AMA Style Guidelines- 11th Edition

The American Medical Association (AMA) published the 11th Edition of *AMA Manual of Style: A Guide for Authors and Editors* in April 2020. The application of the AMA Style Guide outlines the writing and citation style meant to be used in journals published by the American Medical Association, although many other fields use the AMA format including nursing, clinical, and other scientific publications.

Please note: Some uses of AMA might contain modifications to style depending on the subject; please be sure what particular requirements are being asked of students.

Sample Meta-Analysis

You can download a sample meta-analysis essay here:

AMA 11th Edition – Sample Meta-Analysis

Quick Links

Use the links below to quickly jump to the location in the guide that you need.

There are generally five types of articles or paper types in AMA style:

In addition, AMA provides guidance for students in the following areas:

Original Research Reports

Journal entries that are based on original research or research completed by the author of the article have individual requirements that need to be met in AMA. Below is a list of studies and required tables, figures, sections, codes, and other guidelines. To comply with AMA guidelines, students will need to include the following to their original reporting.

Randomized Clinical Trial: Clinically focused trial studies that assign groups to certain factors to study cause and effect relationships between inferences and outcomes. Includes drug studies, behavioral studies, educational programs, and others.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures including CONSORT flow diagram
- 50-75 references
- Abstract
- Key Points
- Subtitle: "A Randomized Clinical Trial"
- Trial registration and ID
- Trial protocol
- CONSORT checklist
- Data Sharing Statement
- Adherence to CONSORT Reporting Guidelines

Parallel-Design, Double-blind Trial: A randomized trial that assigns two or more groups to an experiment. The individuals in these groups are unaware of which treatment they are receiving in the trial.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures including CONSORT flow diagram
- 50-75 references
- Abstract
- Key Points
- Subtitle: "A Randomized Clinical Trial"
- Trial registration and ID
- Trial protocol
- CONSORT checklist

- Data Sharing Statement
- Adherence to CONSORT Reporting Guidelines

Crossover Trial: Trial in which participants undergo treatments under supervision with a specific amount of time between further treatments and study, usually in some sort of sequence.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures including CONSORT flow diagram
- 50-75 references
- Abstract
- Key Points
- Subtitle: "A Randomized Clinical Trial"
- Trial registration and ID
- Trial protocol
- CONSORT checklist
- Data Sharing Statement
- Adherence to CONSORT Reporting Guidelines

Equivalence and Noninferiority Trial: Trial that researches how a new treatment or intervention compares to an existing alternative (otherwise known as an active control). The new intervention must be assumed in the experiment to be *no worse* than the existing alternative by way of a specified margin of noninferiority.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures including CONSORT flow diagram
- 50-75 references
- Abstract
- Key Points
- Subtitle: "A Randomized Clinical Trial"
- Trial registration and ID
- Trial protocol
- CONSORT checklist
- Data Sharing Statement
- Follow CONSORT Reporting Guidelines

Cluster Trial: A random assignment of groups instead of specific individuals to experiments and research.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures including CONSORT flow diagram
- 50-75 references
- Abstract
- Key Points
- Subtitle: "A Randomized Clinical Trial"
- Trial registration and ID
- Trial protocol
- CONSORT checklist
- Data Sharing Statement
- Adherence to CONSORT Reporting Guidelines

Nonrandomized Controlled Trial: Non-random selection of participants through either self or administrator selection. Groups, which could be large populations of people, can be historic, concurrent, or both. Also called a quasi-experimental design.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures including CONSORT flow diagram
- 50-75 references
- Abstract
- Key Points
- Subtitle: "A Nonrandomized Controlled Trial"
- Trial registration and ID
- Trial protocol
- CONSORT checklist
- Adherence to TREND Reporting Guidelines

Trial Protocol: A protocol document that outlines the plan for a randomized clinical trial including design, methods, objectives, outcomes, and statistical analysis plan.

Requirements:

- 3000-3500 words

- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Subtitle: “A Trial Protocol”
- Trial registration and ID
- Trial protocol
- Adherence to SPIRIT Reporting Guidelines

Meta-analysis: A review of multiple studies that measure the same outcome into one summary and analysis.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Subtitle: “A Systematic Review and Meta-analysis”
- Adherence to SPIRIT Reporting Guidelines

Cohort Study: A study that follows a group of individuals (cohort) who go into the experiment free of the outcome or design intended. They may share an underlying factor such as age, diagnosis, exposure to risk(s), etc.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence to STROBE Reporting Guidelines

Case-Control Study: A study of the association between an exposure (case) and outcome (control). These groups can be paired in certain characteristics such as age, sex, duration, etc.

Requirements:

- 3000-3500 words

- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence to STROBE Reporting Guidelines

Cross-sectional Study: A study of a particular population at a single point or a specified duration where exposure and outcome are ascertained simultaneously.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence to STROBE Reporting Guidelines

Case Series: Observational study that analyzes participants with a similar exposure or treatment *without a control group*. This includes larger populations such as towns or institutions and smaller sized groups such as lab samples.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence to Reporting Guidelines

Economic Evaluation: Study of the cost-effectiveness, cost-benefit, or other cost analysis of two or more treatments, programs, or methods.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures
- 50-75 references

- Abstract
- Key Points
- Adherence to CHEERS Reporting Guidelines

Decision Analytical Model: Mathematic model study that typically uses specific software and simulations to analyze and compare consequences of decision options from multiple sources.

Requirements:

- 3000-3500 words
- 5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence to CHEERS Reporting Guidelines

Comparative Effectiveness Research: Study comparing different strategies to prevent, diagnose, treat, and/or monitor health for optimal results. Includes analyzing benefits and harms of all factors (if applicable).

Requirements:

- 3000-3500
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Follow ISPOR Reporting Guidelines

Genetic Association Study: Study that aims to identify and catalogue genomic variants that may be associated with various diseases.

Requirements:

- 3000-3500
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Follow STREGA Reporting Guidelines

Diagnostic/Prognostic Study: Study designed to create, validate, or update the diagnostic/prognostic accuracy of a test or model.

Requirements:

- 3000-3500
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence to STARD **OR** TRIPOD Reporting Guidelines

Quality Improvement Study: Study of a healthcare practice or service to maintain or improve quality, safety, cost-effectiveness, etc.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence to SQUIRE Reporting Guidelines

Survey Study: A representative sample study of individuals' opinions, attitudes, or behaviors. These surveys should have adequate response rates (60% or more) and appropriate countermeasures for biased responses, such as sufficient characterization of non-responders.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence AAPOR Reporting Guidelines
- Optional: Survey instrument as supplemental file

Qualitative Study: Study based on observation and interviews of individuals that focuses on qualitative factors such as: inductive reasoning, theoretical sampling models, and social and interpreted data. This data is used to discover, interpret, and describe rather than validate or

evaluate. Could also include mixed-methods of both quantitative and qualitative methodologies.

Requirements:

- 3000-3500 words
- ≤5 tables and/or figures
- 50-75 references
- Abstract
- Key Points
- Adherence to the SRQR **OR** COREQ Reporting Guidelines

Biomedical original research, also known as manuscripts when they are meant to be published, follow this general section formatting: **(1)** Title, **(2)** Abstract, **(3)** Introduction, **(4)** Methods, **(5)** Results, **(6)** Discussion, **(7)** References, **(8)** Tables and Figures, **(9)** Article Information, and **(10)** Acknowledgements, **(11)** online-only Supplemental content **(12)** Multimedia content (online only). Outline of manuscript sections and their contents is detailed below with guidelines for style.

