

JACC: *Advances* Instructions for Authors

INTRODUCTION

JACC: Advances provides a global forum for clinical research articles and timely reviews focused on advances in cardiovascular medicine. As an open-access journal, its content is freely available, accelerating the translation of strong science into effective practice.

The *Journal* considers a broad range of original research articles, including applied clinical, epidemiological, and health care policy papers related to cardiovascular and cerebrovascular diseases. It strives to appeal to authors across the spectrum of the cardiovascular care team at every career stage.

Specific content areas of interest are as follows: arrhythmia and electrophysiology, cardio-obstetrics, cardiovascular surgery, congenital heart disease, coronary heart disease, critical care cardiology, digital health and health technology, genetics and genomics, geriatric cardiology, global health, health services and outcomes research, heart failure, cardiac imaging, interventional cardiology, molecular cardiology, neurocardiology, pediatric cardiology, preventative cardiology, sports cardiology, valvular heart disease, vascular medicine, and emerging fields in cardiovascular medicine. All manuscripts must be submitted online at <https://www.jaccsubmit-advances.org>.

ARTICLE TYPES

ORIGINAL RESEARCH PAPERS. The Editors will consider original investigation manuscripts that have strong clinical relevance. The manuscripts should be $\leq 5,000$ words (including text, references, and figure legends).

- Authors: No more than two corresponding authors; no more than two joint authors in any position
- Abstract: Structured with the following headings and no more than 250 words: Background, Objectives, Methods, Results and Conclusions. The abstract should present essential data in 5 paragraphs. Use complete sentences. All data in the abstract also must appear in the manuscript texts or tables.
- Results: Please report all *P*-values to three digits after the decimal point.
- Study limitations (required): Please include the limitations of your investigation at the end of the discussion section of your manuscript.
- Figure/Table Limit: None
- Central Illustration: Required (See Manuscript content section for more information about Central Illustrations)
- Clinical Perspectives: Required (See Manuscript content section for more information about Clinical Perspectives)
- Ethical Approval (required): Please denote that your study received proper ethical oversight in both your cover letter and Methods section. For manuscripts reporting data on human subjects, note institutional review board/ethics committee approval (or formal review and exemption), including the specific name of the board or committee. For studies involving animal experiments, note that the study complied with all institutional and national requirements for the care and use of laboratory animals and, if applicable, received approval from an animal care and use committee approval. State the animal-handling protocol in your Methods.

STATE-OF-THE-ART REVIEWS. As with all submissions to *JACC: Advances*, State-of-the-Art Reviews should focus on the patient. From basic mechanisms to clinical manifestations and interventional approaches to global health implications, such manuscripts will focus on a contemporary, controversial, or translational topic with 4 to 5 major sections written by multiple authors or author groups.

Papers should be $\leq 5,000$ words (including text, references, and figure legends).

- Authors: No more than two corresponding authors; no more than two joint authors in any position
- Abstract: Unstructured and no more than 150 words
- Figure Limit: None
- Table Limit: None
- Central Illustration: Required
- Highlights: Required (See Manuscript content section for more information about Highlights)
- Clinical Perspectives: Not applicable

NOTE: *JACC: Advances* State-of-the-Art Review submissions must be invited by the Editor-in-Chief or proposed to and approved by the Editor-in-Chief prior to submission. Please submit proposals to jaccadvances@acc.org using the following template: <https://www.jaccsubmit-advances.org/html/JADVProposalTemplate.docx>.

RESEARCH LETTERS. You may submit original reports of preliminary data and findings or studies with small numbers demonstrating the need for further investigation as Research Letters, which are published as such in the Letters to the Editor section. Research Letters should be $\leq 1,000$ words (including text, references, and figure legend).

- Abstract: Not applicable
- Authors: No more than 10; no joint authorship permitted
- References: No more than 5
- Figures/Tables: No more than 1 simple figure (in no more than 2 parts) or 1 simple table
- Central Illustration: Not applicable
- Clinical Perspectives: Not applicable
- Supplemental Material: Not permitted
- Ethical Approval (required): Please denote that your study received the proper ethical oversight in both your cover letter and the body of the article. For manuscripts reporting data on human subjects, note approval from institutional review board/ethics committee (or formal review and exemption), including the specific name of the board or committee. For studies involving animal experiments, note that the study complied with all institutional and national requirements for the care and use of laboratory animals and, if applicable, received animal care and use committee approval. State the animal-handling protocol in the body of your article.

