is used.

1.F From findings to a recommendation

Every ACE report ends with a recommendation to the publishing journal. It follows from the instances recorded, by the rules below, applied article by article. Any Critical instance leads to a recommendation of retraction, because a Critical RIV by definition undermines the article's findings. Major instances lead to a recommendation of correction when they are isolated and the corrected article would still stand; when they leave the findings without evidentiary value, the recommendation is retraction. Minor instances on their own call for no editorial action, but an accumulation of them can support a correction or, in combination with other findings, a retraction. Indicators never change the recommendation on their own, but they may point to further investigation. Where every instance that would drive the recommendation is provisional, the recommendation is that the journal obtain the underlying data or records, together with the action that should follow if they are not produced.

The recommendation is the authors' professional opinion, offered in good faith on the evidence set out in the report. The decision belongs to the journal.

1.G Boundaries between neighboring categories

Some categories sit next to each other, and the same evidence must always land in the same place. Impossibility separates RIV 2.2 from RIV 2.4: if the reported values cannot all be true, it is RIV 2.2, however small the discrepancy; if they could be true but are wrong on recomputation, it is RIV 2.4. Evidence of alteration separates RIV 2.5 from RIV 2.7: a figure with a wrong label or value is RIV 2.7 until duplication, splicing, or generation is shown. Attribution separates RIV 1.4 from RIV 1.5: reuse of other people's work is plagiarism, reuse of the authors' own is duplicate publication. Purpose separates RIV 1.6 from RIV 1.8: citations that benefit an identifiable party are manipulation, citations that serve no purpose at all are padding. Evidence about the article separates RIV 1.3 from RIV 4.2: a documented link between the article and a sale or a paper mill is RIV 1.3, patterns that merely resemble such products are RIV 4.2. An error that alters no data, result, or conclusion is RIV 4.1, whatever it looks like; one that does is RIV 2.4 or RIV 2.7. When an item would satisfy two RIVs, it is recorded once, under the more specific one, and the other is mentioned in the text without a count.

1.H Relation to other frameworks

The ACE-RIV is a classification for audits of the published record, not a definition of misconduct. In the terms used by the United States Office of Research Integrity, fabrication and falsification correspond most closely to RIV 2.2, RIV 2.5, and RIV 2.6, and plagiarism to RIV 1.4; but a finding under those RIVs is a finding about the record, and whether conduct meets a legal definition of misconduct, which requires intent and a formal process, is for institutions and regulators to determine. The authorship RIVs (1.1, 1.2, and 1.10) follow the ICMJE criteria for authorship and the CRediT contributor roles. The publication RIVs (1.5, 1.6, 1.7, and 1.8) correspond to the situations addressed by COPE's guidance and flowcharts on redundant publication, citation manipulation, and peer review manipulation, and RIV 4.2 draws on the COPE and STM guidance on paper mills. The registration and reporting RIVs (1.9 and 2.3) follow the ICMJE registration policy and the CONSORT statement. A journal applying COPE guidance will find that each RIV identifies the guidance that applies and the evidence the journal will need.

1.I Numbering, versions, and citing the taxonomy

Numbers are stable from version 1.0 onward. A RIV keeps its number for as long as the taxonomy exists, so that a RIV cited in a published report always resolves to the same definition, and new RIVs are appended to the end of a section. Version numbers have two parts. A minor version (1.1, 1.2, and so on) adds RIVs, adds evidence or boundary notes, or clarifies wording without changing what an existing number means. A major version (2.0) is reserved for any change that alters the meaning, criteria, unit of counting, or severity of an existing RIV. Every report states the version it used, and its findings are read against that version; every version of this page is archived, and the current version is always this page.