Reviews

Article reviews outline, analyze, and summarize all available evidence and data about a specific topic. Article reviews are a convenient way for practitioners in many scientific fields to stay current with new technologies, methodologies, and other scientific information. These can range from in-depth and systematic to less formal catalogues of expert opinion and selective evidence. There are generally two types of reviews:

Systematic Reviews: Critical and thorough assessments of literature and data that relate to clinical topics such as etiology, epidemiology, diagnosis, prognosis, therapy, or disease control/prevention. Systematic reviews typically follow the same format structures across all biomedical journals (listed above) but can have subtle changes in certain journals such as JAMA Network.

Narrative Reviews: Timely review of a specific question or problem that is clinically relevant for experts in the topic. Any recommendations should be supported by current research and systematic reviews and guidelines, although no specific systematic review is required for this type of article. A narrative require can include any and all aspects of a standard biomedical or systematic review, but they are not required.

Other Substantive Articles:

Also known as **non-research** or **non-review articles,** they have large variability and therefore

have no standard format for organization. Please keep this in mind as students outline what type of study they are completing or analyzing.

Opinion Articles:

Opinion articles address topics of interest, create forums for the debate of ideas, and provide other context and information from the editor's point-of-view in any journal. These discussions are timely and sometimes controversial but should always be focused and present some sort of logical argument. Opinion article format varies across journals. However, in common publications such as JAMA there are three types of opinion piece: Viewpoints, Editorials, and Personal Vignettes and Reflections.

Viewpoints: Also called Commentaries or Perspectives, these articles can discuss any important topic to the readers of a particular journal, and may involve issues such as clinical health, public health & safety, healthcare policy, healthcare law, or clinical research. These articles are not usually tied to other articles published in the journal, but arguments should be clearly and logically presented.

> **Dueling Viewpoints** is similar to the standard viewpoint format but involves two expert opinions addressing one current topic of interest, with one supporting the viewpoint and the other arguing against.

Editorials: Also called **Invited Commentaries,** editorials can serve two functions. When written by the editorial staff, they can provide clarity to the policies and procedures of the journal or present the views of the staff about a current issue or recently published article. Someone who is not a member of the editorial board can also be invited to write an expert discussion or opinion about an accompanying article or other topic(s).

Personal Vignettes and Reflections: These additions to journals use personal experiences, anecdotes, and narrative elements to illustrate ideas relating to healthcare or the patient-practitioner relationship.

Correspondence

Also called **Letters,** this includes letters to the editor, author responses, and online forums and comment threads. The intent is to foster discussion of ideas between readers and researchers, and allow for these exchanges to be seen by others interested in the topic. Occasionally **Research Letters** are published, which are shorter and more concise original reporting in letter format. These shorter reports contain smaller-scale Introduction, Methods, Results, and Discussion sections. They are still peer reviewed and subject to editorial review.

Journals can also publish other forms of literature such as news articles, quizzes, book reviews, and even poetry. They can also be published in a variety of formats besides written word such as video, audio, or other interactive media.

Manuscripts (Original Scientific Research):

While AMA provides a basic structure to clinical manuscripts, in order to have the highest chance of publication in a journal, any specific editorial rules or regulations of the journal should be taken into consideration. Any student intending to publish their work in a journal needs to be aware of its specific rules. AMA structure for foundational elements of manuscripts is outlined below and can be applied generally to most original research.

Titles and Subtitles

Key Terms for titles go in order of significance: **(1)** exposure, **(2)** outcome, **(3)** population, and **(4)** study type.

Titles should be informative, concise, and specific to the research being discussed. A title should never be a question. Items such as population demographics must be specified in the title, while more narrative and casual wording should only be included in opinion works or observational research.

Scientific observational studies should not make definitive statements on research, opting to use words like "association" that infer relation instead of direct cause-and-effect relationships. Declarative language should also be avoided.

> *Instead of:* Music in Therapy
>
> *Consider:* Music as a Therapeutic Device in Children with Anxiety, 2015
>
> *Instead of:* Infant Weight and the Relationship to Maternal Drinking
>
> *Consider:* Effect of Maternal Alcoholic Consumption on Infant Weight at Birth

Students should not directly mention the study type (as listed above in the section titled Original Research Reports) in their titles.

Subtitles should be used to accentuate the title, but titles should be able to stand independently even if a subtitle is included. Students should be careful to keep subtitles short to avoid excess wording.

Randomized clinical trials are the only research that utilizes study type in titling conventions as a subtitle.

Ex: Effect of Behavioral Treatments on Rats with Anxiety: A Randomized Clinical Trial

Studies can also include group names in abbreviated form (DISC, ARMOR, SHEP) or groups of researchers. Some of these abbreviations are outlined at the end of this guide in the **Abbreviations** section.

Quick Tips for Titles and Subtitles:

- Title capitalization required for each major word. Articles are not capitalized, but "Is" or "Be" should be capitalized if being used as a verb.
- Double quotation marks are used in titles and subtitles.
- Questions can only be included in Opinion works or observational research.
- Numbers (and relevant measurements) should be spelled out at the beginning of titles/subtitles *except* when stating years.
- Drug names that are included in titles must: **(1)** use approved generic name, **(2)** omit nonuse moiety unless required, and **(3)** avoid use of any proprietary drug names unless it's a specific formulation, several drugs are being discussed, or a generic name will not suffice due to large ingredient list.

Ex: Effect of Acetaminophen on Wrist Pain in Patients with Carpel Tunnel: A Randomized Clinical Trial

Tylenol= Proprietary name
Acetaminophen= Generic name

- Genus and species name should be written out fully in the title, then abbreviated in the format below using an initial for genus followed by species name. Proper italicization is included.

Title: Prevalence of *Conium maculatum* and Invasive Plant Toxicity in the Mid-Western U.S.

In-text: *C. maculatum*

- Unless an acronym group name is used or these is a general spacing issue, NO abbreviations are to be used in titles. If they must be used, the full wording of the abbreviation must be present in the abstract at first mention.
- Cities, states, counties, provinces, and countries should ONLY be included when essential to understanding the results of research.

<u>Author Bylines/End-of-Text Signatures</u>

Complete names of all authors need to be included in the manuscript either on the title page, following the title, or up to journal-specific rules. In major articles, the **by-line** is typically used, a subheading beneath the title or subtitle.

Quick Tips for Author Bylines:

- No specific font style is required for bylines. Semicolons are used to separate multiple author names. Commas are used to separate author names and other byline information such as degree or professional title.
- For an individual author in a group (such as a study group) the word "for" is used to associate.
  Ex: Susan K. Williams, PhD; for Logical Study Group
- Multiple authors from the same group use the word "and" to associate.
  Ex: Susan K. Williams, PhD; Laura Butcher, RN; and the Logical Study Group
- Individual subgroups can also be listed as an author using titles such as "committee" or "group".
  Ex: The Medical Committee for the Logical Study Group
- In certain instances, group members might be individually listed out at the end of the article with group name being mentioned under the title.
- The author's full name is required, and names should be consistent in presentation across the work.
- Articles with more than 50 authors may have names listed at the end of the article for spacing.
- A journal will need to state clearly if a byline is required in any other area than directly after the title page, or, if other aspects such as academic degrees, identification numbers, author contributions, and other professional titles need to be included.
- Only degrees above master's level should be included in by-line (ex: if a PhD is held then that is the only degree(s) referenced). Special exception is made with particular professional certifications and licenses (nursing, military ranks, etc). Fellowships and honorary degrees are not included.
- For any other specific rules of bylines, please refer towards the specific journal or guidelines being referenced.

Author Affiliation

Author affiliation lists out the institution, location of the institution, and the associated authors. This information should not be included in the by-line. It could appear:

- On the title page directly below the by-line or in the Acknowledgement section at the end of the manuscript if it is being submitted.
- A footnote at the end of the article when published (either print or PDF).