VIEWPOINTS. Succinct opinion pieces relevant to the focus of *JACC: Advances* will be considered. They should not exceed 2,000 words and should have an important and direct clinical implication. It is recommended that a query first be sent to jaccadvances@acc.org before submitting this type of manuscript. Click here for a template to use in formatting your submission: <https://www.jaccsubmit-advances.org/html/VPTemplate.docx>.

- Word count: No more than 2,000 words (text from the introduction to the conclusion, including references and figure legends). Please refrain from using subheadings within the text.
- Abstract: Not applicable
- Authors: No more than 10; no joint authorship permitted
- References: No more than 10
- Figures/Tables: No more than 1 simple figure (in no more than 2 parts) or 1 simple table
- Central Illustration: Not applicable
- Clinical Perspectives: Not applicable
- Supplemental Material: Not permitted

LETTERS TO THE EDITOR AND REPLIES. We welcome readers to submit formal comments on the content of articles published in *JACC: Advances*. Such comments should provide constructive scientific remarks. Readers may submit these comments as a Letter to the Editor within 3 months of the

article's online publication date. Letters should be ≤ 400 words (including text and references). Replies will be solicited by the Editors and study authors will have 10 days to respond. The author's reply should be ≤ 400 words (including text and references), unless the author is responding to multiple letters in which case the reply should be ≤ 800 words (including text and references). Titles must be ≤ 15 words (not including the labels "To the Editor" and "Reply"). Replies to multiple letters need a title that is generic and encompasses all of the letters to which they are responding. Both letters and replies are limited to 5 authors, 5 references, and 1 table OR 1 figure in 1 or 2 panels. Please include the cited article as the first reference.

EDITORIAL COMMENTS. All Editorial Comments published in *JACC: Advances* are invited by the Editors. If you are invited to write an editorial, specific requirements will be sent to you. Papers should be $\leq 1,500$ words (including text, references, and figure legends) and must include the cited article as a reference. In some cases, a table or figure may be helpful and appropriate. Do not submit unsolicited editorials.

JACC: ADVANCES EXPERT PANEL. *JACC: Advances* Expert Panel submissions must be invited by the Editor-in-Chief or proposed to and approved by the Editor-in-Chief prior to submission. Expert Panel submissions are written by a group of key opinion leaders from multiple institutions and aim to provide insight and guidance for a particular clinical situation wherein the Clinical Practice Guidelines are not substantial.

Authors should be limited to those who have contributed substantially to the field. No more than 5,000 words, including the references and figure legends. Follow the requirements listed for *JACC: Advances* State-of-the-Art Review (although they are not categorized as a *JACC: Advances* State-of-the-Art Review when published). Please include "JACC: Advances Expert Panel" at the end of the manuscript title. Click here for a template to use in formatting your submission: <https://www.jaccsubmit-advances.org/html/EPTemplate.docx>. **NOTE: JACC: Advances Expert Panel submissions must be invited by the Editor-in-Chief or proposed to and approved by the Editor-in-Chief prior to submission. Please submit proposals to jaccadvances@acc.org using the following template: <https://www.jaccsubmit-advances.org/html/JADVProposalTemplate.docx>.**

MANUSCRIPT ORGANIZATION

1. Cover Letter (not required for Editorial Comments)
2. Rebuttal Letter revision, appeal, or de novo submission only
3. Manuscript File
 - a) Title Page with title (≤ 15 words), author names, author affiliations, author/funding disclosures, running title (≤ 7 words), corresponding author contact information (including mailing address, phone, fax, and email address), and word count (beginning with text and ending with the last figure legend; not including tables)
 - b) Abstract (Structured Abstract of ≤ 250 words for Original Research Papers, Unstructured Abstract of ≤ 150 words); Clinical Trial Registration (if applicable); Key Words, 3-6; Abbreviations List, ≤ 10 Abbreviations
 - c) Text
 - d) Clinical Perspectives (core clinical competencies and translational outlook implications on a separate page after the conclusions, and only for Original Research Papers)
 - e) Acknowledgments (if appropriate)
 - f) References
 - g) Figure Titles and Legends
 - h) Tables (each on a separate page)
4. Figures/Central Illustration
5. Supplemental Material (uploaded as one single Microsoft Word document containing all supplemental figures and tables)

FORMATTING

Please use Times New Roman 12-point font with 1-inch margins. The Title Page, Abstract(s), Key Words, and Abbreviations should be single-spaced. The remaining text should be double-spaced. Page numbering should begin with the Title Page.