To cite the taxonomy:

Jané, M. B. (2026). *Research Integrity Violations: The ACE-RIV taxonomy, version 1.0*. Audit Clinical Evidence. https://auditclinicalevidence.org/riv.html

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@techreport{ACERIV2026,
  author      = {Jané, Matthew B.},
  title       = {Research Integrity Violations: The ACE-RIV taxonomy, version 1.0},
  institution = {Audit Clinical Evidence},
  type        = {Taxonomy},
  year        = {2026},
  url         = {https://auditclinicalevidence.org/riv.html}
}
```

1.J Proposing a change

Anyone may propose a new category, a change to an existing one, or a correction. Open an issue in the ACE repository describing the RIV, the criteria that would have to be met, the evidence that would show them, and the unit of counting, or write to contact@auditclinicalevidence.org. Accepted changes appear in the version history at the end of this page.

2 | Section 1: Authorship and Publication

RIV 1.1: Guest, Honorary, or Gift Authorship MAJOR

Authorship is granted to individuals who have not made a substantial intellectual contribution to the research.

CRITERIA

(a) an individual is listed as an author of the article;
(b) the public record shows that the individual made no substantial contribution to the conception or design of the work, the acquisition or analysis of the data, or the drafting of the manuscript; and
(c) no contribution statement or other disclosure in the article accounts for the authorship.

TYPICAL EVIDENCE contribution statements that assign no substantive role to an author; authors whose stated expertise or institution has no connection to the work; authorship patterns that change across closely related papers without explanation.

COUNTING One instance per author credited without a substantial contribution, in each article.

RIV 1.2: Ghost Authorship MAJOR

Individuals who participated substantially in the research, data analysis, or manuscript drafting are absent from the author byline and the acknowledgments.

CRITERIA

(a) an individual made a substantial contribution to the research, the analysis, or the drafting of the manuscript, as shown by the public record (for example, a registration, protocol, funding record, preprint, or disclosure);
(b) the individual is neither listed as an author nor named in the acknowledgments; and
(c) the article does not disclose the omission or give a reason for it.

TYPICAL EVIDENCE acknowledged or externally documented contributors (for example, in a registration, protocol, funding record, or earlier version) who do not appear as authors; writing-assistance disclosures that omit the writer.

COUNTING One instance per omitted contributor identified; one per article when the contributor cannot be identified.

RIV 1.3: Authorship for Sale and Paper Mill Activity CRITICAL

Authorship positions are bought, sold, or traded, or the article is a product of industrialized publishing of fabricated, recycled, or low-quality manuscripts.

CRITERIA

(a) the article, or an authorship position in it, is shown to have been offered for sale, purchased, or traded; or
(b) the article is linked to a documented authorship-for-sale or paper-mill operation through its authors, its text, its figures, or its editorial handling; and
(c) where the link in (b) rests on the authors alone, the article itself also exhibits substantive findings under other RIVs that are consistent with such an operation.

TYPICAL EVIDENCE authors or manuscripts appearing in documented authorship-for-sale networks or advertisements; author additions between submission and publication without a stated contribution; combinations of the indicators in RIV 4.2 together with substantive problems elsewhere in the article.

COUNTING One instance per article.

RIV 1.4: Plagiarism MAJOR

Another person's text, ideas, data, or other intellectual property is included in the manuscript without proper attribution, credit, or citation.

CRITERIA

(a) text, ideas, data, figures, or tables in the article originate in an earlier work by other people;
(b) the earlier work is not cited at the point of use, or the material is presented as the authors' own; and
(c) the overlap exceeds what could arise from common phrasing or a standard description of methods.

TYPICAL EVIDENCE verbatim or near-verbatim overlap with an earlier source that is not cited, identified by text comparison; reproduced figures or tables without attribution (see also RIV 2.5).

COUNTING One instance per plagiarized passage, figure, or table.

RIV 1.5: Duplicate Publication and Salami Slicing CRITICAL

Content or findings from previously published work are republished without explicit disclosure and justification, or a single coherent body of research is divided into multiple smaller papers that expand the publication count without adding proportionate scientific value.

CRITERIA

(a) two or more articles report the same data, participants, trial, or findings, in whole or in substantial part;
(b) the later article does not disclose the earlier one and the relationship between them; and