Author Affiliation Rules:

- University department, university name, and university location are separated by commas. This is followed by related authors to the institution in parentheses. If more than one author is affiliated to a university, commas should be used.
- If two or more authors share the same last name, first initials should be used to differentiate individuals.
- If two authors share the same initials and last name, their full names should be included.
- No professional titles or ranks should be included.
- If all authors belong to the same institution, their names do not have to be included in the author affiliations footnote.
- Affiliations are listed in the same order as author names appear in the by-line.
- If an author is affiliated with multiple institutions, each affiliation should be listed out.
- Groups of many authors may appear as the group name in the by-line but should be referred to at the end of the article either with direct mention of authors or a reference to another supplemental list of the authors.

Byline: Serena Cao, PhD; Laura Wing, RN; Sherman Wright, RN; Whitney Piler, MD

Author Affiliations: Perlmutter Cancer Center Langone, New York University, New York (Cao); Weill Cornell Medicine, Cornell University, New York (Wright, Piler).

Online versions utilize the linked superscript to connect author names in the by-line to author affiliations.

Running Head/Running Foot

When articles are published in AMA, the running head/running foot will include manuscript bibliography consisting of journal name, abbreviation, publication year, issue number, page numbers, DOI, and possibly other aspects. In journals such as *JAMA* this information is fully written out on the first page and then abbreviated every page thereafter. It can appear as a running head at the top of the page or a running foot at the bottom.

On First Page:
JAMA Dermatol. 2022;158(6):609-610. doi:10.1001/jamadermatol.2022.1298
Published online May 11, 2022.

On Every Other Page:
JAMA Dermatology May 2022 Volume 158, Number 6

If a short title is needed in the running head/running foot:

- No punctuation is included
- Brief but addresses the main point

- Usually 70-100 characters, including spaces, across most *JAMA* journals
- Abbreviations can be used to help spacing

Title: Validation of Celiac Disease Pooled Cohort Risk Equations
Short Title: Equations for Risk of Celiac Disease

Running heads/running foots might also include article type in *JAMA* such as: Original Research, Review, Clinical Review & Education, Opinion, Letters Perspective, A Piece of My Mind or others.

Specific rules for running head/running foot depend on the publication being submitted to and the individual needs of the student's assignment guidelines.

Abstract

Abstracts require: **(1)** the objective or importance of the study, **(2)** study design and methodology, **(3)** results, and **(4)** conclusions. Abstracts are not required for opinion pieces, letters, and special works such as news articles. Small tables can be included in Abstracts in the Results section. In a *JAMA* network journal manuscript entry, clinical trials must be registered in an appropriate online public registry that is: a non-profit, publicly accessible, and has the minimum registration data set as described by the The International Committee of Medical Journal Editors (ICMJE).

There are two types of abstracts in AMA, structured and unstructured:

Structured Abstracts
Abstracts with section headings are called structured abstracts. Students do not have to use full sentences in these sections and can use simple phrases for the sake of brevity. Structured abstracts are typically no more than 350 words and should include the following section headings depending on what type of data is being discussed. The headings used and their general contents are outlined below.

Structured Abstracts for Original Data

Original research includes abstracts of no more than 350 words. Phrases can be used over full sentences. Below are aspects that need to be discussed in structured abstracts, but not all require their own section. Some sections are journal-dependent based on specific guidelines.

- Importance: One to two sentences explaining the significance of the study.
- Objective: The specific hypothesis or study objective.
- Design: The basic study type and study information such as duration.
- Setting: Refers to the location of the study.

- Participants: Key information for participants in the study such as eligibility criteria, key sociodemographic features of patients, number of participants, selection process, and any information on participants who declined to participate even though they were eligible. Specify if any matching was used for comparison groups and their characteristics. The proportion of participants who completed the study needs to be included in follow-up studies. In intervention studies, provide the number of patients who withdrew from the study due to adverse effects.
- Intervention(s)/Exposure(s)- Interventions and exposures method and durations; if these are medications, most common clinical names/generic names need to be included.
- Main Outcome(s)/Measure(s)- Main study measurements gathered before raw data was collected.
- Results- All main outcomes of the study, including final analysis, absolute numbers, and measures of absolute risks.
- Conclusions and Relevance- Concluding analysis of the study that is directly supported by the results.
- Trial Registration- Clinical trials require name of the registry, registration number, and URL.

Structured Abstracts for Meta-analysis

Manuscripts reporting results of meta-analyses should be no more than 350 words.

- Importance- One to two sentences explaining the significance of the systematic review question justifying the meta-analysis.
- Objective- The specific study objective of the meta-analysis, focused on analysis of cause, diagnosis, therapy, prevention, population, etc.
- Data Sources- Summarized data sources. These sources should be timely, readily available digitally, and pertinent to the manuscript while including database, retrieval, any constraints, and other exact indexing terms. If the abstract does not allow for that much detail, then sources should include database and years searched, with the remainder of information in the Methods section.
- Study Selection- Inclusion and exclusion criteria including populations, interventions, outcomes, methodological designs, and study type/model used.
- Data Extraction and Synthesis- Which guidelines were used (ex: PRISMA, MOOSE, etc.) used for assessing data and what method was used to apply those guidelines.
- Main Outcome(s)/Measure(s)- Primary study outcome(s) and measurement(s) *before* data collection and analysis. If the outcome or measurement is not included there should be a reason why such were omitted. The hypothesis should clearly state if it was formulated before or after data collection.
- Results- The main quantitative results of the review. Includes the number of studies, participants, numerical results, indicators of uncertainty, major outcomes, ratios, and/or

sensitivity analyses. Any screening and diagnostic tests should include likelihood ratios, receiver operating characteristic curves, and predictive values. Any sources of variation between studies should be stated including treatment protocols, co-interventions, confounders, outcomes measures, length of follow-up, and dropout rates.

- Conclusion and Relevance- The concluding summarization of quantitative data. There should be limited interpretation to how it applies to any concepts outside the review.

Structure Abstracts for Systematic Reviews (no Meta-analysis)

Systematic reviews are assessments of literature and data sources pertaining to clinical topics. Abstracts of these reviews are no more than 350 words including headings.

- Importance- One to two sentences describing the clinical question and its significance in public health.
- Objective- Primary goal of the review should indicate cause, diagnosis, prognosis, therapy, prevention, population, intervention, exposure, tests, and outcomes.
- Evidence Review- Information on the sources used. Includes search strategies, years searched, source of material, any subsequent searches in databases, methods used for inclusion/exclusion, and assessment of quality of included articles.
- Findings- Brief summary of quantitative data with the number of articles, types of studies, and number of patients/participants included. The major findings of the manuscript topic need to be summarized in an evidence-based, objective, and balanced style with the most focus on the greatest quality data.
- Conclusions and Relevance- Concluding statements should answer posed questions (if applicable), summarize available evidence, and focus on how this knowledge can be applied by clinicians. These conclusions should be based solely on results outlines in the abstract findings subsection listed above.

Structure Abstracts for Narrative Reviews

Narrative reviews on clinical topics from clinicians and experts in the field. The abstract is no more than 300 words including headings. Includes:

- Importance- Overview of the topic of discussion and significance of the review.
- Observations- Principal findings of the review.
- Conclusions and Relevance- Conclusions of the review supported by information and its clinical applications. The clinical relevance should also be stated.

Unstructured Abstracts

An unstructured abstract has no headings and contains one paragraph of no more than 200

words. It summarizes the objective, main points, and conclusions of the article. Abstracts are *not* required for opinion pieces, letters, and special works such as news articles although some can include one sentence summarizing contents.