REPORTING SEX- AND GENDER-BASED ANALYSES

REPORTING GUIDANCE. For research involving or pertaining to humans, animals or eukaryotic cells, investigators should integrate sex and gender-based analyses (SGBA) into their research design according to funder/sponsor requirements and best practices within a field. Authors should address the sex and/or gender dimensions of their research in their article. In cases where they cannot, they should discuss this as a limitation to their research's generalizability. Importantly, authors should explicitly state what definitions of sex and/or gender they are applying to enhance the precision, rigor and reproducibility of their research and to avoid ambiguity or conflation of terms and the constructs to which they refer (see Definitions section below). Authors can refer to the [Sex and Gender Equity in Research \(SAGER\) guidelines](#) and the [SAGER guidelines checklist](#). These offer systematic approaches to the use and editorial review of sex and gender information in study design, data analysis, outcome reporting and research interpretation—however, please note there is no single, universally agreed-upon set of guidelines for defining sex and gender.

DEFINITIONS. Sex generally refers to a set of biological attributes that are associated with physical and physiological features (e.g., chromosomal genotype, hormonal levels, internal and external anatomy). A binary sex categorization (male/female) is usually designated at birth ("sex assigned at birth"), most often based solely on the visible external anatomy of a newborn. Gender generally refers to socially constructed roles, behaviors, and identities of women, men, and gender-diverse people that occur in a historical and cultural context and may vary across societies and over time. Gender influences how people view themselves and each other, how they behave and interact and how power is distributed in society. Sex and gender are often incorrectly portrayed as binary (female/male or woman/man) and unchanging whereas these constructs actually exist along a spectrum and include additional sex categorizations and gender identities such as people who are intersex/have differences of sex development (DSD) or identify as non-binary. Moreover, the terms "sex" and "gender" can be ambiguous—thus it is important for authors to define the manner in which they are used. In addition to this definition guidance and the SAGER guidelines, the [resources on this page](#) offer further insight around sex and gender in research studies.

MANUSCRIPT CONTENT

COVER LETTER. A short paragraph telling the editors why the authors think their paper merits publication may be included in the cover letter. Potential reviewers may be suggested in the cover letter, as well as reviewers to avoid. However, final reviewer assignment is determined by the editors.

The corresponding author should be specified in the cover letter and on the title page. All editorial communications and submission queries will be sent to this author. Cover letters must include the following 4 ICJME Statements:

- 1) The paper is not under consideration elsewhere;
- 2) None of the paper's contents have been previously published;
- 3) All authors have read and approved the manuscript;

4) The full disclosure of any potential conflict of interest (see “Relationship with Industry Policy”) or that no such relationship exists. Exceptions must be explained. If there is no conflict of interest, this should also be stated in the cover letter.

Ethical Approval (required): Please denote that your study received the proper ethical oversight in both your cover letter and the body of the article. For manuscripts reporting data on human subjects, note institutional review board/ethics committee approval (or formal review and exemption), including the specific name of the board or committee. For studies involving animal experiments, note that the study complied with all institutional and national requirements for the care and use of laboratory animals and, if applicable, received approval from animal care and use committee. State the animal-handling protocol in the body of your research correspondence or the Methods section of your manuscript.

TITLE PAGE. Include the full title (no more than 15 words), authors’ names (full given name, middle initial, and surname), degree, total word count, and a running title of ≤ 7 words. List the departments and institutions with which the authors are affiliated, and indicate the specific affiliations if the work is generated from more than one institution (use superscript letters ^a, ^b, ^c, ^d, and so on). Provide information on clinical trials, grants, contracts, and other forms of financial support, and list the cities and states of all foundations, funds and institutions involved in the work. This must include the full disclosure of any relationship with industry (see “Relationship with Industry Policy”). If there are no relationships with industry, this should be stated. Corresponding author contact information: Under the heading, “Address for correspondence,” provide the full name and complete postal address of the author to whom communications should be sent. Also provide telephone and fax numbers, an email address, and a Twitter handle, if available. Please also provide a short tweet summarizing your paper to your title page. The tweet should be approximately 280 characters, including spaces. Please include up to three hashtags with your tweet (Example: #ACCIntl, #ACCFIT, #WomenInCardiology, #CVD, #Heart-Failure). You may also review our [hashtag guide](#). Please note that the editors will review your content, and it may not ultimately be published on the @JACCJournals Twitter account. The corresponding author will be the sole contact for all submission queries.

