DESCRIPTION

The Canadian Journal of Cardiology (CJC) is the official journal of the Canadian Cardiovascular Society (CCS). The CJC is a vehicle for the international dissemination of new knowledge in cardiology and cardiovascular science, particularly serving as the major venue for Canadian cardiovascular medicine.

The CJC publishes original reports of clinical and basic research relevant to cardiovascular medicine, as well as editorials, review articles, and case reports. Papers on health outcomes, policy research, ethics, medical history, and political issues affecting practice, as well as letters to the editor, are welcomed. The CJC accepts and publishes articles in the English language only. Manuscripts are received with the understanding that they are submitted solely to the Canadian Journal of Cardiology and that none of the material contained in the manuscript has been published previously or is under consideration for publication elsewhere, with the exception of abstracts. Redundant or duplicate publications will not be considered. All statements and opinions are the responsibility of the authors. The CCS reserves copyright on all published material, and reproduction of the material, even by the authors, requires written permission. With submission of a manuscript, a letter of transmittal must indicate that all authors have participated in the research and that they have reviewed and agree with the content of the article. You are also welcome to submit to the CJC’s open access companion title, CJC Open.

IMPACT FACTOR

2019: 5.234 © Clarivate Analytics Journal Citation Reports 2020

ABSTRACTING AND INDEXING

PubMed/Medline
CINAHL
PubMed/Medline
Science Citation Index
Research Alert
Current Contents - Clinical Medicine
Web of Science
EDITORIAL BOARD

Editor-in-Chief

Stanley Nattel, University of Montreal, Montreal Heart Institute, Montreal, Quebec, Canada

Associate Editors

Jonathan Afilalo, Montreal, Quebec, Canada
Robert Beanlands, Ottawa, Ontario, Canada
Ross Feldman, Winnipeg, Manitoba, Canada
John Floras, Ontario, Ontario, Canada
Stephen E. Fremes, Toronto, Toronto, Canada
Michelle Graham, Edmonton, Alberta, Canada
Kevin Harris, Vancouver, British Columbia, Canada
Robert Hegele, London, Ontario, Canada
Marc Jolicoeur, Montreal, Quebec, Canada
Merril Knudtson, Calgary, Alberta, Canada
Gavin Oudit, Edmonton, Alberta, Canada
Allan Skanes, London, Ontario, Canada
Eric Thorin, Montreal, Quebec, Canada
David Waters, San Francisco, California, United States