Rules for Abstracts

- Consult individual journal's instructions for authors
- Use journal specific headings
- Do not repeat the title in the abstract
- Do not cite references or URLs in the abstract
- Do not cite figures or tables in the abstract outside of Results section
- Present numerical results with appropriate indicators such as indicators of uncertainty and P values.
- Include notable terms, specific databases, and study groups in the abstract to aid in research retrieval going forward
- Include hypothesis and/or study question
- Every piece of data mentioned in the abstract needs to be discussed in-text
- Include active moiety of a drug at first mention
- Do not include proprietary drug names as much as possible, unless essential to the study
- Spell out abbreviations at first mention, do not overuse abbreviations
- Spell out the name of an element in full when first mentioned and provide the isotope number on the line
- Provide date ranges, dates of study, and any other data in review articles
- Always double-check the data in the abstract matches the data in the manuscript, tables, and figures

Keywords

Some journals might require a short list of 3-10 keywords in a manuscript. Some publications might provide a set of terms to use, or none at all. These keywords are predominantly used to aid in future data retrieval and categorization of manuscripts.

Epigraphs

Otherwise known as short quotations at the beginning of an article, they are rarely used in research papers. If included, they are italicized with a signature in bold underneath the quote. A superscript reference number should associate the quote to a cited source in the reference list.

Ex:
Change is the one unavoidable, irresistible, ongoing reality of the universe.

Octavia E. Butler[1]

Manuscript Headings, Subheadings, and Side Headings

A logical structure to the organization of headings should be used for all original research articles. Headings should facilitate the flow of the manuscript and make the research more approachable and understandable. Many articles follow IMRAD (Introduction, Methods, Results, and Discussion) pattern outlined below but there is not one particular format for all articles. Sections will vary with the type of article being written. Headings could be used in editorials and reviews.

Introduction: Should state the objective of the study, hypothesis, or purpose statement and its significance. Should be no longer than 2-3 paragraphs or 150 words.

Methods: Should include a detailed description of the following:

1. study design and type
2. dates of study and follow-up dates of subsequent analysis for data older than 3 years
3. institutional review board or ethics committee review, approval/waiver/exemption, and informed consent
4. conditions, facts, or diseases studied
5. sample details such as study participants, setting, and inclusion/exclusion criteria
6. interventions and exposures if any
7. primary outcomes and measures of observations, followed by secondary outcomes and measures
8. statistical analysis, complicated statistics should be explained to the average reader
9. random clinical trials require a power statement addressing the number of patients in each group needs to obtain a specific outcome
10. reviews require search strategy, date run, and name of database/retrieval system used

Enough information should be included in the Methods so that an informed reader could replicate the study.

Results: Should include specific and relevant data as it relates to the hypothesis or study question. Participant characteristics, primary outcomes, secondary outcomes, and other outcomes should be written out in that order. Results should not discuss implications or weakness of the study but should name any validation measures conducted. Results should not introduce any new methods that have not been discussed in the Methods section. All outcomes and findings should be written out in-text and should not just appear in figures or tables. However, data in tables should not be duplicated in-text unless it's crucial to understanding the context of the research. Text and tables should be used for absolute numbers while figures should be utilized for relative values.

Discussion: A final examination and critique of the study. The research topic or hypothesis should be addressed and compared directly to the results. Discussion sections should **NOT** be just direct repetition of the Results section. Any limitations, complications, and unexpected results of the study should be addressed, as well as any indications to future studies that need to be conducted.

Conclusions and Relevance: A clear, concise statement that only discusses the findings of the study and their significance.

Rules for Headings

- Consistent style should be used for all headings throughout the manuscript.
- Style of headings vary from publication to publication, in print and online versions, and even from one category or subject to another.
- Some consideration should be given to length to facilitate easy search in online databases.
- There should be a minimum of two headings unless otherwise stated.
- Avoid using an abbreviation as a heading unless it was previously introduced.
- Do not introduce abbreviations in a heading. If needed, spell word out in the heading and introduce the abbreviation in the next mention in-text.
- Do not cite figures or tables in headings.
- Do not cite references in headings.

Addenda

Any addenda material can be added to articles late in the publication process or just as supplementary material. Any addendum made should be offset by a space, hairline centered ruled, or both. Any references stated in the addenda should have a related reference cited in the reference list. These changes typically would be approved by an editor or peer reviewed.

Acknowledgements

Generally, this is the section of material after the article and addenda but before the references. It is also known as Article Information. This section may include:

- Author contributions
- Conflict of interest disclosures
- Manuscript funding
- Role of manuscript sponsors
- Acknowledgement of non-author collaborations
- Any previous presentation of the research material

An affiliation footnote that is too long to fit on the first page of the manuscript can be included in this section after the acceptance date. If no acceptance date is included, it would appear first in the Acknowledgements section.

Specific rules and guidelines vary between publications. Generally, this section has the following subsections outlined below in order of appearance:

Manuscript History

Includes acceptance date of the manuscript for publication, date of manuscript submission, date of revision submission, and/or date of manuscript acceptance:

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If the article was published online first/online only, the publish date and DOI should follow the acceptance date footnote:

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Open Access Information

If the article was published in open access the following information needs to be displayed:

Corrections

Any corrections made to the article since publication should be noted formally described in this section and include the date fixed and a description of the error. These do not replace the erratum corrections section which is described further below:

Correction: This article was corrected on March 25, 2022, to fix a typographical error in the Methods section and a numerical error in the Results section.

Group Information

Simply identifies the where the group members are listed:

Group Information: The Logical Study Group members are listed at the end of the article.

Corresponding Author Contact Information

The author's contact information should include the full name even if only one author is provided. Each author has their own footnote.

Corresponding Author: Katie M. Moynihan, MBBS, Department of Cardiology, Boston Children's Hospital, 300 Longwood Ave MS BCH3215, Boston, MA 02115 (katie.moynihan@cardio.ch0boston.org).

JAMA articles now allow for a maximum of two authors in the same footnote provided that the person listed first will be responsible for all future communications. Authors from the same institution use the word "and" to separate name, while a semicolon is used to separate authors of different institutions.

In letters to the editor or book reviews, a signature block is used with the author's full name and degrees only. An Author Affiliation footnote is included before corresponding author(s) which includes affiliated institution. The Corresponding Author footnote gives the full name, address, and email of the author(s).

Signature block:

> Roy Perlis, MD
> Thomas H. McCoy Jr, MD

Author Affiliations: Quantitative Health and Department of Psychiatry, Massachusetts General Hospital (Perlis, McCoy).

Corresponding Author: Roy Perlis, MD, Quantitative Health and Department of Psychiatry, Massachusetts General Hospital, 185 Cambridge St. Simches Research Building, Boston, MA 02114 (rperlis@mgh.harvard.edu).

Author Contributors

Detailed author contributions and access-to-data statements are included in this footnote, especially in *JAMA* network journals. This outlines the role of all researchers in the manuscript.

Author Contributions: Dr. Perlis and McCoy had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

Concept and design: Castro, Kamal, Perlis.

Acquisition, analysis, or interpretation of data: Edlow Castro, Shook, Perlis.

Drafting of the manuscript: Edlow, Castro, Perlis.

Critical revision of the manuscript for important intellectual content: All authors.

Statistical analysis: Castro, Perlis.

Administrative, technical, or material support: Edlow, Castro, Kamal.

Supervision: Perlis.

Conflict of Interest Disclosures

Any information regarding financial interests, activities, relationships, employment, funding, grants received or pending, consultancies, payments, stock ownership, testimony, royalties, donations, or patents pending or issued related to the research require a disclosure in this footnote. This includes any possible conflicts that could have been perceived to have influenced the submitted work, and all relevant information on relationships of the authors or financial activities related to the work during the 3 years before submission. Conflict of Interest Disclosures may also be a disclosure of no conflict. Below is an example:

Conflict of Interest Disclosures: Dr. Perlis reported receiving consulting fees from Burrage Capital, Genomind, RID Ventures, Belle Artificial Intelligence, and Takeda; he reported receiving equity in Pay Therapeutics, Belle Artificial Intelligence, and Circular Genomics; Dr Perlis also reported receiving personal fees from Genomind Scientific Advisory Board and personal fees from Vault Health Scientific. No other disclosures were reported.