Word Count: Word count should include text, references, and figure legends.

ABSTRACT. Provide a structured abstract of no more than 250 words for Original Research Papers, presenting essential data in 5 paragraphs introduced by separate headings in the following order: Background, Objectives, Methods, Results, Conclusions. All data in the abstract also must appear in the manuscript text or tables. For general information on preparing structured abstracts, see “Haynes RB, Mulrow CD, Huth EJ, Altman DG, Gardner MJ. More informative abstracts revisited. *Ann Intern Med.* 1990;113:69-76.”

An unstructured 150-word abstract should be provided for State-of-the-Art Reviews and Expert Panel submissions.

KEY WORDS. Immediately after the abstract, provide a maximum of 6 key words, using American spelling and avoiding general and plural terms and multiple concepts (avoid, for example, ‘and’, ‘of’). These key words will be used for indexing purposes, and therefore should be different than the terms/words already used in the title of the paper.

ABBREVIATIONS. The abbreviations of common terms (e.g., ECG, PTCA, CABG) or acronyms (GUSTO, SOLVD, TIMI) may be used in the manuscript. On a separate page following the Abstract, list the selected abbreviations and their definitions (e.g., TEE = transesophageal echocardiography). The Editors may determine which lesser-known terms should not be abbreviated.

Please consult “Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals (ICMJE Recommendations),” available from www.icmje.org for appropriate use of units of measure.

TEXT. All text should be double-spaced. Page numbering should start with the Title Page. The text for Original Research Papers should be structured as Introduction, Methods, Results, Discussion, and Conclusions. Use headings and subheadings in the Methods, Results, and particularly, Discussion sections. Every reference, figure, and table should be cited in the text in numerical order according to order of mention. All supplemental figures, tables, and appendices should also be cited in the text.

CLINICAL PERSPECTIVES. These are for Original Research Papers only.

The authors should delineate clinical implications and translational outlook recommendations for their manuscripts. These should be listed in the manuscript after the Text and before the Acknowledgments and References. The competencies describe the implications of the study for current practice. The translational outlook identifies the potential barriers to clinical translation, emphasizing directions for additional research.

Clinical Competencies. Competency-based learning in cardiovascular medicine addresses the 6 domains promulgated by the Accreditation Council on Graduate Medical Education (ACGME) and endorsed by the American Board of Internal Medicine (Medical Knowledge, Patient Care and Procedural Skills, Interpersonal and Communication Skills, Systems-Based Practice, Practice-Based Learning, and Professionalism) (www.acgme.org). The ACCF has adopted this format for its competency and training statements, career milestones, lifelong learning, and educational programs. The ACCF also has developed tools to assist physicians in assessing, enhancing, and documenting these competencies <http://www.acc.org/education-and-meetings/products-and-resources/competencies>.

Authors are asked to consider the clinical implications of their report and identify applications in one or more of these competency domains that could be used by clinician readers to enhance their competency as professional caregivers. This applies not only to physicians in training, but to the sustained commitment to education and continuous improvement across the span of their professional careers.

Translational Outlook. Translating biomedical research from the laboratory bench, clinical trials or global observations to the care of individual patients can expedite discovery of new diagnostic tools and treatments through multidisciplinary collaboration. Effective translational medicine facilitates implementation of evolving strategies for prevention and treatment of disease in the community. The Institute of Medicine identified two areas in need of improvement: testing basic research findings in properly designed clinical trials and, once the safety and efficacy of an intervention has been confirmed, more efficiently promulgating its adoption into standard practice (Sung NS, Crowley WF, Genel M. The meaning of translational research and why it matters. *JAMA.* 2008;299:3140-3148).

The National Institutes of Health (NIH) has recognized the importance of translational biomedical research, emphasizing multifunctional collaborations between researchers and clinicians to leverage new technology and accelerate the delivery of new therapies to patients (<https://ncats.nih.gov/translation>).

Authors are asked to position their work in the context of the scientific continuum, by identifying impediments and challenges requiring further investigation and anticipating next steps and directions for future research.