Editor Emeritus

Eldon Smith, Calgary, Alberta, Canada

Editorial Board

Martin Aguilar, Montreal, Quebec, Canada
Katherine Allan, Toronto, Ontario, Canada
Gregor Andelfinger, Montreal, Quebec, Canada
Robert H. Anderson, Newcastle Upon Tyne, United Kingdom
Todd Anderson, Edmonton, Alberta, Canada
Rakesh Arora, Winnipeg, Manitoba, Canada
Anita Asgar, Montreal, Quebec, Canada
Rabih Azar, Beirut, Lebanon
Lorenzo Azzalini, Milano, Italy
Matthew Bates, Middlesbrough, United Kingdom
David Bewick, Halifax, Nova Scotia, Canada
Michael Bourke, North Bay, Ontario, Canada
Emmanouil S. Brilakis, Minneapolis, Minnesota, United States
James Brophy, Montreal, Quebec, Canada
Liam Brunham, Vancouver, British Columbia, Canada
Daniel Burns, Cleveland, Ohio, United States
Ian Burwash, Ottawa, Ontario, Canada
Warwick Butt, Parkville, Australia
Kwan Chan, Ottawa, Ontario, Canada
Vincent Chan, Ottawa, Ontario, Canada
Aun Yeong Chong, Ottawa, Ontario, Canada
Benjamin Chow, Ottawa, Ontario, Canada
Sebastian Clauss, Munich, Germany
Thais Coutinho, Ottawa, Ontario, Canada
Jafna Cox, Halifax, Nova Scotia, Canada
Bibiana Cujec, Edmonton, Alberta, Canada
Nagib Dahdah, Montréal, Quebec, Canada
Darryl Davis, Ottawa, Ontario, Canada
Victoria Delgado, Leiden, Netherlands
Yvan Devaux, Strassen, Luxembourg
Marc Deyell, Vancouver, British Columbia, Canada
Paul Dorian, Toronto, Ontario, Canada
Jean-François Dorval, Montreal, Quebec, Canada
Hank Duff, Calgary, Alberta, Canada
Jocelyn Dupuis, Montreal, Quebec, Canada
Jason Dyck, Edmonton, Alberta, Canada
Vladimir Dzavik, Toronto, Ontario, Canada
Joachim Ehrlich, Frankfurt am Main, Germany
Ismail El-Hamamsy, Montreal, Quebec, Canada
Justin Ezekowitz, Edmonton, Alberta, Canada
Paul W.M Fedak, Calgary, Alberta, Canada
Nowell Fine, Calgary, Alberta, Canada
David Fitchett, Toronto, Ontario, Canada
Jacques Genest, Montreal, Quebec, Canada
Kenneth Gin, Vancouver, British Columbia, Canada
Chris Glover, Ottawa, Ontario, Canada
Michael Goldfarb, Montreal, Quebec, Canada
Michael Golib, Ottawa, Ontario, Canada
Martin Green, Ottawa, Ontario, Canada
Steven Greenway, Calgary, Alberta, Canada
Eduard Guasch, Barcelona, Spain
Lorne Guia, London, Ontario, Canada
Milan Gupta, Hamilton, Ontario, Canada
Daniel Hackam, London, Ontario, Canada
Robert Hamilton, Toronto, Ontario, Canada
Camille Hancock-Friesen, Dallas, Texas, United States
Jeffrey S. Healey, Hamilton, Ontario, Canada
Paul Hendry, Ottawa, Ontario, Canada
Imo Hoefer, Utrecht, Netherlands
Junko Honye, Yokohama-shi, Japan
Andrew Howarth, Calgary, Alberta, Canada
Jonathan Howlett, Calgary, Alberta, Canada
Karín Humphries, Vancouver, British Columbia, Canada
Frederic Jacques, Quebec, Quebec, Canada
Davinder Jassal, Winnipeg, Manitoba, Canada
Christopher Johnson, Ottawa, Ontario, Canada
Michal Kantoch, Edmonton, Alberta, Canada
Zamaneh Kassiri, Edmonton, Alberta, Canada
Katherine Kavanagh, Calgary, Alberta, Canada
Peter Kavsak, Hamilton, Ontario, Canada
Andrew D. Krahn, London, Ontario, Canada
Shahar Lavi, London, Ontario, Canada
Carl (Chip) J. Lavie, New Orleans, Louisiana, United States
Harold L. Lazar, Boston, Massachusetts, United States
Jonathan Leipsic, Vancouver, British Columbia, Canada
Howard Leong-Poi, Toronto, Ontario, Canada
Ren-Ke Li, Ontario, Ontario, Canada
Dominik Linz, Adelaide, Australia
Gregory Y.H. Lip, Liverpool, United Kingdom
Gary Lopaschuk, Edmonton, Alberta, Canada
Laurent Macle, Montreal, Quebec, Canada
Micha Maeder, St Gallen, Switzerland
G.B. John Mancini, Vancouver, British Columbia, Canada
Jaimie Manlucu, London, Ontario, Canada
Dante Manyari, Surrey, British Columbia, Canada
Guillaume Marquis-Gravel, Montreal, Quebec, Canada
Alexis Matteau, Montreal, Quebec, Canada
Robert McKelvie, Hamilton, Ontario, Canada
Michael Sean McMurtry, Edmonton, Alberta, Canada
David Meerkin, Jerusalem, Israel
Luc L. Mertens, Toronto, Ontario, Canada
Lauriane Michel, Louvain-la-Neuve, Belgium
Gordon Moe, Toronto, Ontario, Canada
François-Pierre Mongeon, Montreal, Quebec, Canada
Dave Nagpal, London, Ontario, Canada
Arnold Ng, Brisbane, Australia
Jens Cosedis Nielsen, Aarhus, Denmark
Stéphane Noble, Geneva, Switzerland
Manoj Obeyesekere, Richmond, Australia
Erwin Oechslin, Toronto, Ontario, Canada
Morton Olesen, Copenhagen, Denmark
Raj Padwal, Edmonton, Alberta, Canada
Guillaume Paré, Hamilton, Ontario, Canada
David Ian Paterson, Edmonton, Alberta, Canada
Tianqing Peng, London, Ontario, Canada
François Philippin, Quebec, Quebec, Canada
Philippe Pibarot
Geoffrey Pickering, London, Ontario, Canada
Louise Pilote, Montreal, Quebec, Canada
Paul Poirier, Quebec, Quebec, Canada
P Timothy Pollak, Halifax, Nova Scotia, Canada
Brian Potter, Montreal, Quebec, Canada
Normand Racine, Montreal, Quebec, Canada
Dominic Raco, Brampton, Ontario, Canada
Vivek Rao, Toronto, Ontario, Canada
Alain Rivard, Montreal, Quebec, Canada
Jacques Rizkallah, Calgary, Alberta, Canada
Jason Roberts, London, Ontario, Canada
Jean Rouleau, Montreal, Quebec, Canada
John Ryan, Salt Lake City, Utah, United States
Prash Sanders, Adelaide, South Australia, Australia
Michael A. Seidman, Toronto, Ontario, Canada
Frank W. Sellke, Providence, Rhode Island, United States
Miriam Shanks, Edmonton, Alberta, Canada
Robert Sheldon, Calgary, Alberta, Canada
Manish Sood, Ottawa, Ontario, Canada
David Spence, London, Ontario, Canada
Duncan Stewart, Ottawa, Ontario, Canada
James Stone, Calgary, Alberta, Canada
Bradley Strauss, Toronto, Ontario, Canada
Oliver Strohm, Calgary, Alberta, Canada
Koon Teo, Hamilton, Ontario, Canada
Sheldon Tobe, Ontario, Ontario, Canada
Rhian Touyz, Glasgow, Scotland, United Kingdom
Sean Van Diepen, Edmonton, Alberta, Canada
Josef Veselka, Praha, Czech Republic
David R. van Wagoner, Cleveland, Ohio, United States
Robert Welsh, Edmonton, Alberta, Canada
Harindra Wijeysundera, Toronto, Ontario, Canada
Arthur A. M. Wilde, Amsterdam, Netherlands
Lynne Williams, St Neots, United Kingdom
Steve Wilton, Calgary, Alberta, Canada
D. George Wyse, Calgary, Alberta, Canada
Bobby Yanagawa, Ontario, Ontario, Canada
Raymond Yee, London, Ontario, Canada

