DESCRIPTION

CJC Open is an official journal of the Canadian Cardiovascular Society (CCS) and a companion title to the highly respected Canadian Journal of Cardiology (CJC).

CJC Open is a vehicle for the international dissemination of new knowledge in cardiology and cardiovascular science, particularly serving as the major open access publication venue for Canadian cardiovascular medicine. The journal publishes original reports of clinical and basic research relevant to cardiovascular medicine as well as editorials, viewpoints, review articles, and case reports. Papers on health outcomes, health care and public policy issues, ethics, medical history, and study design, as well as letters to the editor, are welcomed.

ABSTRACTING AND INDEXING

Directory of Open Access Journals (DOAJ)

EDITORIAL BOARD

Editor-in-Chief
Michelle Graham, University of Alberta Division of Cardiology, Edmonton, Alberta, Canada
Cardiac care in the elderly, Interventional cardiology, Health Services Research, Myocardial infarction

Associate Editors
Robert Beanlands, University of Ottawa, Ottawa, Ontario, Canada
Nuclear Imaging (PET and SPECT), Imaging Trials, Coronary Flow, Cardiac Metabolism and viability, Plaque imaging
Robert Hegele, Robarts Research Institute, London, Ontario, Canada
Genetics, Lipids, Hypercholesterolemia, Hypertriglyceridemia, Atherosclerosis
Karin Humphries, The University of British Columbia Divisions of Cardiology & Cardiovascular Surgery, Vancouver, British Columbia, Canada
Sex differences, Gender, Outcomes, Epidemiology, Randomized controlled trials
Marc Jolicoeur, University of Montreal, Montreal Heart Institute, Montreal, Quebec, Canada
Innovative trial designs, Refractory angina, Bayesian statistics
Michael Hugh McGillion, McMaster University, School of Nursing, Faculty of Health Sciences, Toronto, Ontario, Canada
Cardiac surgery, Nursing, INTEREST
Gavin Oudit, University of Alberta Department of Medicine, Edmonton, Alberta, Canada
Arrhythmias, Cardiomyopathy, Congestive heart failure
David Ian Paterson, University of Alberta Division of Cardiology, Edmonton, Alberta, Canada
Cardiac Imaging, Heart Failure, Cardio-oncology

Eric Thorin, University of Montreal Faculty of Medicine, Montreal, Quebec, Canada
Basic research, Vascular diseases, Age-related diseases, Senescence

David Waters, Zuckerberg San Francisco General Hospital and Trauma Center, San Francisco, California, United States of America
Coronary disease, Myocardial infarction

Jonathan Windram, Mazankowski Alberta Heart Institute, Edmonton, Alberta, Canada
Adult Congenital Cardiology, Cardiac Disease in Pregnancy/Obstetric Cardiology, Echocardiography, Cardiac MRI

Editorial Board

Martin Aguilar, Montreal Heart Institute, Montreal, Quebec, Canada
Cardiac electrophysiology, Atrial fibrillation, Ventricular tachycardia, Catheter ablation

Katherine Allan, St Michael's Hospital, Toronto, Ontario, Canada
Arrhythmias, sudden cardiac arrest, observational studies (or methods), population health, patient oriented research

Rakesh Arora, University of Manitoba, Winnipeg, Manitoba, Canada
Cardiac surgery, Intensive care, Depression

Laura Banks, Ontario Tech University, Oshawa, Ontario, Canada
Echocardiography, exercise, cardiac rehabilitation, paediatrics, physical activity

Arden Barry, The University of British Columbia, Vancouver, British Columbia, Canada
Cardiovascular pharmacotherapy, Dyslipidemia, Heart failure, Hypertension, Pharmacy

Christopher Cheung, UBC St. Paul's Hospital Division of Cardiology, Vancouver, British Columbia, Canada
Atrial fibrillation, Sudden cardiac death, Cardiac arrest, inherited arrhythmia, Wearable devices

Brian Clarke, University of Calgary Department of Cardiac Sciences, Calgary, Alberta, Canada
Cardiomyopathy, Congestive heart failure

Sebastian Clauss, Ludwig Maximilians University LMU University Hospital Munich, Munich, Germany
Arrhythmias, Atrial Fibrillation, Animal Models, Pig Models, Macrophages

Marie-Annick Clavel, Laval University, Quebec, Quebec, Canada
Valvular heart diseases – Computed tomography – Echocardiography – Cardiac magnetic resonance