HIGHLIGHTS. These are for State-of-the-Art Reviews and Expert Panel submissions only.

Please provide a list of 3-4 brief (of no more than 15 words each) bullet points that highlight the main messages of the review. The first bullet should provide the translational/clinical context or background that establishes the relevance or need for this review. The second bullet should speak to the main message and focus of the review, including any recommendations made by the authors. The final bullet should summarize where the field needs to move forward from this point. Example:

- Cardiovascular aging leads to a progressive decline in function and structure.
- Calorie reduction and adjusted diurnal rhythm of feeding may help to prevent cardiovascular disease.
- Lowered intake of protein and nutritional modulation of the gut microbiome can be cardioprotective.
- Regular exercise, stress-reduction programs, and calorie-restriction mimetic medications can impact a healthy diet.

ACKNOWLEDGMENTS. Acknowledgments must be ≤100 words.

REFERENCES

- Identify references in the text with superscript numerals. Do not use EndNote.
- The reference list should be double-spaced on pages separate from the text; journal titles should be italicized. References must be numbered consecutively in the order in which they are mentioned in the text. List all authors if 6 or fewer, otherwise list the first 3 and add “et al.” Do not use periods after author initials.
- Do not cite personal communications, manuscripts in preparation, or other unpublished data in the references; these may be cited in the text in parentheses by name rather than by number. Do not cite abstracts that are older than 2 years. Identify abstracts by the abbreviation “abstr” in parentheses. If letters to the editor are cited, identify them with the word “letter” in parentheses. Websites must be cited as references (i.e., any URLs cited in the text or tables must be included as references rather than in the text or table).
- Use Index Medicus (National Library of Medicine) abbreviations for journal titles. It is important to note that when citing an article from the *JACC: Advances*, the correct citation format is *JACC Adv*.
- Use the following style and punctuation for references:
 - Periodical. Do not use periods after the authors’ initials. Please provide all page numbers: Example: “5. Glantz SA. It is all in the numbers. *J Am Coll Cardiol*. 1993;21:835-837.”
 - DOI-based citation for an article in press.
 - If the ahead-of-print date is known, please provide. EXAMPLE: “16. Winchester D, Wen X, Xie L, et al. Evidence for preprocedural statin therapy: meta-analysis of randomized trials. *J Am Coll Cardiol*. 2010. <https://doi.org/10.1016/j.jacc.2010.09.028>.”
 - If the ahead-of-print date is unknown, please omit. EXAMPLE: “16. Winchester D, Wen X, Xie L, et al. Evidence for pre-procedural statin therapy: meta-analysis of randomized trials. *J Am Coll Cardiol*. <https://doi.org/10.1016/j.jacc.2010.09.028>.”
 - Chapter in book. Provide author(s), chapter title, editor(s), book title, publisher location, publisher name, year, and inclusive page numbers. EXAMPLE: “27. Meidell RS, Gerard RD, Sambrook JF. Molecular biology of thrombolytic agents. In: Roberts R, editor. *Molecular Basis of Cardiology*. Cambridge, MA: Blackwell Scientific Publications, 1993:295-324.”
 - Book (personal author or authors.) Provide a specific (not inclusive) page number. EXAMPLE: “23. Cohn PF. *Silent Myocardial Ischemia and Infarction*. 3rd edition. New York, NY: Marcel Dekker, 1993:33.”
 - Online media. Provide specific URL address and date information was accessed. EXAMPLE: “10. Henkel J. Testicular Cancer: Survival High

With Early Treatment. FDA Consumer magazine [serial online]. January-February 1996. Accessed August 31, 1998. http://www.fda.gov/fdac/features/196_test.html.”

- Material presented at a meeting but not published. Provide authors, presentation title, full meeting title, meeting dates, and meeting location. EXAMPLE: “20. Eisenberg J. Market forces and physician workforce reform: why they may not work. Paper presented at: Annual Meeting of the Association of Medical Colleges; October 28, 1995; Washington, DC.”

AMA Manual of Style. The *JACC Journals* follow the *AMA Manual of Style* with minor modifications. This guide provides guidance on usage, including but not limited to sociodemographic descriptors and nomenclature. For more detailed information on what’s new in the 11th edition, see the slide set here: <https://academic.oup.com/amamanualofstyle>.