Trainee Editorial Board Members
Christopher Cheung, Vancouver, British Columbia, Canada
Jessica G.Y. Luc, Vancouver, British Columbia, Canada
F. Daniel Ramirez, Bordeaux, France
Varinder Randhawa, Cleveland, Ohio, United States
Michelle Samuel, Montreal, Quebec, Canada
Nariman Sephervand, Edmonton, Alberta, Canada
Maneesh Sud, Toronto, Ontario, Canada
The Canadian Journal of Cardiology (CJC) is the official journal of the Canadian Cardiovascular Society (CCS). The CJC is a vehicle for the international dissemination of new knowledge in cardiology and cardiovascular science, particularly serving as the major venue for Canadian cardiovascular medicine. The CJC publishes original reports of clinical and basic research relevant to cardiovascular medicine, as well as editorials, review articles, and case reports. Papers on health outcomes, policy research, ethics, medical history, and political issues affecting practice, as well as letters to the editor, are welcomed. The CJC accepts and publishes articles in the English language only. Manuscripts are received with the understanding that they are submitted solely to the CJC and that none of the material contained in the manuscript has been published previously or is under consideration for publication elsewhere, with the exception of abstracts. Redundant or duplicate publications will not be considered. Duplicate submission is a significant breach of scientific ethical principles and may result in sanctions. All statements and opinions are the responsibility of the authors. The CCS reserves copyright on all published material, and reproduction of the material, even by the authors, requires written permission. With submission of a manuscript, a letter of transmittal must include the following 4 statements:

1. All authors have participated in the work and have reviewed and agree with the content of the article.
2. None of the article contents are under consideration for publication in any other journal or have been published in any journal.
3. No portion of the text has been copied from other material in the literature (unless in quotation marks, with citation).
4. I am aware that it is the author's responsibility to obtain permission for any figures or tables reproduced from any prior publications, and to cover fully any costs involved. Such permission must be obtained prior to final acceptance.

Editorial Policy
Each issue of the CJC carries the following statement, to which the authors agree when they submit a manuscript for consideration:

Statements and opinions expressed in the articles and communications herein are those of the author(s) and not necessarily those of the Editor(s), Society, or publisher, and the Editor(s), Society, and publisher disclaim any responsibility or liability for such material.

Article Classifications
At the discretion of the Editor-in-Chief, submissions may be accepted for either print or online publication. Case Reports and Images in Cardiology papers are generally published online only. Word-count limits (see below) generally refer to all elements of the article, including the abstract, acknowledgements, references, tables, and figure legends.

Original Papers are generally limited to 5,000 words, including all elements (title page, abstract, text, references, tables, and figure legends) in the principal Microsoft Word file, except for brief summary, word count, and short title. Rare exceptions to the word length limit may be granted by the Editor-in-Chief for specific reasons.

Editorials and Viewpoint Papers. Editorials are normally invited. However, unsolicited Editorials and Viewpoint articles are welcomed and will be submitted for peer review. The distinction between Editorials and Viewpoints is that an Editorial will generally present comments on an article (usually accompanying it in the same issue of the Journal), whereas Viewpoints will present comments on a topical and/or controversial issue in clinical or basic cardiovascular medicine. Editorials should cite the paper commented on as one of the references in the paper. Length for both Editorials and Viewpoint papers should be no more than 2,000 words including all elements (title page, text, references, tables and figure legends). No abstract or brief summary should be provided for Editorials. Viewpoint articles should include a 250-word unstructured abstract as well as a 60-word summary for online listing. Conflict of interest guidelines apply.
Cardiovascular Controversies - Point/Counterpoint. These are short articles presenting opposite positions of an area of controversy in cardiovascular medicine. They are usually invited, with 2 articles (1 for each side of the argument) invited at the same time, to be published together in the same issue of the journal. Length should be no more than 3,000 words including all elements (title page, abstract, text, references, tables, and figure legends). The abstract should be under 100 words and unstructured. A brief summary (< 60 words) for electronic TOCs should be provided, but is not included in word count. Conflict of interest guidelines apply.

Review Articles may be invited but unsolicited articles are also welcome. Reviews should not exceed 7,000 words including all elements (title page, abstract, text, references, tables, and figure legends). They should include a 250-word unstructured abstract as well as a 75-word summary should be provided for online listing.

Systematic Review/Meta-analysis papers follow the same length and structure guidelines as Review articles, except their abstract should be structured (Background, Methods, Results, Conclusions), and they are executed according to standards for the appropriate article type.

New Methods in Cardiovascular Research and Practice. This category will include reviews of important current methods as well as newly developed techniques and approaches. The focus will be mostly on new and evolving methods in clinical research and/or practice (e.g. new forms of trial design, biostatistical approaches, etc) but may also include fundamental work.

The guidelines will follow those for original articles if the manuscript describes the development of a specific new technique or method (see Original Articles in Article Classifications section). If the article is a review of a method(s) used, it will follow guidelines for review articles (see Review Articles in Article Classifications section). These articles are generally invited, but the editors will also consider author-initiated submissions.