Funding/Support

Any funding or support including grants, funding sources, and supplies/equipment should be disclosed in the Funding/Support footnote. Complete names of funding sources and any grant/contract numbers should also be included. If funds were allotted to individual authors, their names should be included in parentheses after the funding source with any contract numbers:

Funding/Support: This study was supported by the National Institute of Mental Health (contract R01MH116270 and 1R56MH115187; Dr Perlis) and the National Institute of Child Health and Human Development (contract R01 HD100022-02S2; Dr Edlow).

Roles to Funders/Sponsors

The role of the funding organization or sponsor(s) such be outlined using the following terminology below.

For original research:

Role of the Funder/Sponsor: The funders had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

When no original research is included, remove everything before "preparation":

Role of the Funder/Sponsor: Staff from Logical Study group assisted in the preparation, review, and approval of the manuscript; and the decision to submit the manuscript for publication.

Disclaimer

Any final disclosures that help separate the views of the authors and any employers/organization should be included here:

Disclaimer: Dr Perlis is an associate editor for *JAMA Network Open* but was not involved in the editorial review or decision for this manuscript.

Meeting Presentation

Any presentations of the material submitted that have been in a professional setting should be included here. Exact date and locations needed:

Meeting Presentation: This study was presented at the Annual Machine Learning for Health Care 2021; July 6, 2021; Ann Arbor, Michigan.

Previous Posting

Any manuscripts that have been previously posted to another online database may be included, with any URL or DOI:

Previous Posting: This article was posted as a preprint on cgm.massgeneral.org.

Data Sharing Statement

For *randomized clinical trials*, the ICMJE (International Committee of Medical Journal Editors) encourages the inclusion of a data sharing statement outlining what kind of data was utilized, analyzed, and collected. While they are allowed for other study types, data sharing statements are mostly used with randomized clinical trials. Not every section outlined below needs to be included in the clinical trial manuscript. Below outlines many different types:

Data

Data available: Yes

Data types: Participant data and data dictionary

How to access the data: Participant data and data dictionary have been deposited in ABC Database (*abcdatabase.org/doi:10.9999/abc.2abc123*).

When available: With publication.

Supporting Documents

Document types: Informed consent form

How to access documents: Informed consent form has been deposited in ABC Database (*abcdatabase.org/doi:10.9999/abc.2abc123*) and included in Supplement 4.

When available: With publication.

Additional Information

Who can access the data: Anyone

Types of analyses: Any purpose

Mechanism of data availability: Without investigator support

Any additional restrictions: None.

Additional Contributions
Any other contributions such as reviews, preparations, special tests, writing or editing assistance, any supplemental compensation, and any clerical work should be included. Individual names, highest level of degree, and institution should be included, with no location:

Additional Contributions: We thank the Logical Study Group for neurological imaging assistance. They were not compensated for their contributions beyond their established salaries.

Additional Contributions: We thank Carl Urban, MD for their assistance in editing the final manuscript.

Additional Contributions: We thank the patient for granting permission to publish this information.

Additional Information (Miscellaneous Acknowledgements)

Any other information may be provided in this section. Any credit for a figure or table should be included in the table/legend footnote, not in this footnote.

Additional Information: This is report 5 in a series on infection rates among infants.

Additional Information: This report is dedicated to my mentor Carl Urban, MD.

References

Accuracy of referenced material is critical to both the integrity of the researcher who created the manuscript and the subsequent scientists who attempt to access and utilize the information. References should always be complete, accurate, and relevant to the research.

Inappropriate citations should be avoided including references such as: speculative commentary cited in a way that implies direct causality, generalized data beyond the scope of the original reference, a citation from a retracted article without proper disclosure, and/or citations from predatory journals. Since researchers use secondary sources as the basis for research, any inaccurate reference could cause a chain-reaction of misinformation in subsequent articles. Students should consult/cite primary sources when able. There are various formatting styles for References, however all should provide consistent use of format across the entire work.

The most generally used and accepted format is the US National Library of Medicine (NLM) version which is referenced in the AMA guide regularly and below.

General Reference Format

A minimum amount of information is required for a reference to qualify for inclusion. Below is a quick guide for basic reference format and that information needs to be provided. Any font changes should be reflected in the actual citations. Many citations will require more and specific information. A list of abbreviated journal names is included at the end of this guide to help in review.

General Reference List Quick Guide:

Journal articles
Print: Author(s). Article title. *Abbreviated Journal Name*. Year;vol(issue):inclusive page(s). DOI (if available)

Online: Authors(s). Article title. *Abbreviated Journal Name.* Year;vol(issue):inclusive page(s). DOI (if available). Accessed [date]. URL

Books
Print: Author(s). *Book Title*. Edition number. Publisher's name; copyright year.
Online: Author(s). *Book Title.* Edition number. Publisher's name; copyright year. Accessed [date]. URL or DOI
Website: Author (or organization if no author is provided). Title (or name of organization responsible for site if none is included). Name of website. Published [date]. Update [date]. Accessed [date]. URL

References In-Text:

References numbered in the list use this value as a superscript to refer to them in-text. Superscript Arabic numerals are used outside periods/commas and inside colons/semicolons. Use hyphens to join consecutive citations, or commas for nonconsecutive multiple references.

Ex: The data reflected these values[3,5,6-9].

Page number could also be included.

Ex: The data reflected these values[3(p10),5(pp 3,7),6-9].

Tips for References:

- Includes articles published in scholarly or mass-published print or electronic journal, magazines, newspapers, books, studies, monographs, reports, databases, websites, legal documents, patents, abstracts, published film/audio/video/other multimedia
- Listed in numerical order, only rarely in alphabetical order by author's last name
- Only one reference per reference number
- Citations to material not yet published or personal communications are not included in the References list, only parenthetically in-text.
- References in-text (that don't qualify for inclusion in the reference list) appear like this: Yang argues that dermatology requires a new understanding of palliative care (*JAMA Dermatol.* 2022;158(6):609-610. doi:10.1001/jamadermatol.2022.1298).
- Reference lists sources are cited in-text with superscript numbers using commas or hyphens to include multiple citations.
- Students should AVOID using superscript citations right after a number or unit of measure to prevent confusion.

- Students should AVOID long reference strings by grouping references together to facilitate hyphen usage over commas.

Author Format

Author format in References changes as the number of authors increases. Author names require the last name and initials without periods in the reference. Below is a list of formats for author(s) in increasing size.

1 Author: Lindo LF.
2 Authors: Lindo LF, Durand RS Sr.
6 Authors: Lindo LF, Durand RS Sr, Innis ER, Marvin SA, Quinn CB, van Nuss PL.
>6 Authors: Lindo LF, Durand RS Sr, Innis ER, et al.
1 Author for or *and a group*: Lindo LF; Logical Study Group.
>6 Authors for or *and a group:* Lindo LF; Durand RS Sr, Innis ER, et al; Logical Study Group.
Group: Logical Study Group.

Rules for Author Format

- Last names for authors are used in-text, up to two authors. Three or more authors utilize "et al" after only the first last name is mentioned. Could also use "coauthors" or "colleagues" as well.
  Ex: Data provided by Lindo et al[5] supports the findings of our research.