FIGURES

- All figures must have a number, title, and caption.
- TIF figures are preferred.
- Typeset figures should be no smaller than 7 inches wide.
- Lettering should be of sufficient size to be legible after reduction for publication; the optimal size is 12 points but should be no less than 10 points. Symbols should be of a similar size.
- Color and gray scale images must be at least 300 DPI. Line art should be at least 1200 DPI.
- All abbreviations used in the figure should be identified in an alphabetical order at the end of each legend.
- All symbols used (arrows, circles, etc.) must be explained.
- Figure numbers must correspond with the order in which they are mentioned in the text.
- If previously published figures are used, written permission from the original publisher (or copyright holder, if not the publisher) is required. See STM Guidelines for details: <https://www.stm-assoc.org/intellectual-property/permissions/permissions-guidelines/>.
- If the figure has been previously published, cite the figure source in the legend.
- Do not include trial logos in figures.
 - Decimals, lines, and other details must be strong enough for reproduction. Use only black and white—not gray—in charts and graphs. Place crop marks on photomicrographs to show only the essential field. Designate special features with arrows. All symbols, arrows, and lettering on half-tone illustrations must contrast with the background. There is no fee for the publication of color figures. Our editors encourage authors to submit figures in color, as we feel it improves the clarity and visual impact of the images.

FIGURE LEGENDS. Figure legends should be an in-depth explanation of each figure, including a figure TITLE and a CAPTION that includes the purpose of the figure, and brief method, results, and discussion statements pertaining to the figure. All abbreviations used in the figure should be identified either after their first mention in the legend or in alphabetical order at the end of each legend. All symbols used (arrows, circles, etc.) must be explained. **Target length should be 50-100 words per figure, with the title no more than 10 words. Legends should not exceed 150 words.**

- All figures must have a number, title, and caption.
- Figure legends should be double-spaced on pages separate from the text.
- Figures should be cited in numerical order in the text with each figure called out individually, rather than using a range (for instance, Figures 1, 2, and 3, rather than Figures 1-3). Supplemental figures should be cited as “Supplemental Figure 1, Supplemental Figure 2,” etc.
- Figure titles should be short and followed by a 2- to 3-sentence caption.
- Your Central Illustration should be listed last.

- If the figure has been previously published, cite the figure source in the legend.

CENTRAL ILLUSTRATION. All Original Research Papers and State-of-the-Art Reviews must develop at least 1 Central Illustration (that may be a hand-drawn figure), which summarizes the entire manuscript or at least a major section of the manuscript. Our in-house medical illustrators will create the final printable versions of these figures in consultation with the authors and the editors. The purpose of these illustrations is to provide a snapshot of your paper in a single visual, conceptual manner. Trial logos should not appear in Central Illustrations. The illustration should be labeled as “Central Illustration,” rather than as a numbered figure, and it must not duplicate content from other figures in the manuscript. This illustration must be called out in the body of the article. It must be accompanied by a legend (title and caption). The Central Illustration legend should be listed last in your list of figure legends. The Central Illustration must be an original image and, for copyright reasons, cannot be adapted or reprinted from another source. For best practices on creating Central Illustrations, please see *The Art and Challenge of Crafting a Central Illustration or Visual Abstract* at <https://www.jacc.org/doi/full/10.1016/j.jacc.2019.10.035>.

TABLES. Each table should be on a separate page, with the table number and title centered above the table and explanatory notes below the table. Use Arabic numbers. Table numbers must correspond with the order cited in the text. Tables should be self-explanatory, and the data presented in them should not be duplicated in the text or figures.

- All tables must have a title of up to 15 words.
- Each table may include a caption of up to 100 words. Abbreviations, which do not count toward the caption word limit, should be listed in a footnote under the table in alphabetical order.
- Footnote symbols should use lowercase, superscript letters, in alphabetical order: ^a, ^b, ^c, etc.
- If previously published tables are used, written permission from the original publisher (or copyright holder, if not the publisher) is required.
- Cite the source of the table in the footnote.

SUPPLEMENTAL MATERIAL. Authors may submit supplemental material to accompany their article. The supplemental material should be essential to the understanding and interpretation of the primary manuscript and should contain original content that has not been previously published. The supplemental material will be posted online at the same time of publication of the article.