CCS Guidelines and Position Statements are definitive positions taken by CCS-mandated committees on areas of clinical importance for which there is a need of guidance on diagnostic and therapeutic management. The word limit is generally 10,000 words for CCS Guidelines and 6,000 words for Position Statements, including all elements (title page, abstract, text, references, tables, and figure legends). Additional materials can be included as Online Supplementary Materials (see below). Additional options for publication of more extensive documents that must be approved prior to submission are: 1) publication of the Executive Summary in the print journal with the full document available as an externally funded journal supplement, which will generally be industry-sponsored (see guidelines for CJC supplements at www.onlinecjc.ca); 2) exceptionally, a series of papers in a theme issue of the Journal. If funds available are sufficient for typesetting but not printing, the full document can be published online. In some instances for which the size and focus of a series of guidelines papers can be accommodated in a specific appropriate theme issue of the CJC, option 2) may apply. In case of doubt, the authors should consult directly with the Editor-in-Chief. All CCS Guidelines and Position Statements published in CJC should have an unstructured 250-word abstract. Because of the extensive review that CCS Guidelines and Position Statements undergo at the level of the Secondary Review Panel and the CCS Guidelines Committee, these papers will generally be reviewed by the Editor-in-Chief and his/her designate rather than being sent to external peer-reviewers.

Guidelines and Position Statements from other societies and groups. These must deal with an issue of interest in cardiovascular medicine and can be considered for publication in CJC based on scientific merit and pertinence to the mission of CJC. The word limit is 6,000 words including all elements (title page, abstract, text, references, tables, and figure legends). Additional materials can be included as Online Supplementary Materials (see below). Additional options for publication of more extensive documents that must be approved prior to submission are: 1) publication of the Executive Summary in the print journal with the full document available as an externally funded journal supplement, which will generally be industry-sponsored (see guidelines for CJC supplements at www.onlinecjc.ca); 2) publication of the full article in print with printing costs (established by the CJC publisher Elsevier in consultation with CCS) defrayed by the submitting society or body. In case of doubt, the authors should consult directly with the Editor-in-Chief. All Guidelines and Position Statements published in CJC should have an unstructured 250-word abstract. Depending on the internal review process that these Guidelines and Position Statements undergo (e.g., Secondary
Review Panel, etc), these papers may be reviewed by the Editor-in-Chief and his/her designate rather than being sent to external peer-reviewers. The final decision on review process will be made by the Editor-in-Chief, based on information provided at submission.

**Co-publication with other journals of Guidelines and Position Statements.** In general, *CJC* does not favor co-publication. In instances in which another society or organization is involved intimately and officially with CCS in elaboration of the Guidelines or Position Statements, co-publication will be considered. In such instances, agreements regarding co-publication should be made by the parties concerned (CCS, *CJC*, and other participating societies/journals) at the onset of Guidelines/Position Statement committee deliberation.

**CCS Clinical Practice Updates** (CPUs) are the results of reflections undertaken by writing groups mandated by the Canadian Cardiovascular Society in areas of clinical importance for which there is a need for guidance on diagnostic and/or therapeutic management, but for which the evidence base is less developed and/or is insufficient for a formal Guidelines reflection. In many instances, these will be rapidly emerging areas for which clinical guidance is needed but for which extensive randomized trials are lacking. CPUs are evidence-based but are more narrowly focused and more concise than guidelines, do not have formally-voted recommendations and may have time-sensitive elements that warrant "fast track" translation into clinical practice. In some cases, they may be documents presenting an approach to a particular clinical problem, based on the expert opinion of the writing group, in situations where either the evidence base is extensive and well-known but summary clinical guidance would be useful, or where there is no clear evidence (generally for very new approaches and/or techniques) and expert opinion is needed.

All CPUs must be approved and guided by the CCS Guidelines committee, but CPUs do not include formally voted guideline recommendations or the use of the GRADE system. CPUs should be carefully evidence based, and the evidence base should be clear in the published document in *CJC*. Rather than having formal recommendations, CPUs will have expert advisory suggestions for clinical practice.

Depending on the nature of the material covered, CPUs will be published in one of 3 general formats: 1) General CPUs, covering a specific area, will have a Word Count limit of 8,000 words, including all elements (title page, abstract, text, references, tables, and figure legends); 2) Focused CPUs, dealing with more focused/better circumscribed areas, will have a Word Count limit of 6,000 words, including all elements (title page, abstract, text, references, tables, and figure legends); 3) Practical CPUs, with an overall maximum of 4,000 words, including all elements (title page, abstract, text, references, tables, and figure legends; strict maximum of 5 references and 2 display items), providing practical instruction in well recognized and documented areas for which expert guidance would be helpful, are submitted as Contemporary Issues in Cardiology Practice or Health Promotion and Policy papers. The latter are described in detail elsewhere in the Instructions for Authors, but in brief have a maximum of 1500 words of text in the main section, 5 references and 2 display items. The specific format appropriate for a given CPU will be defined early in the process for each CPU, based on discussions between the chair(s) of the specific CPU committee and the chair of the CCS Guidelines Committee.

All CPUs should have an unstructured 250-word abstract, as well as a 75-word Brief Summary (which is not counted towards the total word count). These papers will generally be sent for evaluation by external peer-reviewers, like virtually all other CJC papers.

**Case Reports** must be informative to those in clinical practice. Case Reports should address uncommon presentations and/or treatments of common conditions, provide new insights into pathogenesis, or represent a newly recognized condition. The author(s) should provide sufficient literature review to place the report into context. No more than 5 references and 2 figures will be accepted, and the length should not exceed 1,000 words including all elements (title page, abstract, text, references, tables, and figure legends). An abstract of no more than 100 words should accompany the article and a 60-word summary should be provided for online listing. **For all Case Reports, conclude the Abstract and Discussion with a concise statement of the Novel Teaching Point(s) emerging from the case.**

**Images in Cardiology** papers demonstrate particularly insightful images used in the detection of cardiovascular disease. The imaging modality may be old or new. The text of submissions for this section should be limited to that necessary to describe the context and importance of the image(s) and
should not exceed 500 words including all elements (title page, text, references, and figure legends). No more than 5 references and 2 figures will be accepted. No abstract should be included, but a 60-word summary (not included in word-count limit) should be provided for online listing. **For all Images in Cardiology manuscript, conclude the text with a concise statement of the novel element(s) or teaching point(s) that the image report adds to the literature.**

In general, both Case Reports and Images in Cardiology are published online only. If the authors cannot include all materials they would like to make available within the word count/figure limits, additional figures, tables, text, etc. can be provided in a Supplementary Material section (see below).