Anique Ducharme, University of Montreal, Montreal, Quebec, Canada
Heart failure, Cardiac transplantation, Echocardiography

Anne Fournier, University of Calgary Cumming School of Medicine, Calgary, Alberta, Canada
Pediatric cardiology, Electrophysiology, Pulmonary hypertension, Transition of care

Steven Greenway, University of Calgary, Calgary, Alberta, Canada
Pediatrics, Heart failure, Transplant, Genetics, Translational research

Camille Hancock-Friesen, The University of Texas Southwestern Medical Center Division of Pediatric Cardiothoracic Surgery, Dallas, Texas, United States of America
Pediatric cardiac surgery, Congenital cardiac surgery, Adult congenital cardiac surgery, Outcomes

Bryan Har, University of Calgary, Calgary, Alberta, Canada
Angioplasty, Outcomes Research, Acute coronary syndromes, Intracoronary imaging, Revascularization

George Heckman, University of Waterloo, Waterloo, Ontario, Canada
Geriatric medicine, system integration, heart failure, frailty, assessment

Christine Henri, University of Montreal, Montreal Heart Institute, Montreal, Quebec, Canada
Aortic stenosis, echocardiography, Strain imaging, biomarkers

Frederic Jacques, University Institute of Cardiology and Respirology of Quebec, Quebec, Quebec, Canada
Cardiac Surgery, Pediatric Cardiac Surgery, Congenital Cardiac Surgery, Arrhythmia Surgery

Peter Kavsak, McMaster University, Hamilton, Ontario, Canada
Cardiac biomarkers, Laboratory medicine, Clinical chemistry

Michelle Keir, Libin Cardiovascular Institute of Alberta, Calgary, Alberta, Canada
Adult Congenital Heart Disease, Aortic Disease, Echocardiography, Qualitative Research

Evan Martow, University of Ottawa Heart Institute, Ottawa, Ontario, Canada
Cardiac Electrophysiology, System Improvement

Amine Mazine, McEwen Stem Cell Institute, Toronto, Ontario, Canada
Valvular Heart Disease, Aortic Disease, Congenital Heart Disease, Stem Cell Biology, Regenerative Medicine

Michael McDonald, University of Toronto, Toronto, Ontario, Canada
Heart failure, Cardiac transplantation, Implantable devices, Left ventricular assist devices,

David Meerkin, Shaare Zedek Medical Center, Jerusalem, Israel
Interventional Cardiology, Structural Heart Disease, Mitral, LAA

Blair O’Neill, University of Alberta Department of Medicine, Edmonton, Alberta, Canada
Congestive heart failure, Coronary disease

**Dierdre O'Neill**, University of Pittsburgh, Pittsburgh, Pennsylvania, United States of America
Geriatrics, Geriatric cardiology, Palliative cardiology

**Glen Pearson**, University of Alberta Division of Cardiology, Edmonton, Alberta, Canada
Cardiac Transplantation, CV Risk, Dyslipidemia, Pharmacotherapy, Population Health

**Varinder Randhawa**, Cleveland Clinic, Cleveland, Ohio, United States of America
Anesthesia, Biochemistry, Bioengineering

**Robert Sheldon**, University of Calgary Cumming School of Medicine, Calgary, Alberta, Canada
Syncope, Arrhythmias, Vasovagal, Genetic arrhythmias, Clinical trials

**Manish Sood**, University of Ottawa Research Institute, Ottawa, Ontario, Canada
Nephrology, Kidney disease, Anticoagulation

**Wendy Tsang**, Toronto General Hospital, Toronto, Ontario, Canada
Echocardiography, Valve Disease, 3D echocardiography, Strain

**Ricky Turgeon**, The University of British Columbia, Vancouver, British Columbia, Canada
Clinical Cardiology, Pharmacotherapy, Acute Coronary Syndromes, Heart Failure, Dyslipidemia

**Shelley Zieroth**, University of Manitoba, Winnipeg, Manitoba, Canada
Cardiomyopathy, Congestive heart failure, Myocarditis

**Trainee members (2021-2022)**

**Sabin Bozso**, University of Alberta, Edmonton, Alberta, Canada
Cardiac surgery, Stem cell medicine, Valvular heart disease, Bioengineering, Aortic disease

**Devin Chetan**, University of Toronto, Toronto, Ontario, Canada
Congenital heart disease, Congenital heart surgery, Pediatrics/Pediatric heart disease, Hypoplastic Left Heart Syndrome, Single Ventricle