(c) the later article does not add a scientific contribution that justifies separate publication.

TYPICAL EVIDENCE identical or overlapping participants, arms, baseline characteristics, or outcome statistics across articles that do not cite one another or disclose the overlap; the same trial registration behind articles presented as separate studies.

COUNTING One instance per redundant article, that is, each article beyond the first that reports the same data or trial. A trial split across three articles is two instances.

RIV 1.6: Citation Manipulation MAJOR

Citations of specific material are forced or coordinated in order to raise the citation metrics of an author, journal, or institution.

CRITERIA

(a) the article cites a specific author, journal, or institution at points where the content cited does not warrant it; and
(b) the pattern is shown to be coordinated or imposed, for example by editor or reviewer requests, by clusters of self-citation across unrelated papers, or by reciprocal citation among a fixed group.

TYPICAL EVIDENCE reference lists dominated by one author, journal, or group beyond what the topic warrants; reviewer or editor requests to add citations that are unrelated to the reviewed content; coordinated citation patterns across a set of articles.

COUNTING One instance per article in which the pattern is documented.

RIV 1.7: Peer Review Subversion CRITICAL

The independent peer review process is bypassed or compromised, including collusion rings in which reviewers and authors coordinate to approve each other's work, fabricated reviewer identities or contact details, and the exchange of payment or favors for uncritical review.

CRITERIA

(a) the article was accepted through a process in which independent peer review was bypassed or compromised; and
(b) the compromise is shown by at least one of: an author acting as the handling editor or a reviewer of their own article; fabricated or author-controlled reviewer identities or contact details; documented coordination between reviewers and authors; or payment or favors exchanged for review.

TYPICAL EVIDENCE an author serving as handling editor of their own article; implausibly short review times; retraction notices or publisher investigations citing compromised review; reviewer accounts traced to the authors.

COUNTING One instance per article whose review was compromised.

RIV 1.8: Irrelevant Citations and Reference Padding MAJOR

References are included that have no relevance to the text that cites them. Distinct from RIV 1.6, which concerns citations placed to benefit a particular party, this RIV concerns citations that serve no scholarly purpose at all, a pattern often associated with the sale of citations.

CRITERIA

(a) references are cited at points in the text to which they bear no relevance;
(b) the irrelevant references are numerous or systematic rather than isolated; and
(c) the pattern is not explained by a misnumbered or misordered reference list.

TYPICAL EVIDENCE cited works whose subject matter has no connection to the claim they are attached to; clusters of unrelated citations in a single sentence; references to articles later identified as products of the same paper mill.

COUNTING One instance per article in which the pattern is documented; the irrelevant references are listed, not counted.

RIV 1.9: Trial Registration Failures and Outcome Switching MAJOR

A clinical trial or other pre-registered study was not registered in a recognized public registry (for example, ClinicalTrials.gov) before enrollment began, or the published report departs from the registered protocol without disclosure, including changes to primary outcomes, analysis populations, sample size, or timing.

CRITERIA

(a) the study is a clinical trial or is otherwise subject to a pre-registration requirement; and either
(b) the study was not registered in a recognized public registry before the first participant was enrolled; or
(c) the published report departs from the registered protocol in a primary outcome, an analysis population, the sample size, or the timing of an assessment, without disclosing the change.

TYPICAL EVIDENCE registration dates after the stated enrollment start; primary outcomes, timepoints, or arms in the publication that differ from the registry entry; registered outcomes that are not reported. Escalates to Critical when the primary outcome was changed after unblinding or results were known.

COUNTING One instance per unregistered or retrospectively registered trial, plus one per switched, added, or unreported registered outcome.

RIV 1.10: Incompatible Authorship or Contribution Statements MAJOR

The authorship, contribution, or role statements of an article are inconsistent with one another, with the article's own content, or with those of closely related articles by the same authors reporting the same study.

CRITERIA

(a) the article carries an authorship, contribution, or role statement;
(b) the statement is inconsistent with another statement in the same article, with the article's own content, or with the corresponding statement in another article that reports the same study; and