**Journal News and Commentary** papers are short non-scholarly papers that comment on the state of the journal or an issue. For example, this would include brief Forewords to supplement issues or comments by the editor about progress of the journal, new features being planned, changes to policies, etc. Such papers are limited to a maximum of 1,200 words and 5 references. They do not normally have display items, but a maximum of 1 figure or table can be included in exceptional cases to make specific points in a clearer fashion. No abstract or summary are to be included.

**Training/Practice** papers present information of interest to practitioners, such as practical technical and patient management instruction or matters relating to health policy and promotion, as well as guidelines for Canadian cardiovascular training programs. These papers are primarily intended for guidance in practice, health promotion and/or training and are not detailed scholarly items--scholarly analyses should be submitted in the appropriate category (Clinical Research, Systematic Review/Meta-analysis, Review papers, Translational Medicine, or Viewpoint). The text of submissions for this section should be no more than 1,500 words. No more than 5 references and 2 display items (figures and/or tables) will be accepted. An unstructured abstract of no more than 250 words should accompany the article, and a 60-word summary should be provided for online listing. Submissions are divided into 3 subsections: 1) Contemporary Issues in Cardiology Practice, which will highlight issues of relevance to clinical practice in the face of rapidly-advancing technologies and new medical knowledge, 2) Training in Cardiovascular Medicine and Research, which deal aspects relevant to cardiovascular clinical and research training programs, and 3) Health Policy and Promotion, which deal with matters relating to health policy and promotion.

**Translational Medicine** articles are generally invited, but unsolicited articles are also welcome. This section is intended to present reviews or meta-analyses dealing with novel scientific findings or concepts with important clinical relevance or application. Areas of potential application include (but are not limited to) physiology, pharmacology, molecular biology, genetics, genomics, pharmacogenomics, population science, etc. Word length and other guidelines are the same as for Review articles.

**Brief Rapid Reports** are brief papers reporting the results of clinical or basic research that is limited in scope but time-sensitive and of unusual interest. Articles for this section will receive rapid editorial attention, with a decision generally provided within 2 weeks of submission, rapid (within 6 weeks of acceptance) online publication, and print publication in the next available issue. Papers submitted for this section will be accepted with at most minor revision. If major revision is needed, the paper will subsequently fall into the Original Papers category. The submission cover letter should explain why the article is considered appropriate for this category. Maximum length is 3,000 words (including title page, abstract, text, references, tables, and figure legends; but excluding Brief summary), with a 100-word abstract and a maximum of 3 illustration items (figures plus tables). A 60-word Brief Summary should be provided for online listing.

**Letters to the Editor** may deal with any subject of current interest to cardiovascular medicine. If the subject concerns a recent publication in CJC, the letter will normally be forwarded to the authors for comment. Both the letter and the response may be edited for clarity or brevity. Letters should not exceed 400 words, with no more than 4 references and 1 figure or table. Conflict of interest guidelines apply. Only one institutional affiliation should be listed on Letters to the Editor or none at all.

**Contact Information**
Stanley Nattel, MD
Editor-in-Chief
Professor of Medicine and Paul-David Chair in Cardiovascular Electrophysiology, University of Montreal
BEFORE YOU BEGIN

Ethics in publishing
Please see our information pages on Ethics in publishing and Ethical guidelines for journal publication.

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

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.

Use of inclusive language
Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Content should make no assumptions about the beliefs or commitments of any reader; contain nothing which might imply that one individual is superior to another on the grounds of age, gender, race, ethnicity, culture, sexual orientation, disability or health condition; and use inclusive language throughout. Authors should ensure that writing is free from bias, stereotypes, slang, reference to dominant culture and/or cultural assumptions. We advise to seek gender neutrality by using plural nouns ("clinicians, patients/clients") as default/wherever possible to avoid using "he, she," or "he/she." We recommend avoiding the use of descriptors that refer to personal attributes such as age, gender, race, ethnicity, culture, sexual orientation, disability or health condition unless they are relevant and valid. These guidelines are meant as a point of reference to help identify appropriate language but are by no means exhaustive or definitive.

Authorship
All authors should have made substantial contributions to all of the following: (1) the conception and design of the study, or acquisition of data, or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, (3) final approval of the version to be submitted.

Copyright
This journal offers authors a choice in publishing their research: open access and subscription.

For subscription articles
Upon acceptance of an article, authors will be asked to transfer copyright to the CCS by completing a 'Journal Publishing Agreement' (for more information on this and copyright, see https://www.elsevier.com/copyright). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.
Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations (please consult https://www.elsevier.com/permissions). If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases: please consult https://www.elsevier.com/permissions. Copies of letters granting permission must be submitted with the manuscript. Copyright fees, if any, are the responsibility of the author(s).

For open access articles
Upon acceptance of an article, authors will be asked to complete an 'Exclusive License Agreement' (for more information see https://www.elsevier.com/OAauthoragreement). Permitted reuse of open access articles is determined by the author's choice of user license (see https://www.elsevier.com/openaccesslicenses).