**Pishoy Gouda**, University of Alberta, Edmonton, Alberta, Canada
Medical education, Digital medicine, Acute coronary syndrome, Peri-operative assessment

**Qutuba Karwi**, University of Alberta, Edmonton, Alberta, Canada
Metabolism, Heart failure, Cardioprotective, Mitochondria, Insulin resistance

**Stephen Wright**, The University of British Columbia Okanagan, Okanagan, British Columbia, Canada
Exercise physiology, Hemodynamics, Right ventricle, Pulmonary Circulation, Heart-lung Interaction

**Haran Yogasundaram**, University of Alberta, Edmonton, Alberta, Canada
Cardiomyopathy, Atrial fibrillation, Cardiac resynchronization therapy, Ventricular tachycardia, Heart failure
GUIDE FOR AUTHORS

INTRODUCTION

*CJC Open* is an official journal of the Canadian Cardiovascular Society (CCS). *CJC Open* is a vehicle for the international dissemination of new knowledge in cardiology and cardiovascular science, particularly serving as the major open-access publication venue for Canadian cardiovascular medicine. *CJC Open* 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, health care and public policy issues, ethics, medical history, and study design, as well as letters to the editor, are welcomed. *CJC Open* accepts and publishes articles in the English language only. Manuscripts are received with the understanding that they are submitted solely to the *CJC Open* 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 indicate that all authors have participated in the research and that they have reviewed and agree with the content of the article. With submission of a manuscript, a letter of transmittal must include the following five statements: All authors have participated in the work and have reviewed and agree with the content of the article. None of the article contents are under consideration for publication in any other journal or have been published in any journal. No portion of the text has been copied from other material in the literature (unless in quotation marks, with citation). 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. I realize this is an open access journal that requires the payment of a fee on the part of the authors and/or their institution to cover publication costs.

**Editorial Policy**

Each issue of the *CJC Open* 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.

**Types of article**

**Article Classifications**

All articles will be published online only and will be open access. Word count limits refer to the text, from the beginning of the Introduction to the end of the Discussion.

Authors should review and adhere to the following guidelines for reporting of research results and case reports. Reporting of research results, especially regarding methods: [https://www.nih.gov/research-training/rigor-reproducibility/principles-guidelines-reporting-preclinical-research](https://www.nih.gov/research-training/rigor-reproducibility/principles-guidelines-reporting-preclinical-research)


**Original Articles and Quality Improvement Articles** are generally limited to 5000 words. Rare exceptions to the word length limit may be granted by the Editor-in-Chief for specific reasons. Word-count limits refer to the text, from the beginning of the Introduction to the end of the Discussion. They should include a 250-word structured abstract as well as a 75-word summary for online listing.

**Study Design Papers** are generally limited to 5000 words. Rare exceptions to the word length limit may be granted by the Editor-in-Chief for specific reasons. Word-count limits refer to the text, from the beginning of the Introduction to the end of the Discussion. They should include a 250-word structured abstract as well as a 75-word summary for online listing.
Editorials are normally invited and published for free. However, unsolicited Editorials are welcomed and will be submitted for peer review. Editorials will generally present comments on an article (usually accompanying it in the same issue of the Journal), and they should cite the paper commented on as one of the references in the paper. Editorials should be no more than 2000 words. No abstract or brief summary should be provided for Editorials. Conflict of interest guidelines apply. Word-count limits refer to the text, from the beginning of the Introduction to the end of the Discussion.

Review Articles are usually invited but unsolicited articles are also welcome. Reviews should not exceed 7000 words. They should include a 250-word unstructured abstract as well as a 75-word summary for online listing. Word count limits refer to the text, from the beginning of the Introduction to the end of the Discussion.

Curbside Consults is a subcategory of Review Articles. These are practical and pragmatic reviews of clinical conditions based around a series of case vignettes, and should otherwise follow the standard guidelines for review articles. They should include a 250-word unstructured abstract as well as a 75-word summary 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). They should include a 250-word structured abstract as well as a 75-word summary for online listing.

Emerging Evidence are brief papers reporting the results of clinical or basic research that is more limited in scope (pilot data or proof of concept studies) but of interest due to primacy in the field. Maximum length is 3000 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.

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. The length should generally not exceed 1500 words. No more than 8 references and 2 figures will be accepted. 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 with a concise statement of the Novel Teaching Point(s) emerging from the case. The end of the discussion should contain a bullet format of the Novel Teaching Points (maximum of 5 bullets). Word-count limits refer to the text, from the beginning of the Introduction to the end of the Discussion.