Please upload all supplemental materials, with the exception of videos and large data sets (see below), as one separately uploaded Word document that is labeled “Supplemental Appendix.” This should include all supplemental text, tables and figures, figure legends, etc. If there are investigator names in the supplemental material that need to be captured as collaborators for PubMed, please indicate this in your Cover Letter. Investigator names in a supplemental appendix will be included as collaborators by request and at the editor’s discretion. The pages of the Supplemental Appendix should be numbered consecutively. The first page of the Supplemental Appendix should list the title and page number of each element included in the document.

The Supplemental Appendix document may include the following elements:

- Supplemental methods
- Supplemental results
- Supplemental tables (e.g., Supplemental Table 1, Supplemental Table 2)
- Supplemental figures with accompanying figure legends (e.g., Supplemental Figure 1, Supplemental Figure 2)

- All references that are cited within supplemental material should be placed in a separate reference section that is at the end of the supplemental material. The references should be formatted just as in the main manuscript and numbered and cited consecutively in the Supplemental Appendix.

All supplemental material will undergo editorial and peer review at the same time as the main manuscript is being evaluated. **Once the manuscript is accepted for final publication, the content of the supplemental material cannot be changed.**

Large Data Sets. Large data sets for gene expression microarrays, SNP arrays, proteomics data, and high-throughput sequencing studies should be deposited in a public data repository (1,2). Microarray data must be deposited in a public database that is compliant with Minimum Information About a Microarray Experiment (MIAME) guidelines (e.g., GEO). High-throughput sequencing data must be deposited in a public database that is compliant with Minimum Information About a Next-generation Sequencing Experiment (MINSEQE) guidelines. For proteomics data, the ProteomeXchange Consortium (<http://www.proteomexchange.org/>) provides data submission and dissemination pipelines involving the main proteomics repositories, including PRIDE, PeptideAtlas, MAssIVE, iProx, and Panorma Public. Please provide the relevant accession numbers in the text of the main manuscript.

1. Wheeler DL, Barrett T, Benson DA, et al. Database resources of the National Center for Biotechnology Information. *Nucleic Acids Res.* 2007;35:D5-12.
2. Edgar R, Barrett T. NCBI GEO standards and services for microarray data. *Nat Biotechnol.* 2006;24:1471-2.

VIDEO REQUIREMENTS. Inclusion of videos in the published paper is at the discretion of the Editors.

- Video submissions for viewing online view should be submitted as MP4 files only. The Journal office will not accept any other file formats.
- Videos should be brief (≤2–4 minutes). Longer videos will require longer download times and may have difficulty streaming online. Videos should be restricted to the most critical aspects of your research. A longer procedure can be restructured as several shorter videos and submitted in that form.
- It is advisable to compress files to use as little bandwidth as possible and to avoid overly long download times. Video files should be less 15 MB. This is a suggested maximum. If files are larger, please contact the *JACC: Advances* office (jaccadvances@acc.org).
- A video legends page giving a brief description of the content of each video should be included in the manuscript. Please note that ALL videos must be linked to figures or panels of a figure(s).
- If your paper is accepted for publication, you may wish to supply the editorial office with your video files in several different resolutions. This will allow viewers with slower connections to download a lower resolution version of your video.

EDITORIAL POLICIES

All manuscripts must be submitted online at <https://www.jaccsubmitadvances.org>. By submitting an article to the journal, all authors of the submission agree to receive emails from all the American College of Cardiology’s *JACC Journals* regarding the manuscript, including editorial queries while the manuscript is under review and emails from the publisher should the paper be accepted for publication. The contact information provided by the corresponding author will be included in the galley proofs, the published PDF version of the manuscript, and the online version of the manuscript.

SUBMISSION DECLARATION AND VERIFICATION. Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see ‘Multiple, redundant or concurrent publication’ for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify originality, your article may be checked by the originality detection service [Crossref Similarity Check](#).

ETHICS. Manuscript submissions should conform to the guidelines set forth in the “Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals (ICMJE Recommendations),” available online at www.icmje.org/recommendations and most recently updated in December 2021.

Studies should be in compliance with human studies committees and animal welfare regulations of the authors’ institutions and the U.S. Food and Drug Administration guidelines. Human studies must be performed with the subjects’ written informed consent. Authors must provide the details of this procedure and indicate that the institutional committee on human research has approved the study protocol. If radiation is used in a research procedure, the radiation exposure must be specified in the Methods.

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