- Do not use et al as a possessive (no et al's).
- In **opinion pieces, reviews, historical features, and letters** the first name or honorifics of authors may be used at first mention, then last name is utilized.
- In NLM database formatting no distinctions are made between groups and individuals writing in the group vs. in addition to those in the group. The words "for" or "and" are removed from References, as well at "the" should it appear in the group name (Ex: "The Logical Study Group" becomes "Logical Study Group")
- When no author is provided, the group or committee name should be used. Author bylines in references could also have both the names of individuals and group(s).
- A semicolon is used to separate author names and groups. No articles are included with group names.
- "Anonymous" should only be used in references if it was written as such in the referenced material.
- Hyphens in names are only used in last names in NLM format.

Title Format

Original formatting from the title of the material should be retained with minimal exceptions to items such as years.

Journal Article/Parts of Books Titles

- Capitalize the first letter of the first word, proper names, clinical trial names, study groups, and abbreviations.
- No quotations unless included in the original material (must use double quotation, never single).

Books, Government Bulletins, Documents, and Pamphlets

- *Italicize* titles of books, bulletins, documents, and pamphlets, capitalizing the first letter of each major word.
- Generally follows MLA title format with one exception: 2-letter verbs such as “Is” and “Be” are capitalized.

Non-English Titles

- Titles in languages will have their own language-specific guidelines, varies across languages.
- Titles can appear without translation, if translation is included, notation of original language will need to be included following the title.
- Multiple translations of titles can be included, separated by a period.
- English words for volume, part, page, edition, section, or part must be used.

Subtitles

- If a title contains a subtitle, the subtitle should follow the title rules except for journal articles where the subtitle begins with a lowercase letter.
- A colon and space separate the title and subtitle even if other punctuation was used in the original material.
- If a question mark is included in the title it is included in the Reference list and replaces the colon.
- Period should appear after any quotation marks that appear in the title/subtitle.

Journal Article Citations

Print: Author last name, initials. Article title/subtitle. *Abbreviated Journal Name*. Year;vol(issue):inclusive pages(pages or e-locator). DOI (if available)

Online: Author last name, initials. Article title/subtitle. *Abbreviated Journal Name.* Year(or online publication date);vol(issue):page(s). Accessed [date]. DOI (if available). URL

Rules for Journal Article Citations

- Semicolon separates year and volume and issue, colon separates volume/issue number and pages.
- No period after DOI.
- Hyphen is used for inclusive page numbers.
- URL needs to be as short and concise as possible.
- DOI is preferred over URL and URLs and access dates can be omitted for online journal articles with a DOI.
- DOI should be presented as "doi:" in the citation with no "https://" or "www".
- Preprint databases such as arXiv, bioRxiv, MedRxiv, and others replace the information in *Abbreviated journal name*.
- Specific information outlining which pre-published material was used in the citation is needed. Utilize the phrasing, "preprint published online", or "accepted manuscript" before date accessed for references.
- Repositories are named in the *Abbreviated journal name* section and use the phrase "deposited" before date accessed in online locations.
- Commas are used to separate discontinuous page numbers, hyphens are used for continuous page numbers, page numbers are separated by commas.
- If an issue has two or more parts, it should be written in parentheses as (pt #) after issue number.
- If an issue has a supplement it should be written in parentheses after the issue as "(suppl #):S##-##".
- Individual abstracts can be cited by only when no full article is available by using "Abstract republished in:" before *Abbreviated journal name.*
- No use of "Anonymous" in citations unless directly mentioned in the work.
- Only use a department, column, or other special institution if no other author is included in the byline or signature of the sourced material.
- Comments under articles have the following format: Last name, initial. Re: Title. Comment online. *Abbreviated journal name* blog. Accessed [date]. URL
- Citing a journal article with a correction is sufficient (with no added correction) unless otherwise stated.
- Retractions of articles have the following citation format: Last name, initial. Title. Retracted and replaced in: *Abbreviated journal name*. Year;vol(issue):page(s). Accessed [date]. DOIs DO NOT follow retractions.
- Duplicate publications have "Notice of duplicate publication:" before the title in a citation.

Book Citations

Print: Author(s) (or organization/group if not author is provided). *Book Title*. Volume number. Edition number. Publisher; copyright year.

Book chapter: Chapter author(s) (or organization/group if not author is provided). Chapter title. In: Book author(s) and/or editor(s). *Book Title*. Volume number. Edition. Publisher; copyright year:page(s).

Online: Author(s). Chapter title (if included). In: Editor(s). *Book title*. Edition. Book medium (audio book, CD, e-book, etc.). Publisher; copyright year (or publication date). Accessed [date]. URL

Website: Author(s) (or organization/group if no author is provided). Chapter Title (or name of organization responsible for site if none is included). Name of website. Published [date]. Update [date]. Accessed [date]. URL

Rules for Book Citations

- Monographs have the same reference style as books.
- No quotation marks should be included with book chapters, the phrase "In:" is used before the title.
- If the author is the same as the publisher/editor the name is included in both positions.
- Translators are included after the *book title* with the following format: Last name, initials. *Book title*. Edition. Last name initials, trans-ed. Publisher; year:page(s).
- If there are no author(s), editor(s) are identified at the beginning of the citation with, "last name, initials, ed(s)." after all names.
- Arabic numerals are needed for all volume numbers even if other numerals are used.
- If volumes have separate titles the volume title is included in the *title* section with the series title at the end of the citation after copyright year.
- Editions could include phrasing such as "American ed", or "New revised ed" if these are included in the book titles.
- Drop volume(s) and edition(s) if they are not included in the source material.
- If no publisher is available, "Publisher unknown" should be utilized.
- If no date is available, "date unknown" should be used. Full year needs to be written out if included.
- Unless other specific characters are used for page numbers by the source, Arabic numerals should be used. Page numbers should be condensed with commas and hyphens like superscript citations and other aspects of numbering in AMA.

- Theses or dissertations are treated as book style references once published.
- **Other Citation Formats**

  The following serves as a guideline to other types of citation formats. If a piece of information is not included in the original source, it should be dropped from the citation. Students should strive to include as much information as possible but only what is provided by the source.

Classical materials (Shakespeare): Author. *Title*. Act #, scene #, line #.

Classical materials (general): Chicago Manual Style should be used. Bible(s) or other religious materials should only be referenced in-text.

News publications: Author(s). Title of article. *Name of newspaper*. Publication [date] (online or print). Section (if available). Page number (if available). Online accessed [date] (if online). URL (if online).

News releases: News article title. News release. News organization; date published. URL

Government/Agency reports: Author(s). *Title of report/bulletin.* Name of agency/department/bureau that released the report; Publication year. Page(s). Publication number (if given). Series Number (if given). Accessed [date] (if online). URL (if online)

Part of a series of reports: Author(s). *Title of report.* Name of releasing agency; publication year. Series number/report number. Accessed [date] (if online). URL (if online)

Unpublished theses and dissertations: Author(s). *Title.* Dissertation. University; year. Accessed [date] (if online). URL (if online)

Package inserts/Patient information/Prescribing Information: Drug name. Prescribing information/Patient information/Prescribing Information (depending on use). Drug company name; year. Accessed [date] (if online). URL (if online)

Patents: Inventor name(s), inventors; assignee name. Name of patent. US Patent number/US Patent application number/European patent number. [date].

Legal references: Legal decision/act/law/bill/etc., legalizing agency (year published). Pub L No. #. Accessed [date]. URL

Online Presentations: Presenter(s). Title. Presented at: conference name; conference date, conference year; city, state abbreviation. Accessed [date]. URL

Online Webinar: Presenter(s). Title. [Name of conference] webinar. Date presented. Accessed [date]. URL

Databases: Author(s)(or name of group). Title of database. Publisher; year of publication. Updated [date]. Accessed [date]. URL

Video: Author(s). *Title*. Publisher. Published year. Accessed [date] (if online). URL (if online)

DVD: Author(s)/Publisher. *Title*. DVD. Publisher or Distributor; year. URL (if online)

Podcasts/Audio: Podcast/audio title. Podcast/audio publisher or author. Date published. Accessed [date]. URL

Apps: App name. App publisher. Updated [most recent update date].