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. 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 Novel Teaching Point(s) that the image adds to the literature. These points should be presented in bullet format (maximum of 5 bullets). Word-count limits refer to the text, from the beginning of the Introduction to the end of the Discussion.

Letters to the Editor may deal with any subject of current interest to cardiovascular medicine. If the subject concerns a recent publication in CJC Open, 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. Word-count limits refer to the text, from the beginning of the Introduction to the end of the Discussion. There is no fee to publish Letters to the Editor. No abstract or brief summary should be provided for Letters to the Editor.

Contact Information
Michelle M. Graham, MD, FRCPC, FCCS
Professor of Medicine
Division of Cardiology
Submission Checklist
You can use this list to carry out a final check of your submission before you send it to the journal for review. Please check the relevant section in this Guide for Authors for more details.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:
• E-mail address
• Full postal address

All necessary files have been uploaded:
Manuscript:
• All figures (include relevant captions)
• All tables (including titles, description, footnotes)
• Ensure all figure and table citations in the text match the files provided
• Supplemental files (where applicable)

Further considerations:
• Manuscript has been 'spell checked' and 'grammar checked'
• All references mentioned in the Reference List are cited in the text, and vice versa
• Permission has been obtained for use of copyrighted material from other sources (including the Internet)
• A competing interests statement is provided, even if the authors have no competing interests to declare
• A statement confirming that the research being reported has adhered to the relevant ethical guidelines is included (see Ethics in Publishing sections)
• Journal policies detailed in this guide have been reviewed
• Referee suggestions and contact details provided, based on journal requirements

For further information, visit our Support Center.

BEFORE YOU BEGIN

Ethics in publishing
Please see our information on Ethics in publishing.

All manuscripts must include a statement stating that the research reported has adhered to the relevant ethical guidelines (“The research reported in this paper adhered to X guidelines.” Examples of relevant guidelines are: Clinical trials: CONSORT guidelines - http://www.consort-statement.org/ Animal studies: ARRIVE guidelines - https://www.nc3rs.org.uk/arrive-guidelines Genomic data: MIAME guidelines - http://fged.org/projects/miame/

Peer Review
This journal operates a single blind review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper, frequently under the direction of a section editor with expertise in the manuscript topic. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. For more information on the types of peer review, please visit: https://www.elsevier.com/reviewers/peer-review.
Informed consent and patient details
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 but copies should not be provided to the journal. Only if specifically requested by the journal in exceptional circumstances (for example if a legal issue arises) the author must provide copies of the consents or evidence that such consents have been obtained. For more information, please review the Elsevier Policy on the Use of Images or Personal Information of Patients or other Individuals. 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 CJC Open). 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.

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

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
Upon acceptance of an article, authors will be asked to complete a 'License Agreement' (see more information on this). Permitted third party reuse of open access articles is determined by the author's choice of user license.

Author rights
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

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
This is an open access journal: all articles will be immediately and permanently free for everyone to read and download. To provide open access, this journal has an open access publication fee (also known as an article publishing charge APC) which needs to be paid by the authors or on their behalf (e.g. by their research funder or institution). Upon acceptance of an article, authors will be asked to complete an agreement that transfers copyright to the society (for more information see https://www.elsevier.com/about/policies/copyright). Permitted reuse of open access articles is determined by the author's choice of user license (see https://www.elsevier.com/openaccesslicenses).

Creative Commons Attribution-NonCommercial-NoDerivs (CC BY-NC-ND)
For non-commercial purposes, lets others distribute and copy the article, and to include in a collective work (such as an anthology), as long as they credit the author(s) and provided they do not alter or modify the article.

Open Access Publication Fee
As an open access journal with no subscription charges, a fee is payable by the author or research funder to cover the costs associated with publication. This ensures your article will be immediately and permanently free to access by everyone.

The open access publication fees for this journal are as follows: 1 Article Type Full Price CCS Member Price* 
Images in Cardiology, Case Report, Emerging Evidence USD $900 USD $700
Original Articles, Study Design, Review Article, Curbside Consults, Systematic Review/Meta-analysis, Quality Improvement USD $2100 USD $1600
Letters to the Editor (invitation only)Free
Editorials (invitation only)Free
*There is a discount for members of the Canadian Cardiovascular Society (CCS). To be eligible for the CCS member discount an author among the authors list must be a member of CCS. To claim the discount an author must enter their membership ID number at the time of submission. You can retrieve your membership ID number or become a member of CCS by visiting https://my.ccs.ca/.