Retained author rights
As an author you (or your employer or institution) retain certain rights. For more information on author rights for:
Subscription articles please see https://www.elsevier.com/journal-authors/author-rights-and-responsibilities.
Open access articles please see https://www.elsevier.com/OAauthoragreement.

Elsevier supports responsible sharing
Find out how you can share your research published in Elsevier journals.

Role of the funding source
You are requested to identify who provided financial support for the conduct of the research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement then this should be stated.

Open access
Please visit our Open Access page for more information.

Language (usage and editing services)
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the English Language Editing service available from Elsevier's Author Services.

Studies on patients or volunteers require ethics committee approval and informed consent, which should be documented in the paper. Appropriate consents, permissions and releases must be obtained where an author wishes to include case details or other personal information or images of patients and any other individuals in an Elsevier publication. Written consents must be retained by the author and copies of the consents or evidence that such consents have been obtained must be provided to Elsevier on request. For more information, please review the Elsevier Policy on the Use of Images or Personal Information of Patients or Other Individuals, https://www.elsevier.com/patient-consent-policy. Unless you have written permission from the patient (or, where applicable, the next of kin), the personal details of any patient included in any part of the article and in any supplementary materials (including all illustrations and videos) must be removed before submission.

If experimental animals are used, provide a statement in the text to indicate that all procedures followed were approved by an institutional animal research ethical review board. (This is a requirement for such studies to be published in the CJC). If human subjects are involved, the text must indicate that all gave informed consent and that the protocol was approved by the institutional human research ethics review committee.
Submission
Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

Submit your article
Please submit your article via https://www.editorialmanager.com/CJC/.

PREPARATION

General Guidelines

Manuscript Preparation
The CJC will accept online submissions of original manuscripts through the Editorial Manager at https://www.editorialmanager.com/CJC/. Manuscripts submitted through this online system can easily be tracked by the authors, editors, and reviewers through final disposition. The corresponding author of the manuscript will receive automatic email notifications as the manuscript proceeds through the system. To begin using this system, go to https://www.editorialmanager.com/CJC/. Click the "Register" link on the toolbar at the top left to input author demographics and set up an account. After registration is complete, a notice will be sent via email indicating a user ID and password. Use this information to log in as an author by choosing the "Login" link on the toolbar, and select "Submit A Manuscript." Follow the prompts to complete the submission according to the specifications below. Be aware that the manuscript (with abstract included within), each table, and each figure need to be prepared as separate files following the guidelines listed below. Contact the editorial office if you have any problems or questions. Your user ID and password can be changed at any time by logging into https://www.editorialmanager.com/CJC/ with your user ID and password and then clicking the "Update My Information" link at the top of the page.

Use of word processing software
It is important that the file be saved in the native format of the word processor used. The text should be in single-column format. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. In particular, do not use the word processor's options to justify text or to hyphenate words. However, do use bold face, italics, subscripts, superscripts etc. When preparing tables, if you are using a table grid, use only one grid for each individual table and not a grid for each row. If no grid is used, use tabs, not spaces, to align columns. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). Note that source files of figures, tables and text graphics will be required whether or not you embed your figures in the text. See also the section on Electronic artwork.
To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

Cover Page
With submission of a manuscript, a letter of transmittal must be provided, including the following 4 statements: 1. All authors have participated in the work and have reviewed and agree with the content of the article. 2. None of the article contents are under consideration for publication in any other journal or have been published in any journal. 3. No portion of the text has been copied from other material in the literature (unless in quotation marks, with citation). 4. I am aware that it is the author's responsibility to obtain permission for any figures or tables reproduced from any prior publications, and to cover fully any costs involved. Such permission must be obtained prior to final acceptance.

Title Page
Include the title (up to 150 characters in length, including spaces), authors' names (including full first name, middle initial, and family name), academic degrees and academic affiliations, and a short title of up to 45 characters (including spaces). Be sure that authors' names are listed as they should
appear in MEDLINE. Provide the word count on a separate line. Provide the full name, exact mailing address with postal code, telephone and fax numbers, and email address of the corresponding author to whom communication, proofs, and requests for reprints should be sent.

**Brief Summary**
For Original Papers, CCS Guidelines or Position Statements, Clinical Practice Updates, Translational Medicine articles, and Review articles, on a separate page, provide a brief summary of no more than 75 words, which will appear in the online contents listing (and in the print issue for the e-only articles section, if applicable) to inform readers of the principal contents of each paper. For Case Reports, Images in Medicine, Training/Practice papers, and Brief Rapid Reports, a 60-word summary should be provided.

**Abstract**
On a separate page provide an abstract of no more than 250 words (for Original Papers, CCS Guidelines or Position Statements, Clinical Practice Updates, Translational Medicine, and Review articles) or 100 words (for Case Reports and Brief Rapid Reports) that summarizes the study and conclusions, with clinical implications indicated as appropriate. Original Papers should have a structured abstract, with the following sections: Background, Methods, Results, Conclusions. Abstracts for CCS Guidelines or Position Statements, Clinical Practice Updates, Translational Medicine, Training/Practice papers, and Review articles, while the same length (250 word maximum) as those for Original Papers, should be unstructured (no Background, Methods, Results, Conclusions headings). **In all cases, conclude the abstract with a succinct sentence that summarizes the most novel finding(s) and/or contributions of the paper and its (their) relevance.**

**Manuscript Text**
Text files must be saved as Microsoft Word files. To ensure that the final, published version matches the electronic file, use one of the following fonts: Arial, Courier, or Times. The use of other fonts may result in missing symbols. The font size should be 12 points. Abbreviations must be defined at first mention in the text and should follow the form recommended in "Uniform Requirements for Manuscripts Submitted to Biomedical Journals." Appropriate headings and subheadings should be provided in the Methods, Results, and Discussion sections. References, tables, and figures should be numbered in the order of mention in the text. **Authors should conclude the Discussion with a brief Conclusions paragraph summarizing the most important novel elements of the study and their relevance to cardiovascular medicine.**

**Article Structure**
**Subdivision**
Divide your article into clearly defined sections. Each subsection is given a brief heading. Each heading should appear on its own separate line. Subsections should be used as much as possible when cross-referencing text: refer to the subsection by heading as opposed to simply 'the text'.