Video game: Video game title. Game developer. Year published. Accessed [date]. URL

Software: Software name. Version number. Developer/company; year published. Accessed [date]. URL

Other multimedia: Author(s). Title. Multimedia medium. *Abbreviated journal name.* Year; vol(issue):page(s)(if available). Accessed [date]. DOI

Transcripts of audio, video, radio, or television broadcasts: Short description of transcription. Transcript. *News column/author.* Editor/distributor. Date published. Accessed [date]. URL

Websites: Author(s). Title of material or organization who owns the site. Name of the website. Date published. Accessed [date]. URL

Blog: Author(s). Title of blog. *Abbreviated journal name/website owner* blog. Date published. Accessed [date]. URL

YouTube: Title of video YouTube page. Accessed [date]. URL

Twitter: @handle. [Entire tweet, using double quotations for quotes]. Date published. Accessed [date]. URL

<u>Rules for Electronic References</u>

- Personal communications, material submitted but not yet accepted for publication, and material accepted for publication but not yet published should not be included in a formal list of references.
- Multimedia citations can also be included as a supplement to an article, and do not have to be standalone.

- NLM guidelines, which are generally referred to in AMA, suggest students to include DOI, print, or other stable copy to back up any URLs used. This is due to the ever-changing nature of websites with updates and domain changes, websites should be verified, and no broken URLs should be present.
- Digital object identifier (DOI) and PubMed identification number (PMID) should be used in references in every possible instance to assure accuracy of citations.
- In statistical analyses, software does not need to be cited in the formal reference list.
- Public law numbers as seen in legal references as "Pub L No." are found on government agency websites. For any other legal references *Bluebook* guidelines should be referenced.

Tables, Figures, and Other Multimedia

Tables and figures are used for concise display of information in-text. Small amounts of data can be presented in words, larger amounts of data should be organized into charts, graphs, figures, pictures, tables, or other data sets. Numerical displays of values are preferable to figures and visualizations.

Use text:

- To present quantitative data.
- To describe simple relationships among data.

Use of tables:

- Present more than a few numerical values.
- Present large amounts of quantitative information in a concise manner.
- Show itemized comparisons.
- Display data simultaneously.
- Display individual data precisely.
- Show complex relationships among data.

Use of figures:

- Highlight patterns or trends in data.
- Show changes over time.
- Show complex relationships among data.

Tables

- Require an identifier in numerical order (Table 1, Table 2, Table 3, and so on). If there is only one table it should be referred to as “Table”.
- Tables should have concise, clear titles, students should prioritize phrases over sentences. The table identifier (Table 1, Table 2, etc.) should be included in the title.
- Certain types of studies require specific tables. Certain journals will require rules for shading to tables.
- Columns of information need to be clear, concise, and attempt to avoid confusion from readers as much as possible.
- Column headings are **bold**. Subheadings may be used.
- Information in data cells should be flushed left in the cells.
- Sentence-style capitalization should be used.
- Missing cells or blank cells should be avoided to provide clarity to the data. “NA”, “not available”, or “not applicable” should be used instead.
- Data should be grouped in tables as logically as possible.
- Footnotes can be used to provide supplemental information on tables such as the use of more complex headings, or supplemental explanatory material on the table’s contents.
- Alphabetical order superscript is used before the footnote, although some journals might require special characters (Ex: [b]Data adjusted for location and age.)
- Footnotes occur under the tables they are associated. If there are many footnotes for a table, they can be separated into two columns underneath the table. Journals can permit other layouts as needed.
- Footnotes may be a complete sentence or shorter phrase. If a footnote explains data across multiple tables, it should be included in the first applicable table, with a footnote referring to this in all other tables with a short explanation (Ex: Study statistical analysis guidelines are explained in the first footnote of Table 1.)
- Footnotes should be used to explain any data in the tables that was referenced from an outside source. These references should obviously be included in the reference list and should use the appropriate superscript number at the end of the footnote (Ex: [a]Data from the Center for Disease Control[4]).
- Credit acknowledgements for reproductions of tables should be given in a related footnote (Ex: Reproduced with permission from…).
- Conventional units should be used for data in tables. However, *JAMA* does have conversion tables for other unites of measurement. Units can be abbreviated for space consideration but must be kept consistent throughout the material.
- When tables include negative numbers, hyphen usage should be avoided to prevent confusion.
- Most numbers in tables should be rounded using the same number of points after the decimal as there are before it, as a general rule. Statistical data should be rounded

according to the functions used but rules may vary according to the type of analysis conducted.

Figures

- Includes any graphical display of data such as: graphs, diagrams, maps, matrixes, algorithms, illustrations, images, photos, and other images.
- Some figures such as flowcharts are standards parts of certain studies such as randomized clinical trials or meta-analyses. Please be advised students might require particular figures in their assignments.
- Figures use dots, lines, curves, area, length, or shading to demonstrate data. Data values should be thicker in shading and font than scale lines to focus readers' attention.
- All data in figures should be appropriately spaced, the figure space should be larger than the data within it to provide clarity.
- Axis must be labeled. Symbols, colors, and line styles should be explained preferably by directly labeling the figure. A key can be used if this is not possible due to the amount of data being presented.
- Shading is preferred on bar charts over cross-hatching or other patterns.
- 3-D figures should not be used.
- Figure follow the same designations as tables (Figure 1, Figure 2, Figure 3, etc.), that does not appear in the figure but above it.
- Figure titles are concise phrase or single sentence no more than 15 words. Titles follow the same capitalization rules as article titles.
- Students should not identify the figure in the title (photograph of…, chart including…)
- Short explanations of context for figures can be included in titles (Ex: Hormone Panel Showing Minimal Changes to Progesterone Levels).
- Legends, otherwise known as captions, are written in sentence format below or next to the figure and should strive to clearly describe the contents of the figure. Maximum length is 40 words.
- Composite figures of multiple images are accepted but should only include a single legend. Each part of the figure needs direct labeling with capital letters (A, B, C, D…) placed in a small inset box above each image. The phrasing "multipart figure" can be used in the caption.
- Legend descriptions can include: type of stain(s) used (in photomicrographs),
- Visual aids such as arrows, circles, or other markers can be used in images.
- Abbreviations should be consistent throughout every aspect of the material.
- Figures should be placed as closed as possible to their first mention in-text. Figures should be cited in consecutive numerical order in the text and can be addressed in the sentence or at the end of a sentence in parentheses.

- Students should not refer to figures in their manuscript by the general position in the paper (ie. “the figure on the next page” or “the figure below”).
- Reproduced images need permission from the original publisher and the original source should be cited in the reference list. Figures should preferably not belong to any other copyright owners.
- Rights should be given for use of patient identifying information in images and photographs. These photos should omit as much patient information as possible to avoid identifiability as long as it doesn’t impede the discussion of the research.

Other Multimedia

Boxes: Are simple text tables that use words over numerical values to summarize key ideas. This is typical in clinical research to outline items such as symptoms of diseases, patient information, and other clinical features. List-type formats make it easy to understand these items. For example:

Typical Features of Celiac Disease
Abdomen/joint pain
Diarrhea
Nausea/vomiting
Bone loss/malnutrition

Sidebars: Contain supplemental information, like related topics or lists of sources for further research. They do not include any identifiers like tables or figures, they are merely placed within the text in a logical area near related materials.

Final Rules for Tables, Figures, and Other Multimedia

- In *JAMA* tables are downloaded images, not HTML links. This allows for the best and most consistent visualization of the data.
- Hyperlinks can be included in tables or in reference citations at the end of the reference list.
- All visual materials should only be included if they are significant to understanding the data. They should be clear, concise, and logical in their placement. Students should strive to only use images they are the owners of or have clear permissions for.