(c) neither article explains the inconsistency.

TYPICAL EVIDENCE contribution statements that attribute the same task to different people across papers describing the same trial; statements that credit a role the author list makes impossible; corresponding-author or guarantor designations that change without explanation.

COUNTING One instance per article whose statements are incompatible.

RIV 1.11: Misrepresentation of Cited Sources MAJOR

A claim is attributed to a cited source that does not support it, including citing a source for a finding it contradicts, overstating a source's result, or citing retracted work as though it stood.

CRITERIA

(a) the article attributes a specific claim, finding, or value to a cited source; and
(b) the cited source does not support the claim, contradicts it, reports a materially different result, or was retracted before the article was submitted and the article does not say so.

TYPICAL EVIDENCE side-by-side comparison of the claim with the cited passage or result; citation of an article retracted before the citing article was submitted, without acknowledgment.

COUNTING One instance per misrepresented citation.

RIV 1.12: Undisclosed Generated Text MAJOR

Substantial portions of the manuscript were produced by text-generation software without disclosure, or generated text is presented as the authors' own analysis or findings.

CRITERIA

(a) substantial passages of the article are shown to have been produced by text-generation software, for example by residual prompts or model responses in the text, by references that do not exist, or by a disclosure made elsewhere; and
(b) the article does not disclose the use, or the generated content is presented as the authors' own analysis or findings.

TYPICAL EVIDENCE residual tool output or prompts in the published text; fabricated references or quotations characteristic of generated text; statements of generation in one version that are absent from another.

COUNTING One instance per article.

3 | Section 2: Statistical and Data Integrity

RIV 2.1: Anomalies and Extreme Values MAJOR

Reported data, statistics, or results display extreme or unrealistic values, or distributions that are exceedingly improbable under natural variation, without an explanation in the article.

CRITERIA

(a) a reported value, statistic, or distribution lies far outside the range that comparable studies and the measure allow, or is exceedingly improbable under natural variation;
(b) the article offers no explanation that accounts for it; and
(c) the value is not attributable to a documented error under RIV 2.4 or RIV 4.1.

TYPICAL EVIDENCE effect sizes far outside the range of comparable studies; baseline characteristics more similar across randomized groups than chance allows; variances or distributions that are implausible for the measure. Escalates to Critical when combined with RIV 2.2.

COUNTING One instance per anomalous value or statistic.

RIV 2.2: Statistical Inconsistencies and Impossible Data Sets CRITICAL

Reported statistics are internally incompatible with one another, or could not have arisen from a real data set of the stated size and structure. The distinguishing feature is impossibility: the reported values cannot all be true at once.

CRITERIA

(a) a reported statistical value is not possible or multiple values cannot all be true at once; and
(b) the impossibility holds under every plausible reading of the article, allowing for rounding and inconsequential typographical errors.

TYPICAL EVIDENCE GRIM, GRIMMER, or SPRITE failures for means and standard deviations; test statistics, degrees of freedom, and *p* values that do not match; percentages that are impossible for the stated sample size; totals that do not sum.

COUNTING One instance per reported statistic, or pair of statistics, shown to be impossible (for example, each failed GRIMMER test).

RIV 2.3: Selective Reporting, Suppressed Data, and Omitted Methodology MAJOR

Published outcomes exclude relevant data, negative results, or conflicting findings that bear on the study's conclusions, or the article omits methodological details that are necessary for independent verification and reproducibility.

CRITERIA

(a) the article's registration, protocol, methods, or text commits to or refers to an outcome, analysis, timepoint, or methodological detail;
(b) that item is absent from the results or methods as published; and
(c) the absence is not disclosed and explained.

TYPICAL EVIDENCE outcomes or timepoints described in the methods, protocol, or registration that never appear in the results; analyses referred to but not reported; missing information on randomization, blinding, or analysis populations.

COUNTING One instance per omitted outcome, analysis, or methodological element.

RIV 2.4: Data Miscalculation or Erroneous Reporting MAJOR

Quantitative results are calculated, transcribed, or reported incorrectly. Unlike RIV 2.2, the reported values are possible; they are simply wrong, as shown by recomputation from the article's own numbers.