**Introduction**
State the objectives of the work and provide an adequate background, avoiding a detailed literature survey or a summary of the results.

**Material and methods**
Provide sufficient detail to allow the work to be reproduced. Methods already published should be indicated by a reference: only relevant modifications should be described.

**Results**
Results should be clear and concise.

**Discussion**
This should explore the significance of the results of the work, not repeat them. A combined Results and Discussion section is often appropriate. Avoid extensive citations and discussion of published literature.

**Conclusions**
The main conclusions of the study may be presented in a short Conclusions section, which may stand alone or form a subsection of a Discussion or Results and Discussion section.
Acknowledgements
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

Funding Sources
Any and all relevant funding sources for the study should be listed, including funding from industry and peer-review funding (with grant numbers if available). Funding Sources should be indicated in a separate paragraph after the Acknowledgements section.

Disclosures
All potential conflicts of interest must be identified in this section. Potential conflicts of interest that should be disclosed include: relationships with pharmaceutical and biomedical device companies or other corporations whose products or services are related to the subject matter of the article, from which any of the authors may obtain potential financial benefits. Such relationships include, but are not limited to, employment by an industrial concern, equity or stock ownership by authors or family members, membership on a standing advisory council or committee, being on the board of directors or publicly associated with the company or its products, where the concern produces products whose value or perception could be influenced by the content of the article. Other areas of real or perceived conflict of interest could include receipt of honoraria or consulting fees or receiving grants or funds from such corporations or individuals representing such corporations. Intellectual property rights held by the authors for inventions relevant to the subject of the article should also be declared. Funding by peer-review grant agencies does not generally constitute a conflict of interest, unless the funding is for intellectual property development related to the material covered in the paper from which the authors stand to obtain potential financial gain. Peer-review funding relevant to the material covered in the paper that does not constitute a conflict of interest should be indicated in the Funding Sources section that precedes the Disclosures section. If there are no potential conflicts of interest, this should be designated by indicating "none" in the Disclosures section. Disclosures should be indicated in a separate paragraph after the Funding Sources section.

Math formulae
Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

Embedded math equations
If you are submitting an article prepared with Microsoft Word containing embedded math equations then please read this (related support information).

Artwork
Figure artwork must be submitted in electronic format.

Electronic Artwork
General points
• Make sure you use uniform lettering and sizing of your original artwork.
• Embed the used fonts if the application provides that option.
• Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
• Number the illustrations according to their sequence in the text.
• Use a logical naming convention for your artwork files.
• Provide captions to illustrations separately.
• Size the illustrations close to the desired dimensions of the printed version.
• Submit each illustration as a separate file.
A detailed guide on electronic artwork is available on our website:
https://www.elsevier.com/artworkinstructions
You are urged to visit this site; some excerpts from the detailed information are given here.

Formats
If your electronic artwork is created in a Microsoft Office application (e.g., Word, PowerPoint) then please supply 'as is' in the native document format.
Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

- EPS (or PDF): Vector drawings, embed all used fonts.
- TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
- TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.
- TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

**Please do not:**
- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.

**Color artwork**

Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF) or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) in addition to color reproduction in print. Further information on the preparation of electronic artwork.

**Illustration services**

Elsevier's Author Services offers Illustration Services to authors preparing to submit a manuscript but concerned about the quality of the images accompanying their article. Elsevier's expert illustrators can produce scientific, technical and medical-style images, as well as a full range of charts, tables and graphs. Image 'polishing' is also available, where our illustrators take your image(s) and improve them to a professional standard. Please visit the website to find out more.

**Figure Legends**

Figure legends should follow the References and tables in the same Microsoft Word file as the text of the paper. Type figure legends double-spaced, with figure numbers corresponding to the order in which the figures are presented in the text. Identify all abbreviations appearing in figures in alphabetical order at the end of each legend. Provide enough information to allow interpretation of the figure without reference to the text. Written permission must be obtained from the copyright holder (usually the publisher) to reproduce any previously published figures. Cite the source of the figure in the legend. Figure legends should not appear in the figures themselves.

**Tables**

Tables should follow the References and precede the figure legends in the same Microsoft Word file as the text of the paper. Tables must be created using Microsoft Word (.doc) or Excel (.xls). Type tables double-spaced on a separate sheet for each table, with the table number and title above the table and explanatory notes below. Table numbers should appear in Arabic numerals and should correspond to the order of the tables in the text. In a footnote to each table provide an alphabetical listing of all abbreviations used. Written permission must be obtained from the copyright holder (usually the publisher) to reproduce any previously published table or adapted table.

**References**

Citation in text

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

Data references

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.
Reference management software
Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal’s style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript. More information on how to remove field codes from different reference management software.