Prices listed exclude taxes. Learn more about Elsevier's pricing policy.

Elsevier Researcher Academy
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

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.
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/cjco.

PREPARATION
General Guidelines

Manuscript Preparation
CJC OPEN will accept online submissions of original manuscripts through Editorial Manager at https://www.editorialmanager.com/cjco. 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/cjco. 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 New 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/cjco. with your user ID and password and then clicking the "Change Details" 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.

Article structure
Subdivision - unnumbered sections
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 details to allow the work to be reproduced by an independent researcher. Methods that are already published should be summarized, and indicated by a reference. If quoting directly from a previously published method, use quotation marks and also cite the source. Any modifications to existing methods should also 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.

---

**Essential title page information**

- **Title.** Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

- **Author names and affiliations.** Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

- **Corresponding author.** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.

- **Present/permanent address.** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

---

**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.

---

**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. 5. I realize this is an open access journal that requires the payment of a fee on the part of the authors and/or their institution to cover publication costs.

---

**Brief Summary**
For Original Articles, Quality Improvement, Study Design, Review, Curbside Consults, and Systematic Review/Meta-analysis papers, on a separate page, provide a brief summary of no more than 75 words, which will appear in the online contents to inform readers of the principal contents of each paper. For Emerging Evidence, Case Reports, and Images in Cardiology articles, a 60-word summary should be provided.

---

**Abstract**
On a separate page provide an abstract of no more than 250 words (for Original Articles, Quality Improvement, Study Design, Review, Curbside Consults, and Systematic Review/Meta-analysis papers) or 100 words (for Emerging Evidence and Case Reports) that summarizes the study and conclusions, with clinical implications indicated as appropriate. Original Articles, Quality Improvement, Study Design, and Systematic Review/Meta-analysis papers should have a structured abstract, with the following sections: Background, Methods, Results, Conclusions. Abstracts for Reviews and
Curbside Consults articles, while the same length (250 word maximum), should be unstructured (no Background, Methods, Results, Conclusions headings). In all Case Reports, conclude the abstract with a succinct sentence that summarizes the most novel finding(s) and/or contributions of the paper and its (their) relevance.

No abstract should be included for Editorial, Letters to the Editor, and Images in Cardiology articles.

**Graphical abstract**
Although a graphical abstract is optional, its use is encouraged as it draws more attention to the online article. The graphical abstract should summarize the contents of the article in a concise, pictorial form designed to capture the attention of a wide readership. Graphical abstracts should be submitted as a separate file in the online submission system. Image size: Please provide an image with a minimum of 531 × 1328 pixels (h × w) or proportionally more. The image should be readable at a size of 5 × 13 cm using a regular screen resolution of 96 dpi. Preferred file types: TIFF, EPS, PDF or MS Office files. You can view Example Graphical Abstracts on our information site. Authors can make use of Elsevier’s Illustration Services to ensure the best presentation of their images and in accordance with all technical requirements.

**Availability**
Graphical abstracts are supported for the following article types: Original Article, Review, Curbside Consults, and Emerging Evidence.

Graphical abstracts do not require a legend and should not be called out in the text.

**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.**

**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.
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).

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 published version.
- Submit each illustration as a separate file.
- Ensure that color images are accessible to all, including those with impaired color vision.

A detailed guide on electronic artwork is available.

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 (Word, PowerPoint, Excel) 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). 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 captions
Ensure that each illustration has a caption. Supply captions separately, not attached to the figure. A caption should comprise a brief title (not on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

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
Please submit tables as editable text and not as images. Tables can be placed either next to the relevant text in the article, or on separate page(s) at the end. Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules and shading in table cells.

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. Before submitting your article, you can deposit the relevant datasets to Mendeley Data. Please include the DOI of the deposited dataset(s) in your main manuscript file. 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 letterTitle page: Article titleFull names and affiliations of all authorsName, mailing address, telephone and fax numbers, and email address of corresponding authorShort titleAbstractSummaryArticle main text (including Acknowledgements, Funding Sources, and Disclosures sections at end)ReferencesTablesFigure legendsFigures (in a separate file(s))Permission to reproduce previously published materialsInformed consent for patient photographs

**AFTER ACCEPTANCE**

**Open Access License and Payment**

Shortly after acceptance, the corresponding author listed on the title page will be contacted regarding license options, funding information, and payment of the Open Access fee.

**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.

**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