CRITERIA

(a) a reported value can be recomputed from other numbers in the article, its supplements, or its registration;
(b) the recomputed value differs from the reported one by more than rounding; and
(c) the reported value is possible (an impossible value is RIV 2.2).

TYPICAL EVIDENCE recomputed statistics that differ from the reported ones; values that differ between the abstract, text, tables, and figures; unit or decimal errors. Reduced to Minor when the error does not affect any result or conclusion (see RIV 4.1).

COUNTING One instance per incorrect value; where a single error propagates through a table, the source error is counted once and the propagation is described.

RIV 2.5: Image and Figure Manipulation CRITICAL

Images, figures, or graphical data contain duplicated, spliced, rotated, cloned, or artificially generated elements, or images taken from other sources are presented as original findings without attribution and authorization.

CRITERIA

(a) an image or figure contains an element that is duplicated, spliced, cloned, rotated, rescaled, or generated, or that is taken from another source;
(b) the element is presented as an original observation of the study; and
(c) the alteration is not disclosed, or is inconsistent with the stated method.

TYPICAL EVIDENCE image forensic comparison showing duplicated regions within or across figures; identical images in unrelated articles; inconsistencies in noise, compression, or lighting within one image.

COUNTING One instance per manipulated image or panel.

RIV 2.6: Data Set Anomalies CRITICAL

The raw data set, where available, shows structural irregularities or improper manual alteration that compromises its integrity. This RIV applies only when data at the participant or observation level can be examined.

CRITERIA

(a) data at the participant or observation level are available;
(b) the data show a structural irregularity that a real data-collection process would not produce, for example duplicated records, sequences or digit patterns inconsistent with measurement, values outside the instrument's range, or edits visible in the file's metadata; and
(c) the irregularity is not explained by the documented data handling.

TYPICAL EVIDENCE unexplained duplicate records; inserted or deleted rows; values overwritten by hand; distributions inconsistent with the described measurement; timestamps or identifiers inconsistent with the described collection.

COUNTING One instance per distinct anomaly found in the data set (for example, duplicated rows count once, however many rows are involved).

RIV 2.7: Image and Figure Errors MAJOR

Images, figures, or graphical data contain incorrect values, mislabeled axes or groups, or results that contradict the text or tables, without evidence of manipulation (which is RIV 2.5).

CRITERIA

(a) an image, figure, or graph reports a value, label, unit, or grouping that is incorrect or contradicts the text or tables; and
(b) there is no evidence of manipulation (which is RIV 2.5).

TYPICAL EVIDENCE figure values that cannot be reconciled with the tabulated data; swapped or mislabeled panels; error bars or axes inconsistent with the reported statistics. Reduced to Minor when the error is cosmetic.

COUNTING One instance per erroneous figure or panel.

4 | Section 3: Ethical Oversight and Transparency

RIV 3.1: Failure to Disclose Conflicts of Interest MAJOR

Financial, personal, or professional interests that could reasonably be perceived as compromising the objectivity of the work are not disclosed.

CRITERIA

(a) an author held a financial, personal, or professional interest related to the subject of the article at the time of the work or its publication;
(b) the interest could reasonably be perceived as affecting the work; and
(c) the article's disclosure statement omits it.

TYPICAL EVIDENCE funding, employment, patents, or consultancies documented elsewhere (registries, disclosure databases, other publications) that are absent from the article's declaration.

COUNTING One instance per undisclosed interest, in each article.

RIV 3.2: Bypass of Ethical Oversight CRITICAL

Required ethical review (for example, by an institutional review board or animal care committee) was not obtained, or participants were not treated in accordance with applicable legal and ethical requirements, including informed consent.

CRITERIA

(a) the study involved human participants, their data or tissue, or animals, in a way that required ethical review or informed consent under the applicable requirements; and
(b) the article reports no approval or consent, or the public record shows that approval or consent was not obtained, or was obtained only after the work was done.

TYPICAL EVIDENCE no approval statement for research that requires one; consent procedures that are absent or incompatible with the described population; institutional confirmation that no approval exists.

COUNTING One instance per article.

RIV 3.3: Ethics Approval Anomalies CRITICAL