Users of Mendeley Desktop can easily install the reference style for this journal by clicking the following link:
http://open.mendeley.com/use-citation-style/canadian-journal-of-cardiology

When preparing your manuscript, you will then be able to select this style using the Mendeley plug-ins for Microsoft Word or LibreOffice.

Reference style
Identify references in the text by Arabic numerals set as superscript. Type the reference list double-spaced, on pages separate from and following the text, with each reference numbered consecutively in the order in which it is mentioned in the text. (References cited in tables and figures, but not in the text, should also be numbered following the text references.) Personal communications, manuscripts in preparation, and other unpublished data should not be cited in the reference list but may be mentioned in the text in parentheses. Identify abstracts with the abbreviation "Abst" and letters to the editor by "Lett" in parentheses; in general, abstracts should not be cited if more than two years old.

The reference style is that of Index Medicus. Journal references should contain inclusive page numbers; book references specific page numbers; and website references the date of access (references to other types of electronic documents should include format of the document). Journal abbreviations should conform to those used in Index Medicus, National Library of Medicine. The style and punctuation of references are as follows:

Periodical
List all authors if six or less; otherwise list first three and add "et al." Do not use periods after authors' initials. Kohl P, Day K, Noble D. Cellular mechanisms of cardiac mechano-electric feedback in a mathematical model. Can J Cardiol 1998;14:111-9.

Book

Chapter in Book

Website

Videos
Videos may be submitted for publication online, at no cost to the author(s). Video clips should be submitted as MPG, MOV, AVI, or GIF files. The author(s) should verify that all video clips take less than one minute to load and that they play properly. The file size should be less than 1.5 MB. Larger clips are permissible with 3-D images.

Supplementary Material for Online Publication
In cases where information associated with an article is too extensive for publication in the Main Paper (e.g., detailed methods, data sets, additional figures or tables), this content can be included as online-only supplemental information. All supplementary material (other than videos) should be incorporated in a single PDF file at the time of manuscript submission. The materials should amplify the information in the print article and must be called out sequentially in the text (e.g., Supplemental Methods, Supplemental Table S1, Supplemental Figure S1, etc.;). Each set of online supplementary
information should be numbered beginning with S1, and continuing as S2, S3, etc. Titles and/or legends for each supplementary figure or item should be included within the table or figure so that it appears in the appropriate place in the PDF file. Supplementary material will not be typeset.

**Research data**

This journal encourages and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings. To facilitate reproducibility and data reuse, this journal also encourages you to share your software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. If you are sharing data in one of these ways, you are encouraged to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

**Data linking**

If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the database linking page.

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

**Mendeley Data**

This journal supports Mendeley Data, enabling you to deposit any research data (including raw and processed data, video, code, software, algorithms, protocols, and methods) associated with your manuscript in a free-to-use, open access repository. During the submission process, after uploading your manuscript, you will have the opportunity to upload your relevant datasets directly to Mendeley Data. The datasets will be listed and directly accessible to readers next to your published article online.

For more information, visit the Mendeley Data for journals page.

**Data statement**

To foster transparency, we encourage you to state the availability of your data in your submission. This may be a requirement of your funding body or institution. If your data is unavailable to access or unsuitable to post, you will have the opportunity to indicate why during the submission process, for example by stating that the research data is confidential. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page.

**Checklist**

Cover letter
Title page: Article title
Full names and affiliations of all authors
Name, mailing address, telephone and fax numbers, and email address of corresponding author
Short title
Abstract
Summary
Article main text (including Acknowledgements, Funding Sources, and Disclosures sections at end)
References
Tables
Figure legends
Figures (in a separate file(s))
Permission to reproduce previously published materials
Informed consent for patient photographs

**AFTER ACCEPTANCE**

**Availability of accepted article**

This journal makes articles available online as soon as possible after acceptance. This concerns the Journal Pre-proofs (both in HTML and PDF format), which have undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but are not yet the definitive versions of record. A Digital Object Identifier (DOI) is allocated, thereby
making it fully citable and searchable by title, author name(s) and the full text. The article's PDF also carries a disclaimer stating that it is an unedited article. Subsequent production stages will simply replace this version.

Proofs
One set of page proofs (as PDF files) will be sent by e-mail to the corresponding author (if we do not have an e-mail address then paper proofs will be sent by post) or a link will be provided in the e-mail so that authors can download the files themselves. To ensure a fast publication process of the article, we kindly ask authors to provide us with their proof corrections within two days. Elsevier now provides authors with PDF proofs which can be annotated; for this you will need to download the free Adobe Reader, version 9 (or higher). Instructions on how to annotate PDF files will accompany the proofs (also given online). The exact system requirements are given at the Adobe site. If you do not wish to use the PDF annotations function, you may list the corrections (including replies to the Query Form) and return them to Elsevier in an e-mail. Please list your corrections quoting line number. If, for any reason, this is not possible, then mark the corrections and any other comments (including replies to the Query Form) on a printout of your proof and scan the pages and return via e-mail. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. We will do everything possible to get your article published quickly and accurately. It is important to ensure that all corrections are sent back to us in one communication: please check carefully before replying, as inclusion of any subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

Reprints
A reprint order form will be sent to the corresponding author when the article is accepted and submitted to the publisher.

Copyright Agreement
The corresponding author must sign a copyright agreement, which will be sent to the author when the manuscript is accepted for publication.

AUTHOR INQUIRIES
Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch. You can also check the status of your submitted article or find out when your accepted article will be published.

© Copyright 2018 Elsevier | https://www.elsevier.com