Ethical Considerations

Materials that utilize AMA style are largely clinical research. This kind of scientific research is held to a high standard and students conducting original research will need to hold themselves accountable for the accuracy of data, accuracy of reports, ownership/authorship responsibility,

and other legal/ethical implications of their research. Below are some general AMA rules for ethical researching/publishing.

- Duplicate publication, or the submission of the same article 2 or more times in 1 or more forms of media is unethical if not disclosed at the end of the article(s). Could be considered copyright law depending on licensing.
- Some accepted duplicate reports are: abstract summaries, conference proceedings, news media reports, executive summaries, evidence synopses, government reports, translations, and reports based on the same data sets.
- Authors using the same data sets but addressing different research questions should clearly state/cite any previously related articles to this data set.
- Scientific misconduct could include: fabrication of data, misappropriation of data, falsification of identity, selective publication or modification of data, omission of data, and other areas of research misconduct. There is not a clear guideline to this so students need to be diligent in accurately representing their research.
- Conflicts of interest such as financial ties, academic competition, unseen bias, or other potential entanglements should be carefully addressed/reported in research and scrutinized. Information about conflicts, especially funding support, should appear in the **Conflict of Interest Disclosures** note in the **Acknowledgements** section as described earlier in this guide.

Abbreviations

Academic degrees, agencies, organizations, funding bodies, journals, clinical terms, units of measure, and other areas all utilize abbreviations. Below is a list of common (but not all) abbreviations separated by type. Students should use abbreviations when possible to limit confusion after a first full mention of the name in text.

Academic Degrees

APRN	advanced practice registered nurse
BS	Bachelor of science OR Bachelor of surgery
CNP	certified nurse practitioner
NP	nurse practitioner
RN	registered nurse
RNC	registered nurse certified
DCh/ChD	doctor of surgery
DDS	doctor of dental surgery
DNE	doctor of nursing education
DSW	doctor of social work
EMT	emergency medical technician
LCP	licensed clinical psychologist
LCSW	licensed clinical social worker

LLM	master of laws
LLD	doctor of laws
MD	doctor of medicine
RPT	registered physical therapist
PT	physical therapist
RD	registered dietitian
RPh	registered pharmacist

Military Service Ranks

MC, USA	Medical Corps, US Army
ANC, USA	Army Nurse Corps, US Army
SP, USA	Specialist Corps, US Army
MSC, USA	Medical Service Corps, US Army
DC, USA	Dental Corps, US Army
VC, USA	Veterinary Corps, US Army
USAF, MC	Medical Corps, US Air Force
USAF, NC	Nurse Corps, US Air Force
USAF, MSC	Medical Service Corps, US Air Force
MC, USN	Medical Corps, US Navy
MSC, USN	Medical Service Corps, US Navy
NC, USN	Nurse Corps, US Navy

GEN	General
LTG	Lieutenant General
MG	Major General
COL	Colonel
LTC	Lieutenant Colonel
MAJ	Major
CPT	Captain
ADM	Admiral
CAPT	Captain (US Navy/US Coast Guard)
CDR	Commander
ENS	Ensign
Lt Gen	Lieutenant General (US Air Force/US Marine Corps)
Maj Gen	Major General (US Air Force/US Marine Corps)
Col	Colonel (US Air Force/US Marine Corps)

Months and Days

Monday, Tuesday, Wednesday…	Mon, Tues, Wed…
January, February, March…	Jan, Feb, Mar…

Commercial Firms

Co., Inc. Corp., and Ltd.	Co, Inc, Corp, Ltd (no punctuation in-text)

Journals

Am Heart J	*American Heart Journal*
Am J Med	*American Journal of Medicine*
Ann Inter Med	*Annals of Internal Medicine*
JAMA	*JAMA*
JAMA Cardiol	*JAMA Cardiology*
J *Clin Invest*	*Journal of Clinical Investigation*
J *Immunol*	*Journal of Immunology*
Lancet	*Lancet*
Neurology	*Neurology*
Blood	*Blood*
Surgery	*Surgery*
Radiology	*Radiology*

Clinical Terms

Abnorm	Abnormal
Acad	Academia/Academy
Addict	Addiction(s)
Adv	Advanced, Advances, Advancements
Am	America(n)
Anaesth	Anaesthesia (Anaesthestists)
Anat	Anatomy
Annu	Annual
Antibiot	Antibiotics
Appl	Applied
Artif	Artificial
Assoc	Association
Behav	Behavior(s) (Behavioral)
Biochem	Biochemistry
Biomedical	Biomed
Defic	Deficiency
Deliv	Delivery
Hist	History
Hosp	Hospital
Hyg	Hygiene
Incl	Including
Infect	Infection (infectious)
Intern	Internal
N	New
Nursing	Nurs
Obes	Obesity
Pediatr	Pediatrics
Pharm	Pharmaceutical (Pharmacy)
Phys	Physical (Physics)

Polit	Politics
Prep	Preparative
Prod	Products
Rep	Report(s)
Rev	Review(s)
Technol	Technology
Tech	Technical

ABG	arterial blood gas
AC	alternating current
ACS	acute coronary syndrome
AD	Alzheimer disease
aDNA	ancient DNA
ADHD	attention-deficit/hyperactivity disorder
AF	atrial fibrillation
ANOVA	analysis of variance
AUD	alcohol use disorder
BMI	body mass index
BP	blood pressure
BUN	blood urea nitrogen
CAD	coronary artery heart disease
CAM	complementary and alternative medicine
CBT	cognitive behavioral therapy
CHD	coronary heart disease
CNS	central nervous system
CUA	cost-utility analysis
DOB	date of birth
DOI	digital object identifier
DOT	directly observed therapy
ENT	ear, nose, and throat
FSH	follicle-stimulation hormone
FVC	forced viral capacity
GDS	Geriatric Depression Scale
GED	General Educational Development
GI	gastrointestinal
HBO	hyperbaric oxygen
HF	heart failure
HR	hazard ratio
IBS	irritable bowel syndrome
ICU	intensive care unit
ID	infective dose
Ig	immunoglobulin
IND	investigational new drug
IPA/IPV	intimate partner abuse/intimate partner violence

IV	intravenous
LBP	lower back pain
LBW	low birth weight
LD	lethal dose
MELD	Model for End-Stage Liver Disease
MET	metabolic equivalent task
MPS	Mortality Probability Score
NS	not significant
NPV	negative predictive value
OR	odds ratio
OTC	over the counter
PA(D)	pulmonary artery (disease)
PE	pulmonary embolism
PPE	personal protective equipment
PPI	proton pump inhibitor
PPV	post predictive value
PT	physical therapy
QC, QI, QA	quality control, quality improvement, quality assurance
RCT	randomized clinical trial
SD	standard deviation
SES	socioeconomic status
SPIRIT	Standard Protocol Items: Recommendations for Interventional Trials
SQUIRE	Standards for Quality Improvement Reporting Excellence
SSRI	selective serotonin reuptake inhibitor
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
VF	ventricular fibrillation

Units of Measure

cal	calorie
cg	centigram
dB	decibel
dL	deciliter
g	gram
µg	microgram
µL	microliter
µm	micrometer
M	molar
mol	mole
µM	micromolar
µmol	micromole
pg	picogram
pm	picometer
pM	picomolar
pmol	picomole

u	unit
vol	volume
v	volt
wt	weight
wt/vol, wt/wt	weight per volume, weight per weight
y	year (age)

Great care needs to be taken by students when utilizing abbreviations, special characters, and other markers used in clinical research. Font and character choice need to be consistent throughout all aspects of the material.