The ethics approval or IRB reference given in the article cannot be reconciled with the study: it belongs to a different study, does not match the approving committee's format, refers to a committee that does not exist at the stated institution, or differs across articles that report the same study.

CRITERIA

(a) the article gives an ethics approval or IRB reference;
(b) the reference belongs to a different study, does not match the committee's format, refers to a committee that cannot be identified at the stated institution, or differs from the reference given in another article that reports the same study; and
(c) the article does not explain the discrepancy.

TYPICAL EVIDENCE different approval numbers across articles describing the same trial; approval numbers whose structure implies a different year or institution; committees that cannot be identified at the stated institution.

COUNTING One instance per article whose approval information cannot be reconciled.

RIV 3.4: Implausible Study Timelines MAJOR

The dates reported for approval, registration, recruitment, intervention, follow-up, submission, or publication cannot all be true, or imply a study that could not have been conducted as described.

CRITERIA

(a) the article reports dates or durations for approval, registration, recruitment, intervention, follow-up, submission, or publication; and
(b) the dates cannot all be true, or imply that the study could not have been conducted as described in the time available.

TYPICAL EVIDENCE recruitment beginning before ethics approval or registration; follow-up periods longer than the interval between recruitment and submission; submission dates that precede the completion of the described follow-up; identical timelines in articles presented as separate studies. Escalates to Critical when the described study could not have taken place in the time available.

COUNTING One instance per article.

RIV 3.5: False or Unfulfilled Data Availability Statements MAJOR

The article states that data or materials are available when they are not, or the authors do not provide data that the statement commits them to share.

CRITERIA

(a) the article states that data, code, or materials are available, at a location or on request; and
(b) the stated location does not provide them, or a request made under the terms of the statement was not fulfilled within a reasonable time, as documented in the report.

TYPICAL EVIDENCE repositories or links that do not contain the stated data; documented, unanswered requests for data the article says is available on request.

COUNTING One instance per article.

5 | Section 4: Indicators and Minor Issues

RIV 4.1: Minor Typographical Error MINOR

Spelling, grammatical, formatting, or transcription errors that do not alter the underlying data, the statistical results, or the conclusions. Recorded because such errors can still propagate into meta-analyses and secondary analyses.

CRITERIA

(a) a spelling, grammatical, formatting, or transcription error is present;
(b) the intended value or wording is evident; and
(c) the error does not alter the data, the results, or the conclusions.

TYPICAL EVIDENCE the error and the evidently intended value.

COUNTING One instance per error.

RIV 4.2: Indicators of Paper Mill Involvement INDICATOR

Patterns within the article or its authorship that are characteristic of industrialized publishing. These are indicators, not violations: they are recorded only alongside substantive findings and never on their own.

CRITERIA

(a) the article or its authorship shows one or more of the patterns that are characteristic of paper-mill products, such as those listed under Typical evidence; and

(b) the same article already has at least one instance recorded under a critical, major, or minor RIV, so that the indicator is reported as context for that finding rather than as a finding on its own.

TYPICAL EVIDENCE non-institutional or disposable email domains; author affiliations dispersed across countries with no collaborative history; authors with many retracted articles, implausible publication rates, or publications across unrelated fields; boilerplate text or formatting shared with unrelated articles; templated figures.

COUNTING One instance per article; the indicators present are listed.

RIV 4.3: Tortured Phrases and Text Spinners INDICATOR

The text contains unnatural synonyms produced by automated paraphrasing (“tortured phrases”), such as “flag to clamor” for “signal to noise” or “bosom malignancy” for “breast cancer”, which indicate text spinning to evade plagiarism detection or generated text.

CRITERIA

(a) the text contains phrases in which a standard technical expression has been replaced by an unnatural synonym;
(b) the substitution is recognizable by reversing it to the standard expression; and
(c) the pattern occurs more than once in the article.

TYPICAL EVIDENCE recognized tortured phrases, identified by comparison with the standard expression; passages whose meaning is recovered only by reversing the substitution.

COUNTING One instance per article; the phrases found are listed.

6 Version history

Version 1.0 (September 2026). Initial release.